

ASERCOMM meeting

# UPDATES ON THE IMPLEMENTATION OF THE ECODESIGN DIRECTIVE 2009/125

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# Circular Economy Package 30/03/2022

→Chapeau Communication *'on making sustainable products the norm'*

- Proposal for a Regulation on Ecodesign for Sustainable Products (ESPR)
- Ecodesign and Energy Labelling Working Plan 2022-2024
- EU Strategy for Sustainable and Circular Textiles
- Proposal for a revision of the Construction Products Regulation
- Proposal to Empower Consumers in the Green Transition

# How will ESPR work?

## 1. Building on the existing Ecodesign Directive

**Key features  
of Ecodesign  
Directive  
approach  
maintained:**

Regularly updated  
**multiannual working  
plans** setting out priorities

**Framework legislation**

**Product-specific  
measures** based on  
detailed  
impact assessment



# How will ESPR work?

## 2. Extending the Ecodesign approach



### Scope extension

Moving beyond energy-related products to a wide product scope



### New requirements

Plus clarification of existing requirements



### Horizontal approach

Now allowed for in addition to product-specific requirements



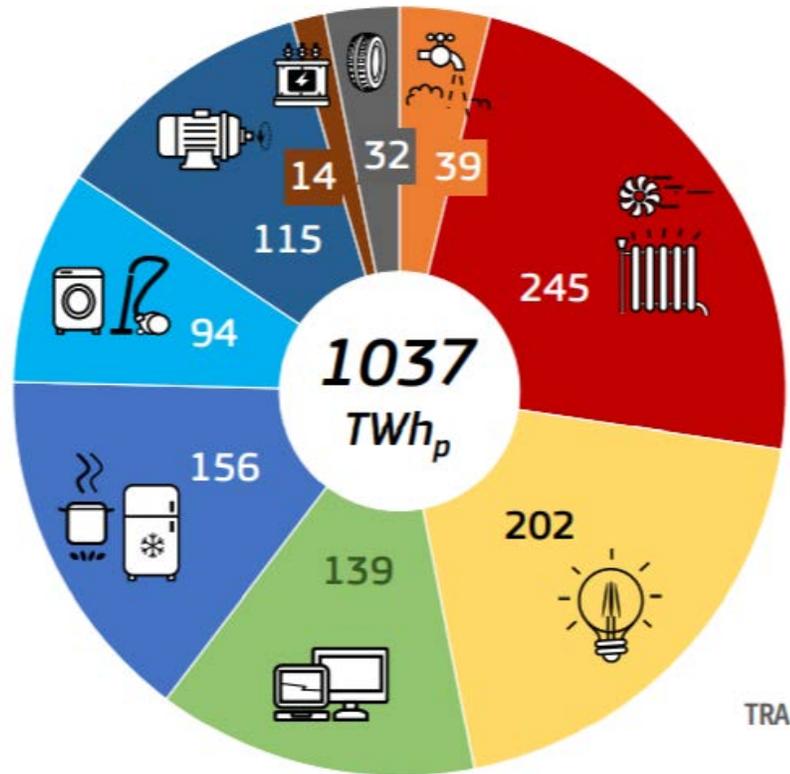
### Increased focus on product information

e.g. Digital Product Passport; labels

# Key product aspects under ESPR

- Durability
- Reliability
- Reusability
- Upgradability
- Repairability
- Possibility of maintenance and refurbishment
- Presence of substances of concern
- Energy use or energy efficiency
- Resource use or resource efficiency
- Recycled content
- Possibility of remanufacturing and recycling
- Possibility of recovery of materials
- Environmental impacts, including carbon and environmental footprint
- Expected generation of waste materials

# Existing Ecodesign and Energy Labelling Working Plan



## Current status (existing measures):

50 measures covering products that consume almost 50% of EU final energy, and emitted almost half our GHG in 2020

- About 3 billion products in scope sold in 2020
- Energy saved in 2020 comparable to energy consumption of Poland

More than € 60 bn estimated reduction in annual consumer energy expenditure in 2020

- may exceed € 250 bn in 2022

About 1 MWh annual electricity savings per household (27%)

About 16 BCM direct and 10 BCM indirect gas savings

*All savings for 2020 vs BAU*

source: [Ecodesign Impact Accounting](#)

