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RECOMMENDATIONS

Energy Efficiency Directive

28 February 2022

The FF55 Package should lay the ground for local renewable gas and electricity coupling to enable an affordable, fast and secure decarbonisation of building heating

A proposal for the revision of the Energy Efficiency Directive (EED)

To achieve an affordable, fast and secure transition to a fossil free world, the approach of energy efficiency must include how the whole energy system (energy supply, transport, storage, distribution, uses) continuously meets the demand, especially in winters. A broadening of the notion of efficiency in the Energy Efficiency Directive (EED) is therefore required.

1. Building heating, when considering resource adequacy, is a hard to abate sector

Building heating is the most demanding sector in terms of resource adequacy, which can be summed up as follows:

Matching the energy demand with:

a. Large volume of energy and

b. the right infrastructure to carry it very quickly to consumers

…Both available…

…at the times of the peak demand:

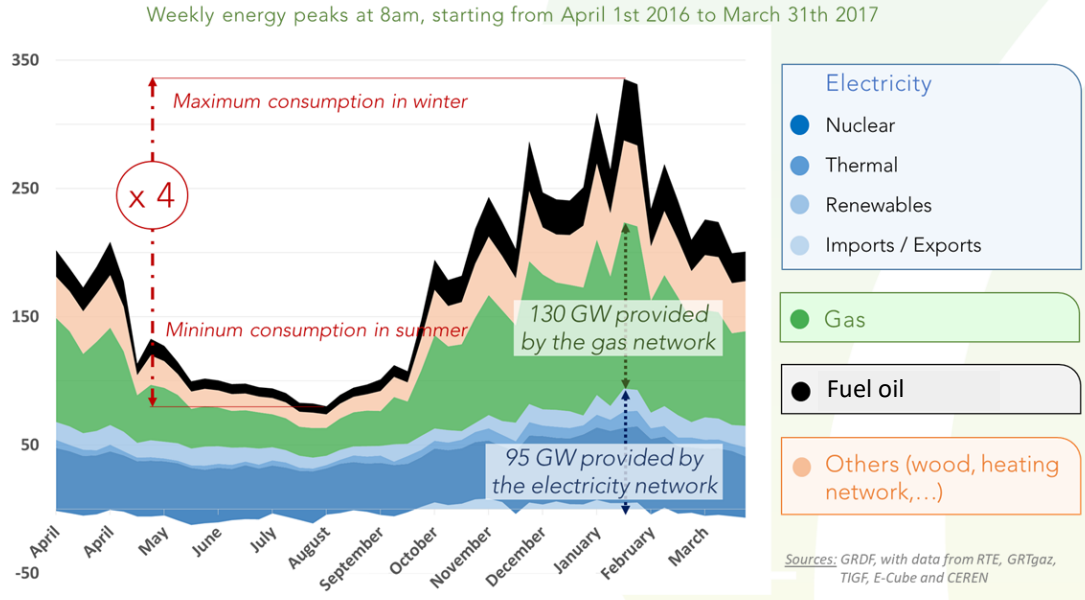
- At peak hours (within a day)
- during several months (winter)
- for several peak days in a row

In other words, decarbonisation must be achieved in a way that peak demand can always be met, and this is the hardest challenge for this sector's transition.

Even in an average year, heating is the main cause for energy peak demand as it can represent over 70% of this peak (see Figure 1 below). Building **heating demand is, therefore, the main criterion for dimensioning the energy infrastructure and peak production capacity**.

> *Example:* The French gas system can meet the demand arising from the 3 coldest days arriving only once in fifty years. Its maximum capacity is about 200 GW, compared to the 100 GW maximum capacity of the electricity system.

Today, this peak heating demand is mostly met by fossil energies, mainly natural gas and fuel oil. **To go fossil-free thus means that the substitution of natural gas and fuel oil by renewable energies must be especially ensured in the cold season** to guarantee security of supply.



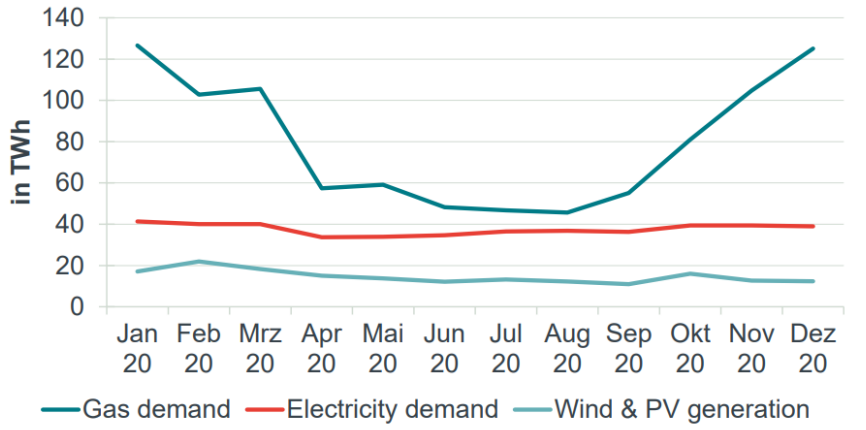
2. An electrification–only policy, with an averaged energy efficiency, ensures neither efficiency nor affordability nor resilience

2.1. The rising share of intermittent renewable electricity increases the need for supply/demand balancing in winter

- The EC's scenario in line with the climate neutrality objective forecasts 40% intermittent renewable electricity in energy supply in 2030. Its 2050 scenario foresees an 80% share of renewables in the electricity supply[1].

