

An ambitious Fit for 55 with cogeneration

The cogeneration sector is committed to the creation of a resilient, decentralised and carbon neutral European energy system by 2050 with cogeneration as its backbone. This approach will accelerate emission reductions by 2030, while empowering European citizens and industry to generate their own efficient, reliable and affordable clean heat and power locally.

The Fit for 55 package is an opportunity to increase climate ambition, while fostering economic growth and protecting domestic consumers, for a green post-Covid recovery and sustained prosperity.

Mainstream energy efficiency first principle

- Support energy efficiency in conversion, transmission, distribution and use
- Foster energy efficiency for all energy carriers, across sectors, and at system level
- Promote efficient cogeneration to maximise renewable energy use and reduce fossil fuel consumption
- Prioritise efficient alternatives in public procurement, energy savings obligations and via stricter authorisation criteria, as well as in energy taxation, climate policy and

Foster the efficiency, availability and affordability of renewable energy

- Set credible objectives, remove barriers and provide funding opportunities for renewable energy across electricity, heat and gas
- Ensure the efficient use and integration of all renewable energy fuels

Unlock energy flexibility, security and resiliency

- Promote integrated and efficient planning of energy infrastructure
- Recognise all flexibility solutions, across integrated energy systems and carriers
- Prioritise efficient and flexible generation for smart electrification and to complement intermittent renewable electricity

Accelerate cost-effective emission reductions

- Set a level playing field for all decarbonising solutions between ETS and non-ETS
- Aim for gradual uptake and converging carbon pricing across energy carriers within each sector
- Incentivise consumers to adopt efficient equipment and lower carbon fuels
- Protect competitiveness of industry, cogeneration and district heating through targeted free allocation

Create a stable framework for green investments

- Establish stability of support criteria for investments in energy efficient, decarbonising and future proof solutions
- Allocate funding to accelerate the phase out of coal, the efficient switch natural gas transitionally and increasingly renewable and decarbonised fuels.

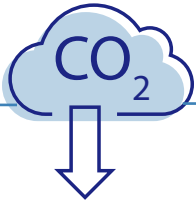
Cogeneration for higher ambition in Fit for 55



Energy and resource efficiency: Cogeneration makes better use of energy resources available locally to consumers across a range of increasingly low carbon and renewable energy sources

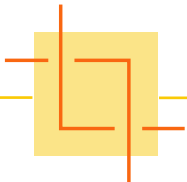
High efficiency cogeneration will ensure the **efficient switch to lower carbon and renewable energy** sources.

- Today, CHP **saves 31 Mtoe of primary energy** [1]
- By 2030, realising CHP potential could **reduce 74 Mtoe of energy** [2]
- In 2050, optimising the **efficient and flexible operation of CHP** will save 20 Mtoe [3]



Emission reductions: Cogeneration is an enabler of a net-zero emissions economy by securing the efficient switch to lower carbon, decarbonised and increasingly renewable energy sources.

- Already today, **CHP reduces at least 140 Mt of CO2** by consuming less energy compared to less efficient power-only and heat only alternatives [4]
- By 2030, realising the potential of **CHP would ensure 350 Mt of CO2 cuts**, accounting for both the energy saved and the switch to cleaner fuels [2]
- By 2050, CHP would primarily contribute towards system efficiency and flexibility, while **reducing 5.5 Mt of remaining CO2 at EU level**. [3]



Reliable and flexible energy: Cogeneration solutions are ready to respond to the future energy system challenges, complementing electrification and intermittent renewables

- Cogeneration is a **key local systems integration solution**, smartly and efficiently **linking electricity, heat and gas systems**.
- CHP can generate **on-demand electricity** at times of peak demand and insufficient intermittent renewable energy production.
- Embedded CHP in industry and buildings are key to provide **demand-side capacity**
- CHP is **future proof and fuel flexible**, having the capability to easily switch to renewable sources including biomethane, bio-LPG,



Cost-efficiency: Cogeneration used on-site or nearby reduces consumer bills. Moreover, it significantly lowers overall energy system costs, by minimising operating costs of power grids and helping avoid grid reinforcements.

- By 2050, optimising CHP across energy systems and sectors will deliver **net savings of up to EUR 8.4 M per year at EU level**. [3]
- **Energy bills can be reduced significantly by adding CHP** to mix of solutions to heat and power buildings, districts and industries. [3]



Empowered consumers: Cogeneration accompanies the decarbonisation pathways of industry, buildings, and districts across Europe.

Today:

- **12% of EU's power and 14% of its heat**
- **65% of DHC heat** [6]
- **~ 60 GW of CHP is installed on-site**, embedded across EU industries
- **>100,000 active energy consumers** like homes, hospitals and SMEs

By 2030 on the path to 2050:

- By 2030, CHP could deliver **20% of electricity and 25% of heat** [2]
- By 2050, CHP could cover important **shares of non-electrified heat, up to 52% in buildings, 81% in industry and 50-91% in DHC** [3] & [5]

References:

[1] Eurostat, 2021. Cogeneration statistics 2005-2019

[2] EU Project CODE2, 2015. European Roadmap for Cogeneration in 2030.

[3] Artelys, 2020. Towards an efficient, integrated and cost-effective net-zero energy system in 2050. The role of cogeneration.

[4] COGEN Europe own calculations based on Eurostat CHP data.

[5] EU project Heat Roadmap Europe, 2019. Towards a decarbonised heating and cooling sector in Europe

[6] Fit for 55, 2020. Renewable Energy Directive Recast Impact Assessment

- ✓ [From blacksmith to fuel cell cogeneration](#)
- ✓ [Cogeneration keeps Belgian Senators warm](#)
- ✓ [Reliable and affordable energy for hospitals](#)

**Micro-
cogeneration
in homes,
hospitals &
SMEs**



**Cogeneration
in industry**



**Cogeneration
with District
Heating**



- ✓ [DHC goes for H2 cogeneration in \(Hassfurt, Germany\)](#)
- ✓ [Waste heat, heat pumps and CHP working together \(Poland\)](#)
- ✓ [Supplying a local community with green heat and electricity \(Belgium\)](#)

- ✓ [Integrated Steel, cogeneration & district heating with waste heat recovery \(Brescia, Italy\)](#)