

Renewable Energy Directive: Waste Heat in Renewable Heating and Cooling articles

Carlos Alberto Fernández López (IDAE)
CA RES4 CT3 (Decarbonising Heating and Cooling) Coordinator

27 March 2025



Article	
1	Subject matter
2	Definitions
3	Binding overall Union target for 2030
4	Support schemes for energy from renewable sources
5	Opening of support schemes for electricity from renewable sources
6	Stability of financial support
7	Calculation of the share of energy from renewable sources
8	Union renewable development platform and statistical transfers between Member States
9	Joint projects between Member States
10	Effects of joint projects between Member States
11	Joint projects between Member States and third countries
12	Effects of joint projects between Member States and third countries
13	Joint support schemes
14	Capacity increases

The Renewable Energy Directive

Article	
15	Administrative procedures, regulations and codes
15a	Mainstreaming renewable energy in buildings
15b	Mapping of areas necessary for national contributions towards the overall Union renewable energy target for 2030
15c	Renewables acceleration areas
15d	Public participation
15e	Areas for grid and storage infrastructure necessary to integrate renewable energy into the electricity system
16	Organisation and main principles of the permit-granting procedure
16a	Permit-granting procedure in renewables acceleration areas
16b	Permit-granting procedure outside renewables acceleration areas
16c	Accelerating the permit-granting procedure for repowering
16d	Permit-granting procedure for the installation of solar energy equipment
16e	Permit-granting procedure for the installation of heat pumps
16f	Overriding public interest

Article	
17	Simple-notification procedure for grid connections
18	Information and training
19	Guarantees of origin for energy from renewable sources
20	Access to and operation of the grids
20a	Facilitating system integration of renewable electricity
21	Renewables self-consumers
22	Renewable energy communities
22a	Mainstreaming renewable energy in industry
22b	Conditions for reduction of the target for the use of renewable fuels of non-biological origin in the industry sector
23	Mainstreaming renewable energy in heating and cooling
24	District heating and cooling
25	Increase of renewable energy and reduction of greenhouse gas intensity in the transport sector
26	Specific rules for biofuels, bioliquids and biomass fuels produced from food and feed crops
27	Calculation rules in the transport sector and with regard to renewable fuels of non-biological origin regardless of their end use

The Renewable Energy Directive

Article	
28	Other provisions on renewable energy in the transport sector
29	Sustainability and greenhouse gas emissions saving criteria for biofuels, bioliquids and biomass fuels
29a	Greenhouse gas emissions saving criteria for renewable fuels of non-biological origin and recycled carbon fuels
30	Verification of compliance with the sustainability and greenhouse gas emissions saving criteria
31	Calculation of the greenhouse gas impact of biofuels, bioliquids and biomass fuels
31a	Union database
32	Implementing acts
33	Monitoring by the Commission
34	Committee procedure
35	Exercise of the delegation
36	Transposition
37	Repeal
38	Entry into force
39	Addressees

Article 15a

Mainstreaming renewable energy in buildings

- (1) Indicative share of renewable energy: renewable energy produced on-site or nearby as well as renewable energy taken from the grid in final energy consumption in their building sector in 2030 that is consistent with an **indicative target of at least a 49 %** share of energy from renewable sources in the building sector in the Union's final energy consumption in buildings in 2030.
- (2) Member States may count waste heat and cold towards the indicative national share.

Article 22a

Mainstreaming renewable energy in industry

- (1) **Indicative increase of at least 1,6 percentage points as an annual average** calculated for the periods 2021 to 2025 and 2026 to 2030. Member States may count waste heat and cold.

The Renewable Energy Directive

Article 23

Mainstreaming renewable energy in H&C

- (1) **Each Member State shall increase the share of renewable energy in that sector by at least 0,8 percentage points** as an annual average calculated for the period 2021 to 2025 and by at least 1,1 percentage points as an annual average calculated for the period 2026 to 2030. Member States may count waste heat and cold, and renewable electricity as well.

