

EUROMOT POSITION

ELECTRICITY GENERATION ASPECTS IN THE ENERGY EFFICIENCY DIRECTIVE REVISION

10 December 2021

Background

EUROMOT (the European Association of Internal Combustion Engine Manufacturers) very much supports the EU ambition for a rapid reduction of greenhouse gas emissions and of the unabated use of fossil fuels, and for a progressive increase in the market penetration of low-carbon and zero-carbon fuels, as embodied in the EU “Fit for 55” decarbonization package adopted on 14th July 2021.

Concerning more specifically the electricity generation sector, EUROMOT has been actively involved in the revision process of the Energy Efficiency Directive (EED): a summary of the points raised by the association over the last months can be found [here](#).

After the adoption of the EU [Commission’s revision proposal](#), EUROMOT would like to reiterate two major points (closely interlinked with each other) that should be reflected in this legislative text:

- 1. Importance of recognizing the renewable-enabling and grid-balancing function of modern flexible gas-fired power plants.**
- 2. Importance of using all available low-carbon fuels to decarbonize the power generation sector.**

Paragraphs 2 and 3 of this paper focus on each of the two abovementioned points respectively, and illustrate how they are taken into account in the Commission’s proposal. Finally, in paragraph 4, EUROMOT proposes some amendments to the Commission’s proposal, in keeping with comments included in paragraphs 2 and 3.

1. The Importance of recognizing the renewable-enabling and grid-balancing function of modern flexible gas-fired power plants

This aspect has been at the centre of EUROMOT’s advocacy actions over the last months. Internal Combustion Engines (ICEs) are an essential part of the solution to enable the decarbonization of the EU economy and will continue to play an important role in the years and decades to come. The key to explain this lies in one concept: **flexibility**. ICEs have fully demonstrated over time a high degree of **adaptability both to different fuels and technological changes** and are already capable (or will be capable after some form of upgrade) of operating on a wide range of bio-, hydrogen and synthetic fuels, such as hydrogen-derived liquid/gaseous fuels.

However, ICEs’ flexibility does not only mean fuel adaptability, but also **operational flexibility**, which, in turns, allows ICEs to **unleash their renewable-enabling and grid-balancing potential**. As indicated in [this July 2021 EUROMOT paper](#) (paragraph 2), with a substantial fraction of electricity coming from intermittent power sources such as solar panels and wind turbines, it is of crucial importance that the power grid stays stable with a maximum reliability. Batteries alone cannot fulfil the function of enabling by-nature fluctuating renewable power sources. On the other hand, gas-fired internal combustion (reciprocating) engine plants make possible, thanks to their ability for rapid start-up, response to varying demand, and fast shut down, as well as to their multifuel capability, the **balancing of the electricity grid in support of intermittent renewable electricity (solar, wind)**.

How is such a flexibility aspect reflected in the Commission’s EED proposal?

Positive points

- Exception for peak load and back-up electricity installations (< 1500 operating hours per year) in the EED.** Art. 24.4(a) of the EED proposal calls Member States to ensure that an installation level cost-benefit analysis is carried out where a thermal electricity generation installation with an average annual total energy input exceeding 5 MW (lowered from the existing 20MW threshold) is newly planned or substantially refurbished, *“in order to assess the cost and benefits of providing for the operation of the installation as a high-efficiency cogeneration installation”*. **EUROMOT welcomes the fact that current exemption for peak load and back-up electricity installations remains, and calls the EU Parliament and the Council to keep it unchanged, as it is a key recognition of the grid-balancing role of modern power plants** (see art. 24.5(a): *“Member States may exempt from paragraph 4 those peak load and back-up electricity generating installations which are **planned to operate under 1500 operating hours per year as a rolling average over a period of five years** [...]”*).
- Recital of the EED illustrating the importance of flexibility in modern electricity systems.** EUROMOT welcomes the fact that old recital 7 is integrated in new recital 43 of the EED Commission’s proposal: *“The operational efficiency of energy systems at any given moment is influenced by the ability to feed power generated from different sources — with different degrees of inertia and start-up times — into the grid smoothly and flexibly. Improving efficiency will enable better use to be made of renewable energy”*.