- Intermittent renewable electricity cannot directly meet the seasonality of the heat demand

Figure 8 Monthly electricity and gas consumption versus power generation from wind and PV (2020) in Germany



Source: Frontier Economics based on Eurostat, Destatis and Fraunhofer ISE.

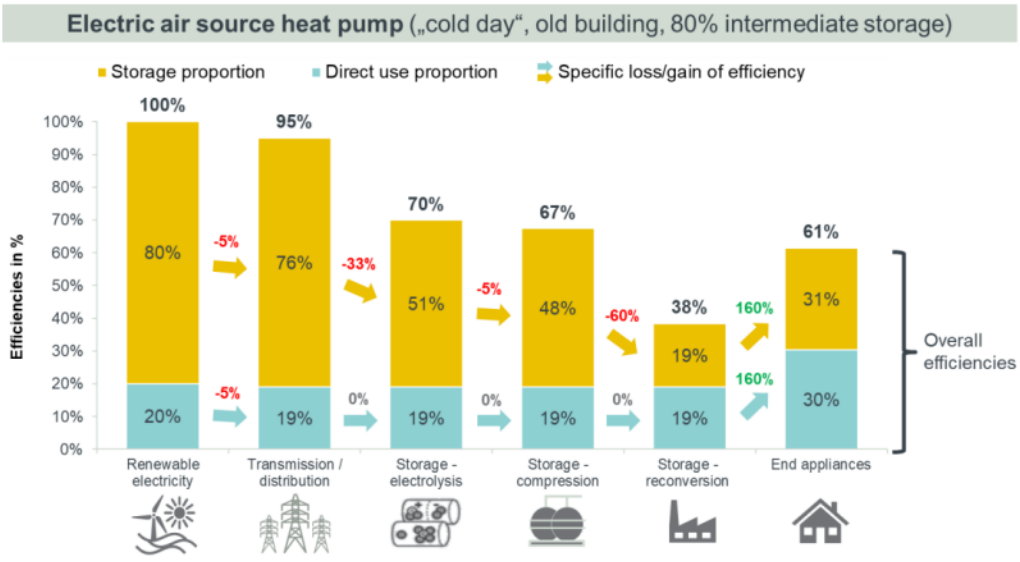
In a fossil free world, with a large share of intermittent renewable energy, ensuring the continuous adequation of supply and demand of energy will become more and more difficult, requiring energy storage, peak production capacities and resulting in infrastructure costs and risks of power shortages, with potentially very high consequences on the citizens.

2.2. Energy efficiency must consider the full chain, including storages, conversion and infrastructures

- A full electrification would require that most of the energy used for heating is stored for several months before being used. **This storage requirement downgrades a lot the overall efficiency**, reducing it to a fraction of what it would be with a direct use of renewable electricity[2].

[1] European Commission, "Clean Planet for All", 2018.

[2] Frontiers Economics, *The Value of Hydrogen in the heating market*, 19 August 2021, page 38.



To give a comparison, with these same conditions, a high-performance condensing boiler using biomethane, will have an overall efficiency around 95%.

- Additionally, the efficiency approach could consider **the grey energy used to set up dispatchable peak power production and electric grid reinforcements**, required to answer a demand peak that may happen only a few times in a century. These “insurance” costs, not considered in the proposed Energy Efficiency Directive, nor in the Energy Performance of Buildings Directive, will have to be borne by the citizens either via their energy bills or via taxes.

2.2. The demand flexibility required to shave the building heating peak demand is beyond the “vehicle to grid” capacity.

During very cold days, heat pumps would have to run continuously to keep the house warm, eventually, the direct electric heating back-up may have to kick-in. An average size 4 kW heat-pump would require 288 kW over 3 days, which represent the capacity of the battery of 6 Renault Zoe (50 KW).

2.3. Because of the heterogeneity of the building stock and local conditions, there are no “silver bullet technology” for the decarbonization of buildings.

The housing stock is heterogeneous in age, renovation and heating sources:

- At EU level, half of buildings were built before the first national energy performance regulations, i.e before 1980’s[3].

- The renovation rate is around 1%, considered too slow by the European Commission to achieve the demand cut needed to deliver on the EU energy efficiency target for 2030.

- A variety of heating technology and final energies is used. In terms of final energy used, a major share of European buildings is equipped with appliances using with natural gas and fuel oil[4].

