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COVER NOTE

From:	Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director
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To:	Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union

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Subject:	COMMISSION DELEGATED REGULATION (EU) .../... of 4.7.2023 amending Commission Delegated Regulation (EU) 2015/2402 as regards the review of harmonised efficiency reference values for separate production of electricity and heat in application of Directive 2012/27/EU of the European Parliament and of the Council

Delegations will find attached document C(2023) 4376 final.

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COMMISSION DELEGATED REGULATION (EU) .../...

of 4.7.2023

amending Commission Delegated Regulation (EU) 2015/2402 as regards the review of harmonised efficiency reference values for separate production of electricity and heat in application of Directive 2012/27/EU of the European Parliament and of the Council

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE DELEGATED ACT

Grounds and objectives of the Delegated Regulation

Pursuant to Directive 2012/27/EU on energy efficiency¹ (EED), combined heat and power (CHP) plants must provide primary energy savings (PES) of more than 10% for schemes that are above 1 MWe (or more than 0% for small schemes with capacity of less than 1 MWe) in order to be considered as high-efficiency CHP plants when compared with separate generation of electricity and heat.

The calculation of the PES requires reference efficiency values for the separate generation of heat and electricity. In line with Article 14(10) and Annex II(f) to the EED, the Commission is responsible for commissioning work to estimate these values based on operational data. The empowerment of the Commission to review these reference values is provided in Article 22(1) of the EED.

The reference values were first established in Commission Decision 2007/74/EC². These values must be regularly updated to reflect technological developments and have been reviewed two times: in Commission Implementing Decision 2011/877/EU³ and in Commission Delegated Regulation (EU) 2015/2402⁴. The reference values in this Delegated Act are based on a study commissioned by the Commission “Review of the Reference Values for High Efficiency Cogeneration (2022-2025)”⁵.

The Delegated Act follows the general principles originating from Directive 2004/8/EC on the promotion of cogeneration based on a useful heat demand in the internal energy market⁶, that required harmonisation of reference efficiency values for electricity and heat so that the reference value for a given fuel and given year of construction applies to all Member States across the EU. This requirement is maintained under Annex II to the EED.

In addition, reference values must be based on operational data under realistic conditions for plants built by the market, not on information provided by manufacturers, design data or research projects. Various factors can cause differences between the design and operational data, like fluctuations in load profile, degradation of performance over time, etc.

The Delegated Regulation replaces Annexes I, II and IV to the Delegated Regulation (EU) 2015/2402. The other provisions in the Regulation are unchanged, as they remain relevant to the objectives of the Regulation and consistent with the latest study to review the reference values for the separate production of heat and electricity.

Environmental aspects

The amendment of the Regulation is in alignment with energy and climate policy goals for 2030. Cogeneration is the most efficient technology for a simultaneous generation of heat and electricity, capable of delivering primary energy savings and environmental benefits in a cost-efficient manner. With the amendments, investments into cogeneration using liquid or solid

¹ Directive 2012/ 27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ L 315, 14.11.2012, p. 1.)

² OJ L 32, 6.2.2007, p. 183.

³ OJ L 343, 23.12.2011, p. 91.

⁴ OJ L 333, 19.12.2015, p. 54.

⁵ <https://ec.europa.eu/transparency/expert-groups-register/core/api/front/document/90120/download>

⁶ OJ L 52, 21.2.2004, p. 50.

fossil fuels⁷ will be prevented in new cogeneration facilities. The only fossil fuel that can be used in high-efficiency cogeneration plants is natural gas. In long-term climate and energy scenarios⁸, the use of natural gas in cogeneration has been found to be compatible with the transition towards climate-neutrality by 2050 and with the Union's 2030 targets.

2. CONSULTATIONS PRIOR TO THE ADOPTION OF THE ACT

Consultation of interested parties

Being of a technical nature, this Delegated Regulation did not require an impact assessment or an open public consultation to be carried out prior to the amendment of the Act, as is the case for major initiatives.

The abovementioned study was launched in March 2021 to review the reference values for the separate production of heat and electricity. Member States and stakeholders were invited, through the EED Committee, to participate and provide information. Three stakeholder workshops were organised online during the study, on 15 June, 27 September and 2 December 2021 respectively.

