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# Waste heat and cold RED II (2018/2001/EU)

CA-EED WG5.4

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# Waste heat

- About **20-50% of industry energy** consumption discharged as WH
- Current power generation produces **more WH than what is needed** for the entire EU building stock (but economically recoverable?)
- Waste heat sources in cities:
  - indoor comfort devices
  - processes cooling
  - tertiary buildings

e.g. in datacentres and supermarkets

- For DHC, fed into **forward or return flows**

# The definition of waste heat & cold

Article 2 (9) of Directive 2018/2001/EU (RED II):

“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”

# Provisions in RED II: Article 15

- **Article 15(3):** deployment of RES + waste HC on **national, regional and local** levels through **planning, designing, building and renovating** urban infrastructures, industrial, commercial, residential areas, energy infrastructures (electricity, DHC, gas, alternative).
- **Article 15(4):** minimum RES requirement in buildings (new, and existing undergoing major renovation) can be fulfilled, inter alia, through **efficient DHC using significant share of RES and waste HC**.
- **Article 15(7):** assessment of RES and waste HC potentials for heating and cooling in the **comprehensive assessment**.

# Provisions in RED II: Article 20

- **Article 20(3): assess in NECP** the necessity to build new DHC infrastructure to accommodate development of HC from various RES and **waste HC sources**.

# Provisions in RED II: Article 23

- **Article 23(1) and (2): possibility to use waste HC** to fulfil the 1.3 ppt RE average annual increase, subject to a cap of 40%
- **Article 23(4):** measures cover direct and indirect waste HC, as well as other (fiscal, financial) measures
- **Article 23(6): optional reporting** also cover total quantities and shares of waste HC in HC supply

# Provisions in RED II: Article 24

- **Article 24(4)(a):** waste HC counts towards the **optional indicative** 1 ppt average yearly increase in RES and waste HC
- **Article 24(4)(b):** waste HC access to DHC networks subject to exception under 24(5)(a)-(c)

# Provisions linking RED-EED

- **Article 2(20) of 2018/2001/EU:** „'efficient district heating and cooling' means efficient district heating and cooling as defined in point (41) of Article 2 of Directive 2012/27/EU“
- **Article 2(41) of 2012/27/EU:** „'efficient district heating and cooling' means a district heating and cooling system using at least 50% renewable energy, **50% waste heat**, 75% cogenerated heat or **50% of a combination of such energy and heat.**“
- **Article 14(1) of 2012/27/EU:** „Member States shall carry out and notify to the Commission a comprehensive assessment of the potential for the application of high-efficiency cogeneration and **efficient district heating and cooling**, containing the information set out in Annex VIII.“



# Guidance on waste heat under EED:

Commission Recommendation (C(2019) 6625 final) on comprehensive assessments of Article 14 EED

- Annex V on Waste Heat accounting
  - „The Commission considers it useful to provide a more detailed accounting framework planned by the end of 2019.”
- „Further detailed and technical guidance: [Best Practices and informal guidance on how to implement the Comprehensive Assessment at Member State level](#), JRC 2015”

## Commission Recommendation on the content of comprehensive assessments

- Some exclusion and inclusion criteria are already defined in this guidance.
- Heat is considered as waste heat only when:
  - **it is a by-product of another process and would be emitted into the environment,**
  - **To the extent it would be supplied for off-site use.**

## Waste heat under RED II:

- Waste heat (and cold): leftovers of a thermodynamic cycle that would be emitted into the environment unused
- Accounting waste heat :
  - on-site – this is part of the internal efficiency of a plant or facility  
➔ ✗
  - **off-site by supplying it to a heat network** ➔ ✓
  - off-site by **supplying it directly** to another industrial or business (tertiary) site ➔ ✗ **(but ✓ for EED Ax VIII (2)(b))**
  - heat produced on purpose, i.e. by a dedicated energy generation process ➔ ✗

# Accounting waste heat: examples for RED II

- Data centres that need to be cooled down, and where the heat resulting from the computing operations can be delivered off-site instead of being dissipated into the environment, **if this heat is supplied to a district heating network**
- Direct use of condenser cooling stream from power plants (e.g. heat can be supplied for greenhouses warming), **if supplied through DHC systems**

# The case of cogeneration

Definition of Article 2(9) of RED II: “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**”

- **Heat produced from cogeneration → ✘**
- **Waste heat used as input for cogeneration\* → ✓**
- **Waste ejected from cogeneration process → ✓**

\* Commission Delegated Regulation 2015/2402/EU on harmonised efficiency reference values for separate production of heat and electricity for the application of 2012/27/EU

# Accounting and reporting of renewable cold under EED: work in progress

- Renewable cooling shall, after the methodology for calculating the quantity is established in accordance with RED II, be carried out in accordance with that Directive.
- Until then it shall be carried out according to an appropriate national methodology.



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## Thank you!

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<https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition>