

WORKSHOP ON ENABLING DECARBONISATION OF INDIVIDUAL HEATING SYSTEMS

9 November 2023

EU requirements (labelling and ecodesign) for heating
appliances

Current requirements and on-going revisions



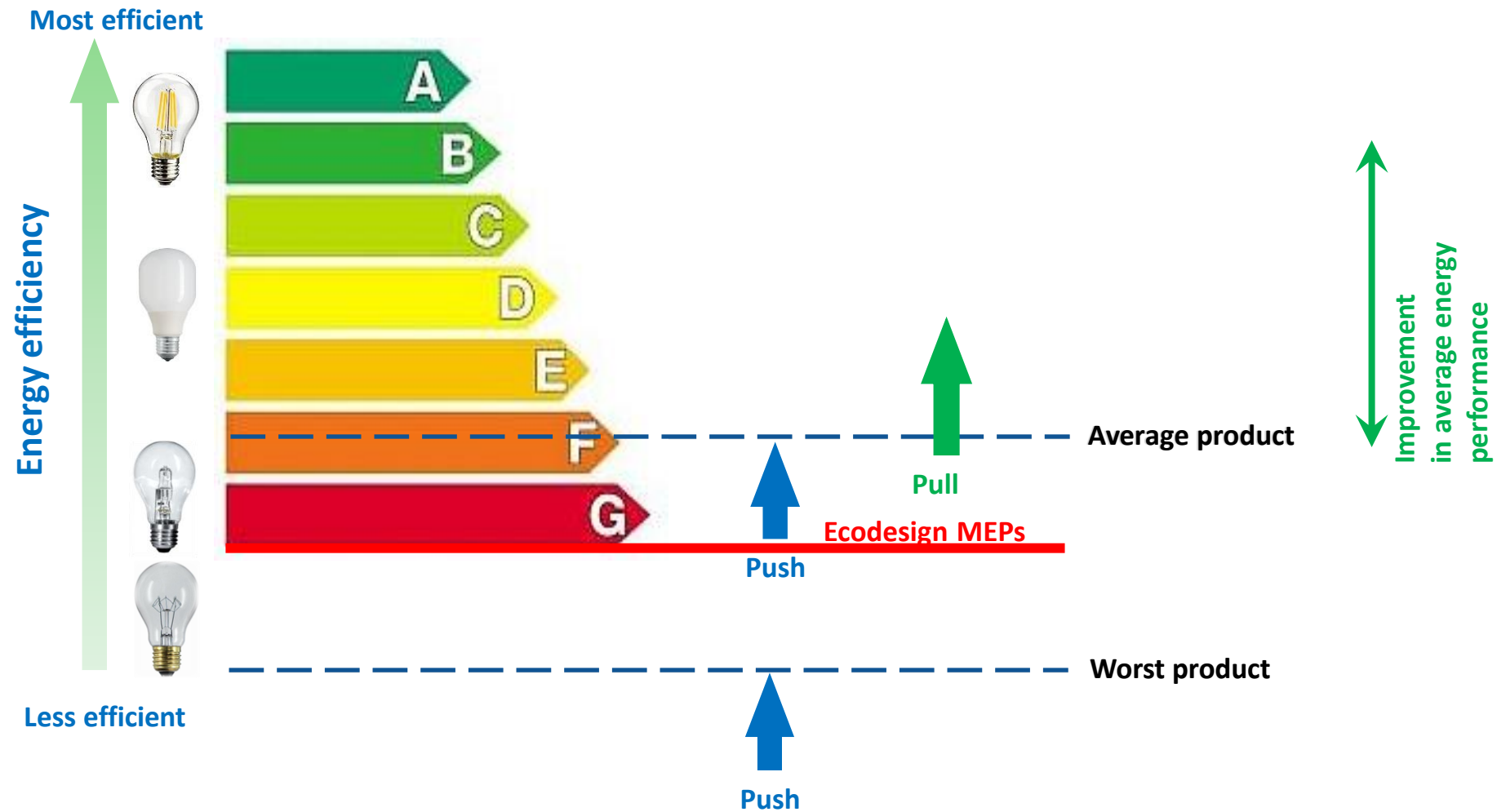
European Commission, DG ENER.B3

Niels Ladefoged, Senior Expert and Team Leader – Product Efficiency

Ecodesign and energy labelling product regulations

Ecodesign:
Targets **producers/retailers**
Pushes the market (models)

