



INSTITUT FÜR ENERGIE-
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Evolutions of energy labelling: lessons from German energy labels for air-conditioning and ventilation

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Starting point

Existing EU energy labelling:

- successful and effective policy instrument
- important contributions to energy and climate targets
- but not sufficient: we need to tackle more energy savings!

EU energy label:
limited scope

new products
(essentially
product
approach only)

National energy labels: possibility to enlarge
scope

include
**systems in
their
operational
context**

address
**existing
stock**

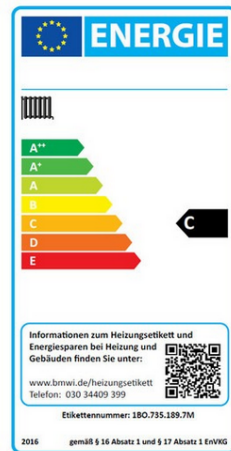
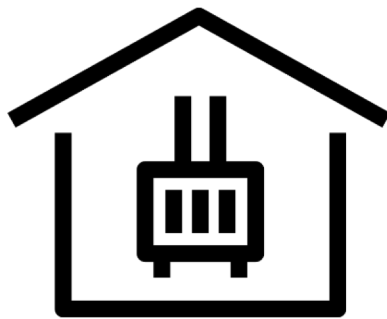
address
**planning and
quality
control of
systems**

German complementary energy labels

- Transfer of European labelling approach to new areas

Mandatory label

Introduced in 2016:
German national label for old heating installations

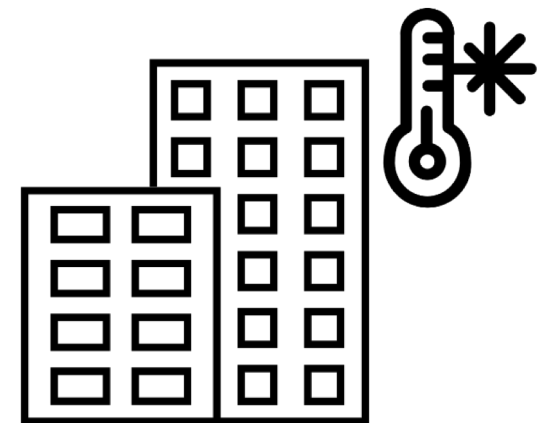


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Voluntary labels

Introduced in 2018:
QuickChecks for cooling and ventilation

Coming up in 2019:
System labels for air conditioning, cooling and ventilation



Focus on air conditioning and ventilation

The new labels address **medium and large installations** typically used in non-residential buildings. These systems

- require **large amounts of energy** (estimated electricity consumption in Germany 47 TWh/a)
- are **complex** and have **long service lives**



- have **major energy savings potentials**, especially when including the operational context (up to 50%)
- are **often opaque**: owners have a poor basis for economic decision-making on investments.

Graphical assessment of ventilation and cooling systems as a first step



“Non-label”: QuickCheck

DEUTSCHLAND MACHT'S EFFIZIENT.

Bundesministerium für Wirtschaft und Energie

AUFTRAGGEBER AUSSTELLER LÜFTUNGSANLAGE

ENERGIE QuickCheck

ENERGIEVERBRAUCH

NIEDRIG MITTEL HOCH SEHR HOCH

Geschätzte Kosten des Energieverbrauchs: zwischen 9.000 und 15.000 Euro pro Jahr

UNGENUTZTES EINSPARPOTENZIAL

NIEDRIG MITTEL HOCH SEHR HOCH

Die Anlage verbraucht viel mehr Energie als notwendig.

HANDLUNGSBEDARF

Hier gibt es dringenden Handlungsbedarf!

QUICKCHECK-EINSCHÄTZUNG

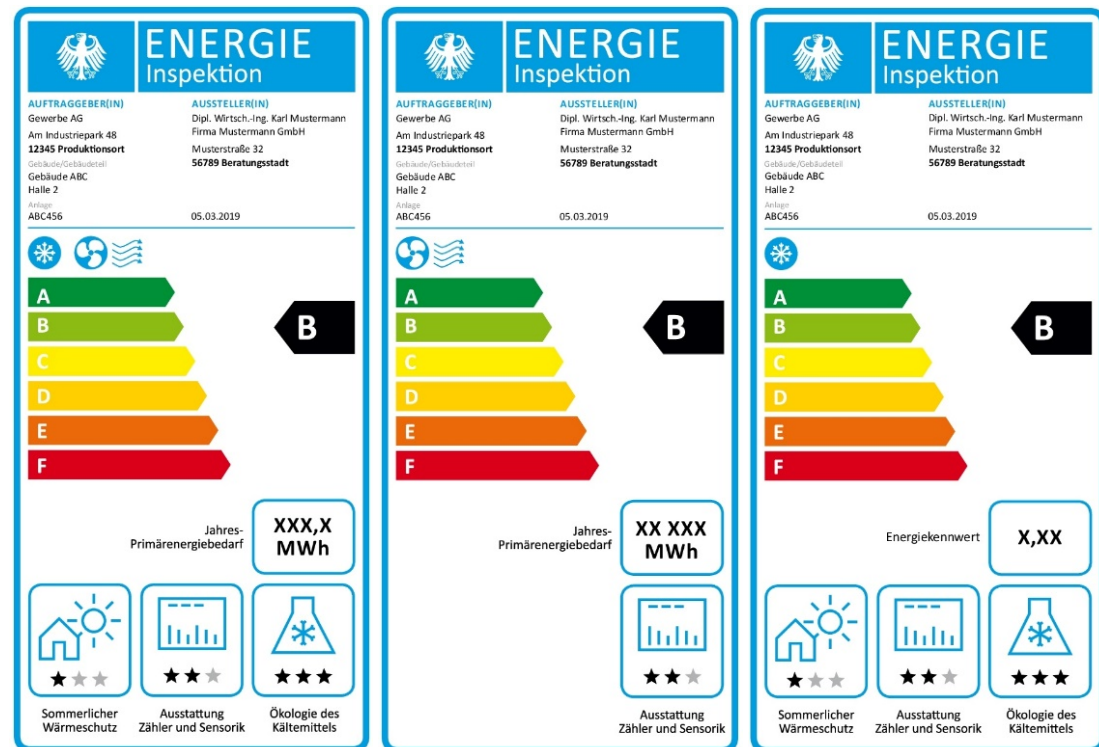
Ihre Anlage verbraucht sehr viel Energie und es findet sich ein sehr hohes ungenutztes Einsparpotenzial – es wird Energie verschwendet. Der QuickCheck zeigt dringenden Handlungsbedarf: Ihre Anlage sollte unbedingt optimiert werden! So können Sie Kosten sparen verringern und das Gebäudeklima verbessern.

