



# Upgrade District Heating

Energy efficiency legislation for the higher uptake of sustainable renewable heating and cooling

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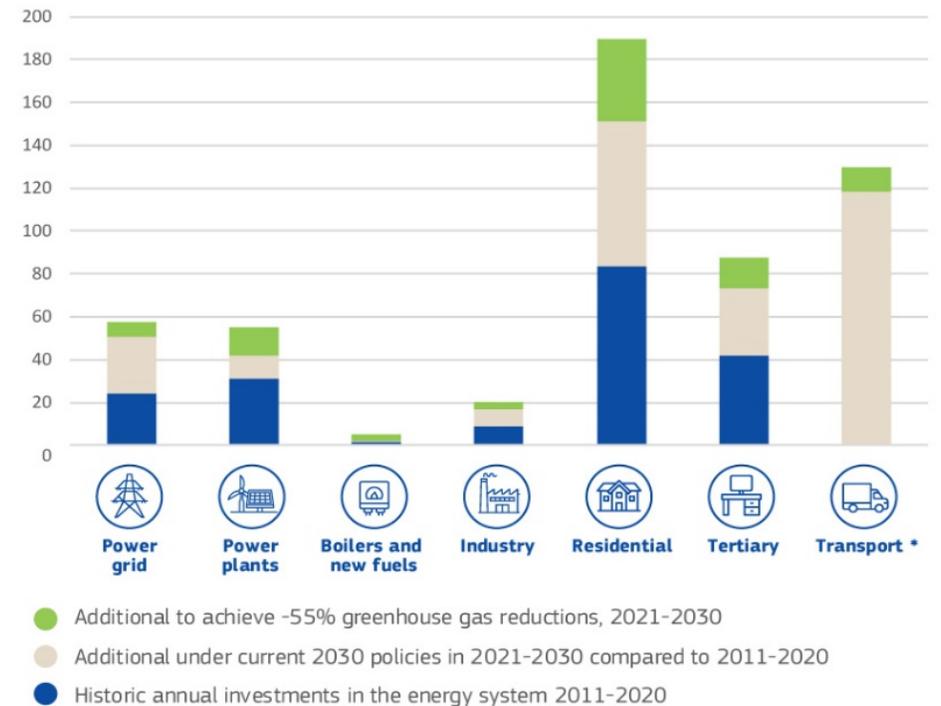
# Reasons for the legislative revisions

## Climate Target Plan

The Climate Target Plan published in September 2020 shows that “at least 55% target” by 2030:

- 1) is feasible;
- 2) will put us on the right trajectory towards climate neutrality;
- 3) requires more effort and contribution of all sectors of economy.

Average annual investment 2011-2020 and additional investment 2021-30 under existing policies and to achieve -55% greenhouse gas emission reductions (in billion EUR 2015)