Article 24

District heating and cooling

- (4) **Member States shall endeavour to increase the share of energy from renewable sources and from waste heat and cold in district heating and cooling by an indicative 2,2 percentage points as an annual average** calculated for the period 2021 to 2030.

The Renewable Energy Directive

General overview of heating and cooling related renewable energy targets in the revised RED

Article	15a	22a	23	24
Sector	Buildings	Industry	Heating and cooling	District heating and cooling
Target type	Indicative national share to be determined by Member States	Indicative annual average increase	Annual average increase	Indicative annual average increase
Target period	In 2030	2021-2025 and 2026-2030 compared to 2020	2021-2025 and 2026-2030 compared to 2020	2021-2030 compared to 2020
Target level	In line with 49% Union level	1.6 percentage points	0.8 percentage points and 1.1 percentage points + Indicative top-up	2.2 percentage points
Energy type	Renewable energy produced on-site + Renewable energy produced nearby + Renewable energy taken from the grid	Renewable energy	Renewable energy	Renewable energy + Waste heat and cold
Consumption type	Final energy	Final energy and non-energy	Gross final energy	Gross final energy
Flexibility	Waste heat and cold	Waste heat and cold from efficient district heating and cooling	Waste heat and cold + Renewable electricity from heat and cold generator with >100% efficiency	Renewable electricity

Definition of waste heat (art. 2(9))

‘Waste heat and cold’ means **unavoidable** heat or cold generated as **by-product** in industrial or power generation installations, or in the tertiary sector, which would be dissipated unused in air or water without **access to a district heating or cooling system**, where a **cogeneration** process has been used or will be used or where cogeneration is not feasible.



Very
restrictive
scope.

Plenary Meeting 1

Virtual

Plenary Meeting 2

Virtual

Plenary Meeting 3

Athens

Waste Heat Statistics

Plenary Meeting 4

Vienna

CA RES4. Plenary Meetings so far

Plenary Meeting 5

Lisbon

RED targets & implementation issues

Plenary Meeting 6

Budapest

Plenary Meeting 7

Brussels

Communication on Guidance for H&C

3 CA's Meeting (2020)

Barcelona

Waste Heat Statistics

PM3. Athens, 2022

- Lack of data. Combined with a strict definition, the fact is that it is not a very effective tool to achieve the goals.
- Sometimes not collected in official stats.
- Different methodologies for calculating values.
- Update on proxy values.

Q2 Do you have data on waste heat?

No	Yes	Data
Austria	Italy	1% of district heating
Cyprus	Bulgaria	64 ktoe
Portugal	Denmark	3.7% of district heating
Romania	Netherlands	9.7% of district heating
Germany	Spain	40.3 ktoe
Poland	Finland	Only in DH