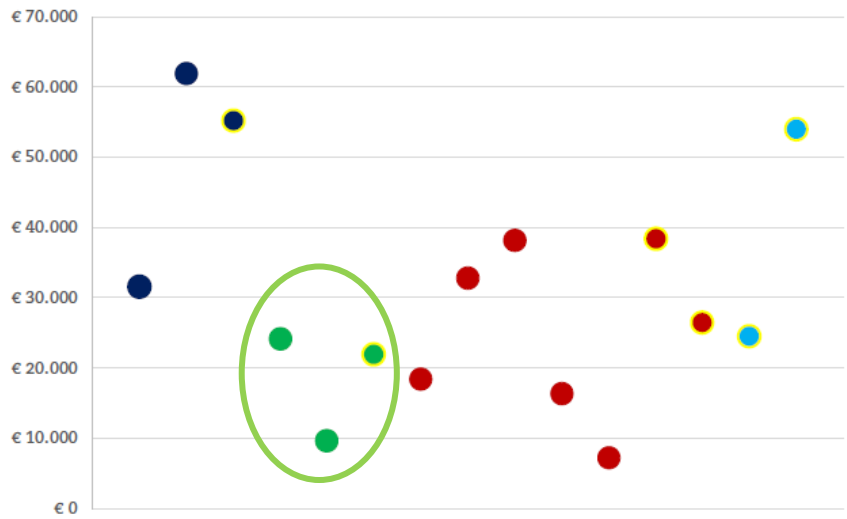
The heating solutions can’t be assessed without considering the building characteristics, the owner preferences and constraints, and the local conditions.

[3] Source: Sheet “Space heating market summary. European Union (UE-27)”, 2021, Project ENER/C1/2018-494 – Renewable Space Heating under the Revised Renewable Energy Directive.

[4] *Ibidem*.

According to a Dutch independent study[5] comparing 27 living-labs in Netherlands, costs may vary a lot according to the local setting. It shows that **solutions with biomethane are among the most affordable** (see the green points in the graph below). These solutions **should thus be part of the alternatives proposed to households to achieve their building decarbonisation.**

Figuur 2 Totale begrote kosten per woning per proeftuin



Donker Blauw: *All-electric*, **Groen**: *Groen gas*, **Rood**: *Warmtenet*, **Licht blauw**: *Waterstof*, **Geel omcirkeld:** *Tweede tranche proeftuinen*

Bron: EIB

3. The local combination of renewable gas and electricity will optimise the use of renewable energies while ensuring security of supply

3.1. Coupling of gas and electricity at consumer level is based on smart hybrid and cogeneration systems

Hybrid heating solution and cogeneration are available and proven technologies that creates synergies between electric and gas grids at user level. They are especially promising for active consumers and to offer demand-side responses as alternative to grid investments.

Hybrid heat pumps	combination of a small electric heat pump and a renewable gas-ready boiler	Optimised use of renewable electricity and renewable gas (biomethane or hydrogen)
Cogeneration	Micro or mini unit of combined production of heat and power from gas or renewable gas	Very efficient use of renewable gas

[5] Economisch Instituut voor de Bouw (EIB), March 2021, available online: https://www.eib.nl/pdf/EIB_rapport_proeftuinen_aardgasvrije_wijken_5_maart_2021.pdf

3.2. This local coupling of gas and electricity resolves the resource adequacy issue with demand-side flexibility that isn't limited in its duration (can last for weeks if required)

Deployment of hybrid heat pumps in individual houses – instead of large electric heat pumps alone – can provide the following benefits:

✓	**100% renewable energy**	Direct use of renewable electricity when available When required, direct use of renewable gas
✓	**On-demand flexibility for the energy system**	Use of renewable gas when the electric system is saturated (the boiler is turned on to reduce the peak demand on the electric system)
✓	**Resilience of the energy system (locally, regionally, nationally)**	Use of 2 energy carriers instead of 1
✓	**Affordability**	For the system: Avoid over-investment in reinforcement of electricity grids and in rarely used peak power production For the customer: - Very limited upfront costs - Compatible with a phased renovation - Use of the most affordable renewable energy depending on energy prices

Delivering biomethane directly in efficient, hybrid heating appliances through the existing gas networks to provide flexible heating from renewable sources is the best way to utilise biomethane.

Hybrid heat pumps can deliver energy efficiency and emission savings right away using natural gas for an intermediate period, while biomethane could be used as soon as the green offer is available. The Dutch Ministry of Climate acknowledged in April 2021 that hybrid heat pumps will not create a lock-in effect in natural gas[6].

3.3. When heat pumps cannot be installed for technical or economic reasons, a renewable gas-based solution can be well suited

High performing gas boilers reach a very high efficiency (>95%) and, when replacing old boilers, can provide efficiency gains over 20%. Combined with building renovation, it allows very significant cut in energy consumption at a very affordable cost. Using a growing share of renewable gas will allow for a full decarbonation by 2050.

3.4. The European potential of biomethane is large enough to cover a reduced energy demand in buildings

460 TWh **Estimation of the reduced demand of gas for buildings in 2050**

[6] See Letter of the Ministry of Economic Affairs and Climate to the president of the House of representative, 28 April 2021, https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2021Z07093&did=2021D15672

Demand in gas for buildings can be reduced by 3 in 2050 (compared to 2018)[7] going from 1380 to 460 TWh[8] thanks to:

Renovation	In all existing buildings
Efficient hybrid heat pumps whenever appropriate	In most Single Family Houses
High efficiency renewable gas appliances where appropriate	In most collective buildings
A certain degree of electrification elsewhere	In small and already highly insulated buildings

Only 1/3 to half **of the biomethane and biogas potential of 2050 alone is enough to meet this demand**. The potential of biogas and biomethane (most of which biomethane) is assessed to be between 1 020 to 1670 TWh[9].

