

Energy Label for domestic gas boilers. A positive experience in Denmark.

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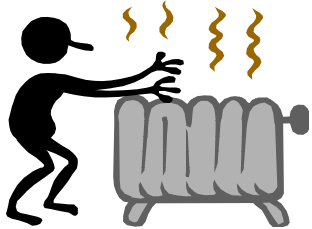
Energy		Logo
Label		
Model		
Low consumption		
Large consumption		
Annual electricity consumption		XYZ kWh
Annual efficiency		XYZ %
Environmental load (NO _x)		X (Y,Z kg/år)
Choice of hot water tank		
Alternatives, hot water tanks		Hot water need
Hot water tank 1	(xx litre)	Very large (15-18 litre per min.)
Hot water tank 2	(xx litre)	Large (12-15 litre per min.)
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Prepared by DGC in collaboration with the natural gas companies and the Danish Energy Authority. For further information please contact your local gas company.		



- Objective of the Energy Label
- Energy Label content
- Administration of the Energy Label
- Impact on the market

- **Objective of the Energy Label**
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Objective of the Energy Label



- Role of the Natural Gas Industry: inform the customers about the best products on the market.
- To ensure that boiler and hot water tank will be able to meet the user's need for hot water.
- To reduce CO₂ and NO_x emissions from domestic gas boilers (contribute to the reduction of global warming)

The label: part of information strategy to the customer

Step1: **Label** = simple information

Energi		BOSCH
Bosch CeraPur ZSBR 7-28 A 23		
Lavt forbrug		A
A		
B		
C		
D		
E		
F		
Højt forbrug		
Årligt elforbrug	400 kWh	
Årsnyttevirkning	100%	
Miljøbelastning (NOx)	A (0.9 kg/år)	
Antallet af vandhaner der kan forsynes med varmt vand samtidig*	3	
<small>* Afhænger af en 65 liter vandbeholder. Varmtvandsproduktionen kan ændres ved at vælge en anden varmtvandsbeholder. Derudover kan valg af varmtvandsbeholder have indflydelse på kedlens årlige energiforbrug.</small>		
<small>Udarbejdet af DGC i samarbejde med NaturgasSelskaberne og EnergitrykLøsning. For yderligere information kontakt dit gasselskab.</small>		

Step2: **Information system**
= more precise calculation with
Specific data



Boiler data base



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Efficiency indicator = Annual energy consumption

The annual energy consumption is calculated based on:

- The annual gas consumption of the boiler for 20.000 kWh **heating** (*)
- The annual gas consumption of the boiler for 2.000 kWh **hot water**
- The annual **electricity consumption** of the boiler



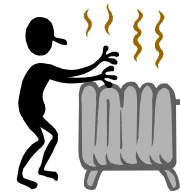
(*) Based on an 8 kW heating installation designed according to Danish Building Regulations).

Energy Label Model	Logo															
Low consumption 																
Large consumption Annual electricity consumption: XYZ kWh Annual efficiency: XYZ % Environmental load (NO _x): X (Y.Z kg/år)																
Choice of hot water tank																
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Basis for calculations

