

Energy Efficiency Directive: Council and European Parliament reach political agreement

31 March 2023

This month (March 2023), the European Union's co-legislators (the Council of the EU and the European Parliament) have reached a political agreement on the new revised Energy Efficiency Directive, which is part of the so-called Fit for 55 package. The agreement foresees a higher energy efficiency target than initially proposed by the European Commission as well as some reinforced sectoral measures. While the target for final energy savings is mandatory, the target for primary energy consumption is only 'indicative'. On cogeneration and district heating, a compromise has been reached which seems to be balanced. The provisional agreement will be re-submitted to the Council and European Parliament for a final stamp of approval.

Key provisions impacting cogeneration include:

- **The 'Energy Efficiency First' principle** is reinforced for major investments and infrastructure planning.
- **Energy efficiency target:** Despite the high ambition on energy efficiency, the target for primary energy consumption will only be 'indicative' whereas the target for final energy savings will be mandatory.
- **Updated definition of 'high efficiency cogeneration':** In addition to the 10% primary energy savings requirement to qualify as high efficiency CHP (HE CHP), new and refurbished HE CHP must emit less than 270g of CO₂ per kWh. Existing HE CHP installations may be exempted from the 270g limit until 2034.
- **Updated definition of 'efficient district heating':** HE CHP is explicitly recognised as a way for district heating and cooling (DHC) to qualify as efficient DHC (EDHC) until 2045. Additional requirements are introduced to integrate minimum shares of renewable energy sources or waste heat as of 2035. From 2050, EDHC must use only renewable energy or waste heat.
- **Energy Savings Obligation:** End use energy savings must become increasingly ambitious, reaching 1.5% in 2030. Yet, savings achieved via DHC or CHP are limited until 2023. Moreover, on-site CHP using natural gas may only contribute until 2030 in industrial applications and under specific conditions.

Background

On 14 July 2021, the European Commission (EC) published its proposal to [revise the Energy Efficiency Directive](#), including heating and cooling provisions and updating the definitions of efficient district heating and high efficiency cogeneration.

On 27 June 2022, the Council reached a 'General Approach' on the proposal. Meanwhile, the European Parliament adopted its position in plenary on 14 September 2022.

Five trilogue meetings were held between 6 October 2023 and 10 March 2023, when a provisional agreement was reached between the co-legislators, resulting in the final compromise text (see link below).

The text agreed between the Council and European Parliament is subject to a final vote for approval by the two institutions. Once formal translations have been finalised, the final text of the Energy Efficiency Directive will be published in the Official Journal of the European Union and the Directive will enter into force within twenty days.

Relevant documents

[Energy Efficiency Directive Recast – Final Compromise Text, including Council background note](#) (24 March, 2023)

COGEN Europe's assessment

COGEN Europe considers the compromise text as balanced when it comes to CHP and DHC. On one hand, the role of primary energy savings is undermined via the indicative nature of the energy efficiency target and the reinforcement of the end user savings obligation. Yet, dedicated provisions on high efficiency CHP and efficient DHC ensure the prominent status of these energy savings solutions within the current context.

Going through the text, the “phase out of fossil fuels” theme is very present. Within the context of the war in Ukraine, the use of fossil fuels such as natural gas has become a highly political issue that defies more technical arguments around system efficiency, emission reductions, as well as the availability and cost-effectiveness of non-fossil fuel alternatives.

Please find below a detailed assessment of relevant provisions.

Next Steps and Actions

- COGEN Europe will closely follow the final votes in the Council and the Parliament.
- COGEN Europe will draft implementation recommendations for its members, once the final text has been published in the Official Journal of the EU.
- COGEN Europe will engage with the European Commission on the possible implementation guidelines foreseen for key provisions.