Negative points (to be amended: see paragraph 4.1, 4.3 of this paper)

1. The EED proposal essentially sees the grid-balancing function in terms of energy storage and demand-side flexibility. **Supply-side flexibility solutions**, such as modern peak (“balancing”) load gas-fired power plants, should also be encouraged to design a new EU electricity market fit for the EU ambitious decarbonization objectives.
 2. Art. 24.1 of the **EED** gives a definition of “**efficient district heating and cooling**” (DHC). Until 2035, this is defined based on the shares of used renewable energy, waste heat, high-efficiency cogeneration (**HE CHP**) or a mix of the three options. **From 2035, no specific role is allocated to HE CHP** (only an increasing share of renewable energy and waste heat). The EED proposal should be amended to **maintain HE CHP as a criterion to define DHC efficiency beyond 2035 to complement renewable energy and waste heat share requirements**: fossil fuel and energy savings are particularly important to reduce CO₂, while renewable energy is not yet available¹ at a large scale.
- ## **2. The Importance of using all available low-carbon fuels to decarbonize the power generation sector**

EUROMOT believes that the principle of technological neutrality should be respected as much as possible: while recognizing the importance of encouraging some fuels in particular (renewable fuels), and, on the other hand, of gradually phasing out the most carbon-intensive fuels, in EUROMOT’s opinions all solutions contributing to the decarbonization of the power generation sector should have a place in the future energy mix.

How is this principle reflected in the EED proposal?

Negative points (to be amended: see paragraph 4.2, 4.4 of this paper)

1. **Exclusion of fossil fuels technologies from Member States’ energy savings obligations schemes in the EED.** The EED proposal (new art. 8) increases the ambition of current art. 7 on Member States’ energy savings obligations: countries must implement measures to cut each year their annual final energy consumption by e.g. 1.5% from 2024 to 2030. **Annex V** sets some criteria for measures to be eligible to comply with the energy savings obligations. Most notably (Annex V 2(g,h)), **policies that do lead to energy savings, but that imply the use of direct combustion of fossil fuels, cannot be counted towards the energy savings obligations from 01/01/2024.** Recital 50 makes even clearer that “**energy savings resulting, for example, from the promotion of natural gas-based cogeneration would not be eligible**”. Similarly, recital 54 states: “... **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 ...**”. In EUROMOT’s opinion, as Annex III already quite strictly defines the criteria to identify HE CHP by limiting the GHG emissions intensity of HE CHP plants, **there is no reason to exclude HE CHP (or efficient DHC in Article 24) from eligibility for Member**

¹ The [EU Hydrogen Strategy](#) (July 2020) estimates (page 7) that only “*from 2030 onwards and towards 2050, renewable hydrogen technologies should reach maturity and be deployed at large scale*”. The “[Energy Transition Outlook 2021](#)” prepared by DNV states (page 7) that “*Global hydrogen production for energy purposes is currently negligible and will only start to scale from the late 2030s, meeting 5% of global energy demand by 2050*”.

States' energy savings obligations.

2. **Risk of excluding low-carbon fuels from the definitions of HE CHP and of efficient DHC in the EED.** Art. 24.1 of the EED gives a definition of “**efficient district heating and cooling**” (efficient DHC), whereas Annex III(a) contains criteria to define “**high-efficiency cogeneration**” (HE CHP). In both cases, **measures are included to avoid increase in the use of fossil fuels “other than natural gas”**. While EUROMOT recognizes the objective of gradually phasing out the most carbon-intensive fossil fuels, such a proposal would, in fact, **also exclude valuable low-carbon fuels and energy carriers such as blue hydrogen, blue ammonia and methanol**, having a lower carbon intensity than natural gas. This would be contradictory and should be amended.