The **electricity** consumption is weighted with a factor of 2.75

- 20.000 kWh **heating (GAS)**



1

- 2.000 kWh **hot water (GAS)**



1

- Annual **electricity consumption (EL)**

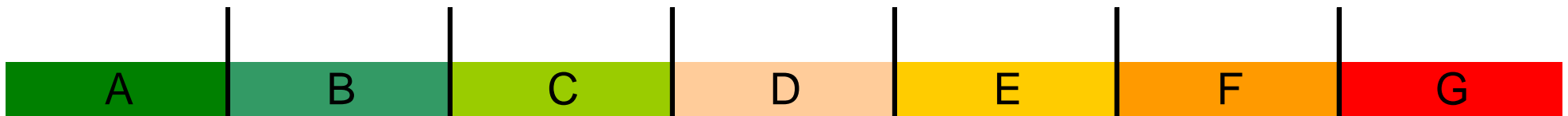


2.75

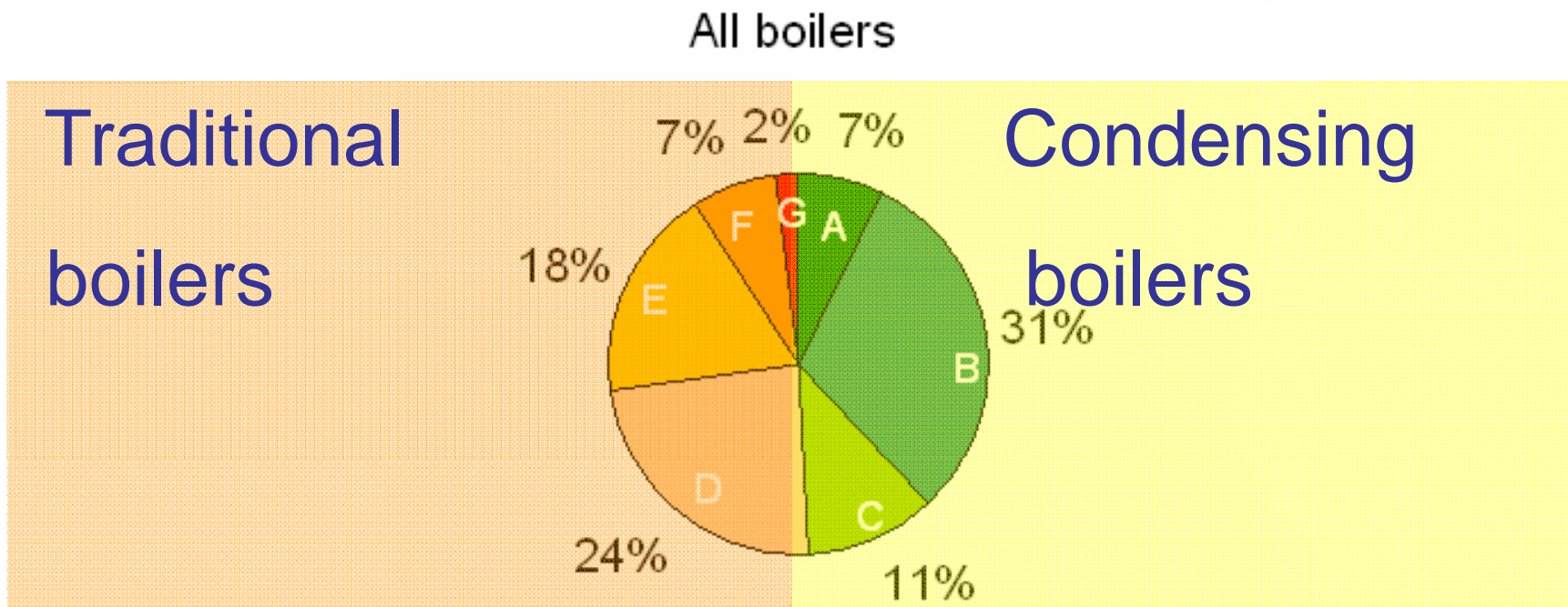
Total energy consumption calculated with the BOILSIM model

Total energy consumption [kWh/year]

23500 24600 25800 27100 28600 30200



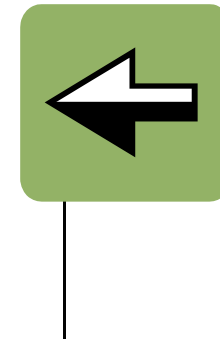
Label designed so to cover all products of the market
May 2004



Other Information on the labelling sheet

- Annual electricity consumption of the boiler.
- Annual efficiency based on lower calorific value.
- NO_x in kg/year, together with classification A to G (color)

Annual electricity consumption	XYZ kWh
Annual efficiency	XYZ %
Environmental load (NO _x)	X (Y,Z kg/år)



Choice of hot water tank

Energy

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Hot water capacity

Hot water need	Litre per minute for 10 minutes	Corresponding to e.g.
Small	6-9	Shower
Normal	9-12	Shower and wash basin at the same time
Large	12-15	Bath tub or two showers at the same time
Very large	15-18	Two showers and wash basin at the same time



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Tests

Boiler Efficiency and Emission test

Boiler Standby load test

Boiler-Tank heat capacity test

Boiler-Tank hot water test

Electricity consumption

A very special care is given to the **data accuracy**.



