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WORKING DOCUMENT

From:	General Secretariat of the Council
To:	Delegations
Subject:	Non paper on the treatment of renewable energy in Article 7 of the Energy Efficiency Directive proposal

Delegations will find in Annex a non paper on the treatment of renewable energy in Article 7 of the Energy Efficiency Directive proposal, as received from the Commission.

Non paper on the treatment of renewable energy in Article 7 of the Energy Efficiency Directive proposal

1. Introduction

This non paper has been prepared by the Commission services at the request of the Presidency to clarify certain aspects and improve the national administrations' understanding of the issues involved.

One of the aims of the amended Article 7 of the Energy Efficiency Directive is to ensure better coherence with the other 2030 energy and climate targets by recognising the increasing role of renewable energy sources to improve the energy performance of buildings - the sector responsible for the largest share of final energy consumption. (For its part, the Energy Performance of Buildings Directive already provides for such an integrated approach whereby energy efficiency and renewable energy measures are combined, in assessing the energy performance of buildings).

For this reason, the Commission has proposed introducing a new paragraph in Article 7(2) of the Directive, the provision which justifies Member States reducing their required amount of end-use energy savings.

The Commission proposes a new exemption (e), allowing Member States to reduce the calculated total savings requirement by the amount of energy generated for own use by new renewable energy installations on or in buildings (installed after 31st December 2020). In accordance with Article 7(3) this exemption, taken together with other possibilities under Article 7(2), may not reduce the energy savings requirement by more than 25%.the application of this exemption will affect the calculation of the total cumulative savings requirement Member States would need to achieve by the end of the new period (2021-2030).

The revised Article 7 will not change the overall nature of this policy. Measures promoting renewable energy can already be taken into account under Article 7 if a Member State shows that those measures generate end-use energy savings relative to the technology they replace. End-use savings from, for example, switching to more efficient heating and , hot water technologies in buildings, including renewable energy technologies, remain fully eligible under Article 7 as long as Member States can ensure that those savings are additional, measurable and verifiable according to the methods and principles contained in Annex V.

2. Calculation of the total savings requirement under Article 7(1)

In practice the calculation of the savings requirement would need to follow the following steps:

1) The Member State establishes the average volume of energy sales over the most recent three years before 2019 (2016-2018) as referred to in Article 7(1)(b). This average is the basis for calculating the cumulative savings requirement for the next obligation period 2021-2030. The sales of energy used in transport may be partially or fully excluded from this calculation.

2) 1.5% of the established amount should be calculated and cumulated over the 10 year period to establish the total amount of cumulative savings to be achieved by the Member State under Article 7(1), in the same way as it was calculated for the existing period 2014-2020 following the explanation in the Guidance note – section B2[1].

3) Then the Member State would need to decide whether any of the flexibilities under Article 7(2) will be used and if so, which and up to what amount (the reduction of the may not exceed 25% of the total savings requirement).

4) In order to apply the new exemption under paragraph 2(e), the Member State would need to determine what volumes of renewable energy (in ktoe, MWh or equivalent) it estimates will be generated on buildings for own use during the next obligation period (2021-2030). This calculation can only take into account renewable energy generated from newly installed (post 2020) technology on or in buildings by the estimated average RES volume to be produced for own use over the 2021-2030 period.

3. Amount of savings to be claimed under the measures promoting on / in building RES, that were used under Article 7(2)e)

Member States that use the possibility in paragraph 2(e) would be able to use the calculation methodology under Directive 2010/31/EU on energy performance for buildings (EPBD). It should be noted that the requirements of Article 7 of the EED and Annex V as regards additionality, materiality and the established monitoring and verification rules of the Member State will also apply. This possibility will be in effect only for the new period.

Any additional renewable energy produced as a result of this new possibility in paragraph 2(e) will also count for the purposes of the revised Directive 2009/28/EC.