| EED provisions | COGEN Europe assessment |
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| <p>Energy Efficiency First (Article 3)</p> <ul style="list-style-type: none"> - Energy efficiency first (EE1st) must be implemented on all planning, policy and major investment decisions with a value larger than EUR 100 million - In implementing EE1st, Member States shall: <ol style="list-style-type: none"> 1) Promote and assess the wider benefits of energy efficiency, including via LCA and long-term perspective, system and cost-efficiency, as well as security of supply 2) Report to the EC as part of integrated climate and energy plans - The EC is required to develop an implementing guideline and methodologies for EE1st implementation 6 months after entry into force | <p>COGEN Europe welcomes the focus on EE1st and its focus on the overall energy system.</p> <p>Yet, the EUR 100 million threshold is likely to leave out many important energy efficiency developments, including the deployment of high efficiency cogeneration.</p> |
| <p>Energy efficiency targets (Article 4)</p> <ul style="list-style-type: none"> - 11.7% reduction in energy consumption in 2030 compared to 2020 projections. - The target is mandatory on final energy savings and indicative on primary energy. - By 2030, at EU level, primary energy consumption shall not exceed more than 992.5 Mtoe and final energy consumption shall not be higher than 763 Mtoe. | <p>The agreed energy efficiency target of 11.7% is higher than the initial EC proposal as part of Fit for 55 (i.e. 9%), but lower than the European Parliament’s proposal for higher ambition (i.e. 14%).</p> <p>The energy efficiency target is binding for final energy consumption and indicative for primary energy savings, despite COGEN Europe’s and other stakeholders’ advocacy efforts. This is explained by some MS arguing that investments in direct and indirect electrification require an increase in primary energy and so such developments must not be hindered.</p> |

Energy Savings Obligation (Article 8 and Annex V)

- Member States are required to ensure new annual savings of 1.49% of final energy consumption on average during this period, gradually reaching 1.9% on 31 December 2030
- Energy savings achieved in EPBD, ETS and emergency measures can be counted towards the ESO
- Energy savings achieved in energy transformation, transmission and distribution, including via district heating, are only eligible until the end of 2023
- Member States will, based on a list of criteria, be able to count in energy savings from direct fossil fuel combustions technologies improving the energy efficiency in energy intense enterprises in the industry sector.
- Energy savings delivered by technologies that directly combust fossil fuels may only be eligible:
 - 1) until 1 January 2026 for residential buildings
 - 2) until 31 December 2030, for energy intensive industries under strict conditions:
 - 2.1) payback period for the measures is less than 5 years
 - 2.2) the measure does not increase energy consumption or the capacity of the installation
 - 2.3) justification for lack of feasibility for non-fossil fuel technologies
 - 2.4) the technology complies with most up to date emission standards
 - 2.5) the measure results in verifiable end use energy savings
 - 2.6) the evidence above must be publicly available for all interested citizens

The energy savings obligation was originally set up in the 2012 EED as a measure to reduce final energy consumption.

CHP and DHC were initially introduced as exemptions, with dedicated methodologies to translate primary energy to final energy savings. Moreover, the guidelines for the 2018 EED in force also highlight how on-site CHP heat savings can be counted as final energy savings. The 2023 EED revision limits the exemption for CHP and DHC until 2023.

The new revision of the EED mandates that the **energy savings obligation cannot count energy savings from technologies that directly combust fossil fuels (thus excluding on-site cogeneration)**. For residential buildings, this provision will be applied as of 1 January 2026. For industrial consumers, it will apply as of 2031 under certain conditions.

This new “non-fossil” criterion for the energy savings obligation appears to favour demand-reduction measures (e.g. insulation) and electrified solutions (e.g. heat pumps).

For high efficiency cogeneration installed on-site in industry, the criteria are complex and potentially difficult to implement. For example, the requirement not to increase energy demand or installed capacity may disqualify CHP when it replaces a boiler. Moreover, the requirement to publish evidence without any limitations or regard for commercial confidentiality, may prevent industrial users from taking advantage of this exemption.