Labelling:
Targets **consumers**
Pulls the market (sales)



EPREL <https://eprel.ec.europa.eu/>

-> Online registry of labelled products

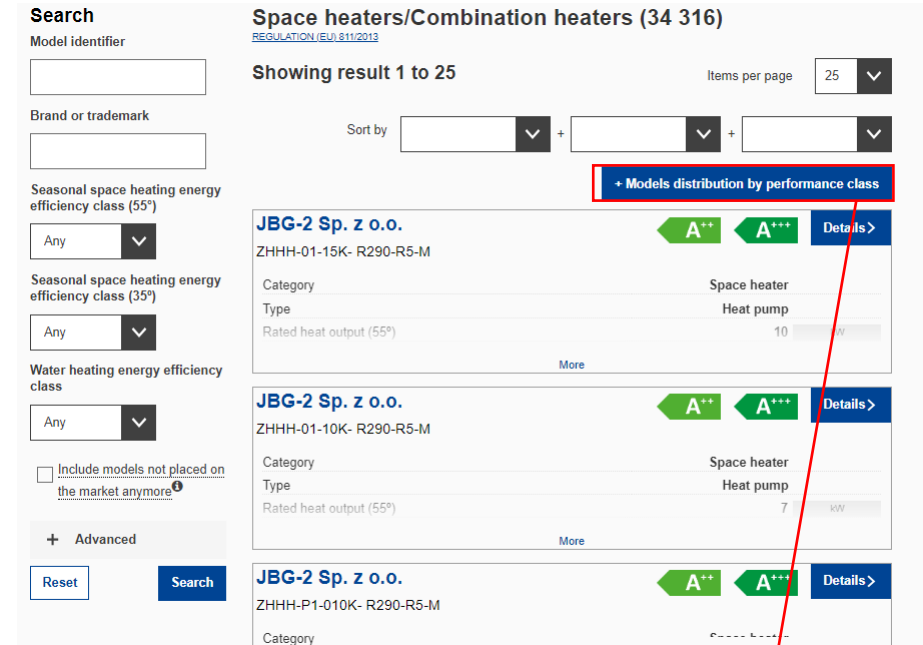
-> Also gives model distribution by class

Important link between energy label and subsidies

-> Article 7.2: “incentives shall aim at **the highest two significantly populated classes** of energy efficiency, or at higher classes”

Similar link also made for public procurement in EED, in VAT Directive and in EU taxonomy

– » *EU energy labelling now has wider implications than simple consumer information!*



Search

Model identifier

Brand or trademark

Seasonal space heating energy efficiency class (55°)

Seasonal space heating energy efficiency class (35°)

Water heating energy efficiency class

Include models not placed on the market anymore

+ Advanced

Reset Search

Space heaters/Combination heaters (34 316)