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[1] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013SC0451&from=EN

4. Examples of efficiency levels of different heating technologies and potential amount of savings counting under Article 7 and volume of renewable energy for the purposes of exemption under paragraph (e)

1) replacement of an old oil boiler by a new oil boiler

Efficiency parameters	Oil boiler			Savings from BAT relative to old boiler[2]	Savings from BAT relative to min.eff.[2]
	Old boiler	Min efficiency[3]	BAT[7]		
Seasonal space heating efficiency, primary energy	77%	86%	97,5%		
Annual primary energy consumption (MWh) [4]	11,36	10,38	9,16	**2,21**	**1,22**

2) replacement of an old oil boiler by a new biomass boiler

Efficiency parameters	Old oil boiler	New Biomass boiler		Savings from BAT relative to old boiler[2]	Savings from BAT relative to min.eff.[2]	RES volume for Art. 7(2)e), (MWh) [5]
		Min efficiency[6]	BAT[7]			
Seasonal space heating energy efficiency, primary energy	77%	75%[8]	92%[8]			
Annual primary energy consumption (MWh)[4]	11,36	11,91	9,71	**1,66**	**2,20**	**8,83**

3) replacement of an electric heater by a heat pump

Efficiency parameters	Old electric heater	Heat pump		Savings from BAT relative to old boiler[2]	Savings from BAT relative to min.eff.[2]	RES volume for Art. 7(2)e), (MWh) [9]
		Min efficiency[3]	BAT[7]			
Seasonal space heating energy efficiency, primary energy[10]	35%	110%	125%			
Annual primary energy consumption (MWh)[4]	25,51	8,12	7,14	**18,37**	**0,97**	**6,14**

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[2] Explanation provided in Annex, Section 3

[3] Set by Ecodesign Regulation (EU) No 813/2013

[4] Explanation provided in Annex to this paper, Section 2

[5] Equal to the heat output of the biomass boilers.

[6] Set by Ecodesign Regulation (EU) 2015/1189

[7] Best Available Technology available on the market, estimated from product catalogues/certification schemes

[8] Calculated as per Ecodesign Regulation (EU) 2015/1189; includes the energy consumption from biomass and electricity consumption from the controls and the auxiliary functions converted in primary energy.

[9] According to Directive 2009/28/EC Annex VII, with SPF = SCOP. The SCOP was calculation from the seasonal space heating efficiency according to Ecodesign Regulation (EU) No 813/2013.

[10] The final energy is calculated by applying the default value for electricity generation set in directive 2012/27/EU on energy efficiency, currently set at 2.5.

Annex

Explanation of calculations made for the examples of efficiency levels of different heating technologies and the potential amount of savings counting under Article 7 and volume of renewable energy for the purposes of the exemption under Article 7(2)e)

1. Selection of the boiler size

The selection of the boiler size was based on a medium size dwelling with a heat load of 8 929 kWh/a[11]; this corresponds to a boiler with a heat input of 22 kW.

2. Calculation of the Annual primary energy consumption

$$\text{Annual primary energy consumption} = \frac{\text{Annual heating demand}}{\eta_S}$$

with η_S the seasonal space heating efficiency[12]

3. Calculation of the savings from BAT relative to X

Savings from BAT relative to X
$$= \text{Annual primary energy consumption of X}$$
$$- \text{Annual primary energy consumption of BAT}$$

with X old boiler or min.eff.

4. The annual energy consumption from biomass (biomass input into the boiler)

According to the preparatory study for biomass boilers[1], task 6, the electricity consumption of a biomass boiler of 2 Wh per kWh thermal energy.

As such, the thermal consumption can be calculated as follows:

$$\textit{The annual energy consumption from electricity} = \frac{\textit{The annual primary energy consumption}}{a}$$

with a equal to 501, based on electricity consumption of a biomass boiler ranges of 2 Wh per kWh thermal energy.

The annual energy consumption from biomass
$$= \textit{The annual primary energy consumption}$$
$$- \textit{The annual energy consumption from electricity}$$

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[11]From the preparatory study on ecodesign of boilers, for more information go to:
https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficient-products
[12] Seasonal space heating efficiency according to Regulations (EU) No 813/2013 and (EU) 2015/1189.