For countries considering the **use of green hydrogen** in buildings, only a small fraction would be allocated to buildings, according to the analysis performed for the European Hydrogen Backbone consortium (up to 150 TWh in the EU+UK out of a total potential of 3 990 TWh)[10].

4. Amending the EED is a crucial step to recognise this solution: our proposal of amendments

What should be changed in the proposal of the European Commission?

1. **Recognise the hard-to-abate dimension of building heating by introducing the notion of "Smart Heating-Ready Buildings"**, as buildings able to shave their electric demand and even increase the local electric production, for several days in a row if needed, thanks to heating solutions such as hybrid heat pumps and cogeneration.
2. **Include efficiency gains made by the use of efficient, smart and renewable-gas ready technologies in the national Energy Savings Obligation**, even if the gas used is not yet fully renewable (similar situation with non-renewable electricity).
3. **Broaden the approach to energy efficiency to networks and storage.** Since the energy infrastructure has to be designed for the peak demand, the impact of heating decarbonisation options on the necessary infrastructure, the associated costs and the energy losses should be considered. Vast electrification of heating would require investing massively in the electric infrastructure. The same

[7] We assume that single Family House makes up 47% of the residential building stock and Multi Family House 53%. Source: EU Building Database.

[8] Natural gas used in residential, commercial and public buildings (for all final usages: lighting, electricity, space heating and hot water) amounted to 1380 TWh. Source: Eurostat, Energy data — 2020 edition - Products Statistical Books - Eurostat (europa.eu)

[9] Among all assessments performed in previous years, not all studies consider all feedstock types. If the average potential biogas and biomethane production for each feedstock type is taken and those averaged values are subsequently added together, the resulting total potential biogas and biomethane production is 1,673 TWh. Source: European Biogas Association, *Statistical Report 2021*.

[10] Hydrogen is likely to take up "*a more substantial share of demand in countries such as the UK, Germany, and Luxembourg – where discussions regarding the role of hydrogen in the buildings sector are more prominent*". European Hydrogen Backbone, *Analysing future demand, supply and transport of hydrogen*, June 2021. https://gasforclimate2050.eu/wp-content/uploads/2021/06/EHB_Analysing-the-future-demand-supply-and-transport-of-hydrogen_June-2021_v3.pdf

goes for electricity storage. Local sector coupling of gas and electricity can greatly reduce these costs, as it can reduce the heating peak demand and create a large demand side, postponing and reducing further investments in the electricity infrastructure. To make the transition affordable for all, all these costs (renewable energy production, transport, storage, distribution, use) must be considered together. This is particularly true at the planning stage, both at the local and national/European level.

4. **Give the public sector a leading role in deploying Smart Heating-Ready buildings.** The required coupling of electric and gas solutions of heating, such as hybrid heat pumps or cogeneration, will need to be implemented fast. The exemplarity of public buildings would support this.

1. Recognise the hard-to-abate dimension of building heating by introducing the notion of "Smart Heating-Ready Buildings"

AMD 1 – Article 2 - Definition

Text proposed by the Commission	Amendment
	(53) Peak demand : maximum energy demand, generated by consumers per energy carrier,
	(54) Resource adequacy: overall adequacy of the energy system (production, storage, transport, distribution, demand flexibility) to supply, at all times, current and projected demands for energy
	(55) Smart heating-ready building: a building able to contribute to the system resource adequacy and resilience by shaving at will the building's electric heating demand.

Justification

Heating demand is, in many European countries, the main cause of the resource adequacy difficulty, due to the very extreme peak demand (Heating demand can represent over 70% of the total system capacity and last for several days). The resource adequacy for heating is presently mostly covered by fossil fuels. Even considering building insulation improvement, the full transfer of this peak demand on the electric system would involve very high investments on energy storage, peak production and back-up capacity, electric transport, and distribution grids, that would be used very rarely, and so with a very large impact on the citizens energy bills.

2. Include efficiency gains made by the use of efficient, smart and renewable-gas ready technologies in the national Energy Savings Obligation

AMD 2 - ANNEX V – Energy efficiency requirements for public procurement Paragraph 2 (g)

Text proposed by the Commission	Amendment
In determining the energy savings for an energy efficiency measure for the purposes of Articles 8, 9a and 10 and Article 28(11), the following principles apply:	In determining the energy savings for an energy efficiency measure for the purposes of Articles 8, 9a and 10 and Article 28(11), the following principles apply:
(…)	(…)
(g) Policies with the purpose of encouraging higher levels of energy efficiency of products, equipment, transport systems, vehicles and fuels, buildings and building elements, processes or markets shall be permitted, except those policy measures regarding the use of direct combustion of ***fossil fuel technologies***, that are implemented as from 1 January 2024**.**	(g) Policies with the purpose of encouraging higher levels of energy efficiency of products, equipment, transport systems, vehicles and fuels, buildings and building elements, processes or markets shall be permitted, except those policy measures regarding the use of direct combustion of ***coal, lignite, oil and diesel***, that are implemented as from 1 January 2024
(h) Energy savings as a result of policy measures regarding the use of direct fossil fuel combustion in products, equipment, transport systems, vehicles, buildings or works, shall not count towards the fulfilment of energy savings obligation as from 1 January 2024.	(h) Energy savings as a result of policy measures regarding the use of direct ***solid and liquid*** fossil fuel combustion in products, equipment, transport systems, vehicles, buildings or works, shall not count towards the fulfilment of energy savings obligation as from 1 January 2024

Justification

Energy efficiency on gas technologies which are renewable gas-ready, smart-ready, will facilitate the substitution of natural gas by increasing renewable gas production.