# 2022-2024 Ecodesign and Energy Labelling Working Plan

Working plan developed through preliminary study and stakeholder input:

## Existing product rule reviews

Reviewing Heating/cooling product requirements

Rescaling energy efficiency label

**Estimated impact: 170 TWh/year in 2030.**



## New products to be studied

i.e. Low temperature radiators, electric vehicle chargers, universal external power supplies

**Estimated impact: 70 TWh/year in 2030**



## Introducing new rules

In currently unregulated products like smartphones, solar PV systems/panels, printers & scanners

## Assessing circularity requirements

E.g. reparability scoring systems; analysis of product specific requirements: recycled content, critical raw materials, durability, firmware, software

# Ongoing review of Regulations (EU) 2015/1095 and (EU) 2015/1094

- **Commission Regulation (EU) 2015/1095** (ecodesign of professional refrigeration products) and **Commission Delegated Regulation (EU) 2015/1094** (energy labelling of professional refrigerated storage cabinets) set minimum energy efficiency and information requirements as well as energy labelling requirements for the placing on the market of the professional refrigeration products.
- The **review clause (art. 7)** of both regulations requires a review after five years in the light of technological progress and requiring answers to a number of specific questions.
- The review study addresses those **specific questions ('Phase 1.1')** and makes an **update of the preparatory study** following MEErP (Methodology for Ecodesign of Energy-related Products) as appropriate **('Phase 1.2')**.
- This initial process includes **consultation of stakeholders** by the VHK team and preparation of **working documents for the Consultation Forum**.

# Regulatory review project – Phase 1.1

**Phase 1.1** amongst others includes assessments of the appropriateness of:

## **Professional refrigerated storage cabinets:**

- Introducing:
  - i. ecodesign requirements for cabinets listed in Article 1(1);
  - ii. stricter requirements for heavy-duty cabinets;
  - iii. information requirement on a professional refrigerated storage cabinet's capacity to cool down foodstuffs;
  - iv. a method for determining the standard annual energy consumption for refrigerator-freezers;
  - v. a revised method for the standard annual energy consumption of counter cabinets.

## **Blast cabinets:**

- Introducing ecodesign requirements.
- Clarification on blast cabinets with a remote condensing unit (are they in scope?).

## **Walk-in cold rooms:**

- Introducing ecodesign requirements.