Test programme

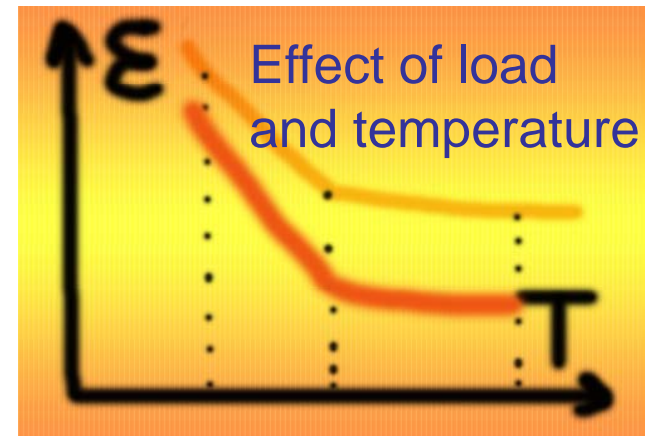
The **efficiency and the emissions** measured for

Full load test

<i>Heat output</i>	<i>Water temp.</i>
1 Max	60/80
2 Max	40/60
3 Max	30/50 (if cond. boiler)
4 Min	60/80 (if modul. boiler)
5 Min	40/60 (if modul. boiler)
6 Min	30/50 (if modul. Cond. boiler)

Part load test

30%



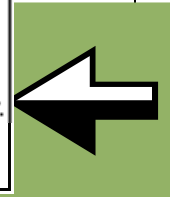
- Objective of the Energy Label
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- **Administration of the Energy Label**
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Who created and support the label?

Stakeholders:

- Gas industry
- Manufacturers
- Gouvernement (DEA)

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Actions to prevent abuse of the Energy Label

- Control of information given by boiler suppliers (brochures, information etc.)
- Spot tests at inspection of newly installed boilers
- Control of the Energy Label at the boilers in the gas companies' showrooms