AMD 3 - ANNEX V – Energy efficiency requirements for public procurement Paragraph 2 (k)

Text proposed by the Commission	Amendment
In determining the energy savings for an energy efficiency measure for the purposes of Articles 8, 9a and 10 and Article 28(11), the following principles apply:	In determining the energy savings for an energy efficiency measure for the purposes of Articles 8, 9a and 10 and Article 28(11), the following principles apply:
(…)	(…)
(k) For policies that accelerate the uptake of more efficient products and vehicles, except those regarding the use of direct ***fossil fuel*** combustion, full credit may be claimed, provided that it is shown that such uptake takes place before expiry of the average expected lifetime of the product or vehicle, or before the product or vehicle would usually be replaced, and the savings are claimed only for the period until end of the average expected lifetime of the product or vehicle to be replaced;	(k) For policies that accelerate the uptake of more efficient products and vehicles, except those policy measures regarding the use of combustion of ***coal, lignite, oil and diesel,*** full credit may be claimed, provided that it is shown that such uptake takes place before expiry of the average expected lifetime of the product or vehicle, or before the product or vehicle would usually be replaced, and the savings are claimed only for the period until end of the average expected lifetime of the product or vehicle to be replaced;

Justification

Energy efficiency on gas technologies which are renewable gas-ready, smart-ready, will facilitate the substitution of natural gas by increasing renewable gas production.

AMD 4 – Recital 50

Text proposed by the Commission	Amendment
When designing policy measures to fulfil the energy savings obligation, Member States should respect the climate and environmental standards and priorities of the Union and comply with the principle of 'do no significant harm' within the meaning of Regulation (EU) 2020/85277. Member States should not promote activities that are not environmentally sustainable such as use of solid fossil fuels. The energy savings obligation aims at strengthening the response to climate change by promoting incentives to Member States to implement a sustainable and clean policy mix, which is resilient, and mitigates climate change. Therefore, energy savings from policy measures regarding the use of direct fossil fuel combustion will ***not*** be eligible energy savings under energy savings obligation as of transposition of this Directive***.*** It will allow aligning the energy savings obligation with the objectives of the European Green Deal, the Climate Target Plan, the Renovation Wave Strategy, and mirror the need for action identified by the IEA in its net zero report. The restriction aims at encouraging Member States to spend public money into future-proof, sustainable technologies only. It is important that Member States provide a clear policy framework and investment certainty to market actors. The implementation of the calculation methodology under energy savings obligation should allow all market actors to adapt their technologies in a reasonable timeframe. Where Member States support the uptake of efficient fossil fuel technologies or early replacement of such technology, for example through subsidy schemes or energy efficiency obligation schemes, energy savings may ***not*** be eligible ***anymore*** under the energy savings obligation. ***While energy savings resulting, for example, from the promotion of natural gas-based cogeneration would not be eligible, the restriction would not apply for indirect fossil fuel usage, for example where the electricity production includes fossil fuel generation.*** Policy measures targeting behavioural changes to reduce the consumption of fossil fuel, for example through information	When designing policy measures to fulfil the energy savings obligation, Member States should respect the climate and environmental standards and priorities of the Union and comply with the principle of 'do no significant harm' within the meaning of Regulation (EU) 2020/85277. Member States should not promote activities that are not environmentally sustainable such as use of solid fossil fuels. The energy savings obligation aims at strengthening the response to climate change by promoting incentives to Member States to implement a sustainable and clean policy mix, which is resilient, and mitigates climate change. Therefore, energy savings from policy measures regarding the use of ~~**direct**~~ fossil fuel combustion ***in new products, equipment, vehicles, or buildings*** will ***only up to a maximum limit*** be eligible energy savings under energy savings obligation as of transposition of this Directive. It will allow aligning the energy savings obligation with the objectives of the European Green Deal, the Climate Target Plan, the Renovation Wave Strategy, and mirror the need for action identified by the IEA in its net zero report. The restriction aims at encouraging Member States to spend public money into future-proof, sustainable technologies only. It is important that Member States provide a clear policy framework and investment certainty to market actors. The implementation of the calculation methodology under energy savings obligation should allow all market actors to adapt their technologies in a reasonable timeframe. Where Member States support the uptake of ***new*** efficient technologies or early replacement ***of less efficient existing equipment running of fossil fuels***, for example through subsidy schemes or energy efficiency obligation schemes, energy savings may ~~***not***~~ be eligible ~~***anymore***~~ ***only up to a limit*** under the energy savings obligation. ~~***While energy savings resulting, for example, from the promotion of natural gas-based cogeneration would not be eligible, the restriction would not apply for indirect fossil fuel usage, for example where the electricity production includes fossil fuel generation.***~~ Policy measures targeting