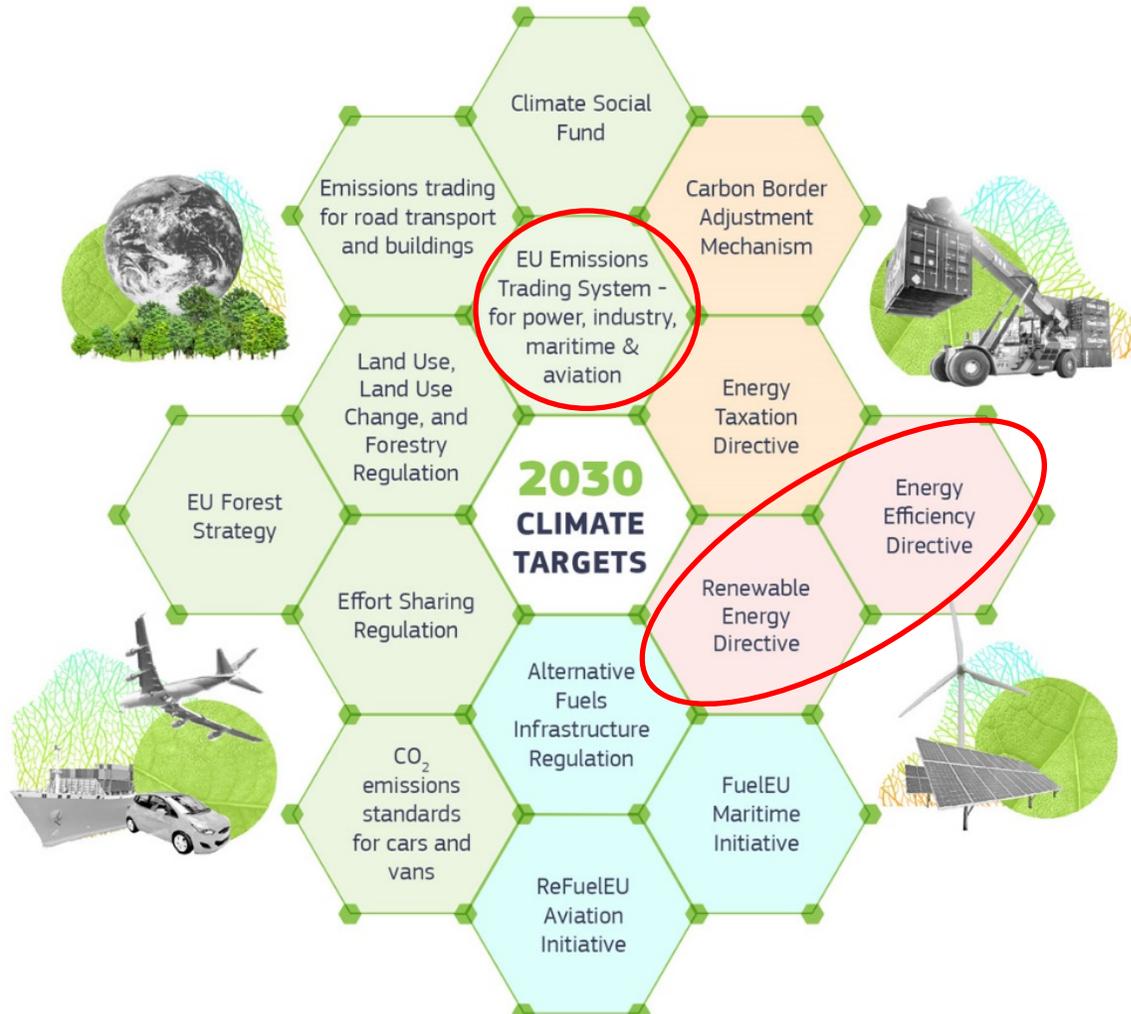
\* transport only shows additional investment

Climate Target Plan – Investment Challenge

The Climate Target Plan prepared the ground for the necessary transformation of policies for the decarbonisation of the European economy as set out in the European Climate Law

Energy efficiency is a pre-condition for all decarbonisation scenarios of the Climate Target Plan

# The Fit for 55 Package – Overview



The package aims to make the EU ‘fit for 55’ and **deliver the transformational change** needed in a

- **fair,**
- **cost-efficient and**
- **competitive**

**way.**

It cements the **EU’s global leadership** by action and by example in the **fight against climate change**