3. EUROMOT proposals for amendments

Based on the above paragraphs and arguments, EUROMOT proposes the following amendments to the Commission's EED revision proposal.

3.1. Amendments on the grid-stabilizing and flexibility functions of modern power plants

<u>Text proposed by the EU Commission</u>	EUROMOT proposal for amendment
<p>Recital 14</p> <p>In order to have an impact, the energy efficiency first principle needs to be consistently applied by decision makers in all relevant policy, planning and major investment decisions – that is to say large-scale investments with a value of more than 50 euro million each or 75 euro million for transport infrastructure projects – affecting energy consumption or supply. The proper application of the principle requires using the right cost-benefit analysis methodology, setting enabling conditions for energy efficient solutions and proper monitoring. Demand side flexibility can bring significant benefits to consumers and to society at large, and can increase the efficiency of the energy system and decrease the energy costs, for example by reducing system operation costs resulting in lower tariffs for all consumers. Member States should take into account potential benefits from demand side flexibility in applying the energy efficiency first principle and where relevant consider demand response, energy storage and smart solutions as part of their</p>	<p>Recital 14</p> <p>In order to have an impact, the energy efficiency first principle needs to be consistently applied by decision makers in all relevant policy, planning and major investment decisions – that is to say large-scale investments with a value of more than 50 euro million each or 75 euro million for transport infrastructure projects – affecting energy consumption or supply. The proper application of the principle requires using the right cost-benefit analysis methodology, setting enabling conditions for energy efficient solutions and proper monitoring. Demand and supply side flexibility can bring significant benefits to consumers and to society at large, and can increase the efficiency of the energy system and decrease the energy costs, for example by reducing system operation costs resulting in lower tariffs for all consumers. Member States should take into account potential benefits from demand and supply side flexibility in applying the energy efficiency first principle and where relevant consider demand response, energy storage, and smart solutions and grid-balancing power plants and</p>

<u>Text proposed by the EU Commission</u>	EUROMOT proposal for amendment
efforts to increase efficiency of the integrated energy system.	cogeneration plants as part of their efforts to increase efficiency of the integrated energy system.
<p>New art. 25 (“energy transformation, transmission and distribution”)</p> <p>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.</p>	<p>New art. 25 (“energy transformation, transmission and distribution”)</p> <p>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. Member States shall, where relevant, take the necessary actions to ensure While taking security of supply, grid stability and market integration of intermittent renewable electricity in the grid into account. Such actions can relate to the development of solutions such as storage facilities, power plants and cogeneration plants participating in grid-balancing in support of intermittent renewable electricity. In doing so, 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.</p>
Annex XII (“Energy efficiency criteria for energy network regulation and for electricity network tariffs”)	Annex XII (“Energy efficiency criteria for energy network regulation and for electricity network tariffs”)

<u>Text proposed by the EU Commission</u>	EUROMOT proposal for amendment
<p>2. Network regulation and tariffs shall not prevent network operators or energy retailers making available system services for demand response measures, demand management and distributed generation on organised electricity markets, in particular:</p> <p>(a) the shifting of the load from peak to off-peak times by final customers taking into account the availability of renewable energy, energy from cogeneration and distributed generation;</p> <p>(b) energy savings from demand response of distributed consumers by energy aggregators;</p> <p>(c) demand reduction from energy efficiency measures undertaken by energy service providers, including energy service companies; (d) the connection and dispatch of generation sources at lower voltage levels;</p> <p>(e) the connection of generation sources from closer location to the consumption; and</p> <p>(f) the storage of energy.</p>	<p>2. Network regulation and tariffs shall not prevent network operators or energy retailers making available system services for demand response measures, demand management, efficient grid balancing and distributed generation on organised electricity markets, in particular:</p> <p>(a) the shifting of the load from peak to off-peak times by final customers taking into account the availability of renewable energy, energy from cogeneration and distributed generation;</p> <p>(b) energy savings from demand response of distributed consumers by energy aggregators;</p> <p>(c) demand reduction from energy efficiency measures undertaken by energy service providers, including energy service companies; (d) the connection and dispatch of generation sources at lower voltage levels;</p> <p>(e) the connection of generation sources from closer location to the consumption; and</p> <p>(f) the storage of energy and</p> <p>(g) the integration of intermittent renewable electricity in the grid, for example via power plants and cogeneration plants participating in grid-balancing in support of intermittent renewable electricity.</p>