REGULATION (EU) 811/2013

Showing result 1 to 25

Items per page 25

Sort by

Models distribution by performance class

JBG-2 Sp. z o.o. ZHHH-01-15K- R290-R5-M A++ A+++ Details >

Category Space heater

Type Heat pump

Rated heat output (55°) 10 kW

More

JBG-2 Sp. z o.o. ZHHH-01-10K- R290-R5-M A++ A+++ Details >

Category Space heater

Type Heat pump

Rated heat output (55°) 7 kW

More

JBG-2 Sp. z o.o. ZHHH-P1-010K- R290-R5-M A++ A+++ Details >

Category

Seasonal space heating energy efficiency class (55°)
32 510 models

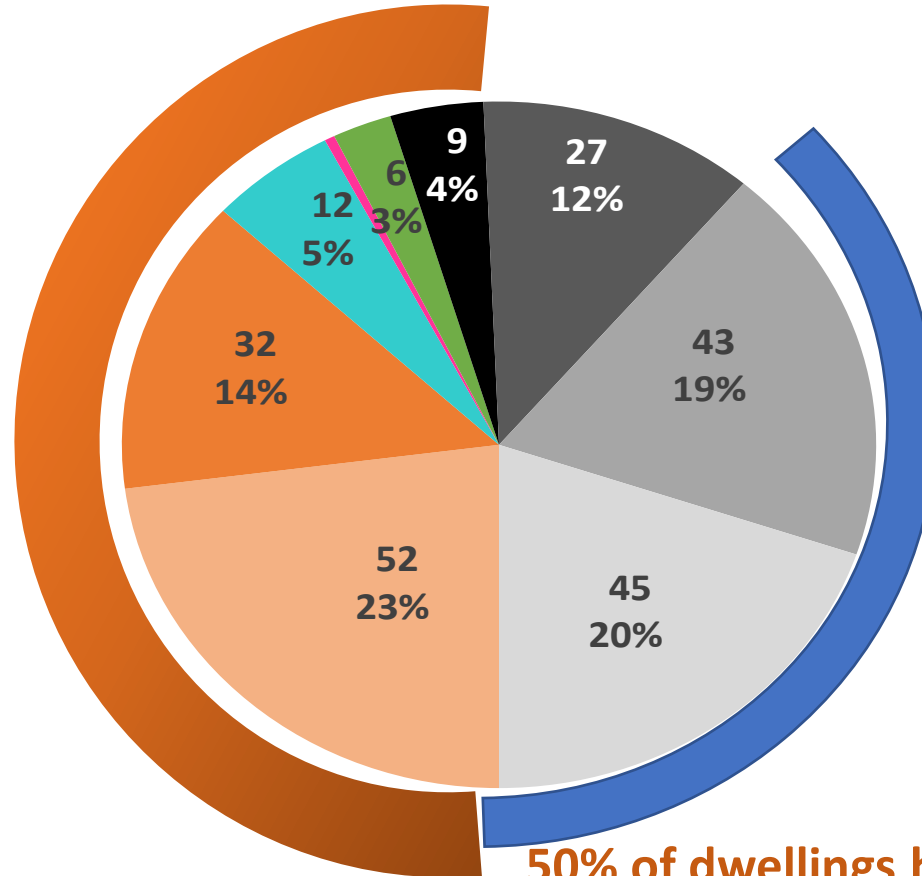
Class	Entries	%
A+++	1 074	3,3
A++	20 257	62,3
A+	4 609	14,2
A	5 714	17,6
B	344	1,1
C	205	0,6
D	307	0,9

Ok for subsidies

Subsidies not possible

Residential space heating

Space heating of EU27 dwellings 2020



- GAS condensing
- GAS non-condensing
- OIL (90% non-condensing)
- EL. RESIST boilers
- HEAT PUMP (incl. hybrid)
- SOLID FUEL boilers
- District heating
- EL. local heaters (incl. RAC)
- NON-EL. local & NO heating

