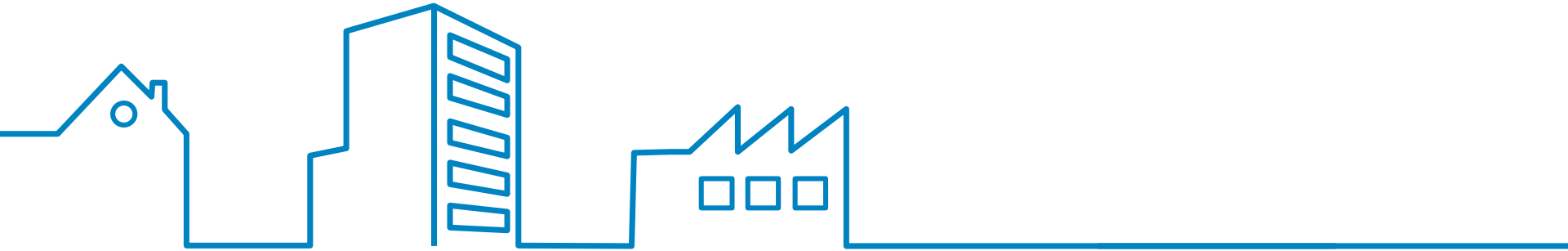
Daikin's view on Ecodesign & Energy label

14/11/2016 – conference - Ecodesign and energy labelling in practice – experiences, challenges, regulation and impact

Els Baert – Manager Ecodesign and product safety

Environment Research Center




DAIKIN

Daikin Europe’s manufacturing presence

Daikin Europe N.V. - Oostende (BE)

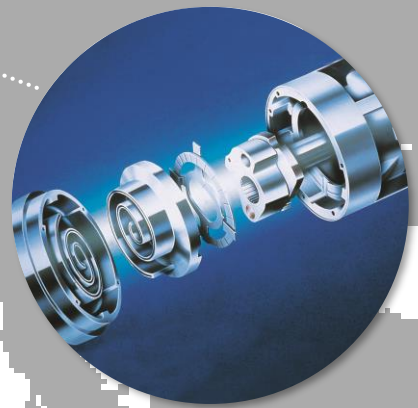
Production start	1973
Factory surface	26,000m²
Number of employees	1,565
Scope of business	Heat pumps Commercial air conditioning Chillers Refrigeration

Daikin Industries Czech Republic s.r.o.
Plzen (CZ)

Production start	2004
Factory surface	25,309m²
Number of employees	± 2,085
Scope of business	Residential units

Daikin Device Czech Republic s.r.o. - Brno (CZ)

Production start	2006
Land area	127,000m²
Number of employees	± 647
Scope of business	Swing compressors Scroll compressors



Rotex heating systems GmbH - Güglingen (DE)

Production start	1973
Factory surface	14,970m²
Number of employees	242
Scope of business	Heating

Daikin Applied Europe - Cecchina (IT)

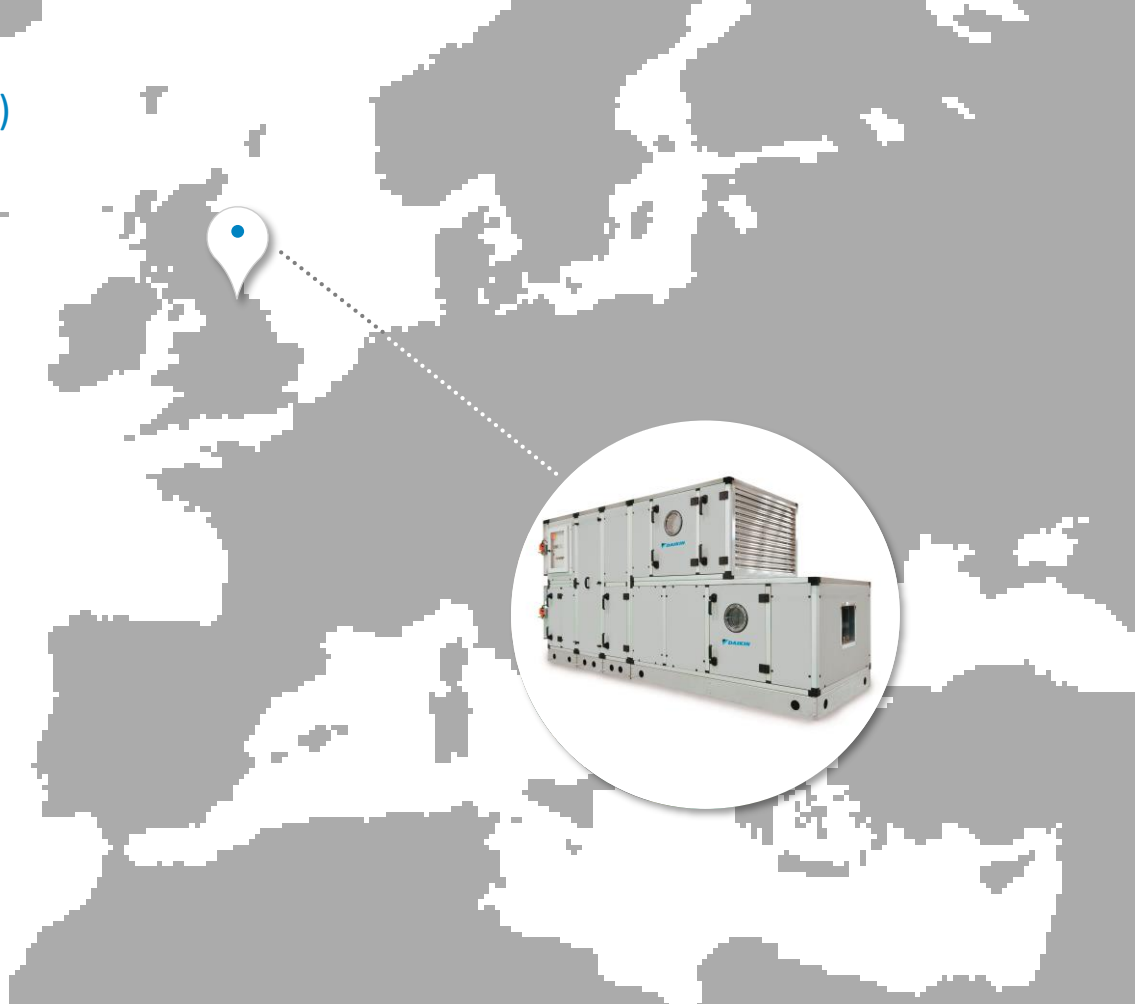
Production start	1969
Factory surface	21,000m²
Number of employees	364
Scope of business	Chillers Single screw compressors