# Regulatory review project – Phase 1.1, cont'd

## Condensing units:

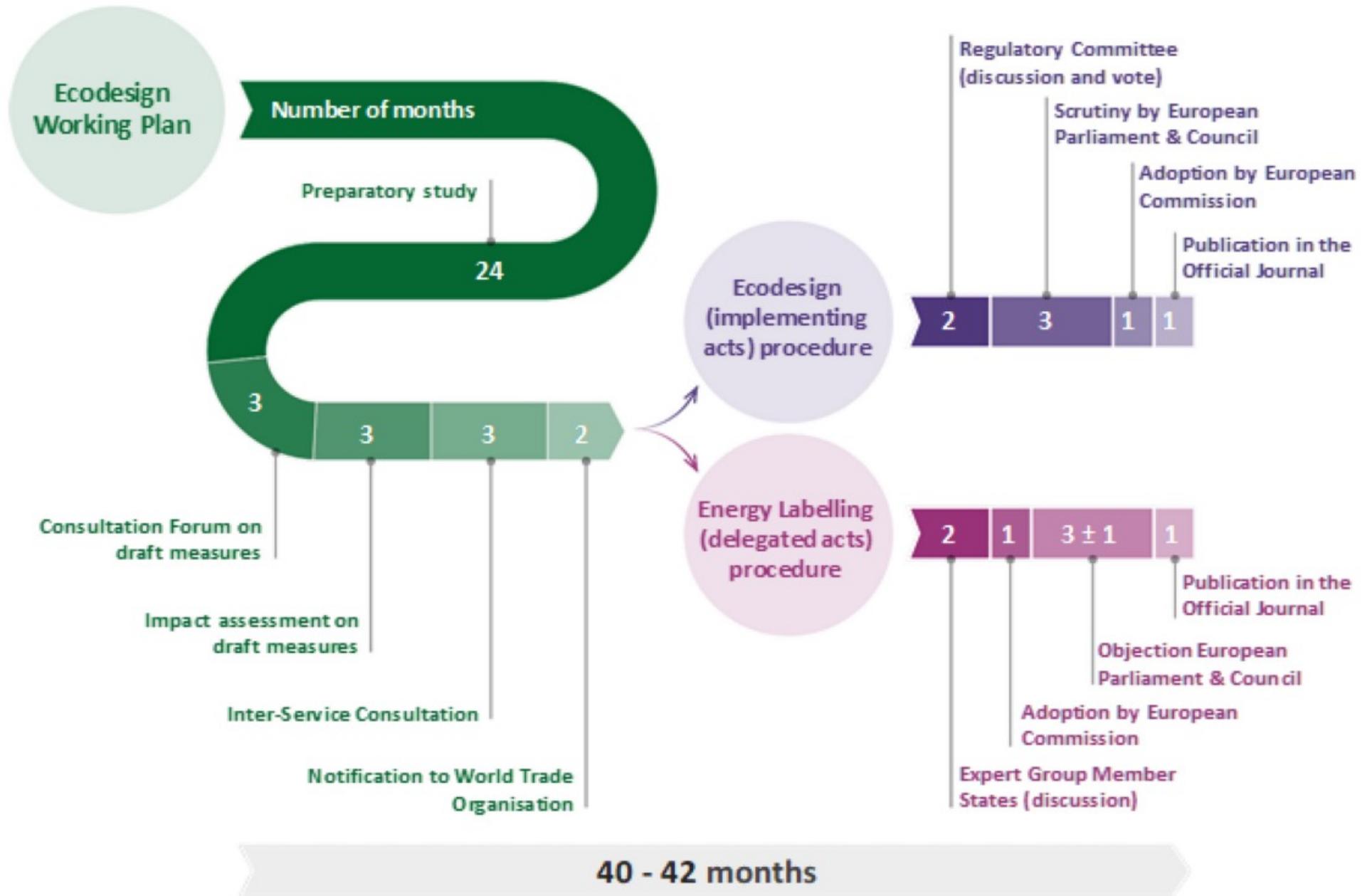
- Setting ecodesign requirements:
  - i. covering direct GHG emissions related to refrigerants;
  - ii. for condensing units currently not in scope;
  - iii. for condensing units sold with an evaporator, compressor packs and racks which do not include a condenser, and condensing units which do not use air as heat transfer medium for the condenser.

## Process chillers:

- Setting ecodesign requirements:
  - i. covering direct GHG emissions related to refrigerants;
  - ii. for process chillers using evaporative condensing and process chillers using absorption technology.