Procedure for energy labelling a new boiler

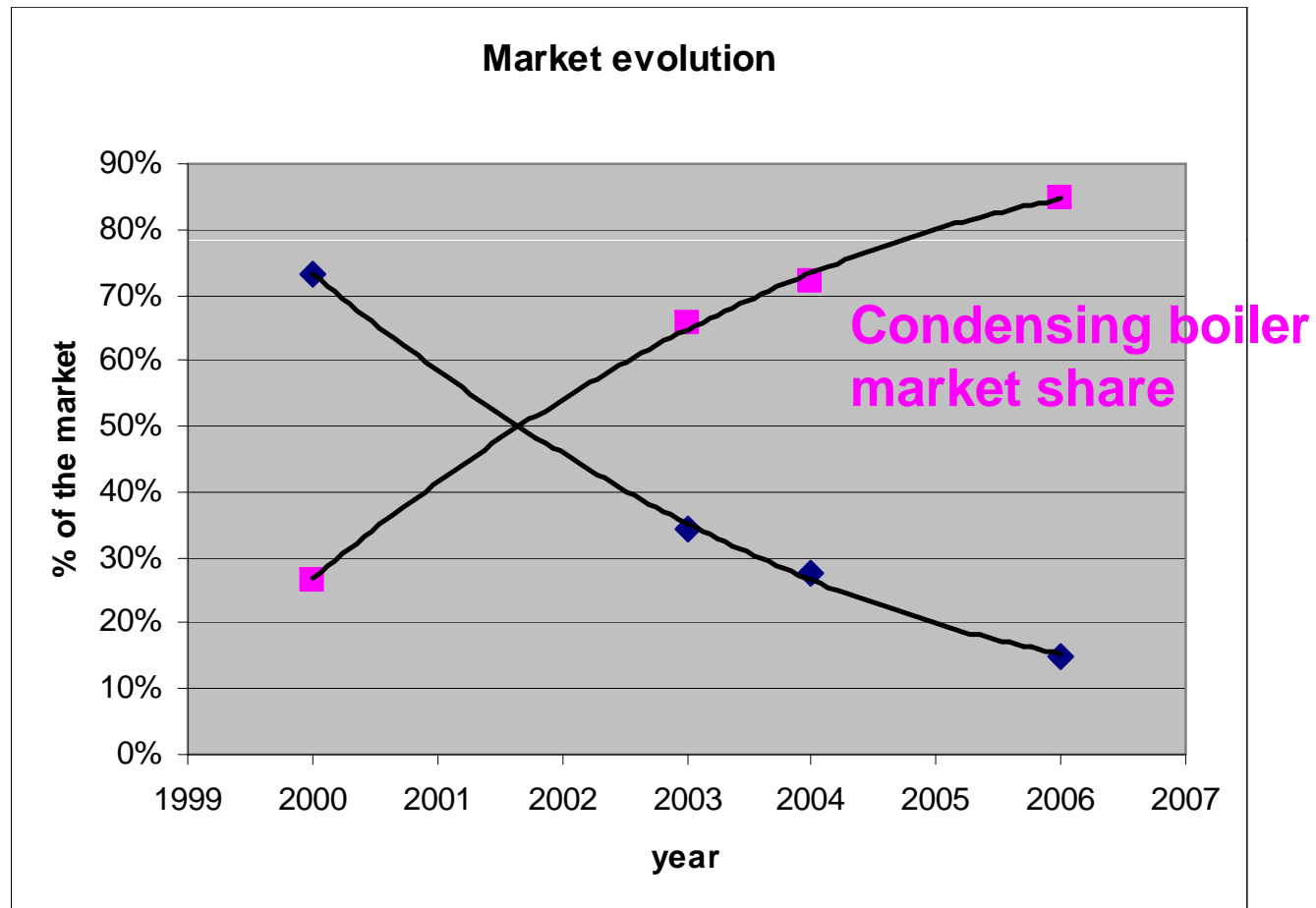
- The boiler supplier submits necessary measurement data to Danish Gas Technology Centre (DGC).
- DGC calculates the values of the Energy Label and adds the boiler to the updated list of boilers included in the scheme (can be found at www.dgc.dk).
- The boiler supplier prints the Energy Label and includes it in the user manual for the boiler.
- The calculation method and protocol for necessary measurements can be downloaded from www.dgc.dk.

Customer advice / Promotion of the Energy Label

- All boilers in the gas companies' **showrooms** have the Energy Label
- The Energy Label is presented in the gas companies' **customer magazines**.
- **Boiler suppliers and installers** + **customer** can on-line see the boilers tested for the Energy Label (www.dgc.dk).

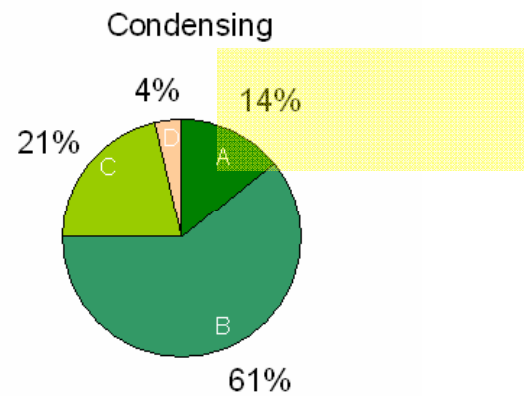
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Market evolution in DK