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| | <p>Another caveat of this measure is that hybrid solutions which combine fossil fuel and renewable technologies, may count the savings associated with renewable sources. This opens up potential opportunities, depending on the methodologies that may be applied. Yet, COGEN Europe considers it inconsistent to mix energy efficiency and fuel mix criteria.</p> |
| <p>Heating and cooling supply (Articles 23 & 24, Annex III, Annex IX)</p> <ol style="list-style-type: none"> 1. Heating & cooling assessments (Article 23.1-5) <ul style="list-style-type: none"> - <u>As of June 2024</u>, MS shall submit their next comprehensive heating and cooling assessments, in line with Annex IX, <u>as part of the national energy and climate plans due in 2025</u> - <u>Energy efficiency first</u> shall be taken into account in the assessments - <u>Waste heat</u> is added as another element that the assessments must investigate, in addition to HE CHP and EDHC - If the assessments identify potential for HE CHP/EDHC/waste heat, MS shall take adequate measures accommodate for that potential. 2. Heating & cooling local plans (Article 23.6) <ul style="list-style-type: none"> - Local authorities in communities with a <u>total population higher than 45.000</u> are obliged to complete local heating and cooling plans - Local plans shall consider <u>HE CHP</u>, low temperature DHC, waste heat and other solutions, to increase energy efficiency, in line with <u>energy efficiency first</u> - Shall take into account <u>relevant existing infrastructure</u> | <ol style="list-style-type: none"> 1. H&C Assessments <p>COGEN Europe welcomes the new provisions on the H&C assessments. Cogeneration remains at the core of these assessments. In addition, the correlation of the H&C assessments with the broader integrated energy and climate plans can only support a better implementation for HE CHP potentials.</p> <p>Annex IX introduces new reporting requirements for CHP in DHC. Yet, COGEN Europe does not consider these additional to the “high efficiency CHP” reporting.</p> 2. H&C local plans <p>COGEN Europe welcomes the local heating and cooling plans, as a favourable measures. Both CHP and DHC are specifically mentions. In addition, there are positive references to system efficiency, cost-effectiveness, the use of existing infrastructure.</p> |

- Shall include a trajectory to achieve the goals of the plans in line with climate neutrality
- Shall aim to replace old and inefficient appliances in public bodies with efficient alternatives with the aim of phasing out fossil fuels

3. Updated efficient district heating (EDHC) definition

- requires the gradual uptake of RES and waste heat in DHC, with mandatory RES/waste heat shares of 35% as of 2035, 75% as of 2045 and 100% as of 2050
- until 1 December 2027, all cogeneration can count up to 75% towards EDHC
- between 2028 and 2045, high efficiency CHP (HE CHP) heat is explicitly recognised for DHC to as EDHC. Shares of HE CHP must exceed 80% of the heat mix and shall comply with the RES/waste heat share mandated as of 2035 (see 1st bullet above)
- as of 2045, HE CHP is still implicitly eligible, if it uses predominantly RES or waste heat sources (see 1st bullet above)
- alternatively, a Member State may apply a different definition which mandates a gradual reduction of emissions, starting at 200 g/kWh until December 2025 and going down to 0 g as of 1 January 2050

3. Efficient DHC definition

The updated EDHC definition is balanced when it comes to the contribution of CHP.

High efficiency CHP is required as of 2028, giving some time to DHC operators transition to CHPs that are “high efficiency.

HE CHP is explicitly recognised as an eligible “stand-alone” condition for EDHC until 2045. After 2045, the use of HE CHP would still be allowed if RES or waste heat shares are met.

Implicitly, these requirements could be interpreted as allowing the use of HE CHP in EDHC:

- 1) until 2035, running on up to 100% natural gas
- 2) between 2035-2045, running on up to 65% natural gas and at least 35% RES/waste heat (or a mix of 100% NG CHP and other RES or waste heat sources)
- 3) between 2045-2050, running on up to 25% natural gas and at least 75% RES/waste heat
- 4) after 2050, CHP running on 100% RES/waste heat

Additional fuel mix criteria are introduced for new district heating or new/refurbished heat systems in district heating. In such cases, the use of fossil fuels is excluded, except for natural gas until 2030. As explained below, it is up for interpretation if this requirement may or may not apply to new high efficiency CHP.

4. **Updated high efficiency CHP definition to include a new emissions threshold in addition to the 10% primary energy savings requirement** (*Annex III, indent 2*)
- new and substantially refurbished HE CHP fuelled with fossil fuels must emit below 270 g of CO₂/kWh of total energy output
 - existing CHP fuelled with fossil fuels can get a derogation from the 270 g CO₂/kWh threshold until 1 January 2034, provided they notify the relevant operators and competent authorities of their plans to reduce emissions until 270 g after 2034.
5. **HE CHP Cost Benefit Analysis** is mandatory whenever power-only plants are built or significantly refurbished above 10 MW (reduced from 25 MW) (*Article 24.4.a*)

4. **High efficiency CHP (HE CHP) definition**

Thanks for COGEN Europe advocacy, the new requirement to emit less than 270 g of CO₂/kWh remains balanced and unlikely to negatively affect the sector.