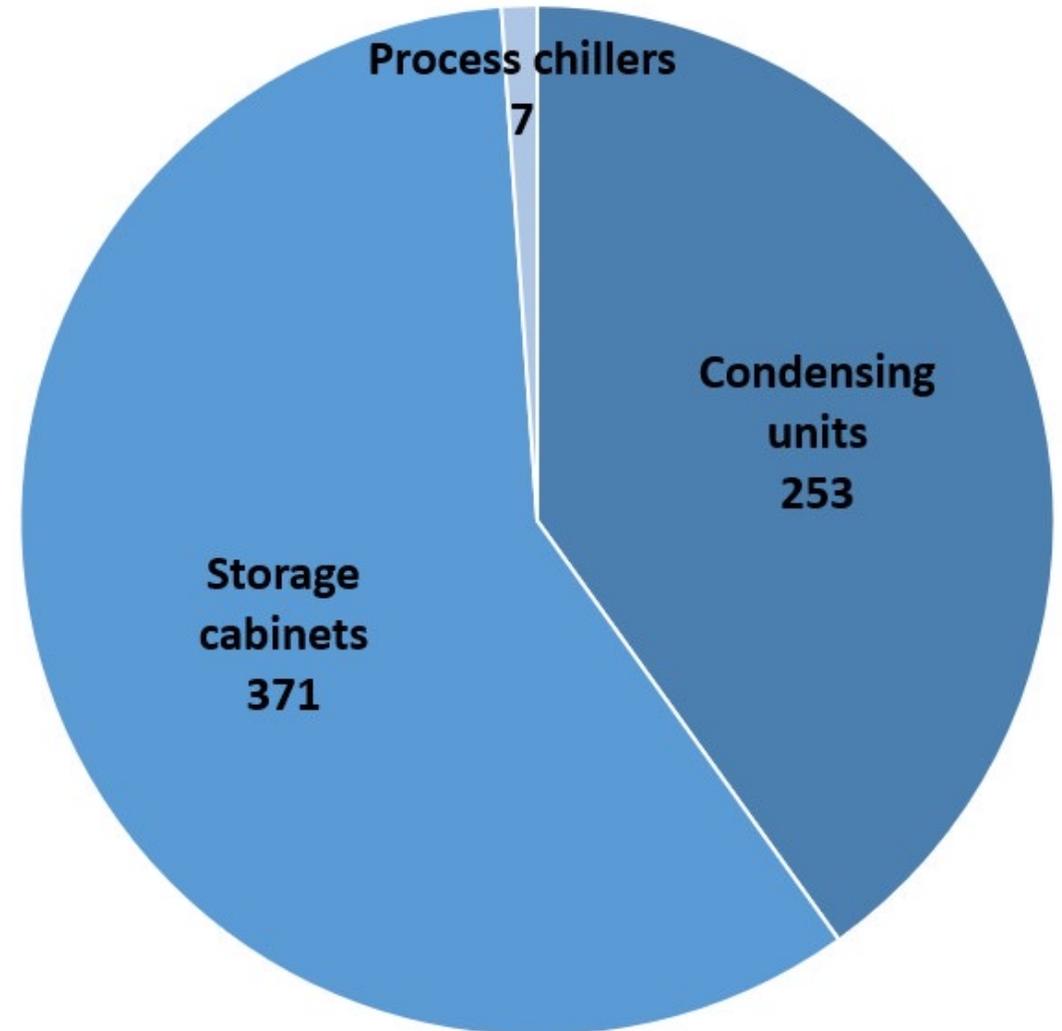
## All products:

- Check newer sources for Global Warming Potential (GWP) values.
- The value of the admitted tolerances in the verification procedure.



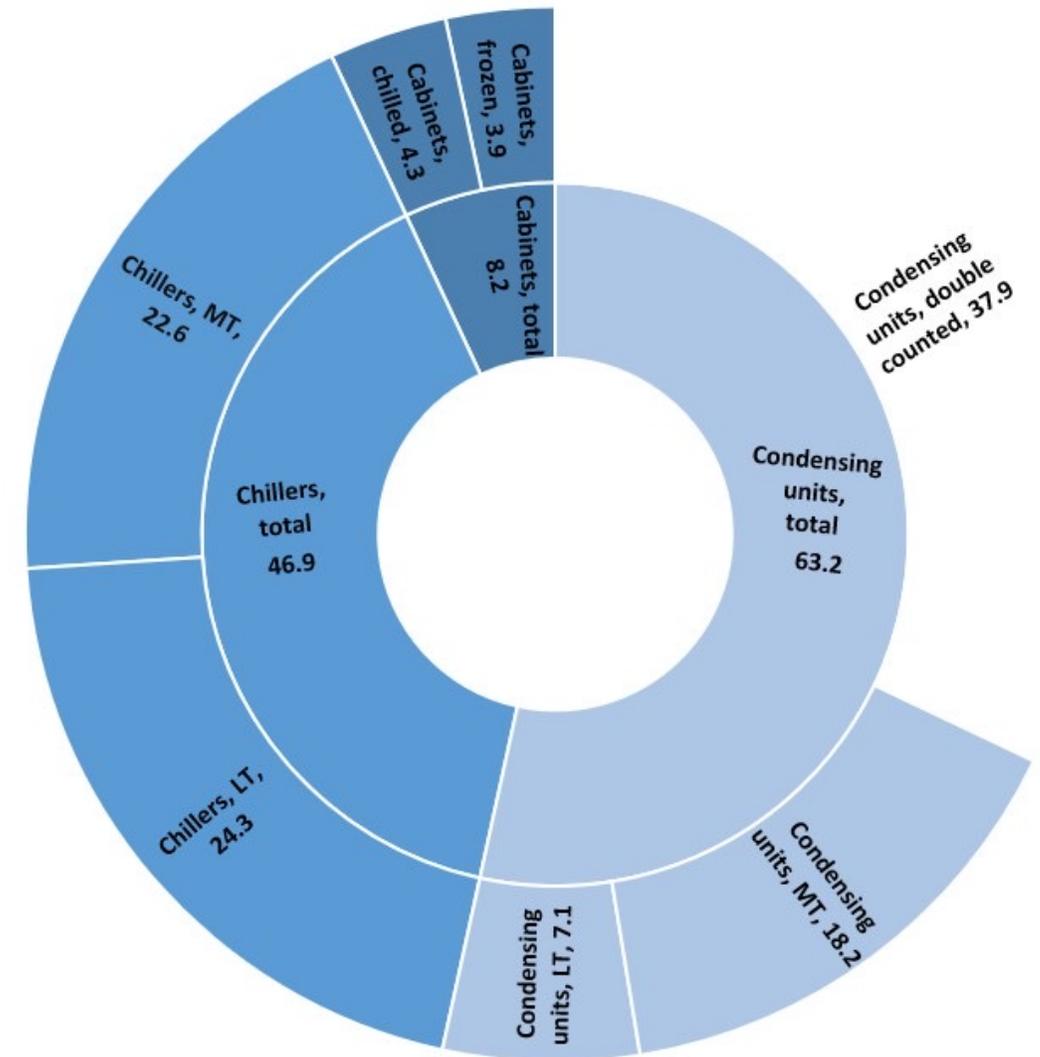
# Unit sales of products currently in scope