Daikin Applied Europe - Milano (IT)

Production start	2008
Surface	6,450m² (production + office)
Number of employees	66
Scope of business	Air handling units

McQuay Cramlington - Cramlington (UK)

Production start	1966
Factory surface	14,214m²
Number of employees	97
Scope of business	Air handling units



Daikin Isıtma ve Soğutma Sistemleri San. Tic. A.Ş - Hendek (TR)

Production start	1999
Factory surface	42,000m²
Number of employees	878
Scope of business	Residential units Air handling units Boilers Fan coil units Panel radiators

Daikin Europe’s Sales presence

Daikin Europe N.V. at a glance

Employees:
6,099

Cons. Turnover:
2,109 million €
FY2015

Daikin Europe N.V.

Since 1973
Ostend (Belgium)
President: Mr. Minaka

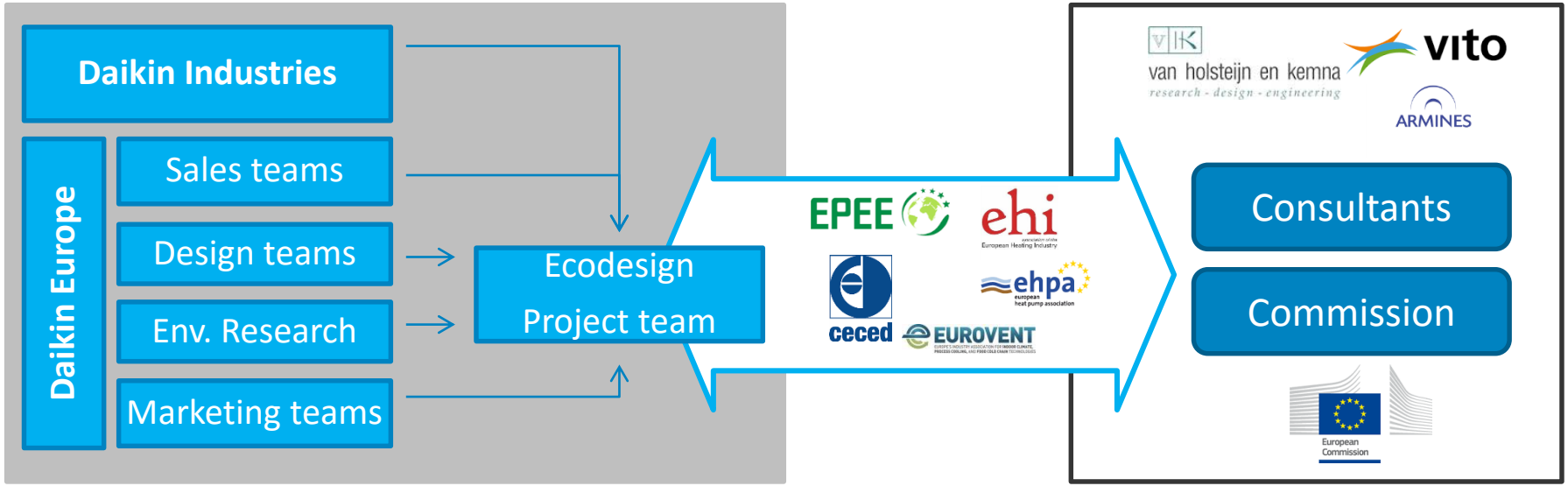
The process…. Involvement is Key!

± 55 months

- Daikin has been involved from the very beginning
  - 2003 – MEEUP methodology
  - For all the lots relevant to our products
- Evaluation and input to the study is most important – the only stage where manufacturers can support individually
- possible input is less certain to be successfull at each step of the process

How….cooperation, information exchange, communication

- Multifunctional teams
- Consultation directly and indirectly with actors in the process.



Key figures….

10

Implementing measures affect Daikin products

3

Horizontal issues will affect these implementing measures

2026

The **year** in which implementation is expected after 1st review of all 10 implementing measures

This is challenging but also creates opportunities

Impact on our products…

ENER lot 11 -fans

ENER lot 11 - motors

16/6/11

ENER lot 10 - splits < 12 kW

1/1/14

ENER lot 1 - Space heating (hydronic)

ENER lot 2 - Water heaters for DHW

26/9/1

ENTR lot 1 - Refrigeration

1/7/16

ENER lot 10/ENTR lot 6 - Ventilation

ENER lot 21/ENTR lot 6 - Air heating, cooling and HT chillers

1/1/18

26/9/18

ENER lot 1 - space heating (hydronic)

ENER lot 2 - Water heaters for DHW

Reviews..

1/1/13

ENER lot 10 - splits < 12 kW

ENER lot 11 - circulators

ENER lot 11 -fa

1/1/15

ENER lot 11 - circulators

ENER lot 11 -fans

ENER lot 11 -motors

1/1/16

ENER lot 10/ENTR lot 6 - Ventilation

26/9/17

ENER lot 2 - Water heaters for domestic hot water

ENER lot 1 - Space heating (hydronic)

1/7/18

ENTR lot 1 - Refrigeration

1/1/21

ENER lot 21/ENTR lot 6 - Air heating, cooling and HT chillers

DAIKIN

Timing of the lots…

Today

Implementation of first implementing act (T1 & T2)

Expected publication of reviewed implementing act (Review clause)

