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# CONNECTING EXPERTS.



# CountOn Cooling

## The European Green Deal: Opportunities for sustainable heating and cooling

By Andrea Voigt, Director General EPEE Chillventa 2020, October 14



#### Who is EPEE? The full value chain. A true voice.

### EPEE represents the manufacturers of refrigeration, air-conditioning and heat pump technologies

- Founded in 2000, headquartered in Brussels, Belgium
- Committed to promoting sustainable heating and cooling technologies
- Small medium large size companies
- Members from three continents: Europe, Asia, North America
- Over 200,000 direct employees, over €30bn turnover, production throughout Europe
- More about sustainable heating and cooling technologies here: <u>www.countoncooling.eu</u>







#### Why we need to act now: The Gap towards 1.5°C is huge



Current National Determined Contributions (NDCs) are not enough to achieve the Paris Agreement

Note: estimated impact of COVID-19 is based on IMF short-term GDP estimates from April 2020, assuming the same annual GHG/GDP intensity as the GECO 2019 Reference scenario

Source: JRC Global Energy and Climate Outlook (GECO), 2019. https://ec.europa.eu/jrc/en/geco

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#### Global GHG emissions continue to grow



-2

CDP (PPP)

Freightensity

Cabonintensity

PrimaWenergy

CO2WIOLUC

CHA

GHG

420

Fluorinated gases

F-Gases are addressed under the Kigali Amendment 

#### → CO2 and energy must be addressed urgently

Source: Emissions Gap Report 2019, UN Environment



#### Also in Europe: Energy and CO2 top the agenda



Approx. **80%** of all greenhouse gas emissions in the EU in 2018 are related to the Energy Production & Consumption Sector and to CO2 as a GHG



#### The reduction potential of non-CO2 emissions is much lower





# F-Gases ■ CO2 ■ CH4 ■ N2O F-Gases are the only non-CO2 gases which achieved significant reductions since 2015

0%

-2%

-4%

-6%

-8%



#### Good, but not good enough: currently projected CO2 emission reduction



- Energy related CO2 emissions are expected to reduce by 46% in 2030 and by 59% in 2050 vs. 1990
- Highest reduction:
  Power sector (supply side)
- Lowest reduction: Transport sector



#### Currently projected non-CO2 emissions



#### Much lower reduction potential than CO2 CH4 is the most critical gas to be reduced

- Reduction potential for non-CO2 emissions more limited than for CO2
- Only F-Gases will be reduced drastically
  by 65% between
  2015 and 2030
- Agriculture remains the biggest emitter with very little reduction (7%)

European Commission, Sept 2020: 2030 Climate Target Plan, Impact Assessment



#### Current efforts will not achieve carbon neutrality by 2050

The 2030 target of -40% GHG emissions will be over-achieved



- By 2030, emissions will reduce by > 44% vs. 1990
- But without additional climate and energy legislation, emissions will stabilise post 2040
- By 2050, a reduction of around 60% can currently be expected.



#### The EC will step up efforts



#### EU Commission President Ursula von der Leyen: "We have to change the way we eat and heat"

State of the Union, Sept. 2020



#### Three main avenues to achieve -55% by 2030



#### The European Commission's Impact Assessment:

Different combinations of these three pillars were assessed in 5 main policy scenarios All scenarios directly impact the heating and cooling sector



#### Heating and Cooling have a key role to play

#### ktoe final energy consumption





#### Major resulting trends for heating and cooling

## Final energy consumption will reduce by at least **36%** (+4%)

Share of renewables in gross final energy consumption will reach at least **38%** (+6%)

Electricity will be based increasingly on renewables with at least **63%** (+8%)

Heating and cooling will be based increasingly on renewables with at least **39%** (+6%)

Major resulting trends:

- **1. Electrification of end use sectors** 
  - Heating
  - Transport
  - Industry
- 2. Energy Efficiency
  - Deep renovation
  - Heating & Cooling
  - Waste heat recovery
  - BACS ...
- 3. Flexibility
  - Demand response
  - Storage

#### How to get there: All instruments will need to be re-visited

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All instruments will need to be re-visited to achieve 55% GHG emission reduction by 2030

#### Major avenues under the Effort Sharing Regulation (ESR)



#### **Clean Energy Package, in particular:**

- Energy Efficiency Directive (EED)
- Energy Performance of Buildings Directive (EPBD)

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- Ecodesign Directive (ED)
- Renewable Energies Directive (RED)

#### **Examples for intensification of measures:**

- **EED:** incentivise the uptake of efficient heating and cooling technologies and the use of waste heat via mandatory heating and cooling plans;
- **EPBD:** accelerate the deployment of demand response, energy storage, digital solutions
- ED: improve compliance levels through better enforcement by Member States' market surveillance authorities
- **RED:** foster the electrification of the heating sector and further enable the use of sector integration solutions



#### What more: The Key Pillars of the European Green Deal



## Key related initiatives for sustainable heating and cooling

- Energy System Integration Strategy
- New Circular Economy Action Plan
- Renovation Wave
- Industrial Strategy
- European Green Deal Investment Plan

#### Focus on the new Energy System Integration Strategy

The energy system today : linear and wasteful flows of energy, in one direction only Future EU integrated energy system : energy flows between users and producers, reducing wasted resources and money



- A more efficient and circular system where waste energy is captured and re-used
- 2. A cleaner power system with more direct electrification of end use sectors such as industry, heating of buildings and transport
- A cleaner fuel system
  for hard to electrify
  sectors such as heavy
  industry or transport



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#### GHG emission reduction also improves air quality



Reducing energy consumption and switching to renewable energy sources based on 55% GHG emission reduction also have **positive impacts on air pollution:** 

- Air pollution (sum SO2, NOX, PM2.5) will reduce by at least 60% by 2030 compared to 2015
- The number of premature deaths due to air pollution are reduced by > 100,000 cases per year and drops by at least a further 5000 with increased GHG ambition
- Related costs reduce by at least 10 to 15bn Euro per year



#### Sustainable heating & Cooling: A win-win solution

Enabling the phase-out of fossil fuels by reducing and decarbonising energy use:

- Energy efficiency: design, sizing, monitoring & control (BACS), service & maintenance
- System integration: waste heat recovery, thermal energy use and storage, electrification of end use sectors (heating)
- ✓ Centralised and decentralised solutions: Heat pumps, solar PV, district networks
- Connectivity and Consumers: Demand side flexibility, Internet of Things (IoT)





#### Sustainable heating and cooling:

- A win-win solution for the health of people and the planet!
- European Green Deal and EU recovery plan: a once in a lifetime opportunity to phaseout fossil fuels, reduce greenhouse gas emissions and improve the air quality
- Technologies are readily available. Now they need to be deployed.

Let's make it happen! #CountOnCooling

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# Thank you for your attention.