Waste Heat Statistics

PM3. Athens, 2022

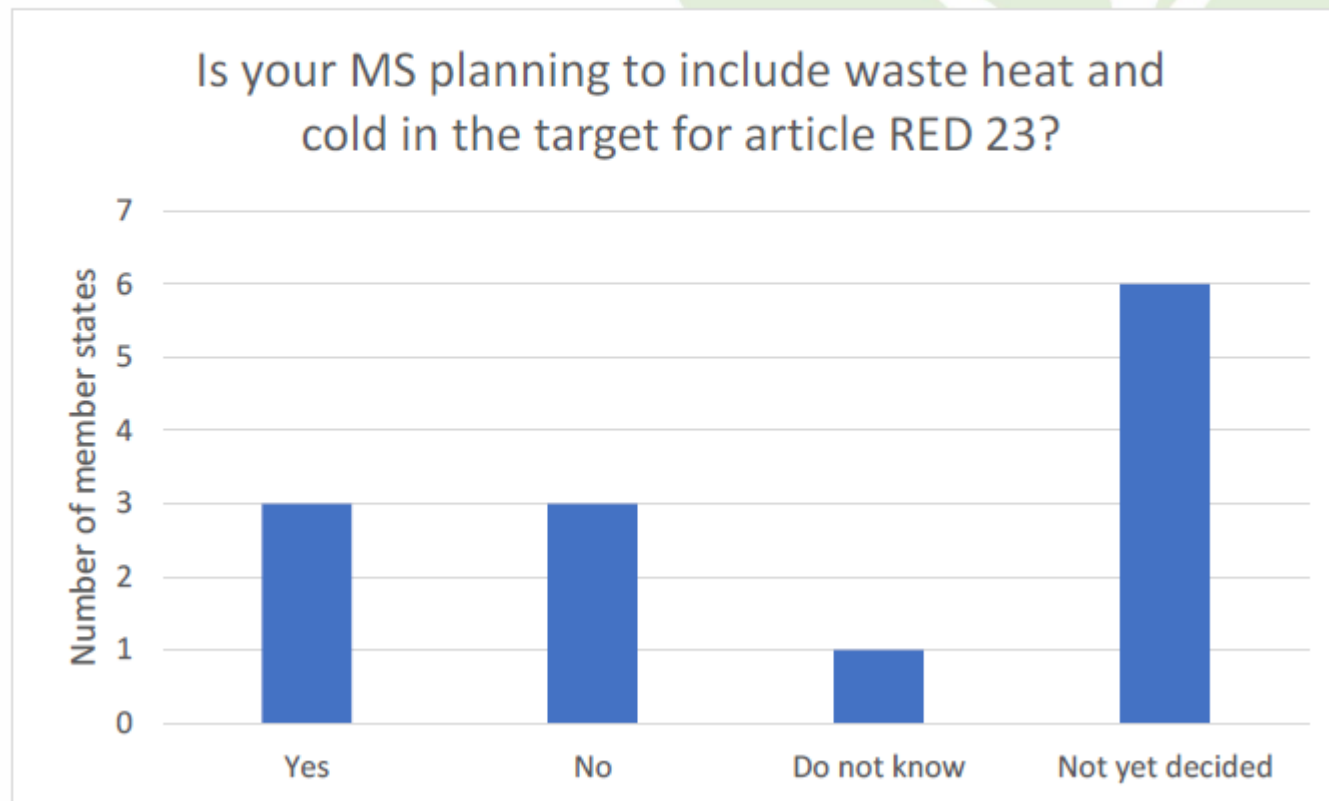
Q3 did you implement the definition of waste heat?

No	Yes	Where
Spain	Austria	Proposed in renewable energy acti
Cyprus	Italy	
Portugal	Bulgaria	
Romania	Denmark	In the heat supply act
Norway	Netherlands	Protocol monitoring RE, building code, proposed in the update of the heat law
Germany	Finland	In the act of GVO's
	Poland	Transposition RED II in progress