Expected Implementation of reviewed implementing act

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
ENER Lot 10 (Airco <12KW)	01/13	01/14												
ENER Lot 11 (Fans)			01/15											
ENER Lot 11 (Motor)			01/15											
ENER Lot 11 (Circulator)			08/15											
ENER Lot 2 (Water heating)			09/15		09/17									
ENER Lot 1 (Space heating)			09/15		09/17									
ENTR Lot 1 (Prof.refrigeration)				07/16		07/18								
ENTR Lot 6 (Ventilation)				01/16		01/18								
ENER Lot 21 (Space heating&Airco>12KW)						01/18			01/21					
ENER Lot 33 (Smart appliances)								01/20						
Standby regulation (scope to be clarified)	Not applicable to HVACR													
Energy label review								Lot 10;6		Lot 1;2				
Resource efficiency/ circular economy							Requirements will be integrated gradually							

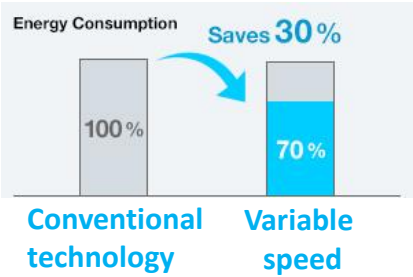
The opportunities…

1. More **realistic** data in the market

   seasonal performance is introduced in all lots related to HACR products.

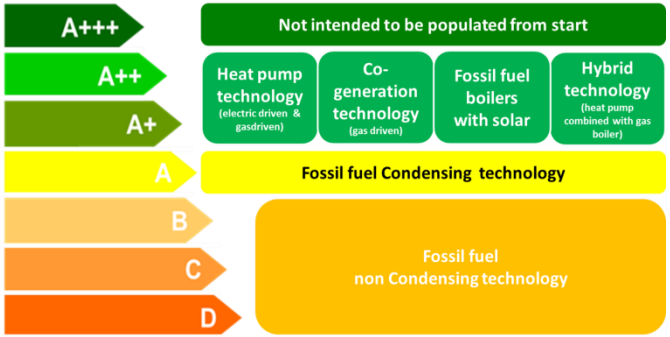
   - 4 points instead of 1 point
   - Includes auxiliary modes such as standby and off modes
   - Considers climates

2. Seasonal performance **drives towards energy efficient** technologies e.g. variable speed technology

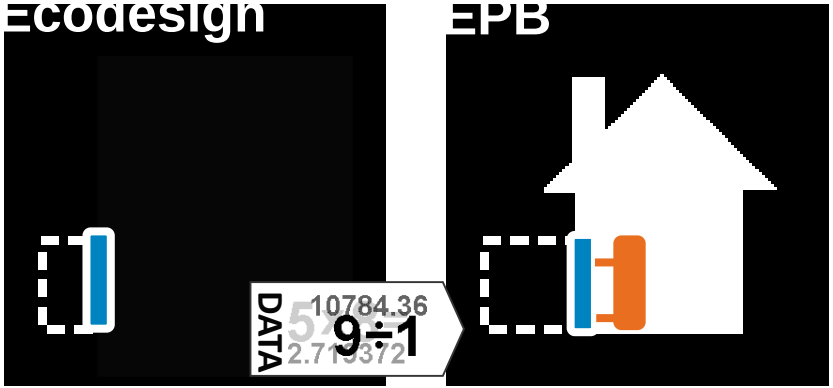


The opportunities…

3. **Better data in the market**: improves comparability, enables consumers to make better choices in terms of efficiency
   - E.g. Energy label for space heaters



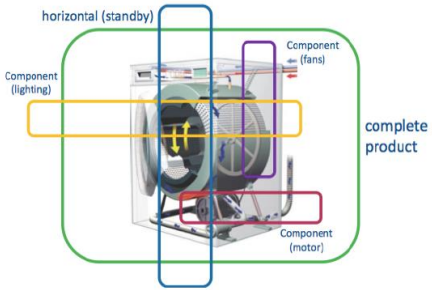
4. Opportunities **to exchange data** to other frameworks
   - Unification of data in the market



The challenges…

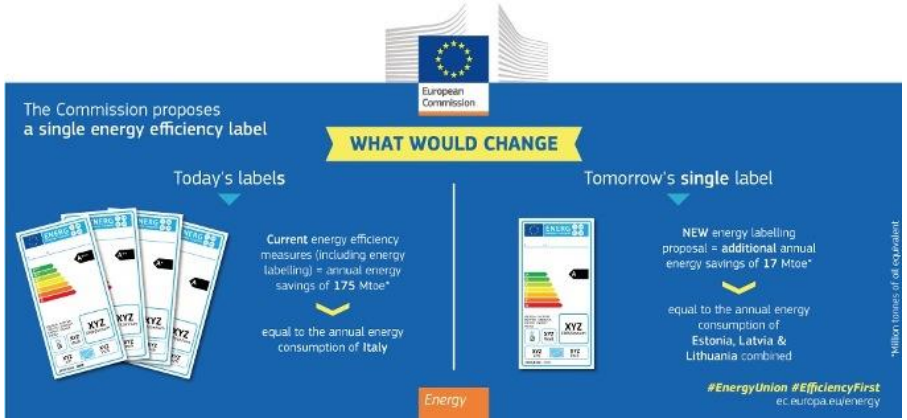
1) **Market surveillance is key**: we support strong market surveillance
   - Efforts from compliant manufacturers should be meaningfull
   - Free riders should be penalised
   - Creates positive image for the implementing measures: don't mess with ecodesign

2) Regulating **components** in already regulated products is a challenge and should be revisited.
   - Components specifically designed for products subjected to measures should be excluded.
   - Requirements on spare parts is not a durable measure.