- Unit sales (EU27, 2020) of products currently in scope is 631 000 units (condensing units corrected for double counting, e.g. with commercial refrigeration).
- Source: Ecodesign Impact Accounting annual report 2020.



# Electricity consumption of products currently in scope

- Electricity consumption (EU27, 2020) of products currently in scope is 80.5 TWh/a. Of which:
  - Cabinets: 8.2 TWh/a
  - Condensing units: 25.3 TWh/a (corrected for double counting, e.g. with commercial refrigeration)
  - Process chillers: 46.9 TWh/a



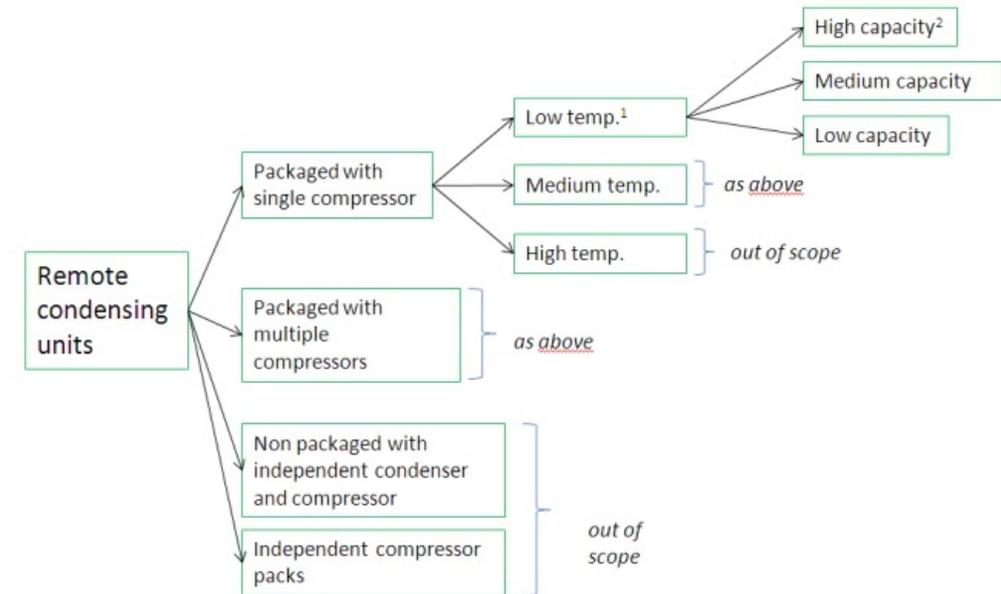
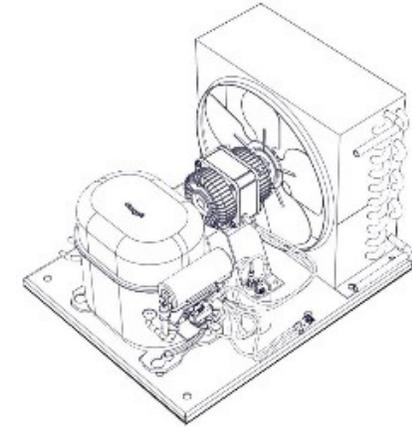
# Scope