- Fast assessment of energy savings potentials in ventilation and cooling systems
 - What is the system's approximate operating cost?
 - What is the savings potential?
 - Need for action?
- Short report with
 - Explanation of possible weaknesses
 - Suggestions for detailed energy inspections, contact persons and government funding.
- Available online free of charge¹

System labels for air conditioning, cooling and ventilation



- The labels give a **concise statement of the system's efficiency**
 - including dimensioning and operational settings
 - are linked to energy inspections.
- New installations: intended **extension for planning and putting into operation**
 - will help to align planning process with energy target
 - will comprehend independent examination after commissioning.



Additional aspects



Summer thermal insulation:

- Reducing unnecessary heat input into the building leads to significant energy savings



Equipment with meters and sensors:

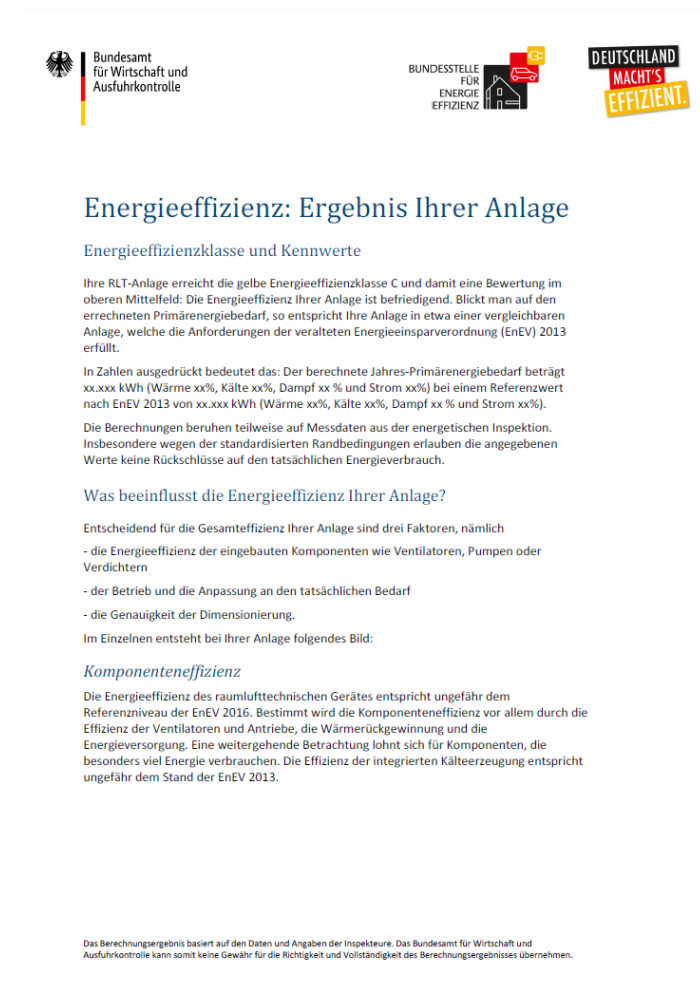
- Does the equipment allow for transparent operation and error detection?



Ecology of the refrigerant:

- What is the refrigerant's global warming potential?

Explanation of results for clients



Clients receive a customised accompanying document with their energy label

- explanation of results and key factors influencing the energy efficiency of their system.
- Technical details are given in the inspection report (responsibility of the energy assessor).

Market diffusion

- The system label **addresses experts**:
 - allows energy assessors faster, understandable and more economic assessments about the installation's energy quality
 - adds value and motivation to act for clients
- The **calculation's system approach**
 - is now part of the German standard for energy inspections of air conditioning systems (DIN SPEC 15240)
 - is taught in industry training courses for energy inspections
- **Cooperation with industry software houses** who integrate the algorithm into their products.
- **Free version** available in Q3 2019
- But: basis for the label are energy inspections, today performed in **small numbers**.

What do the results imply for product energy policy?



The new labels show that using digital tools

- we can widen energy labelling's traditional scope, addressing complex systems already in use (and even planning processes)
- thereby linking energy labels to energy counselling approaches.

What remains to be seen:

- What market penetration and actual savings can those new labels achieve?
- Can digital tool-based energy labels be a model for other countries and ultimately be transposed to the European level?



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Thank you for your attention.

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