Articles 23 and 24 of the revised RED. Monitoring and accounting

PM5. Lisbon, 2023

Q1 Waste heat



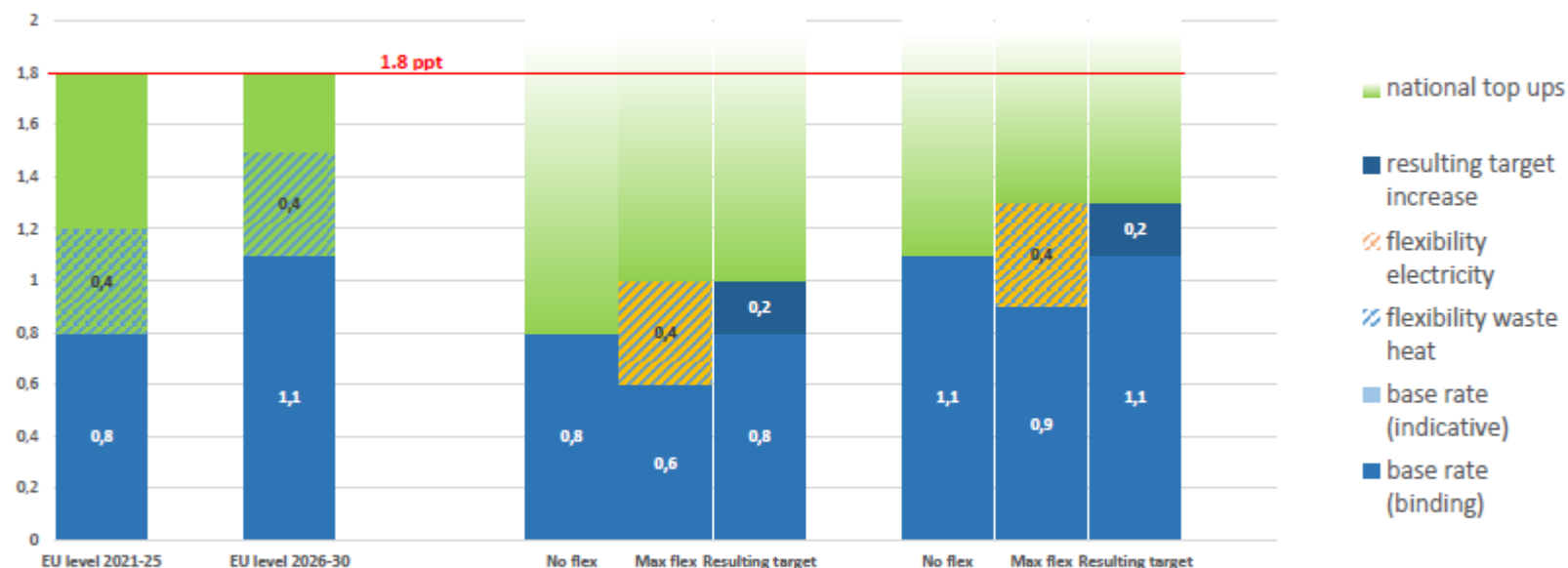
Articles 23 and 24 of the revised RED. Monitoring and accounting PM5. Lisbon, 2023

Remarks on waste heat (selection)

- Plan for registry and determine criteria for mandatory use (SI).
- Data available for waste heat in district heating (FI, NL).
- Unavailability of data reason not to take it into account (PT).
- Data from agreements with energy intensive industries (BE-Wallonia).

Articles 23 and 24 of the revised RED. Monitoring and accounting PM5. Lisbon, 2023

Heating and cooling (Art. 23) Level and flexibilities



- Binding element: 0.8 percentage point over 2021-2025, 1.1 ppt over 2026-2030
- National top-ups to reach 1.8 ppt EU-wide
- Option to count waste heat & electricity, to a max amount – increase of target

Guidance for interpreting the new provisions of the RED on H&C

PM7. Brussels, 2024

Definition of waste heat and cold under RED

- ❑ Four cumulative criteria to be met to qualify as waste heat or cold under RED
 - *Unavoidable: cannot reasonably be avoided or internally consumed or reduced through technical and energy efficiency improvements*
 - *By-product: primary aim of the process should not be to generate that specific fraction of heat and cold*
 - *Heat or cold generated in the industrial or power generation installations, or in the tertiary sector*
 - *Heat or cold to be delivered to a DHC system – on-site or single building recovery cannot be accounted*
- ❑ In addition, overall requirement to always consider CHP
- ❑ Guidance applies specifically in the context of RED.
- ❑ Most questions received relate to the treatment of waste (WFD) in waste-to-energy facilities (IED) and their contribution to efficient DHC (EED): not in scope

Not defined
in RED

As a conclusion...

- Waste heat was conceived as a flexibility, except for art. 24.
- Lack of data and harmonized methodologies. Incertitude.
- Strict definition of art. 2(9).
- The result: waste heat is not a very effective tool to achieve the energy goals for H&C in the RED.

Renewable Energy Directive Waste Heat in Renewable Heating and Cooling articles

Carlos Alberto Fernández López (IDAE)
CA RES4 CT3 (Decarbonising Heating and Cooling) Coordinator

27 March 2025