campaigns, eco-driving, should remain eligible. The energy savings from policy measures targeting building renovations may contain measures such as a replacement of ***fossil fuel*** heating systems together with building fabric improvements, which should be limited to those technologies that allow achieving the required energy savings according to the national building codes established in a Member State. Nevertheless, Member States should promote upgrading heating systems as part of deep renovations in line with the long-term objective of carbon neutrality, i.e. reducing the heating demand and covering the remaining heating demand with a carbon-free energy source.	behavioural changes to reduce the consumption of fossil fuel, for example through information campaigns, eco-driving, should remain eligible. The energy savings from policy measures targeting building renovations may contain measures such as a replacement of ***inefficient*** heating systems together with building fabric improvements, which should be limited to those technologies that allow achieving the required energy savings according to the national building codes established in a Member State. Nevertheless, Member States should promote upgrading heating systems as part of deep renovations in line with the long-term objective of carbon neutrality, i.e. reducing the heating energy consumption ***and limiting the increase in electric peak demand*** and covering the remaining heating demand with a***n increasingly*** carbon-free energy source**.**

Justification

Energy efficiency on gas technologies which are renewable gas-ready, smart-ready, will facilitate the substitution of natural gas by increasing renewable gas production.

AMD 5 - Recital 54

Text proposed by the Commission	Amendment
Member States and obligated parties should make use of all available means and technologies, except regarding the use of direct fossil fuel combustion technologies, to achieve the cumulative end-use energy savings required, including by promoting sustainable technologies in efficient district heating and cooling systems, efficient. heating and cooling infrastructure and energy audits or equivalent management systems, provided that the energy savings claimed comply with the requirements laid down in Article 87 and Annex V to Directive 2012/27/EU as amended by this Directive. Member States should aim for a high degree of flexibility in the design and implementation of alternative policy measures. Member States should encourage actions resulting in energy savings over the long lifetimes	Member States and obligated parties should make use of all available means and technologies ***on a discretionary basis***, except regarding the ***limited*** use of direct ~~***fossil fuel combustion***~~ technologies ***using fossil fuels for new equipment***, to achieve the cumulative end-use energy savings required, including by promoting sustainable technologies in efficient district heating and cooling systems, efficient. heating and cooling infrastructure and energy audits or equivalent management systems, provided that the energy savings claimed comply with the requirements laid down in Article 87 and Annex V to Directive 2012/27/EU as amended by this Directive. Member States should aim for a high degree of flexibility in the design and implementation of alternative policy measures. Member States should encourage actions resulting in energy savings over the long lifetimes.

Justification

Energy efficiency on gas technologies which are renewable gas-ready, smart-ready, will facilitate the substitution of natural gas by increasing renewable gas production.

3. Broaden the approach to energy efficiency to networks and storage

AMD 6 - Article 25 paragraph 2

Text proposed by the Commission	Amendment
2. Member States shall ensure that gas and electricity transmission and distribution network operators apply the energy efficiency first principle in accordance with Article 3 of this Directive in their network planning, network development and investment decisions. While taking security of supply and market integration into account, Member States shall ensure that transmission system operators and distribution system operators do not invest in stranded assets to contribute to climate change mitigation. National regulatory authorities should provide methodologies and guidance on how to assess alternatives in the cost-benefit analysis, taking into account wider benefits, and verify the implementation of the energy efficiency first principle by the transmission system operators or distribution system operators when approving, verifying or monitoring the projects submitted by the transmission system operators or distribution system operators.	2. Member States shall ensure that gas and electricity transmission and distribution network operators apply the energy efficiency first principle in accordance with Article 3 of this Directive in their network planning, network development and investment decisions. While taking security of supply and market integration into account, Member States shall ensure that **the use of existing energy infrastructure is optimised, and that** transmission system operators and distribution system operators do not invest in stranded assets to contribute to climate change mitigation. National regulatory authorities should provide methodologies and guidance on how to assess alternatives in the cost-benefit analysis, taking into account wider benefits, **optimising the use of energy infrastructure,** and verify the implementation of the energy efficiency first principle by the transmission system operators or distribution system operators when approving, verifying or monitoring the projects submitted by the transmission system operators or distribution system operators.

Justification

There is a need for an objective assessment of the costs and implications of energy efficiency covering not only energy but also infrastructure costs. Energy Efficiency measures are an effective endeavour to achieve well-designed gains toward the primary goal of reducing greenhouse gas emissions - only if they do not involve infrastructure costs in excess compared to the energy savings obtained.