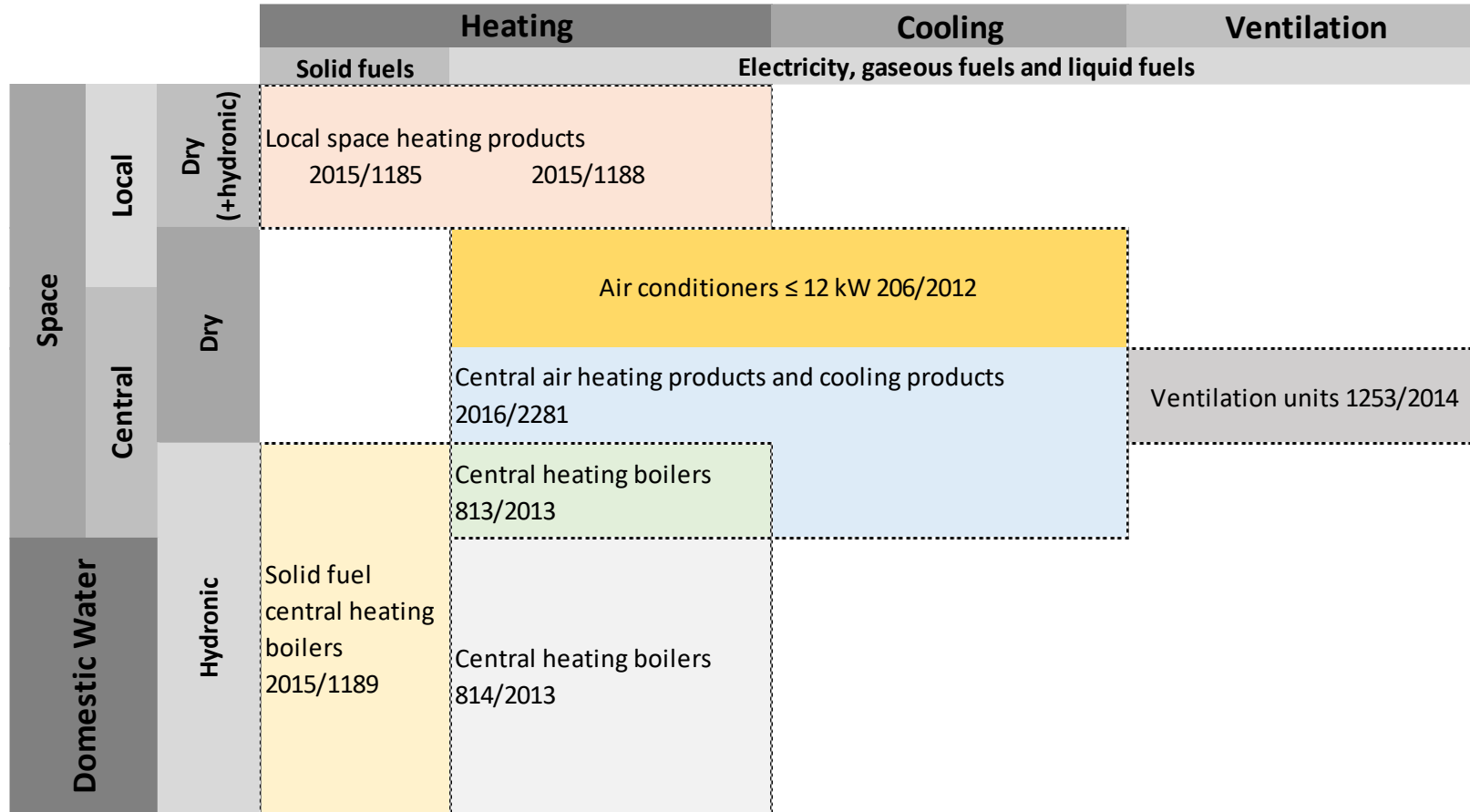
Total 227 million dwellings
(incl. 16% secondary dwellings)

Source: VHK, EIA 2021

Average no. of local heaters per dwelling are preliminary estimates

50% of dwellings heated by central hydronic space heaters
< 40% of dwellings use local / room heating products

Ecodesign regulations



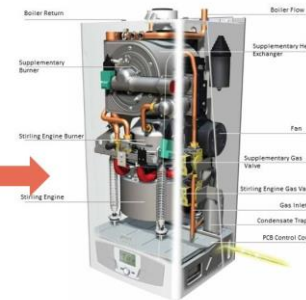


European Commission

Central hydronic heating

Hydronic space heaters except solid fuel

Boiler, heat pumps (+hybrids), gas heat pumps, micro-cogeneration, solar heating addition



