

# Energy labelling: Incentive or challenge for product development?

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End consumers are used to get guidance...  
...except in heating business

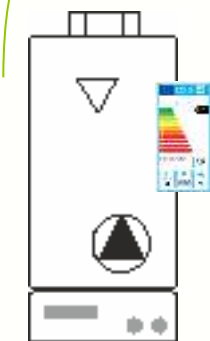


That well known labelling will be enlarged to a number of new product groups



# Every 'Energy related product' gets a label

## Scope (main types of labels)



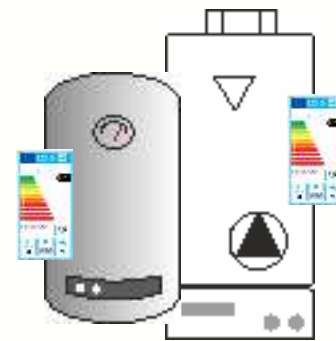
Boiler



Water heater

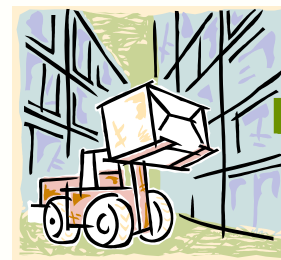


Heat storage tank

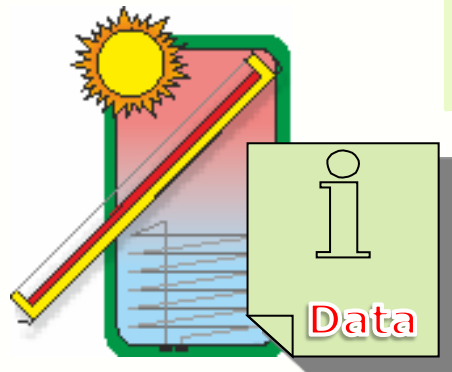
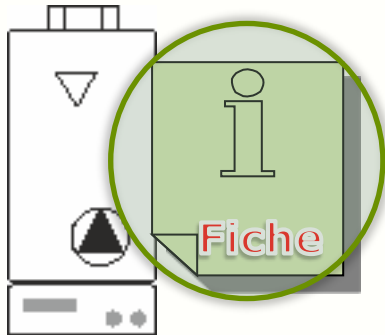


Combi boilers

Products shall be put on the market with a Energy label!



# Solar is not a single product – → It needs the 'package label'



**Result:** Boiler +  
Solar thermal system

Seasonal space heating energy efficiency of gas/oil boiler (%):  1

2

Any other additional products to add to the backup heater functionality

3

4

Solar assisted space heating

Enter the data of solar thermal system

Collector size, m<sup>2</sup> Collector efficiency, % Tank rating A=0,91, B=0,86 C=0,83, D-G=0,81 Tank position outdoor=0,9 indoor=1,0

( III' ×  + ,IV' ×  ) × 1,4 ×  ×  ×  =  5

Any other additional products to add to the backup heater functionality  6

7

Seasonal space heating energy efficiency of this configuration (%)  8

Seasonal space heating energy efficiency class of this configuration



# Fiche for space heater package

## - calculation of solar contribution to system -

Seasonal space heating energy efficiency of boiler  %

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Temperature control  
From fiche of temperature control

Class I = 1 %, Class II = 2 %, Class III = 3,5 %,  
Class IV = 2 %, Class V = 3 %, Class VI = 4 %,  
Class VII = 3,5 %, Class VIII = 5 %

+  %

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2<sup>nd</sup> boiler

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Solar contribution  
From fiche of solar-only system

Collector size (in m<sup>2</sup>)  Tank volume (in m<sup>3</sup>)

Collector efficiency (in %)

Tank rating  
A\* = 0,95, A = 0,91,  
B = 0,86, C = 0,83,  
D-G = 0,81

$(III' \times \text{Collector size} + IV' \times \text{Tank volume}) \times 0,9 \times (\text{Collector efficiency} / 100) \times \text{Tank rating} = + \text{  %}$

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Additional heat pump

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Seasonal space heating energy efficiency of package  %

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Seasonal space heating energy efficiency class of package






<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>G</b>	<b>F</b>	<b>E</b>	<b>D</b>	<b>C</b>	<b>B</b>	<b>A</b>	<b>A*</b>	<b>A**</b>	<b>A***</b>	
< 30%	≥ 30%	≥ 34%	≥ 37%	≥ 39%	≥ 42%	≥ 45%	≥ 48%	≥ 51%	≥ 54%	≥ 57%

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Low temp. heat emitters

The energy efficiency of the package of products provided for in this fiche may not correspond to its actual energy efficiency once installed in a building, as this efficiency is influenced by further factors such as heat losses in the distribution system and the dimensioning of the products in relation to the building size and characteristics.