+ non legislative review of State aid rules for DH

# Revised renewable energy directive

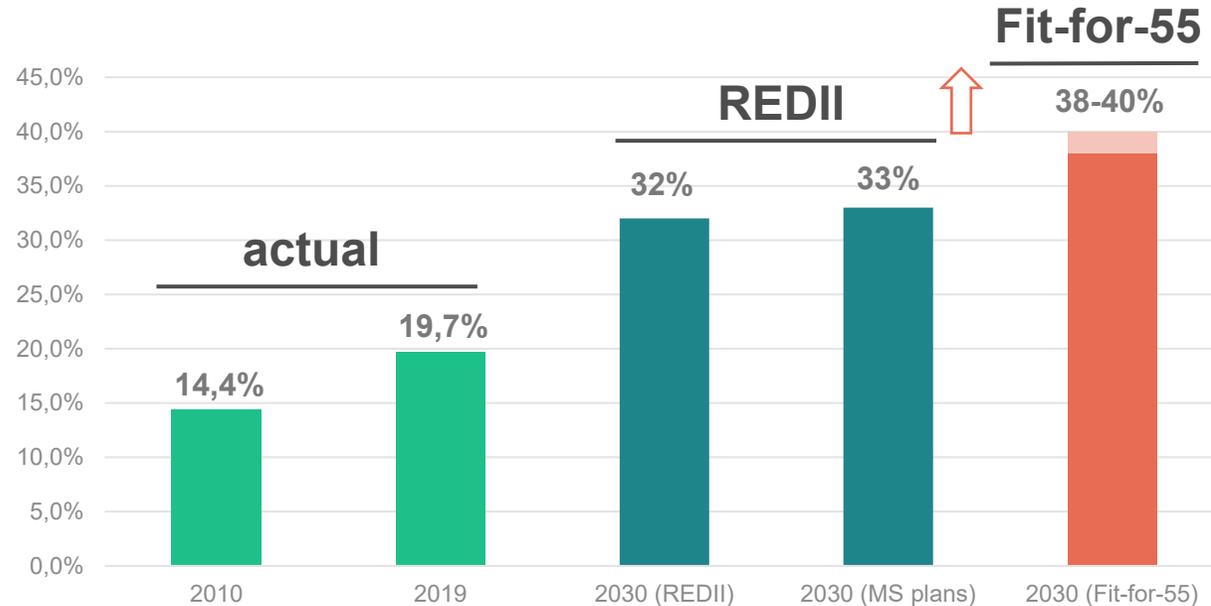
## REDII

## REDII revision

Overall RES share

32%  
EU binding  
MS contributions + indicative formula

38-40%  
EU binding  
MS contributions + indicative formula



NEW

49% indicative RES share in buildings

NEW

1.1 pp indicative  
RES share annual increase in industry

Heating & Cooling

1.1 pp annual increase, **indicative**  
1.0 pp in district H&C, indicative  
List of measures, indicative

1.1 pp annual increase, **binding**  
2.1 pp in district heating, indicative  
**Extended** list of measures, indicative

# Revised energy efficiency directive

## Energy efficiency targets

### Ambition

At least **-32.5%** reduction in energy consumption

At least **-9%** reduction in energy consumption

### Baseline

Compared to the **Reference Scenario 2007** projections for 2030

Compared to the **Reference Scenario 2020** projections for 2030 (-36% for FEC and -39% for PEC compared to REF2007)

## Exemplary role of public sector



Annual reduction of energy consumption of 1.7% in public sector (MS to select public bodies)

# Revised energy efficiency directive

## New contractual rights for DHC and hot water

Member States:

Shall ensure that *final customers* are granted the following basic contractual rights:

a contract with their supplier that specifies a set of basic information (as in the Electricity Directive 2019/944)

adequate notice of any intention to modify contractual conditions

a wide choice of payment methods

Household customers who have access to prepayment systems shall not be placed at a disadvantage by the prepayment systems



Both *final customers* and *final users*...

...shall have the right to a good standard of service and complaint handling by their suppliers

...shall be offered fair and transparent general terms and conditions in plain and unambiguous language

...shall be protected against unfair or misleading selling methods

# Revised energy efficiency directive

## Vulnerable consumers and energy poverty

Member States:

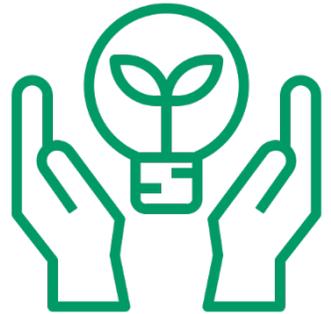
Shall prioritise for energy-poor and vulnerable households

May impose the obligation on distributors and retailers, and may set up a dedicated fund

Shall take measures to empower and protect energy-poor and vulnerable households

Shall make best possible use of public funding - at national and Union level - to empower and protect vulnerable customers and to alleviate energy poverty.