Regulation	Current	On-going review	Planned adoption
Ecodesign	813/2013	Yes	2024
Energy label	811/2013	Yes	2024



European Commission

Space heating— label classes

NOW

Seasonal space heating energy efficiency class	Seasonal space heating energy efficiency class MT regime	Seasonal space heating energy efficiency class LT regime
A+++	$\eta \geq 150$	$\eta \geq 175$
A++	$125 \leq \eta < 150$	$150 \leq \eta < 175$
A+	$98 \leq \eta < 125$	$123 \leq \eta < 150$
A	$90 \leq \eta < 98$	$115 \leq \eta < 123$
B	$82 \leq \eta < 90$	$107 \leq \eta < 115$
C	$75 \leq \eta < 82$	$100 \leq \eta < 107$
D	$36 \leq \eta < 75$	$61 \leq \eta < 100$
E	$34 \leq \eta < 36$	$59 \leq \eta < 61$
F	$30 \leq \eta < 34$	$55 \leq \eta < 95$
G	$\eta < 30$	< 55

Subsidies to fossil fuel boilers (Class A and below) are already illegal (Art 7.2 2017/1369) as A+ and A++ classes are significantly populated (EPREL distribution of products by classes).

NEW (proposed)

Seasonal space heating energy efficiency class	Seasonal space heating energy efficiency class MT regime	Seasonal space heating energy efficiency class LT regime
A	$\eta \geq 260$	$\eta \geq 360$
B	$165 \leq \eta < 200$	$250 \leq \eta < 360$
C	$145 \leq \eta < 165$	$205 \leq \eta < 250$
D	$115 \leq \eta < 145$	$175 \leq \eta < 205$
E	$100 \leq \eta < 115$	$150 \leq \eta < 175$
F	$90 \leq \eta < 100$	$115 \leq \eta < 150$
G	$\eta < 90$	< 115

Rescaling better highlights boilers are inefficient (A, B -> F, G)

Change of PEF from 2,5 to 1,9

More ambitious LT scale

Space heating – Ecodesign Tier 1 (2026?)

<i>Revision proposal as of 27 April 2023</i>	Current	Revision
Space heater category	η_s in %	η_s in %
B1 Fuel boiler ≤ 10 kW & combi boiler ≤ 30 kW	75	76
Fuel boiler ≤ 70 kW	86	87
Fuel boiler > 70 kW ≤ 1 MW (η_1 and η_4)	86 (η_1)	87 (η_1)
	94 (η_4)	95 (η_4)
Electric (combi) boiler	36	48
Cogeneration space heaters < 50 kW _{el}	100	115
Hybrid heat pump/solar hybrid , MT	NA	125
Thermally Driven (TD) heat pump, MT	110	145
Thermally Driven (TD) heat pump, LT	125	170
Electric heat pump, MT (Medium Temperature)	110	145
Electric heat pump, LT (Low Temperature)	125	170

MEPS update -> change of primary energy factor (PEF) from 2.5 to 1.9

New product categories

Scope extension (400 kW to 1 MW)

Energy evolutions after Ukraine's aggression by Russia

-> REPowerEU, ensure energy security and the Green Deal objectives

- Diversify gas supply (LNG)
- Accelerate development of renewables
- Save gas/energy: included a [proposal to study a horizontal space heating MEPS \$\eta_{sh} > 115\%\$ by 2029](#) i.e. [stand-alone boiler phase-out](#)

-> Impact assessment

- HP to become cheapest heating product before 2030 (up to 1 MW), EU average
- Evolution driven by reducing electricity / gas price ratio and learning / scaling up rates by 2030
- **Minimum efficiency requirements at 115% (Primary energy factor 1.9) proposed (CF April 2023) but not supported by a majority of MS for now**



European
Commission

Central hydronic heating

Solid fuel boilers

Boilers, micro-cogeneration, solar heating addition (label)