3) White good requirements are copied to HVACR:
   - E.g. Labels in the box, energy consumption on labels…

The challenges…

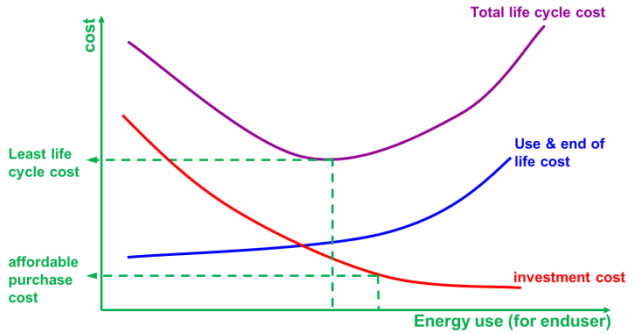


4) The revision of the **Energy label**:

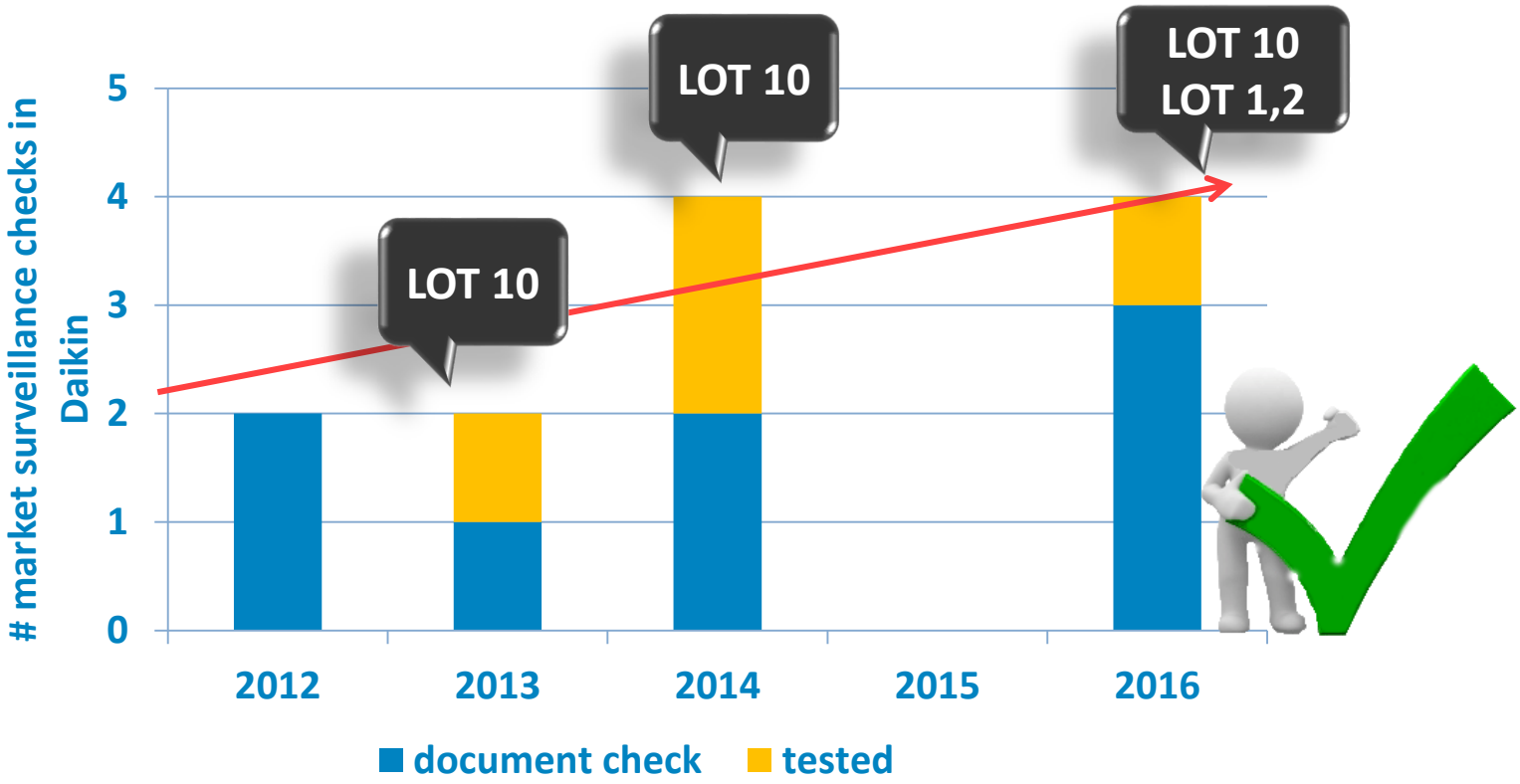
- Scaling with empty classes
- Database

5) **Revision** of measures:

- Going beyond **LLCC** should be avoided:
  - Difficult to market products as there is no payback possible for the consumer.
  - Maintain Europe's competitive region
- observe if **technical boundaries** may be reached for products that have long lasting history in Energy label and Ecodesign



Market surveillance, a growing trend….



Tolerance settings…

EXAMPLE

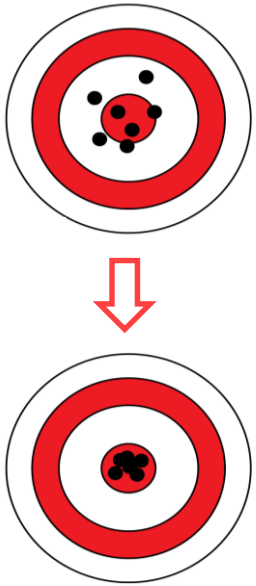
Ecodesign Scope	Method according to EN 14511	Uncertainties according to EN 14511	Ecodesign market surveillance	
			Tolerance	Number of units to be evaluated
LOT 10 < 12kW	Calorimeter room	Capacity = 5% Power input = 1%	fit 8%	1+3
LOT 21 > 12kW	Enthalpy room	Capacity = 10% Power input = 1%	No fit 8%	1

- Change in test method was not considered properly in the process of lot 21
- measurements by MSA will show failure, especially if only 1 unit has to be tested (Lot 21)
- Legal certainty of a failure is questionable
- It can not be the purpose for manufacturers to absorb this uncertainty. Own uncertainties are already absorbed in the declarations

Uncertainty of measurement should reduce

How to reduce uncertainty of measurement….

1) Reduce from 10% to 5%, including at defrost
2) One unit testing should be considered to determine uncertainty
3) Calibration of labs with a ‘standard calibration unit’
    - Include industry in calibration.
    - E.g. calibration of scales….