Shall establish a network of experts to develop strategies in implementing energy efficiency improvement measures alleviating energy poverty



ETS

Increase clean energy offer to end users  
Innovation & investment in new energy sources  
Modernisation of existing infrastructure

20% of revenues from ETS extension

SCF

Temporary direct subsidies to households and transport users

# Revised energy efficiency directive

## Energy efficiency for DH companies

### Energy management systems and energy audits

Art. 11

Implementation of an **energy management system** as a default obligation for large energy consumers (above 100TJ)

An **energy management system** or an **energy audit** for energy consumers (above 10TJ)

Quality checks required to ensure the validity and accuracy of energy audits

Data centres

Reporting for data centres with a significant energy consumption as of 2024

Requirement for reuse of waste heat from data centres and other installations

### Heating and cooling

Art. 23-24

Stricter **planning and follow up** of comprehensive assessments, including reach-out to local and regional level

**Revised definitions** of efficient district heating and cooling and efficient cogeneration to ensure fully decarbonised heat or cooling supply

# Revised energy efficiency directive

## All refurbished DH must become “efficient”

*Article 24*

### Heating and cooling supply

1. In order to increase primary energy efficiency and the share of renewable energy in heating and cooling supply, an **efficient district heating and cooling system** is a system which meets the following criteria:

- a. until 31 December 2025, a system using at least 50% renewable energy, 50% waste heat, 75% cogenerated heat or 50% of a combination of such energy and heat;
- b. from 1 January 2026, a system using at least 50% renewable energy, 50% waste heat, 80% of high-efficiency cogenerated heat or at least a combination of such thermal energy going into the network where the **share of renewable energy is at least 5% and the total share of renewable energy, waste heat or high-efficiency cogenerated heat is at least 50%**;
- c. from 1 January 2035, a system using at least 50% renewable energy and waste heat, where the share of **renewable energy is at least 20%**;
- d. from 1 January 2045, a system using at least 75 % renewable energy and waste heat, where the share of renewable energy is at least 40%;
- e. from 1 January 2050, a system using only renewable energy and waste heat, where the share of renewable energy is at least 60%.

2. Member States shall ensure that where a district heating and cooling system is **built or substantially refurbished** it **meets the criteria** set out in paragraph 1 applicable at such time when it starts or continues its operation after the refurbishment. In addition, Member States shall ensure that when a district heating and cooling system is built or substantially refurbished, there is **no increase in the use of fossil fuels other than natural gas** in existing heat sources compared to the annual consumption averaged over the previous three calendar years of full operation before refurbishment, and that **any new heat sources in that system do not use fossil fuels other than natural gas**.

## Other DH shall prepare plans to become “efficient”

3. Member States shall ensure that as from 1 January 2025, and **every five years** thereafter, operators of all existing district heating and cooling systems with a total energy output **exceeding 5 MW** and which do not meet the criteria set out in paragraph 1(b) to (e), prepare a **plan to increase primary energy efficiency and renewable energy**. The plan shall include measures to meet the criteria set out in paragraph 1(b) to (e) and shall be approved by the competent authority.

# Revised energy efficiency directive

## ANNEX III

### *METHODOLOGY FOR DETERMINING THE EFFICIENCY OF THE COGENERATION PROCESS*

Values used for calculation of efficiency of cogeneration and primary energy savings shall be determined on the basis of the expected or actual operation of the unit under normal conditions of use.

#### **(a) High-efficiency cogeneration**

For the purpose of this Directive high-efficiency cogeneration shall fulfil the following criteria:

- cogeneration production from cogeneration units shall provide primary energy savings calculated according to point (b) of at least 10 % compared with the references for separate production of heat and electricity;,
- production from small-scale and micro-cogeneration units providing primary energy savings may qualify as high-efficiency cogeneration;