Regulation	Current	On-going review	Planned adoptio
Ecodesign	1189/2015	Yes	2025
Energy label	1187/2015	Yes	2025

Current regulations

- > Current **label** use same scale as for other central hydronic products with a correction factor (BLF = 1.45) which places SFB mostly in classes A+ and A++.
- > Current **ecodesign** requirements
 - Efficiency: < 20 kW $\eta_{as} > 75\%$ // > 20 kW $\eta_{as} > 77\%$
 - Emission limits: PM, OGCs, CO, NO_x

Revision at early stage; main discussion topics

- > Energy **label**: removal of the BLF factor, potential merge with other boilers, link to subsidies
- > **Ecodesign**: main concern related to PM emissions, possible extension to 1 MW, scope extension to non-woody biomass

Room heating products

Electric radiators



stoves (coal /wood, oil, gas)



air-to-air heat pump



Local space heaters

Air conditioners

Sub-categories	Regulation	Current	On-going review	Planned adoption
Local space heater except solid fuel	Ecodesign	1188/2015	Finished	Adopted (2023)
Local space heater including solid fuel	Energy label	1186/2015	Yes	2024
Air conditioners	Ecodesign	206/2012	Yes	2024
Air conditioners	Energy label	626/2011	Yes	2024
Solid fuel local space heaters	Ecodesign	1185/2015	Yes	2025

Present situation

- A significant share of consumers do consider several room heaters when buying
- Scales are not comparable (HP metrics not aligned either): most consumers think they are, ie A or A+++ is good in absolute, whatever heating product they buy.
- Electric heating is not labelled (most common room heating product type)
- Biomass labelling factor: no longer possible and not aligned with the EU Action Plan 'Towards Zero Pollution for Air, Water and Soil'

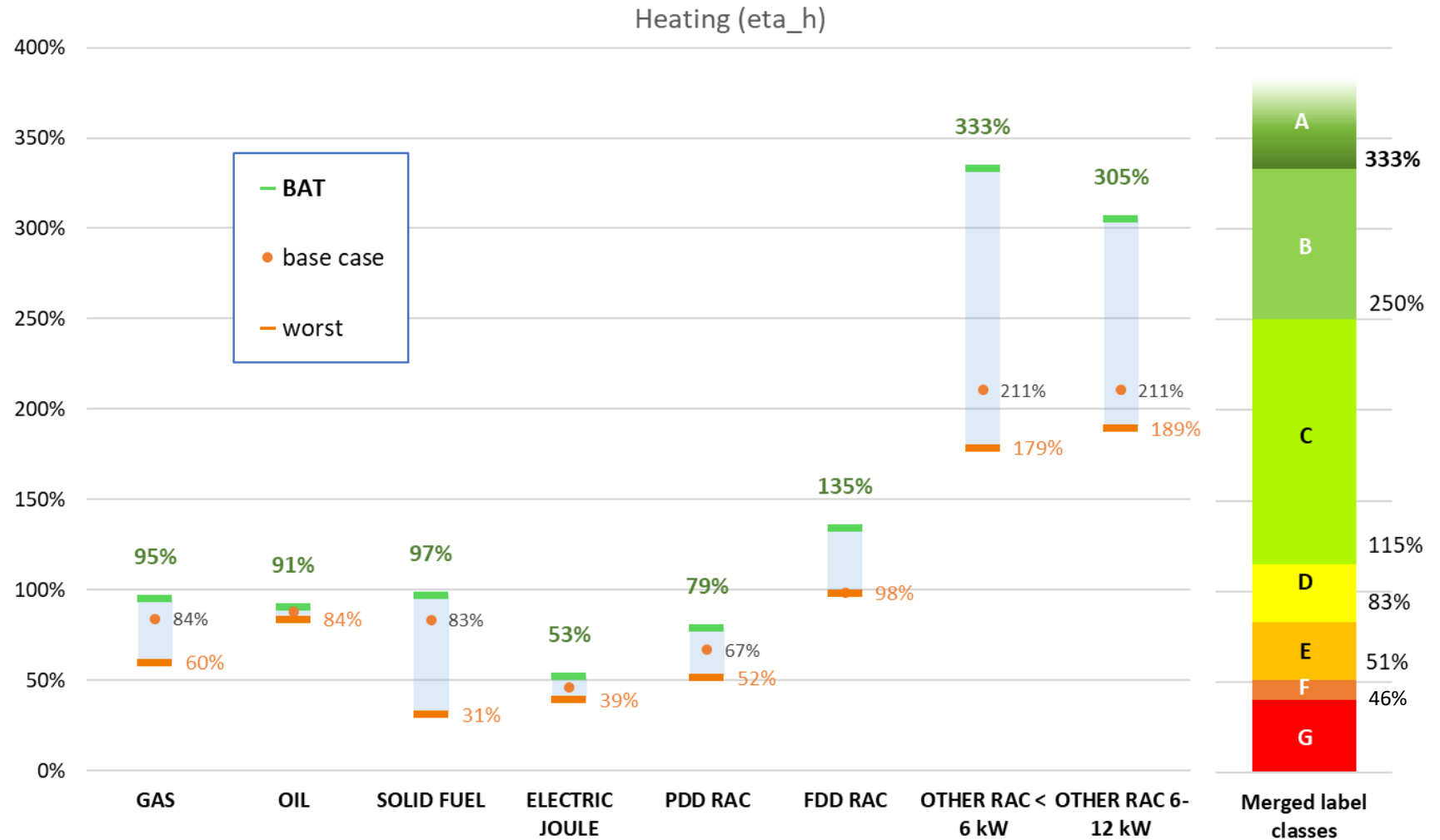
Proposal (March 2023)