Market surveillance on large appliances…

1) Testing by MSA is not an obvious tool
2) Other tools are not obvious for order made or imported products
   - Cost of the product is destructive for the surveillance budget
   - Order based products
   - Limited sizes of external labs
   - Testing in the field ➔ unstable conditions
   - Testing in house ➔ order based products
   - Avoid delay in commissioning
   - Witness testing
   - Import products ➔ outside EU, how to handle

3rd party verification to facilitate market surveillance?

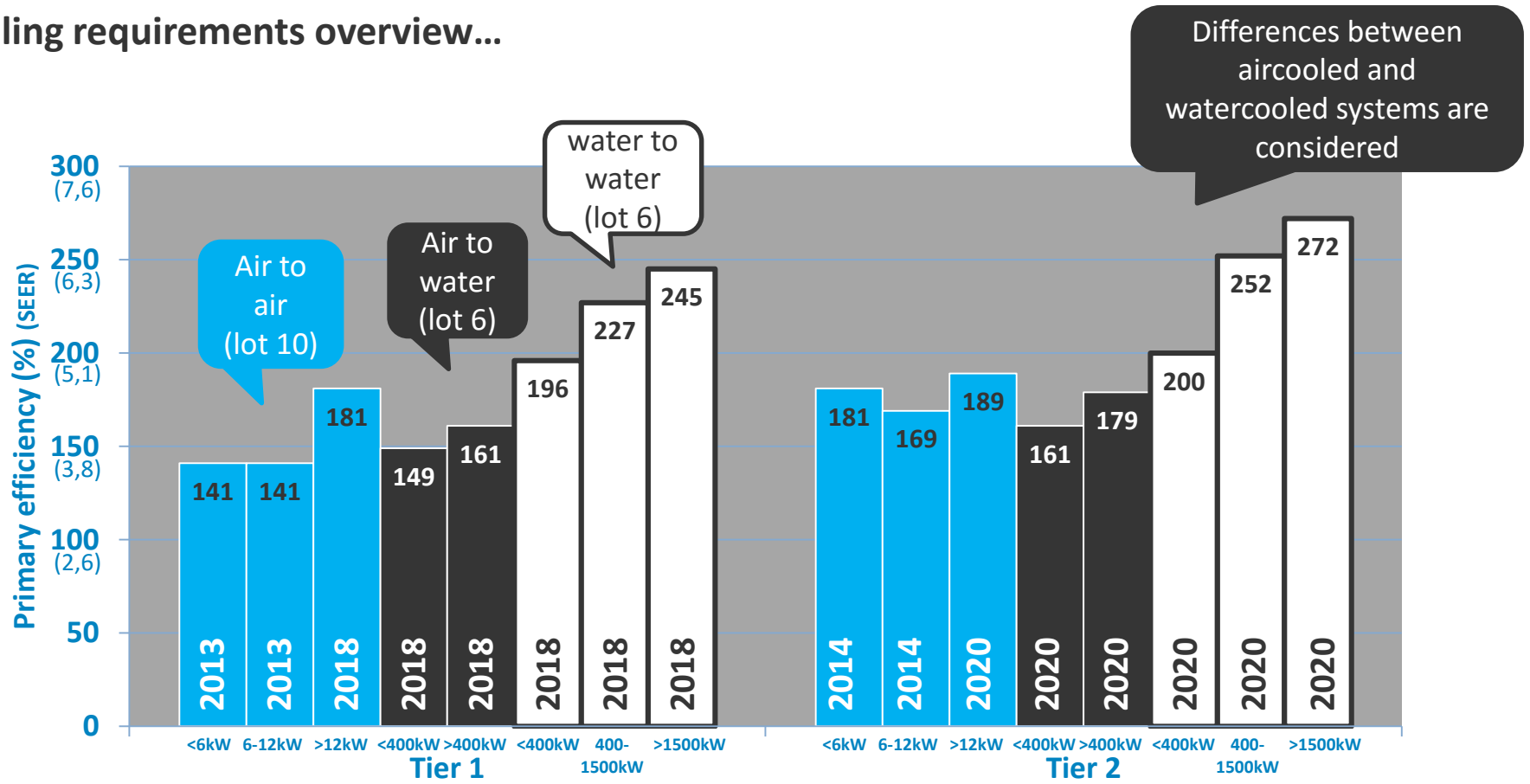
A lot of questions, limited number of solutions