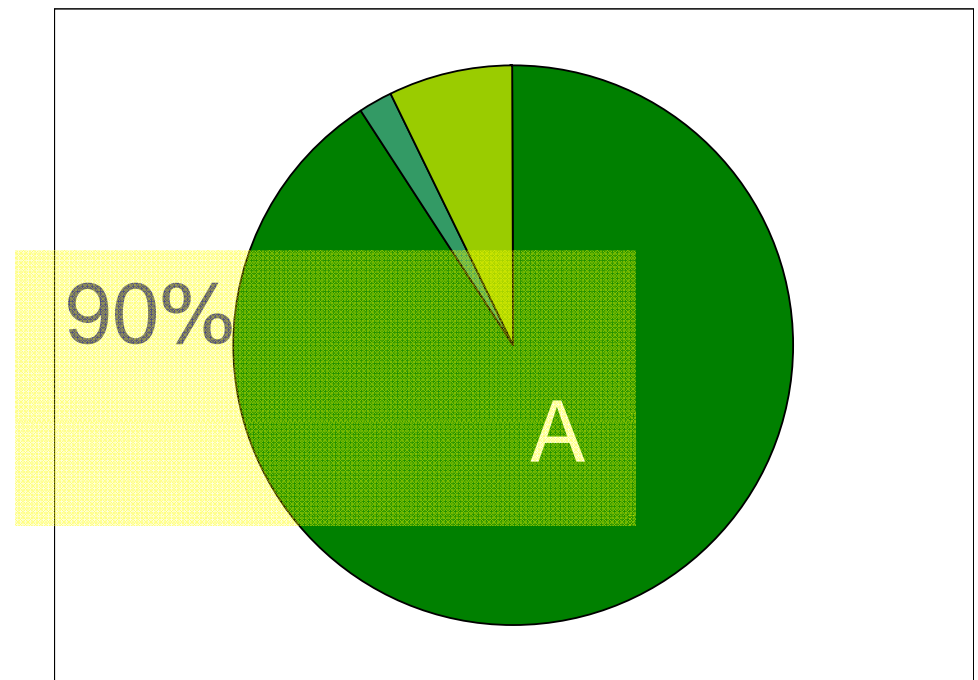


The impact of the label

May 2004

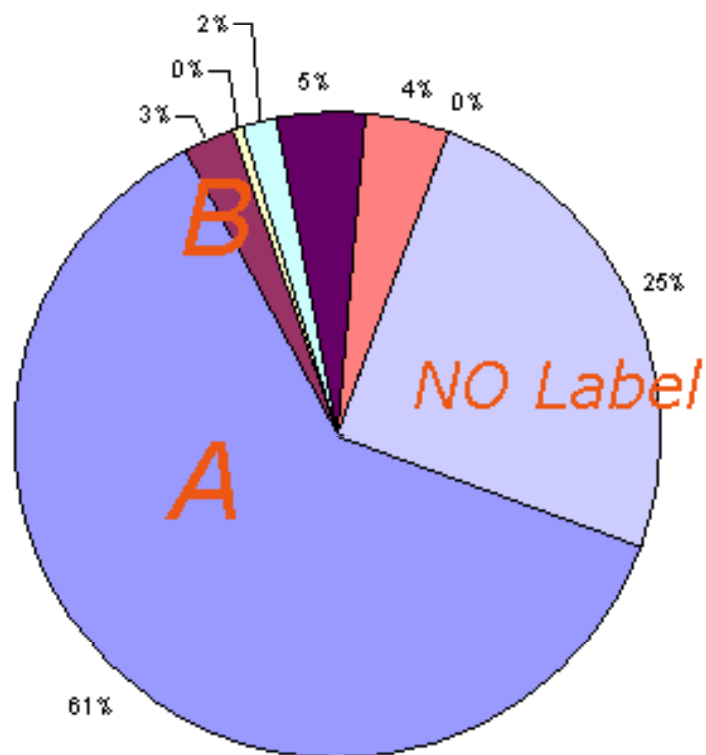


Today





Boilers sales



Keys of the success

Collaboration with all stakeholders



Information on the existence of the system (to the users)



Complementarity with the information system



Accurate data / simplicity and clarity



Further information

Check www.dgc.dk for further information:

- List of values of the Energy Label for all boilers included in the scheme
- Info sheet for users
- DGC guidelines for installers regarding the Energy Label
- Guidelines for boiler suppliers regarding how to obtain the Energy Label for a new boiler
- Test protocol for the measurement data required to obtain the Energy Label