AMD 7 - Article 25 paragraph 7

Text proposed by the Commission	Amendment
7~~4~~. ~~Member States~~ National regulatory authorities shall ensure the removal of those incentives in transmission and distribution tariffs that are detrimental to the ~~overall efficiency (including~~ energy efficiency~~)~~ of the generation, transmission, distribution and supply of electricity and gas ~~or those that might hamper participation of demand response, in balancing markets and ancillary services procurement. Member States shall ensure that network operators are incentivised to improve efficiency in infrastructure design and operation, and, within the framework of Directive (EU) 2019/9442009/72/EC, that tariffs allow suppliers to improve consumer participation in system efficiency, including demand response, depending on national circumstances.~~	7~~4~~. National regulatory authorities shall ensure the removal of those incentives in transmission and distribution tariffs that are detrimental to the **overall efficiency (including** energy efficiency**)** of the generation, **storage**, transmission, distribution, **demand** and supply of electricity and gas **and lead to inefficient use and deployment of energy infrastructure.**

Justification

With the progressive removal of fossil energy and development of intermittent renewable electricity, energy storage will have a growing importance to ensure resource adequacy and system resilience. There is a need for an objective assessment of the costs and implications of energy efficiency covering not only energy but also infrastructure costs. Storage and demand side flexibility must be considered when considering the overall efficiency of the energy system, with a special focus on the heating seasonal demand. Energy Efficiency measures are an effective endeavour to achieve well-designed gains toward the primary goal of reducing greenhouse gas emissions - only if they do not involve infrastructure costs in excess compared to the energy savings obtained.

AMD 8 – Article 33 – Review and monitoring

Text proposed by the Commission	Amendment
2. By 31 October 2025 and every four years thereafter, the Commission shall evaluate the existing measures to achieve energy efficiency increase and decarbonisation in heating and cooling. The evaluation shall take into account:	2. By 31 October 2025 and every four years thereafter, the Commission shall evaluate the existing measures to achieve energy efficiency increase and decarbonisation in heating and cooling. The evaluation shall take into account:
(a) Energy efficiency and greenhouse gases emissions trends in heating and cooling, including in district heating and cooling;	(a) Energy efficiency and greenhouse gases emissions trends in heating and cooling, including in district heating and cooling;
(b) Interlinkages between measures taken;	(b) Interlinkages between measures taken;
(c) Changes in energy efficiency and greenhouse gas emissions in the heating and cooling;	(c) Changes in energy efficiency and greenhouse gas emissions in the heating and cooling;
(d) Existing and planned energy efficiency policies and measures and greenhouse gas reduction policies and measures at national and EU level, and	(d) Existing and planned energy efficiency policies and measures and greenhouse gas reduction policies and measures at national and EU level, and
(e) Measures Member States provided in their comprehensive assessments pursuant to Article 23(1) and notified in accordance with Article 17(b)(1) of Regulation (EU) 2018/1999.	(e) Measures Member States provided in their comprehensive assessments pursuant to Article 23(1) and notified in accordance with Article 17(b)(1) of Regulation (EU) 2018/1999.
The Commission may propose, if appropriate, by measures to ensure the achievement of the Union's climate energy targets.	(**f) Renewable energy used in heating and cooling sectors, including a breakdown per type of energy** **(g) Other impacts associated to energy efficiency policies and measures such as changes in peak demand, system resilience, resource adequacy or incremental investments in networks** The Commission may propose, if appropriate, by measures to ensure the achievement of the Union's climate energy targets.

AMD 9 - Annex IX - Part I OVERVIEW OF HEATING AND COOLING – paragraph 1

Text proposed by the Commission	Amendment
OVERVIEW OF HEATING AND COOLING	*OVERVIEW OF HEATING AND COOLING*
1. heating and cooling demand in terms of assessed useful energy10 and quantified final energy consumption in GWh per year11 by sectors:	1. heating and cooling **annual** demand in terms of assessed useful energy10 and quantified final energy consumption figures in GWh per year11**, and peak demand in terms of energy consumption in GWh per day and per week** by sectors:
(a) residential;	(a) residential;
(b) services;	(b) services;
(c) industry;	(c) industry;
(d) any other sector that individually consumes more than 5 % of total national useful heating and cooling demand;	(d) any other sector that individually consumes more than 5 % of total national useful heating and cooling demand;

Justification

Annualized energy consumption isn't sufficient to assess the energy needs during heating season. We suggest using the average consumption together with the peak demand, as it is used in other European legislative pieces (e.g. Regulation (EU) 2017/1938 concerning measures to safeguard the security of gas supply). The maximum peak demand shall be considered per day and per week to consider both grid, storage production and demand-side flexibility capacities.

AMD 10 - Annex IX - Part I OVERVIEW OF HEATING AND COOLING – paragraph 2

Text proposed by the Commission	Amendment
2. identification, or in the case of point 2(a)(i), identification or estimation, of current heating and cooling supply:	2. identification, or in the case of point 2(a)(i), identification or estimation, of current heating and cooling supply:
(a) by technology, in GWh per year12, within sectors mentioned under point 1 where possible, distinguishing between energy derived from fossil and renewable sources:	(a) by technology, in GWh per year **and GWh per day, and per week in winter-summer periods**, within sectors mentioned under point 1 where possible, distinguishing between energy derived from fossil and renewable sources:

Justification

Annualized energy production isn't sufficient to assess the energy availability during heating season. Solar resources, for instance, contribute much less in winter -even when converted to other energy vector such as hydrogen.