3rd party verification systems to be considered…

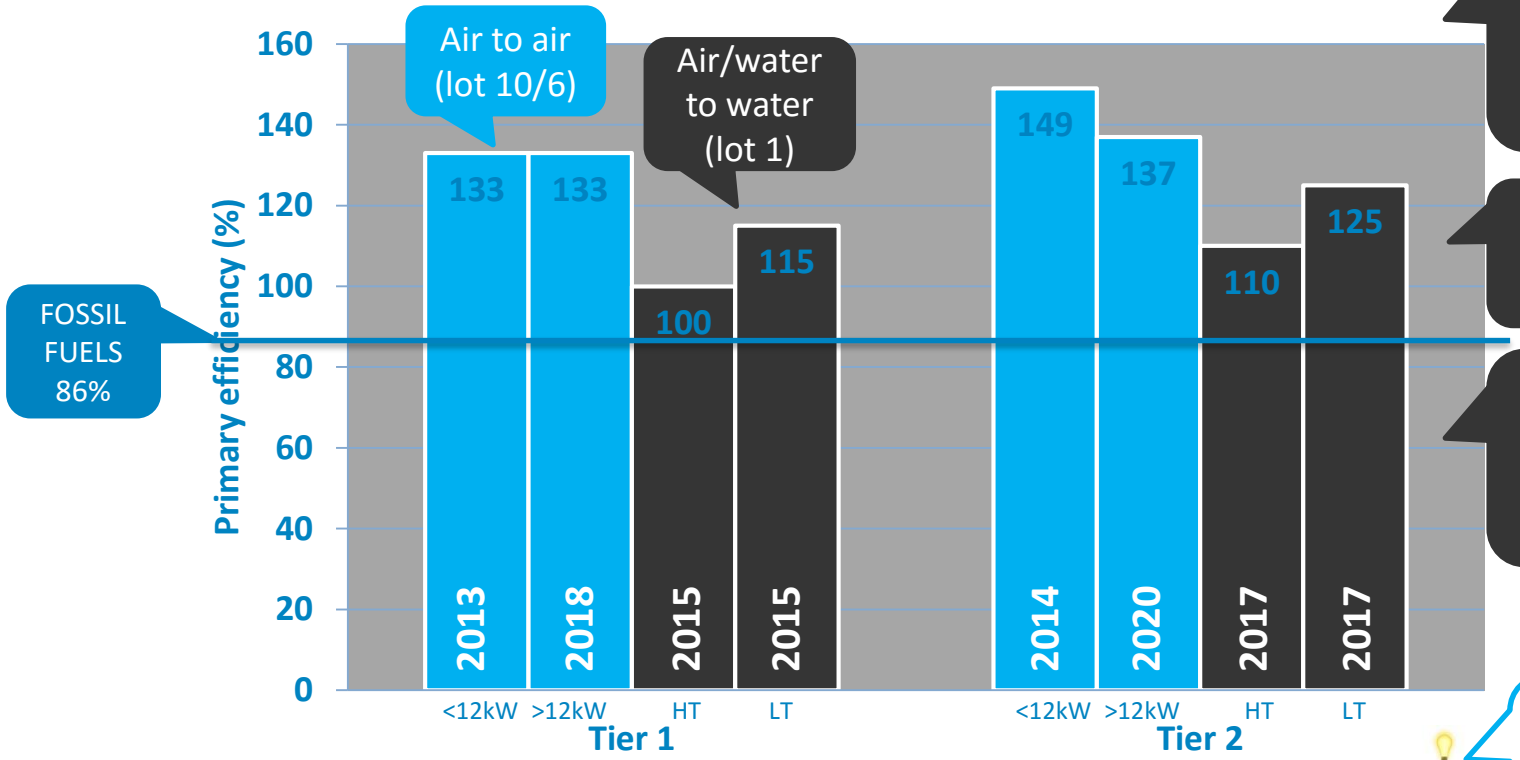
1) Ecodesign and Energy label require **self declaration**.
2) EPB requires in some countries **national approval by 3rd party**.
   - Ecodesign data does not seem acceptable.
3) CE mark for ecodesign should be sufficient
4) 3rd party verification using the modules may resolve this:
   - More **robust** data in the market
   - **Reduces** free riders in the market (increases the threshold)
   - **Facilitates** market surveillance (Not a replacement)
   - increased **trust** in declarations
   - Enhances **unification** in EU: increases exchangeability of the data in EU
5) **Precedents**
   - some frameworks show good results, national mandatory schemes gradually dissapeared E.g. PED, GAD

CE mark should become an acceptable proof of compliance: Combination of 3rd party verification and strong market surveillance should make this possible.

cooling requirements overview…



heating requirements overview…



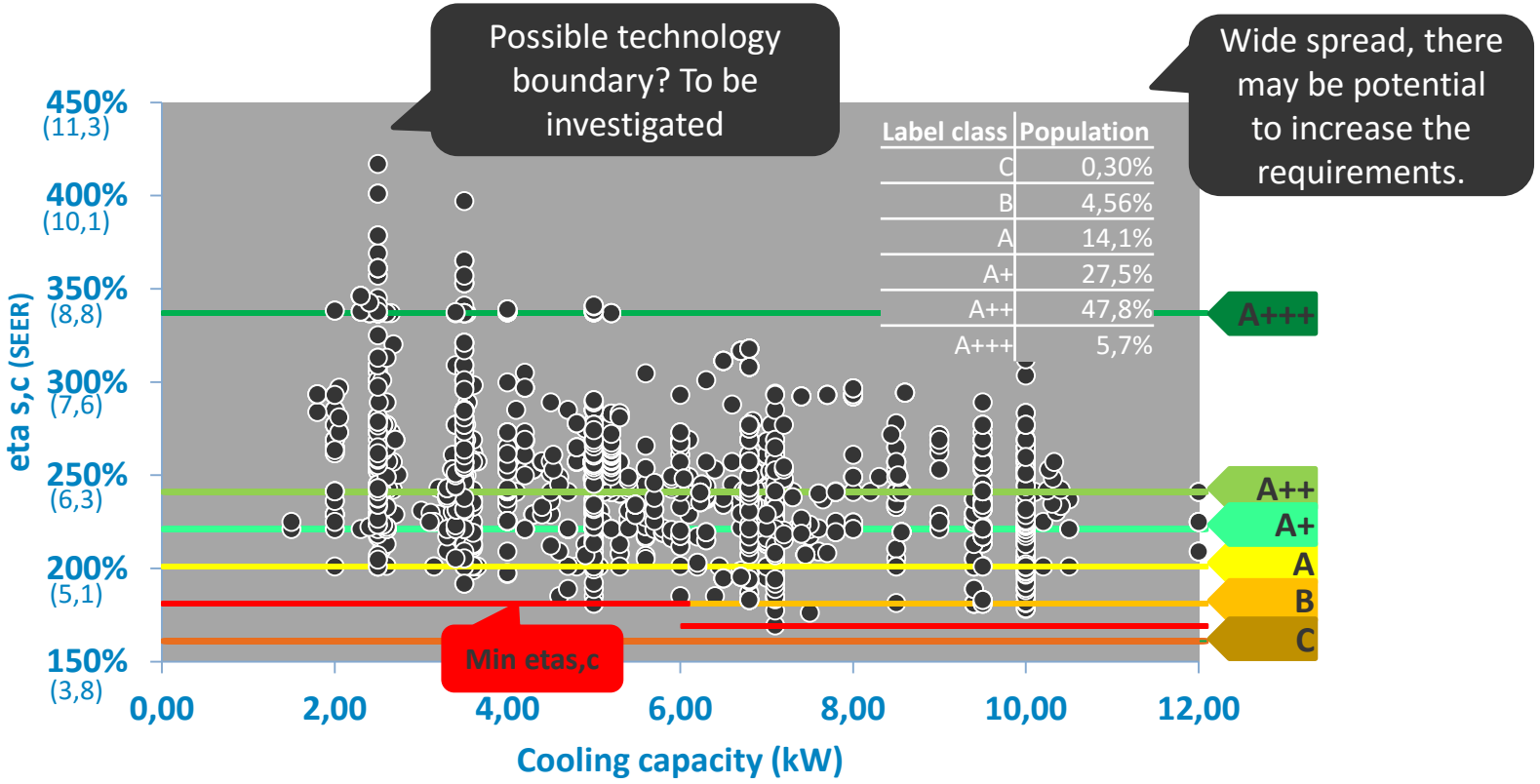
Historical discrepancies between air cooled and water cooled heating systems exist

Lot 10 requirements are highest of all.