Summary of responses and how they have been taken into account

Member States and stakeholders made several comments and suggestions on the results of the study during the discussions held in the workshops referred to above, namely that:

- The principle that the reference values are established for all fuel categories individually, thus allowing like-for-like comparisons to determine primary energy savings from cogeneration units, should be continued. The reference values for natural gas power stations are not attainable for plants using solid and liquid fossil fuels.
- Some technologies such as Organic Rankine Cycle (ORC) plants using biomass and fuel cells should have specific reference values under fuel categories.
- For cogeneration plants capable to provide electricity system services through their flexible operation, lower reference values should be established.
- For some energy sources, such as biomass, hydrogen, e-fuels, waste and waste heat, the proposed reference values were commented on, mainly because of their levels and scope of application. For example, it was suggested that:
- ORC plants using biomass should have a separate sub-category with lower reference values;
- Bioenergy plants with a capacity below 20 MW_{el} should have lowered reference values;
- Fuel cells should have their own reference values;
- Traded hydrogen should have the same reference values applied for hydrogen when this is a by-product of the main activity;
- Current power reference value for waste heat of 30% is too high for some applications.

⁷ Except non-renewable waste and residues.

⁸ SWD(2020) 176 final

- A more elaborated approach should be introduced for correction factors on condensate return. Steam could be one of the outputs to industrial consumers. When this is returned from the consumers, it comes back as water (condensate) still having approximately 10-16% of the total energy originally held within the steam. Condensate return thus maximises energy extraction from steam to improve efficiency while reducing input requirements.

As a result of these suggestions:

- Additional clarifications were provided in the report of the study to explain the background to use a single reference value for all fossil fuels and a technology-neutral approach in establishing the reference values.
- Flexible operation of cogeneration plants will not be considered, when calculating the primary energy savings.
- On comments related to reference values applicable for individual energy sources, additional clarifications were provided. For the proposed reference value for waste heat, reference values were lowered for waste heat to a temperature of less than 200 °C.
- On condensate return, it was proposed not to change the current approach whereby Member States can decide on their national methods to address the condensate return.

The draft proposal was published for public feedback on the Better Regulation Portal from 2 December 2022 to 30 December 2022. In total, 14 responses were received: 8 from business associations (including 4 organisations representing their members on EU level), 2 from individual companies, 2 from public authorities, 1 from NGO and 1 from EU citizen. Among the respondents, the most represented Member States were Czechia (4 responses), Poland (3) and Finland (2). In the comments, additional clarifications or changes were requested:

- For cogeneration plants fuelled with solid and liquid fossil fuels and older than 10 years in 2024, apply the reference values that were in force until December 2023 (from 9 respondents).
 - This issue is already sufficiently well regulated in the delegated act, namely in Article 3(2). According to this paragraph, the new reference values applicable from 1.01.2024 will apply to cogeneration units that are 10 years old or older from 1.01.2034. Therefore, only cogeneration units using solid or liquid fossil fuels and commissioned in after 2020 will be the most affected. However, in a preparatory work of this delegated act such units have not been identified despite the efforts to find them.
 - A recital explaining the use of reference values for older cogeneration units is slightly modified.
- The reference values for traded hydrogen and residual hydrogen should be the same and unchanged (6 respondents), as the suggested reference values are not based on operational data.
- Cogeneration units on natural gas are often designed to be “hydrogen-ready” already now. Lower reference value for hydrogen means that combined reference value will be smaller for natural gas units using hydrogen as a second fuel. For units using several fuels, the reference value is a weighted average value, based on the individual shares of each fuel used in

cogeneration unit. Therefore, it is appropriate to set a separate reference value for traded hydrogen to avoid indirect lowering of the energy efficiency demands for new cogeneration units.

- The draft delegated act was not changed based on this feedback.
- Flexibility of the cogeneration units should be rewarded with a specific correction factor. The Commission shall put forward an analysis looking into this specific issue and introduce a correction factor in the next review when relevant (2 respondents).
 - At the moment there is not sufficient proof that cogeneration plants could be incapable to fulfil the requirement on Primary Energy Savings because of their flexible operation.
 - Electricity market design should provide appropriate signals to encourage flexible operation of the cogeneration plants.
 - A specific recital highlighting the need to consider this aspect in the next review is inserted.
- The reference values for waste (fuel category S6) should be higher (2 respondents).
 - Although operational data of such plants collected during the preparatory work was limited, they do not confirm that higher reference value is appropriate.
 - The draft delegated act was not changed based on this feedback.
- Stimulate transition from biogas to biomethane through reference values as it is one of the ambitions in the REPowerEU communication (1 respondent).
 - A regulatory intervention through delegated act on reference values is indirect measure to tackle this problem. Market mechanisms are more appropriate measures to encourage the upgrade of biogas to biomethane.
 - The draft delegated act was not changed based on this feedback.
- Differentiation of the reference value for natural gas based on the size of the cogeneration units and introduction of two categories: above and below 100 MW_{el} (1 respondent).
 - In preparatory work of the delegated act, sufficient evidence to justify the separation of categories has not been found.
 - The draft delegated act was not changed based on this feedback.