Justification for abovementioned amendments

With a substantial fraction of electricity coming from solar panels and wind turbines, it is of crucial importance that the power grid stays stable with a maximum reliability. Batteries alone cannot fulfil the function (having a storage capacity of only “hours”: see <https://www.eesi.org/papers/view/energy-storage-2019#2>) of enabling by-nature fluctuating renewable power sources. On the other hand, gas-fired grid-balancing internal combustion (reciprocating) engine plants make possible, thanks to their ability for rapid start-up, response to varying demand, and fast shut down, as well as to their multifuel capability, the **balancing of the electricity grid in support of intermittent renewable electricity (solar, wind).**

3.2. Amendments on High-efficient cogeneration in Member States’ energy savings obligations



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 EU Transparency Register Id. No. 6284937371-73

A Non-Governmental Organisation in consultative status with the UN Economic Commission for Europe (UNECE) and the UN International Maritime Organisation (IMO)

PRESIDENT
 Dr Holger Lochmann

GENERAL MANAGER
 Dr Peter Scherm

Text proposed by the EU Commission	EUROMOT proposal for amendment
<p>Recital 50</p> <p>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) 2020/852. 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. [...] The restriction aims at encouraging Member States to spend public money into future-proof, sustainable technologies only. [...] 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. [...]</p>	<p>Recital 50</p> <p>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) 2020/852. 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, <i>except when used in High-efficiency cogeneration installations as defined in Annex III to this Directive</i>, will not be eligible energy savings under energy savings obligation as of transposition of this Directive. [...] The restriction aims at encouraging Member States to spend public money into future-proof, sustainable technologies only. [...] 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. [...]</p>
<p>Recital 54</p> <p>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</p>	<p>Recital 54</p> <p>Member States and obligated parties should make use of all available means and technologies, except regarding the use of direct fossil fuel combustion technologies <i>if not in keeping with the requirements for High-efficient cogeneration as defined in Annex III to this Directive</i>, to achieve the cumulative end-use energy savings required, including by promoting sustainable technologies in efficient district heating and</p>

Text proposed by the EU Commission	EUROMOT proposal for amendment
<p>that the energy savings claimed comply with the requirements laid down in Article 8 and Annex V to 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.</p>	<p>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 8 and Annex V to 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.</p>
<p>Annex V (“Common methods and principles for calculating the impact of energy efficiency obligations schemes”)</p> <p>2. In determining the energy savings for an energy efficiency measure [...], the following principles apply:</p> <p>[...]</p> <p>(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.</p> <p>(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.</p>	<p>Annex V (“Common methods and principles for calculating the impact of energy efficiency obligations schemes”)</p> <p>2. In determining the energy savings for an energy efficiency measure [...], the following principles apply:</p> <p>[...]</p> <p>(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. <i>Policies measures regarding the development of High-efficient cogeneration as defined in Annex III to this Directive shall always be permitted.</i></p> <p>(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. <i>Policies measures regarding the development of High-efficient cogeneration as defined in Annex III to this Directive shall always be permitted.</i></p>

Justification for abovementioned amendments



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PRESIDENT

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In EUROMOT’s opinion, as Annex III already quite strictly defines the criteria to identify HE CHP by limiting the GHG emissions intensity of HE CHP plants, there is no reason to exclude HE CHP from eligibility for Member States’ energy savings obligations. Flexible peaking (balancing) natural gas or low-carbon fuel-fired power plants are speeding up the decreasing of the average GHG intensity of the electricity grid.