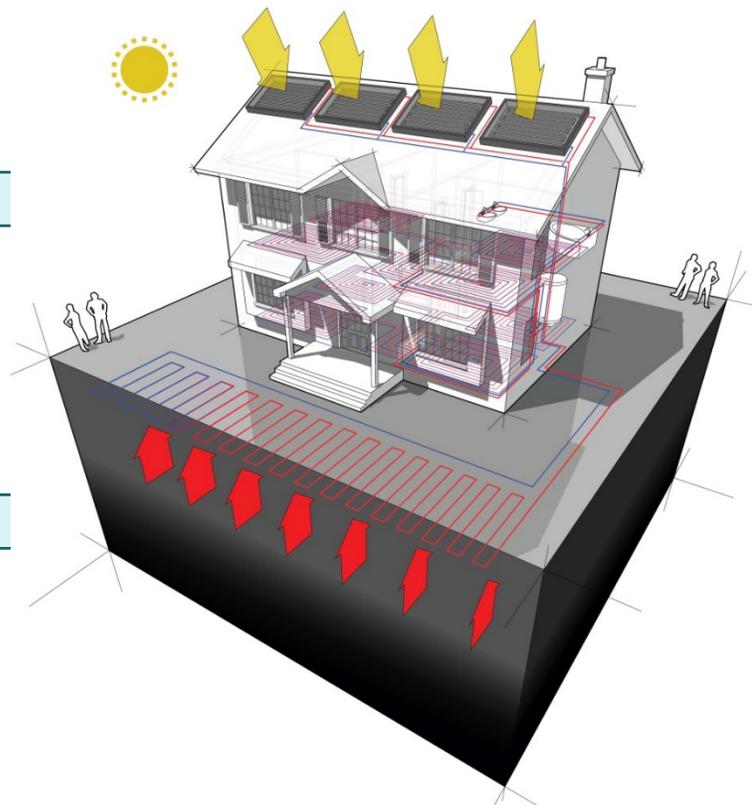
– direct emissions of the **carbon dioxide from cogeneration** production that is fuelled with fossil fuels, are **less than 270 gCO<sub>2</sub> per 1 kWh** of energy output from the combined generation (including heating/cooling, power and mechanical energy).

– When a cogeneration unit is built or substantially refurbished, Member States shall ensure that there is **no increase in the use of fossil fuels other than natural gas** in existing heat sources compared to the annual consumption averaged over the previous three calendar years of full operation before refurbishment, and that any **new heat sources in that system do not use fossil fuels other than natural gas**.

# Sectoral ambition– Shifting to modern and consumer based DHC and Buildings

## District Heating and Cooling:

- Increased indicative target to **2.1 percentage point**
- Stronger **consumer information** and network access requirements
- Stronger coordination with other energy networks to **facilitate system integration**
- Coordination framework to **harness the potential sources of waste heat and cold**