**Commission Regulation (EU) 2015/1095** establishes **ecodesign requirements** for the placing on the market of condensing units.

A **condensing unit** means a product integrating at least one electrically driven compressor and one condenser, capable of cooling down and continuously maintaining low (-35 °C) or/and medium (-10 °C) temperature inside a refrigerated appliance or system, using a vapour compression cycle once connected to an evaporator and an expansion device.

## Out of scope:

- (a) **condensing units including an evaporator**, which may be an integral evaporator, such as in monobloc units, or a remote evaporator, such as in split units;
- (b) compressor packs or racks, which **do not include a condenser**;
- (c) condensing units of which the condenser-side does **not use air** as heat transfer medium.



# Ecodesign requirements

- From 1 July 2018, the **coefficient of performance** (COP) and the **seasonal energy performance ratio** (SEPR) of condensing units shall not fall below the following values:

Operating temperature	Rated capacity $P_A$	Applicable ratio	Value
Medium	$0,2 \text{ kW} \leq P_A \leq 1 \text{ kW}$	COP	1,40
	$1 \text{ kW} < P_A \leq 5 \text{ kW}$	COP	1,60
	$5 \text{ kW} < P_A \leq 20 \text{ kW}$	SEPR	2,55
	$20 \text{ kW} < P_A \leq 50 \text{ kW}$	SEPR	2,65
Low	$0,1 \text{ kW} \leq P_A \leq 0,4 \text{ kW}$	COP	0,80
	$0,4 \text{ kW} < P_A \leq 2 \text{ kW}$	COP	0,95
	$2 \text{ kW} < P_A \leq 8 \text{ kW}$	SEPR	1,60
	$8 \text{ kW} < P_A \leq 20 \text{ kW}$	SEPR	1,70

- For condensing units intended to be charged with a refrigerant fluid with a global warming potential lower than 150, COP and SEPR values can be lower than the values by a maximum of 10 %.

# Review of the Regulation

The review of the Regulation for condensing units should **focus** on:

- Refined product scope from the technical perspective.
- Update of base cases?
- Barriers and opportunities for ecodesign from a technical perspective.
- **Adaptation** of the **coefficient of performance** (COP) and the **seasonal energy performance ratio** (SEPR).
- An assessment of the appropriateness of **setting ecodesign requirements** for condensing units with a rated cooling capacity **lower than 0,1 kW at low temperature and 0,2 kW at medium temperature** and with a rated cooling capacity **higher than 20 kW at low temperature and 50 kW at medium temperature**.

# Review of the Regulation, cont'd

Aspects regarding the **product scope**:

- An assessment of the appropriateness of setting ecodesign requirements covering **direct greenhouse gas emissions (leakage)** related to refrigerants (evtl. differentiation between factory sealed and not factory sealed systems).
- Possibility to introduce, in the Ecodesign Regulation, the testing and calculation approach for the determination of the evaporating temperature with **refrigerant mixtures**, as under EN 13215:2016+A1:2020.
- An assessment of the appropriateness of **setting ecodesign requirements** for condensing units **sold with an evaporator, compressor packs and racks** which do not include a condenser (system approach?), and **condensing units which do not use air** as heat transfer medium for the condenser (system approach possible?).