3. LEGAL ELEMENTS OF THE DELEGATED ACT

Summary of the proposed action

The Delegated Regulation provides a new set of reference values for the separate production of heat and electricity to be used as of 1 January 2024.

It updates the reference values for the separate production of heat and electricity with new energy sources and corrects some of the current reference values.

Legal basis

The Commission is empowered to adopt this Delegated Regulation by Article 14(10) and Article 22(1) of the EED.

Proportionality principle

In accordance with the principle of proportionality, this Delegated Regulation does not go beyond what is necessary to achieve its objective. The form of the Delegated Regulation is an amending Regulation, which is directly applicable in all Member States. This ensures national and EU administrations will not incur any costs for transposing the legislation into national legislation.

Choice of instrument

Proposed instrument: Delegated Regulation. As the Delegated Regulation amends the existing Regulation, this is the only appropriate instrument.

Budgetary implication

The Delegated Regulation has no implications for the EU budget.

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC¹, and in particular the second subparagraph of Article 14(10) thereof,

Whereas:

- (1) Delegated Regulation (EU) 2015/2402² established reviewed harmonised efficiency reference values for the separate production of electricity and heat, as a matrix of values differentiated by relevant factors, including year of construction and types of fuel and complemented with correction factors with regards to average climatic situation and avoided grid losses.
- (2) The Commission carried out a review of those harmonised efficiency reference values ('the review') for the separate production of electricity and heat taking into account data from operational use under realistic conditions, provided by Member States and by stakeholders. As a result of developments in the best available and economically justifiable technology, observed during the review period from 2016 to 2021, the distinction drawn in Delegated Regulation (EU) 2015/2402 relating to the year of construction of a cogeneration unit should be maintained in relation to the harmonised efficiency reference values for separate production of electricity.
- (3) The review showed a need to include new fuels and emerging technologies that might be used more broadly or introduced in cogeneration. Therefore, the list of energy sources with specific reference values should be extended to include e-gases and traded hydrogen as well. As regards traded hydrogen, separate reference values should be set to increase the efficiency of hydrogen use in large cogeneration units.
- (4) The review supports the use of a single reference value for the separate production of electricity for all fossil fuels, based on natural gas use in combined cycle gas turbine power stations. The building of new cogeneration units using liquid or solid fossil fuels is not in conformity with the long-term energy and climate policy objectives of the Union. Therefore, in order to avoid retroactive changes for current schemes, the reference values should be updated and be applicable to the new and substantially

¹ OJ L 315, 14.11.2012, p. 1.

² Commission Delegated Regulation (EU) 2015/2402 of 12 October 2015 reviewing harmonised efficiency reference values for separate production of electricity and heat in application of Directive 2012/27/EU of the European Parliament and of the Council and repealing Commission Implementing Decision 2011/877/EU (OJ L 333, 19.12.2015, p. 54).

refurbished cogeneration units consuming fossil fuels put into operation from 1 January 2024.

- (5) The review showed that the harmonised efficiency reference values for the separate production of heat should be changed only as regards fossil fuels. The new set of reference values for fossil fuels are established on the basis of heat-only boilers using natural gas and should be applicable to new or substantially refurbished units for separate production of heat completed as from 1 January 2024.
- (6) It is necessary to have stable conditions for investment in cogeneration, and continued investor confidence, therefore it is appropriate to fix harmonised reference values for electricity and heat.
- (7) One of the objectives of Directive 2012/27/EU is to promote cogeneration in order to save energy, therefore an incentive should be granted for retrofitting older cogeneration units in order to improve their energy efficiency. In order to provide such incentive, and in conformity with the requirement for the harmonised efficiency reference values to be based on the principles set out in point (f) of Annex II to Directive 2012/27/EU, the efficiency reference values for electricity applicable to a cogeneration unit should increase from the eleventh year after the year of its construction following the rules in Article 3(2) of Delegated Regulation (EU) 2015/2402.
- (8) Thermal generation is becoming increasingly important for energy system security, resiliency and flexibility. The operation of some cogeneration systems may change to provide security of supply, flexibility or ancillary services to the electricity system, depending on the application. Future revisions of Delegated Regulation (EU) 2015/2402 shall explore the evolution of efficiency levels, as thermal power plants must adapt their operation to become more flexible in response to renewable power intermittency and demand-side electrification.
- (9) Delegated Regulation (EU) 2015/2402 should therefore be amended accordingly,

HAS ADOPTED THIS REGULATION:

Article 1

Delegated Regulation (EU) 2015/2402 is amended as follows:

Annexes I and II are replaced by the text in Annex I to this Regulation;

Annex IV is replaced by the text in Annex II to this Regulation.

Article 2

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*. This Regulation shall apply from 1 January 2024.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 4.7.2023

For the Commission
The President
Ursula VON DER LEYEN