3.3. Amendments on HE CHP in efficient District Heating and Cooling (DHC)

Art. 24.1 of the EED gives a definition of “**efficient district heating and cooling**” (DHC). Until 2035, this is defined based on the shares of used renewable energy, waste heat, high-efficiency cogeneration (HE CHP) or a mix of the three options. **From 2035, no specific role is allocated to HE CHP** (only an increasing share of renewable energy and waste heat). The EED proposal should be amended to **maintain HE CHP as a criterion to define DHC efficiency beyond 2035 to complement renewable energy and waste heat share requirements.** On this matter in particular, we fully support the position of our “sister” organization Cogen Europe available [at this link](#).

3.4. Amendments not to exclude low-carbon fuels of fossil origin from the “High-Efficiency CHP” definition and from the “efficient district heating and cooling system” definition

Text proposed by the EU Commission	EUROMOT proposal for amendment
<p>Article 24(2) (on specifications for heating and cooling supply)</p> <p>[...] Member States shall ensure that when a district heating and cooling system is built or substantially refurbished, there is no increase in the use of fossil fuels other than natural gas in existing heat sources compared to the annual consumption averaged over the previous three calendar years of full operation before refurbishment, and that any new heat sources in that system do not use fossil fuels other than natural gas.</p>	<p>Article 24(2) (on specifications for heating and cooling supply)</p> <p>[...] Member States shall ensure that when a district heating and cooling system is built or substantially refurbished, there is no increase in the use of fossil fuels other than natural gas and low-carbon fuels in existing heat sources compared to the annual consumption averaged over the previous three calendar years of full operation before refurbishment, and that any new heat sources in that system do not use fossil fuels other than natural gas and low-carbon fuels.</p>
<p>Annex III(a) (definition of high-efficiency cogeneration)</p> <p>[...]</p> <p>When a cogeneration unit is built or substantially refurbished, Member States shall ensure that there is no increase in the use of fossil fuels other than natural gas in existing heat sources compared to the annual</p>	<p>Annex III(a) (definition of high-efficiency cogeneration)</p> <p>[...]</p> <p>When a cogeneration unit is built or substantially refurbished, Member States shall ensure that there is no increase in the use of fossil fuels other than natural gas and low-carbon fuels in existing heat sources</p>

Text proposed by the EU Commission	EUROMOT proposal for amendment
consumption averaged over the previous three calendar years of full operation before refurbishment, and that any new heat sources in that system do not use fossil fuels other than natural gas.	compared to the annual consumption averaged over the previous three calendar years of full operation before refurbishment, and that any new heat sources in that system do not use fossil fuels other than natural gas and low-carbon fuels.

Justification for abovementioned amendments

While EUROMOT recognizes the objective of gradually phasing out the most carbon-intensive fossil fuels, the Commission's proposals would, in fact, also exclude valuable low-carbon fuels and energy carriers such as blue hydrogen, blue ammonia and methanol, having a lower carbon intensity than natural gas. This would be contradictory and inconsistent with the decarbonization efforts of the EU.

The EUROMOT Secretariat and the experts in its member companies remain available for any additional clarification that you might need.

EUROMOT – 2021-12-10

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EUROMOT is the European Association of Internal Combustion Engine Manufacturers. It is committed to promoting the central role of the IC engine in modern society, reflects the importance of advanced technologies to sustain economic growth without endangering the global environment and communicates the assets of IC engine power to regulators worldwide. For more than 25 years we have been supporting our members - the leading manufacturers of internal combustion engines in Europe, USA and Japan - by providing expertise and up-to-date information and by campaigning on their behalf for internationally aligned legislation. Taken together, the EUROMOT member companies employ about 200,000 highly skilled and motivated workers. The European market turnover for the business represented exceeds 25 bn euros.

OUR MEMBERS