Inputs for calculation:

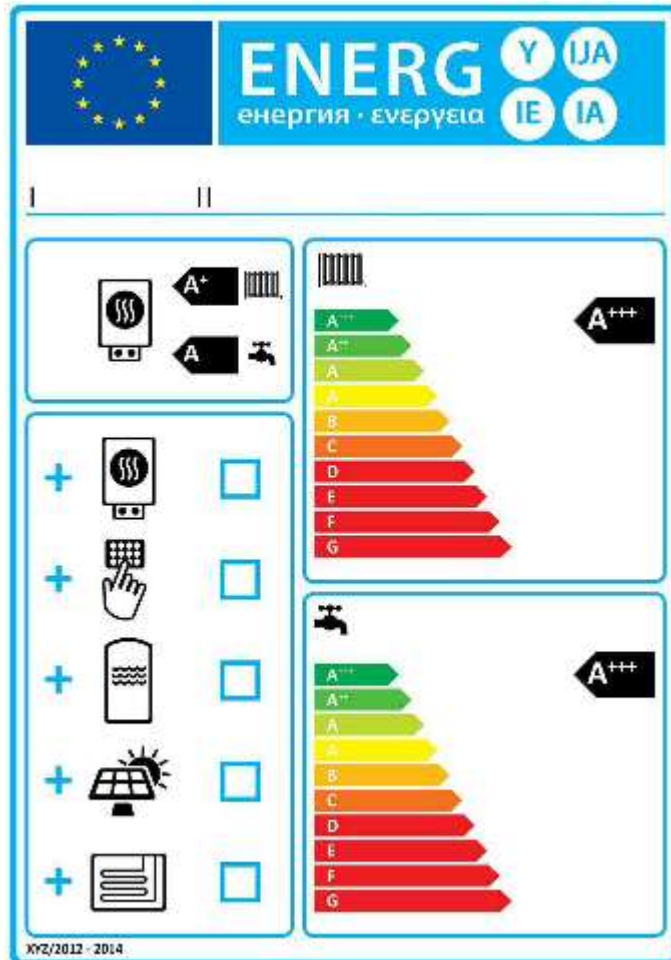
-  P<sub>rated</sub> (nominal power)
-  Collector area (x.xx m<sup>2</sup>)
-  Tank volume
-  Collector efficiency
-  Heat storage label

$$III = 294 / (11 \times P_{\text{rated}})$$

$$IV = 115 / (11 \times P_{\text{rated}})$$

$$Eta_{\text{coll}} = Eta_{0.04/1000W/m^2}$$

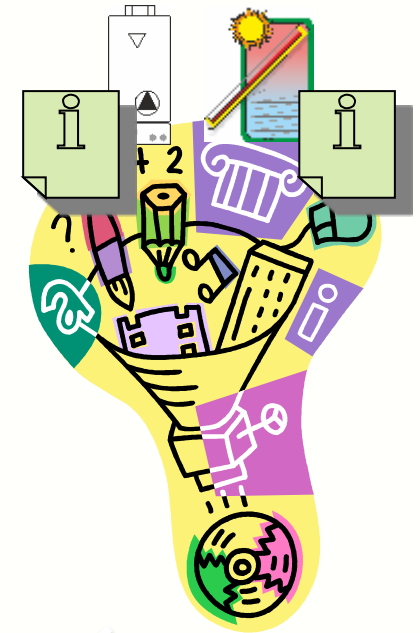
Some special labels for heating business are created: e.g. the one for combi systems



- ☀️ Combination label of e.g. gas boiler with solar (and some other possible devices)
- ☀️ Two (different) classes for space heating and hot water preparation

# The impact for the market is high

- ☀ Easy method, with complex issues
  - ☀ Information transfer
  - ☀ New processing by dealer / installer
  - ☀ Enforced communication to the client
- ☀ Some homework for the branch
  - ☀ Database with specifications
  - ☀ Web application to do the sums
  - ☀ Promotion / information materials





# General observations

Best conventional boiler  $\leq$  'A'

Package label water heating:

'A+' ( $f_{\text{solar}}=30\%$ ),  
'A++' ( $f_{\text{solar}}=50\%$ ),  
'A+++'  
( $f_{\text{solar}}=70\%$ )





Product label water heating (electrical heating):

'A' reachable with high  
 $f_{\text{solar}} \sim 60 - 70\%$

Package label space heater:

- Parameters effecting the result (order of importance):
  1.  $P_{\text{rated}}$  (nominal power of boiler)
  2. Collector area
  3. Storage volume
- $> 10 \text{ m}^2 \rightarrow$  'A+'
- 'A++' and 'A+++' only with small  $P_{\text{rated}}$  ( $< 10 \text{ kW}$ )




# EcoDesign & Eco Labelling has to compare apples and oranges

-  A boiler or heat-pump has a measurable efficiency how it is using primary energy
-  A solar system is just “collecting” free energy
-  A solar thermal system has COP's of 50..100
-  So it is not direct comparable

# Summary: Not everything is perfect

- ☀ The current solution is not our heart's desire
- ☀ We (technicians) would like to have an exact calculation:
  - ☀ EN 12977 based
  - ☀ Showing exactly the solar advantage/share
- ☀ But things are already complex enough
- ☀ The solar fraction is highly depending on the building demand
- ☀ And it will be a huge effort to make the markets understand how it is used

# EcoDesign & Eco Labelling opens opportunities

-  The current procedure is a good start
-  It first time enables installers and end consumers to see the solar input with an easy rating
-  We will do all necessary steps to introduce it

Thank you for your attention.