# First conclusions from market assessment

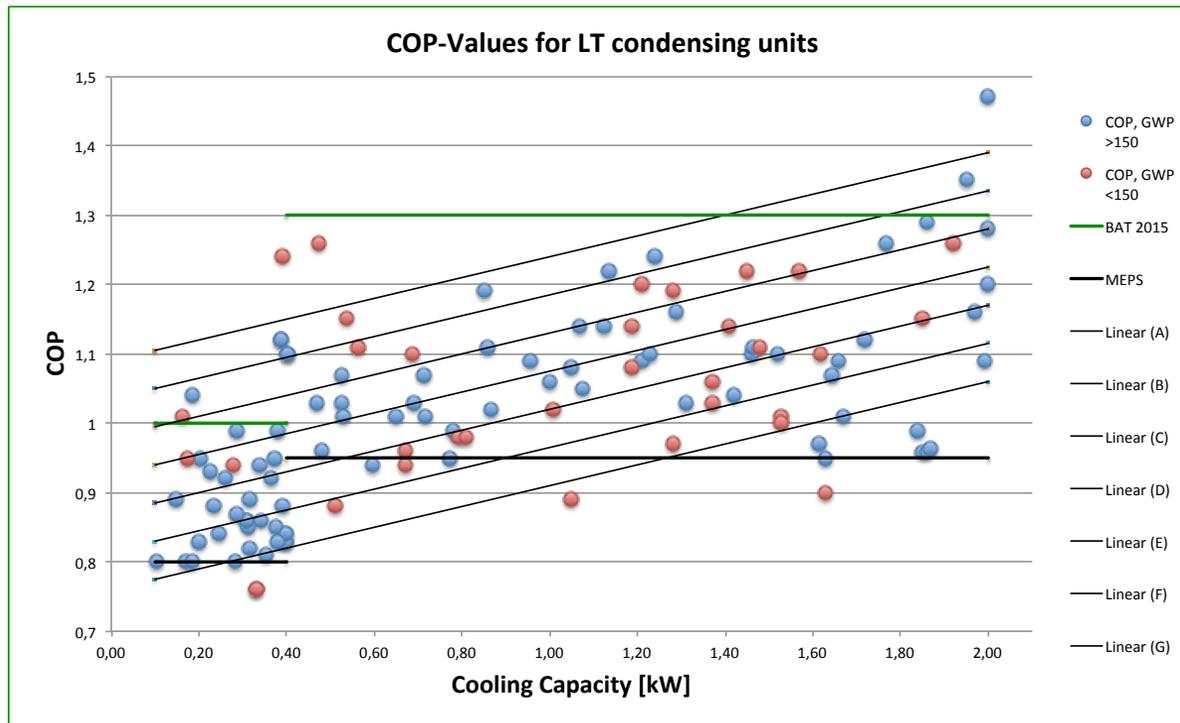
What can be **concluded** from these figures:

- **Most COP and SEPR are much better than the MEPS-values** over the whole range of cooling capacities.
- **Improvements** could be observed **in the BAT-values of MT-units** by one manufacturer since the preparatory study of 2015, which refers to data from 2012.
- **No improvements** could be observed **in the BAT-values of LT-units**.
- The totality of the values shows a typical broad distribution for products above the regulated MEPS level, which indicates **a clear potential for improvement**.
  - **Adaptation of MEPS** towards more ambitious levels should be discussed.
  - Comparing the evolution in SEPR data to COP data: Could new efficient technologies promoted better by **conversion to SEPR** values instead of COP?
  - Consideration should be given to **introducing an A-G efficiency labelling scheme** to create an **incentive for more energy efficiency** (cf. the Star Rating of CU of the Australian Institute of Refrigeration, Air Conditioning and Heating, AIRAH).

# Proposal for a label discussion

How could **labelling scheme** be designed?

- **Exemplary** for low temperature (LT) CU of the cooling range from 0,1 – 2 kW
- The formula “ $a = \text{COP} - 0,15 \cdot C$ ” could be applied with **C as cooling capacity**.