Firstly, we managed to prevent the 270 g level being lowered to 100 g of CO₂/ kWh, applicable to all fuels used (not only fossil fuels).

Secondly, the provision is set to apply to new and refurbished HE CHP.

Thirdly, due to active advocacy by COGEN Europe and other aligned stakeholders existing HE CHP may derogate from the 270 g requirement until 2034. An emissions reduction plan should be submitted to the competent authority. Yet the provision does not prescribe very detailed documentation, which will likely not lead to significant red table.

5. **CHP CBA for power-only plants**

COGEN Europe supports the reduction of the capacity limit from 25 MW to 10 MW for the requirement to carry out a CHP CBA whenever a power-only plant is built or refurbished. This provision is nice to have, although previous implementation of the EED shows it is not extremely impactful.

6. **Use of natural gas in HE CHP & EDHC** (*Article 24.2/Annex III*)

- As per Article 24.2.2.b, to qualify as EDHC a new DHC or when supply units are substantially refurbished, those units:

- 1) must not increase the use of fossil fuels other than natural gas in existing heat sources
- 2) new heat sources in that system do not use fossil fuels, other than natural gas until 2030

- Annex III, indent 3, requires HE CHP new and refurbished systems to:

- 1) not increase the consumption of fossil fuels, other than natural gas
- 2) any new heat sources in the HE CHP system does no use fossil fuels, other than natural gas

7. For context: **“Significant refurbishment”** is defined as “a refurbishment whose cost exceeds 50% of the investment cost for a new comparable unit”

6. **Use of natural gas in HE CHP and EDHC**

New provisions have been added to prevent “the use of fossil fuels, except for natural gas” in new and refurbished EDHC and HE CHP. These requirements are added to Article 24. 2 for EDHC and in Annex III for HE CHP.

While Article 24.2.2.b excludes the “use of fossil fuels, other than natural gas until 2030” from new heat sources in EDHC, Annex III does not add a “deadline” for the use of natural gas in HE CHP.

COGEN Europe recommends that members argue at national level for a favourable joint interpretation of Article 24.1 and Annex III, allowing natural gas use in both existing and new HE CHP in EDHC until and after 2030. When implementing Article 24.2.2.b, new heat systems would exclude fossil fuels, including natural gas, after 2030. Yet, for HE CHP, Annex III would take precedence.

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| <p>Energy transformation, transmission and distribution (Article 25)</p> <ul style="list-style-type: none"> - Energy efficiency first must be applied for gas and electricity infrastructure in the: <ol style="list-style-type: none"> 1) operation and network tariffs 2) network planning, network development and investment decisions - Member states may take into account system efficiency, security of supply and cost efficiency - Transmission and distribution system operators (SO) shall include in their cost benefit analysis methodologies energy efficiency alternatives - SOs shall monitor network losses and aim to improve the efficiency of their networks - National Regulatory Authorities (NRAs) shall assess progress and make recommendations on energy efficiency improvements, including alternatives to reduce peak loads and overall electricity use - NRAs <u>shall ensure the removal of those incentives in transmission and distribution tariffs that are detrimental to energy efficiency</u> of generation, transmission, distribution and supply of electricity and gas. | <p>COGEN Europe considers these measures as favourable for CHP, although previous implementation has not been sufficiently ambitious.</p> |
| <p>Conversion factors and primary energy factors (Article 29)</p> <ul style="list-style-type: none"> - The <u>primary energy factor for electricity is set to 1.9</u> (down from 2.1), to be further revised by 25 December 2026 and every 4 years afterwards. It shall be based on observed data. | <p>COGEN Europe finds the reduction of the EU PEF to 1.9 as not necessarily aligned with observed data. However, this value is unlikely to directly impact CHP. Moreover, many Member States use their own methodologies to determine EU PEFs and usually apply more reasonable values in areas with CHP and DHC.</p> |