Maintain level playing field with conventional technologies

promotion of renewable technologies is key: no further increase

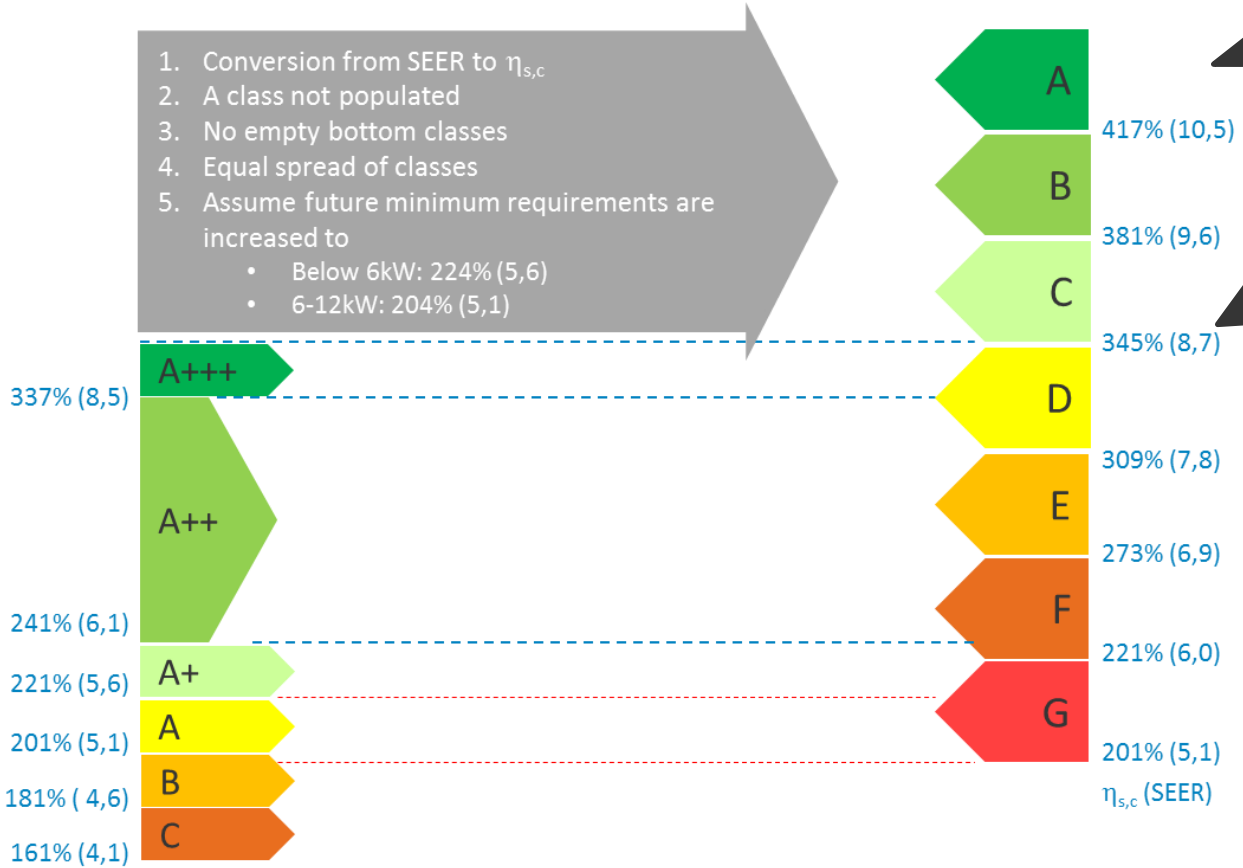
The future: A/C below 12kW cooling – efficiency landscape…



Source: Extract Eurovent database october 2016 of SEER & conversion to etas

Disclaimer – note that the relation with number of units placed on the market is not shown