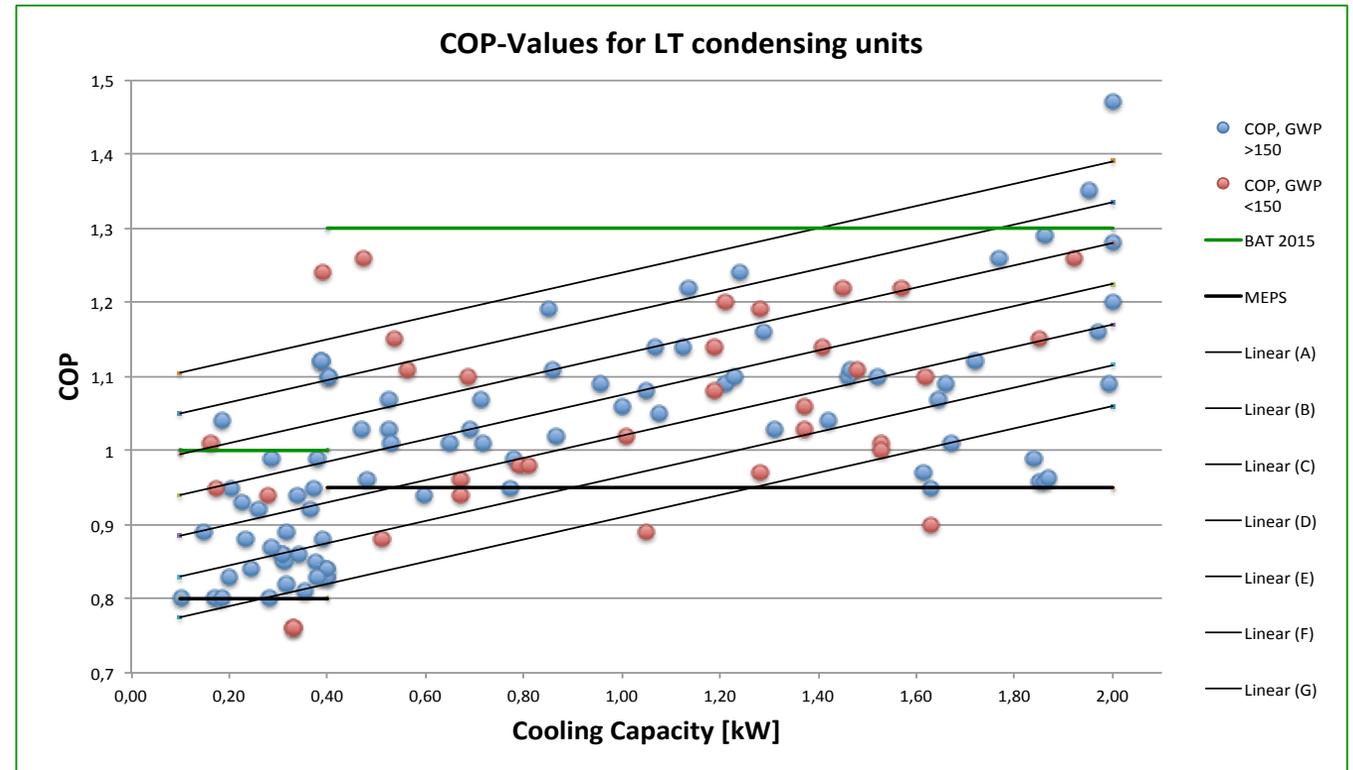
Label Class	$a = \text{COP} - 0,15 \cdot C$
A	$a \geq 1,09$
B	$1,09 > a \geq 1,035$
C	$1,035 > a \geq 0,98$
D	$0,98 > a \geq 0,925$
E	$0,925 > a \geq 0,87$
E	$0,87 > a \geq 0,815$
G	$0,815 > a \geq 0,76$

Exemplary calculation for an A-G efficiency scheme for low temperature (LT) condensing units of the cooling range from 0,1 – 2 kW.

# Proposal for a label discussion, cont'd

## Advantages for manufacturers, refrigeration installers and end-users:

- Manufacturers will be able to advertise the better efficiency of their units;
- Manufacturers and installers are prepared to possible increased efficiency demands by end-users;
- End-users save running costs.



THANK YOU FOR YOUR ATTENTION!

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# Conclusions regarding refrigerants

What else can be **concluded** from the figures:

- There are **differences** between condensing units to be charged with **a refrigerant** fluid with a **global warming potential lower or above 150**. In some ranges they perform worse but in other ranges they perform equally or even better.
  - **The benefit of 10 % for COP and SEPR values should no longer be applied for units which are charged with a refrigerant fluid with a global warming potential lower than 150.**
  - This is especially relevant as placing on the EU market of several categories of refrigeration equipment with GWP 150 or more is already prohibited above 40 kW and will be probably prohibited in future for other ranges.