## Buildings:

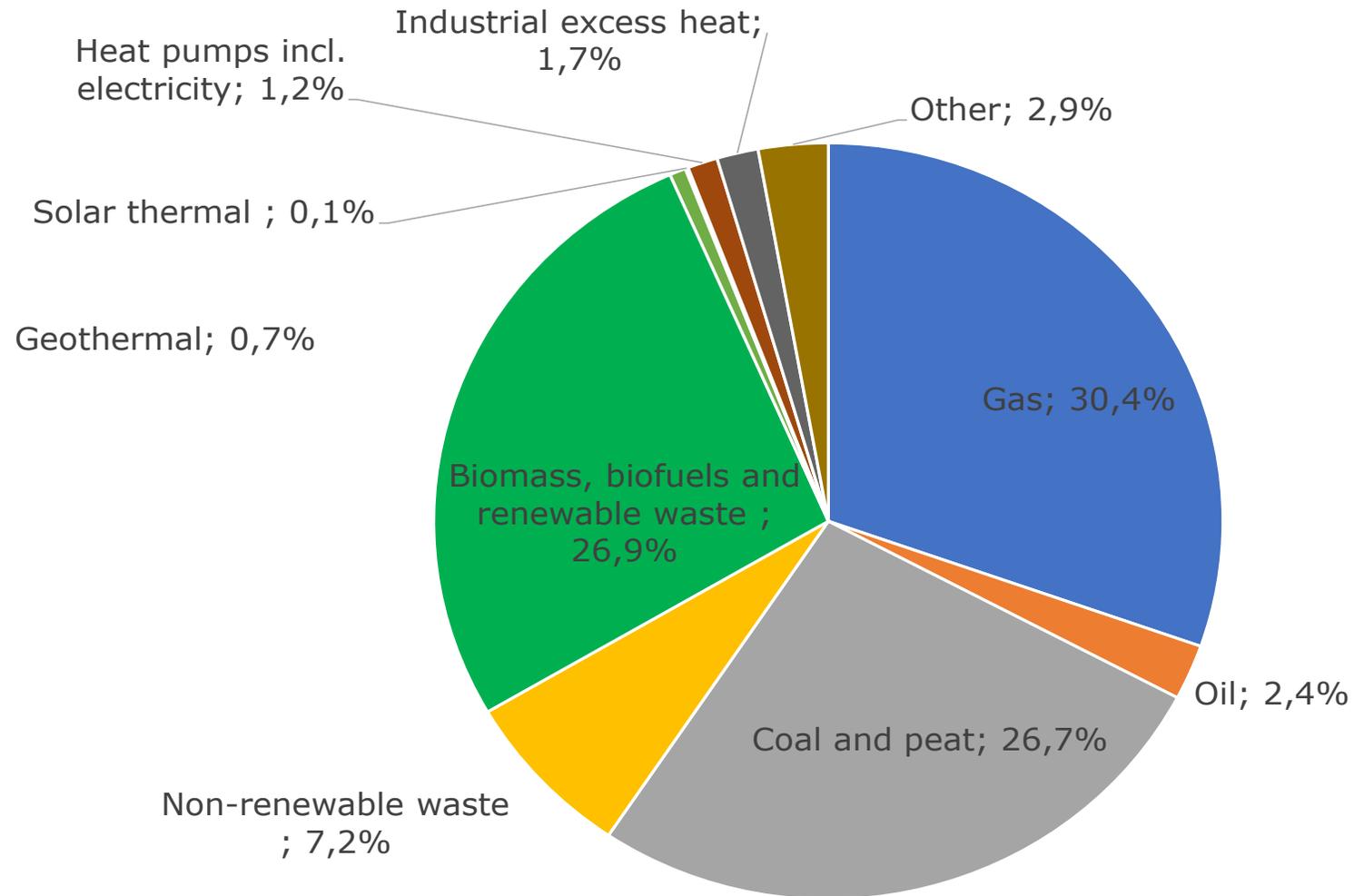
- 49% renewable energy benchmark to monitor efforts and progress
- Training and skills
- Complementary to EED and EPBD

# Examples of renewable-based efficient district heating systems

Country	Case Study	Installed capacity	Renewable Energy Sources	Waste Heat/Cold Sources	RES share
	 Taarnby DHC	DH: 60 MW DC: 6.5 MW	 Renewable electricity  Thermal storage  Biomass	 Ambient energy (Wastewater)	<b>91%</b>
	 Jægerspris DH	20.1 MW	 Solar thermal  Thermal storage  Ambient energy (from the air)	 CHP (gas-fuelled)	<b>56%</b>
	 Paris-Saclay DHC	DH: 37 MW DC: 10 MW	 Geothermal energy	 Data centers  Laboratory	<b>60%</b>
	 Mieres DH	4.1 MW	 Geothermal energy from a closed colliery		<b>98%</b>
	 Barcelona-Districtlima DHC	DH: 79 MW DC: 113 MW	 Renewable electricity  Thermal storage  Ambient energy (from the sea)	 Waste-to-energy	<b>97%</b>
	 HafenCity DH (Hamburg)	28,3 MW <sub>th</sub> 1,5 MW <sub>e</sub>	 Biogas	 Industrial heat  Thermal storage	<b>90%</b>
	 Vilnius DH	1,707 MW <sub>th</sub>	 Biomass	<u>In 2021</u>  Waste-to-energy	<b>55%</b>
	 Milan DHC	DH: 901 MW DC: 7,5 MW	 Geothermal energy	 Industrial heat  Waste-to-energy	<b>68%</b>

Source: Tilia GmbH, Integrating renewables and waste heat and cold sources in district heating and cooling systems, 2021.

# EU-27 District heating supply fuel mix in 2018





Thank you

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