AMD 11 - Annex IX - Part I OVERVIEW OF HEATING AND COOLING – paragraph 4

Text proposed by the Commission	Amendment
4. a forecast of trends in the demand for heating and cooling to maintain a perspective of the next 30 years in GWh and taking into account in particular projections for the next 10 years, the change in demand in buildings and different sectors of the industry, and the impact of policies and strategies related to the demand management, such as long-term building renovation strategies under Directive (EU) 2018/844;	4. a forecast of trends in the demand for heating and cooling to maintain a perspective of the next 30 years in GWh**/year and peak demand GWh/day and GWh/week** and taking into account in particular projections for the next 10 years, the change in demand in buildings and different sectors of the industry, and the impact of policies and strategies related to the demand management, such as long-term building renovation strategies under Directive (EU) 2018/844;

Justification

Annualized energy consumption isn't sufficient to assess the energy needs during heating season. We suggest using the average consumption together with the peak demand, as it is used in other European legislative pieces (e.g. Regulation (EU) 2017/1938 concerning measures to safeguard the security of gas supply).

The maximum peak demand shall be considered per day and per week to consider both grid, storage and production capacities.

AMD 12 - Annex IX - ANALYSIS OF THE ECONOMIC POTENTIAL FOR EFFICIENCY IN HEATING AND COOLING – paragraph 7

Text proposed by the Commission	Amendment
7. an analysis of the economic potential14 of different technologies for heating and cooling shall be carried out for the entire national territory by using the cost-benefit analysis referred to in Article 2014(3) and shall identify alternative scenarios for more efficient and renewable heating and cooling technologies, distinguishing between energy derived from fossil and renewable sources where applicable.	7. an analysis of the economic potential14 of different technologies for heating and cooling shall be carried out for the entire national territory by using the cost-benefit analysis referred to in Article 2014(3) and shall identify alternative scenarios for more efficient and renewable heating and cooling technologies, distinguishing between energy derived from fossil and renewable sources where applicable.
The following technologies should be considered:	The following technologies should be considered:
(a) industrial waste heat and cold;	(a) industrial waste heat and cold;
(b) waste incineration;	(b) waste incineration;
(c) high efficiency cogeneration;	(c) high efficiency cogeneration;
(d) renewable energy sources (such as geothermal, solar thermal and biomass) other than those used for high efficiency cogeneration;	(d) renewable energy sources (such as geothermal, solar thermal**, renewable gases** and biomass) other than those used for high efficiency cogeneration;
(e) heat pumps;	(e) heat pumps**, including hybrid heat pumps**;
(f) reducing heat and cold losses from existing district networks;	(f) reducing heat and cold losses from existing district networks;

Justification

Biogas/biomethane or renewable hydrogen should be part of the assessment, in line with the European Hydrogen and Energy System Integration Strategies:

> *"There are a number of end-use applications where they [direct electrification and renewable heat] might not be feasible or have higher costs. In such cases, a number of renewable or low-carbon fuels could be used, such as sustainable biogas, biomethane and biofuels, renewable and low-carbon hydrogen or synthetic fuels*."

4. Give the public sector a leading role in deploying Smart Heating-Ready buildings

AMD 13 – Article 6 – Exemplarity of public buildings

Text proposed by the Commission	Amendment
1. Without prejudice to Article 7 of Directive 2010/31/EU of the European Parliament and of the Council108, each Member State shall ensure that, at least 3 % of the total floor area of heated and/or cooled buildings owned by public bodies is renovated each year to at least be transformed into nearly zero-energy buildings in accordance with Article 9 of Directive 2010/31/EU.	1. Without prejudice to Article 7 of Directive 2010/31/EU of the European Parliament and of the Council108, each Member State shall ensure that, at least 3 % of the total floor area of heated and/or cooled buildings owned by public bodies is renovated each year to at least be transformed into **smart heating-ready and** nearly zero-energy buildings in accordance with Article 13 and Article 9 of Directive 2010/31/EU
Where public bodies occupy a building that they do not own, they shall exercise their contractual rights to the extent possible and encourage the building owner to renovate the building to a nearly zero-energy building in accordance with Article 9 of Directive 2010/31/EU. When concluding a new contract for occupying a building they do not own, public bodies shall aim for that building to fall into the top two energy efficiency classes on the energy performance certificate.	Where public bodies occupy a building that they do not own, they shall exercise their contractual rights to the extent possible and encourage the building owner to renovate the building to a **smart heating-ready and** nearly zero-energy building in accordance with Article 9 of Directive 2010/31/EU. When concluding a new contract for occupying a building they do not own, public bodies shall aim for that building to fall into the top two energy efficiency classes on the energy performance certificate **and be smart heating-ready.**

Justification:

Public buildings shall be exemplary on their contribution to reduce the overall system costs and increase the system resilience. Public buildings are often of a large size making them ideal candidates to become Smart Heating Ready buildings.

Contact

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About the EBA

The **European Biogas Association** is the voice of renewable gas in Europe since 2009. EBA advocates the recognition of biomethane and other renewable gases as sustainable, on demand and flexible energy sources that provide multiple knock-on socio-economic and environmental benefits. Supported by its members, EBA is committed to work with European institutions, industry, agricultural partners, NGOs and academia to develop policies which can enable the large-scale deployment of renewable gases and organic fertilisers throughout Europe, supported by transparent, well-established sustainability certification bodies to ensure that sustainability remains at the core of the industry. The association counts today on a well-established network of over 200 national organisations, scientific institutes, and companies from Europe and beyond.