A/C below 12kW – cooling - possible energy label…

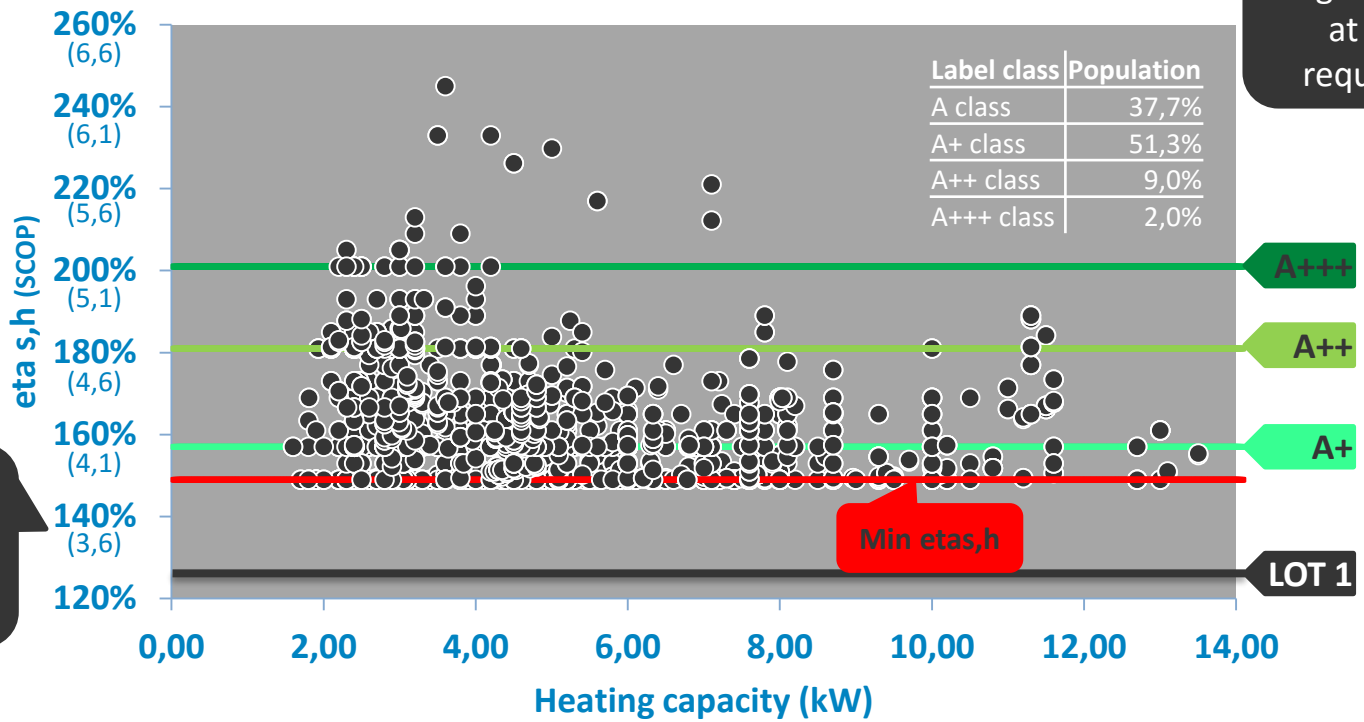


A+++ products end in B and C

Uncertain if A can be populated: technical boundary to be defined

The future: A/C below 12kW – heating – efficiency landscape…

Spread is not so big: clear cut of at heating requirements

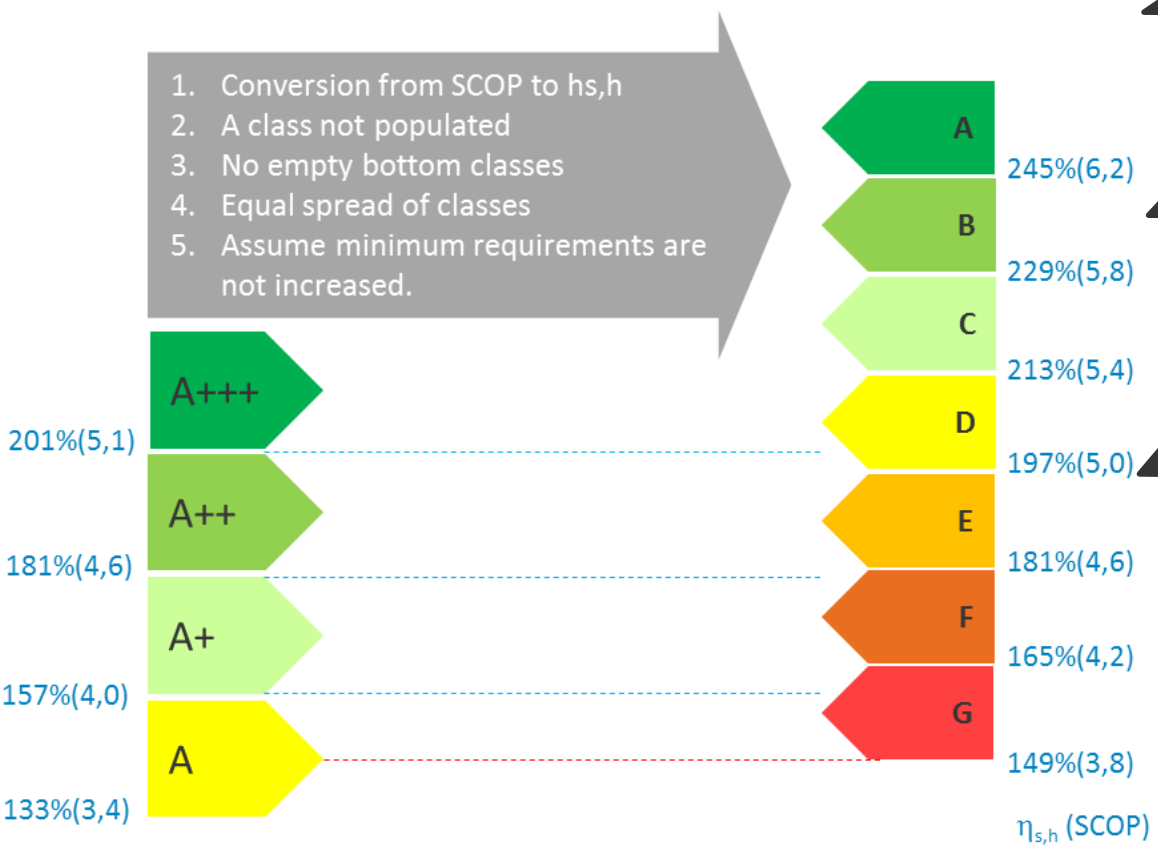


Very strict requirements, may go beyond LLCC-no payback

Source: Extract Eurovent database october 2016 of SCOP & conversion to etas

Disclaimer – note that the relation with number of units placed on the market is not shown

A/C below 12kW – heating - possible energy label…



A+++ products end in B and C

Uncertain if A can be populated: heating efficiency depends on cooling efficiency

A 150% air to air heatpump will be in Class G – air to water heat pump with same efficiency A+++ (or B..)

Rescaling happens when 50% of the products are in class A + B or when 30% of the products are in class A

Conclusions

- Ecodesign and Energy label really drive to **more efficient products** in the market. This creates many **opportunities** for manufacturers.
- **Participation** in the process is key: providing complete, reliable data ensures that robust and workable measures are created.
- **Market surveillance** is key – challenges need to be overcome
  - **Tolerances** have to be considered with the relevant standards, these provide state of art information
  - For **large units**, solutions are needed, but there are a lot of questions
  - **3rd party verification methods** are to be considered if we are serious about ecodesign, market surveillance and exchangeability of data in the market.
- **Future work** will need to take a holistic approach. Considering the total landscape is key to continue to drive the market to efficient solutions.
- Implementing the new **Energy Label** will be challenging.

Thank you