Heat pumps (B to D)

Electric (E-F-G):
different controls

Combustion stoves
(D to G)

D class possibly
eligible to subsidies
(heat pumps and
best biomass stoves)



LSH except solid fuel

- Current regulation (1188/2015)
 - ✓ Includes electric, gas and liquid LSH
 - ✓ MEPS
 - ✓ NOx emission limits
 - ✓ Inclusion of control factors in the calculation of heating efficiency
 - ✓ Different MEPS for different fuels and sub-categories
- Revision
 - ✓ Clarification of the scope (towel rails)
 - ✓ Inclusion of separate controls
 - ✓ Remove loopholes (slave heaters)
 - ✓ Low power modes
 - ✓ Alignment of calculation methods with energy labelling

Air conditioners and comfort fans

- Current regulation (206/2012)
 - ✓ 0-12 kW
 - ✓ COP for single duct and double duct, SCOP for other (split air-to-air heat pumps)
 - ✓ Different MEPS for SD, DD and Others (lower values above 6 kW)
 - ✓ Lower MEPS for refrigerant with lower Global Warming Potential
- Revision main heating topics
 - ✓ Adapt metrics to SCOP for all; no longer use SD for heating
 - ✓ Link to Fgas regulation

Solid fuel LSH

- Current regulation (1188/2015)
 - ✓ MEPS
 - ✓ Emission limits (PM, OGCs, CO, NO_x)
 - ✓ Different MEPS and emission limits for different fuels and sub-categories
- Revision main topics
 - ✓ MEPS
 - ✓ Emission limits (focus on PM and OGCs)
 - ✓ Test procedure
 - ✓ Conformity assessment (3rd-party certification)

Air heating and cooling products (Regulation 2281/2016)

- > Only ecodesign requirements for now
- > for adoption in 2025/2026

Low temperature heat emitters

- > Feasibility study of an energy label
- > for adoption in 2025/2026

Thank you for your attention!

QUESTIONS?

Web site:

https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/energy-label-and-ecodesign_en

Contact: ENER-ENERGY-LABELLING@ec.europa.eu