

April, 13th 2012

UTIL-12-13

VAILLANT GROUP

Labelling of Gas boilers

Karl-Heinz Backhaus



Agenda

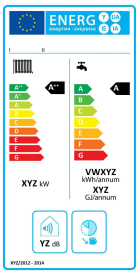
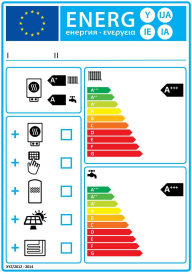



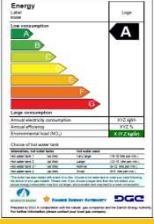





1. Current labels for gas boilers

2. ErP LOT 1 Ecodesign & Labelling

3. EU Ecolabel




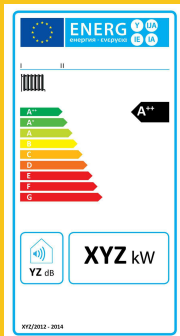
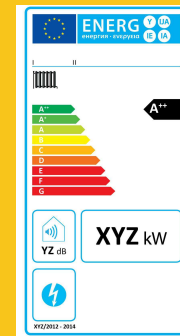
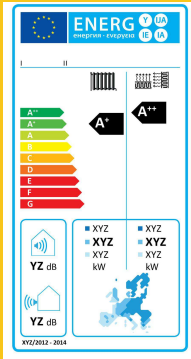

Labelling of Gas boilers

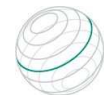
<p>EU labels</p>	 <p>Product Energy Label* mandatory</p>	 <p>Package Energy Label* mandatory</p>	 <p>EU-Ecolabel* voluntary</p>				
<p>national labels</p>	 <p>DE</p>	 <p>DE</p>	 <p>DK</p>	 <p>AT</p>	 <p>UK</p>	 <p>UK</p>	 <p>NL</p>
<p>Certification</p>	 <p>EU - mandatory</p>						

*) likely from 2013



Vaillant Group Position

	Fossil boiler oil, gas	mCHP oil, gas	Gas-HP	Electric-HP	criteria
EU Eco-label (voluntary)					exclusively environmental requirements
ErP LOT 1 Labelling requirements (mandatory)					exclusively efficiency requirements
ErP LOT 1 Ecodesign requirements (mandatory)					basic requirements: - efficiency - NOx - CO (GAD)



Agenda

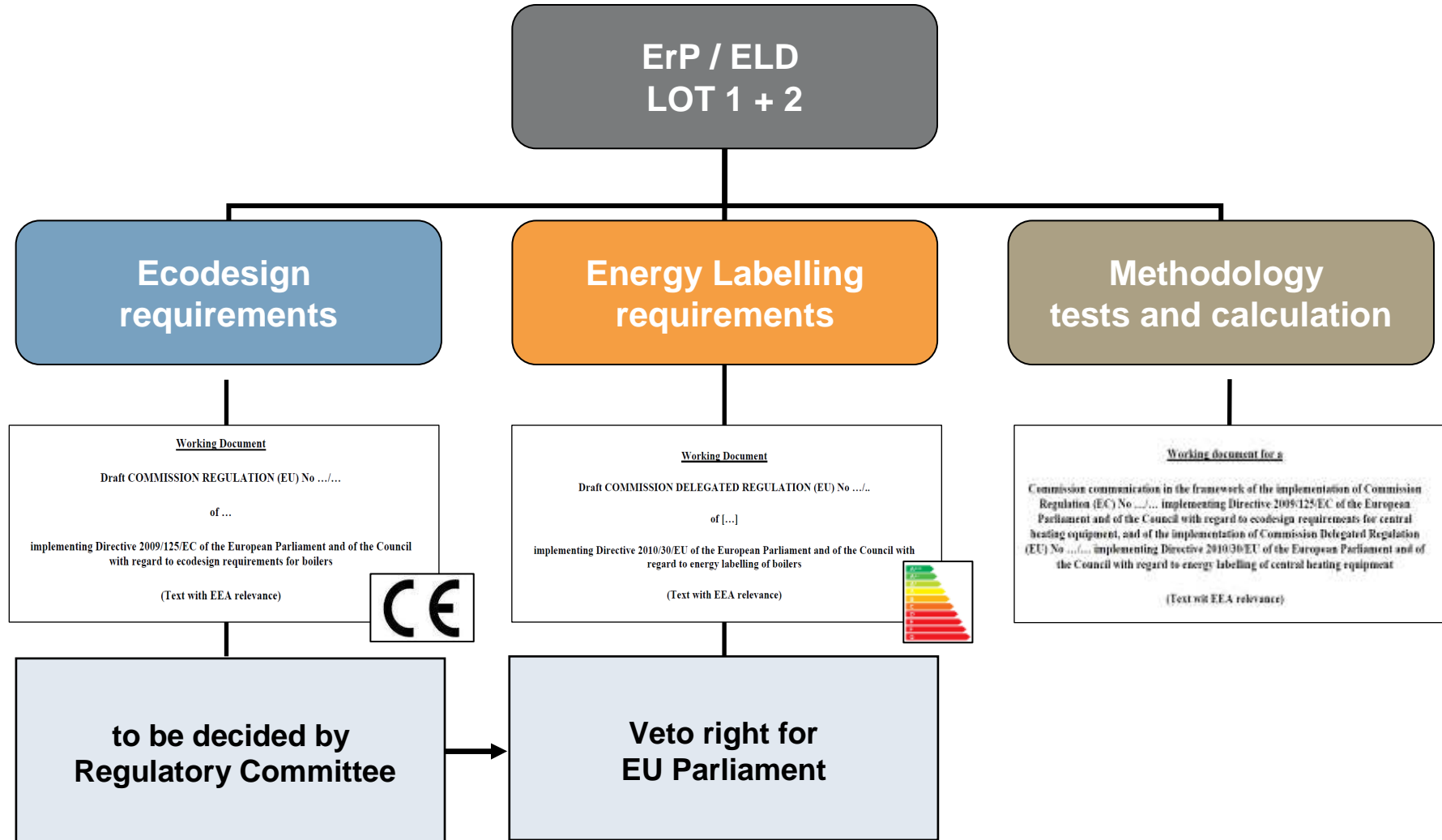
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








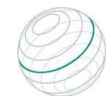
Structure of Regulations on Ecodesign and Labelling



ErP LOT 1 - Ecodesign & labelling

Draft
2012-02-02

Scope	 Regulation on Ecodesign	 Regulation on Labelling
Boilers (Gas, Oil, Elec.) 	0 - 400 kW	0 - 400 kW
Heat pumps (El, Gas, Oil) 	0 - 400 kW	0 - 400 kW
Low Temp. Heat pumps (El, Gas, Oil) 	0 - 400 kW	0 - 400 kW
CHP (Gas, Oil) 	0 - 400 kW < 50 kW_{el}	0 - 400 kW < 50 kW_{el}
Packages (System) 		0 - 400 kW
Single-components 		temperature controls, solar only system and PFHRD



ErP - Ecodesign requirements

LOT 1		Efficiency	NOx	sound power
	Gas/ oil boilers	x	x	
	CHP	x	x	
	el. heat pumps gas/oil heat pumps	x	- x	x
	electric boilers	x		

LOT 2		Efficiency	NOx	sound power
	Gas/oil water heaters	x	x	
	Electric water heaters	x		
	electric DHW heat pumps	x		x
	gas/ oil DHW heat pumps	x	x	
	storages	x		



Draft
2012-02-02

ErP LOT 1 - energy efficiency requirements

— Limit OJ + 2 years — Limit OJ + 4 years

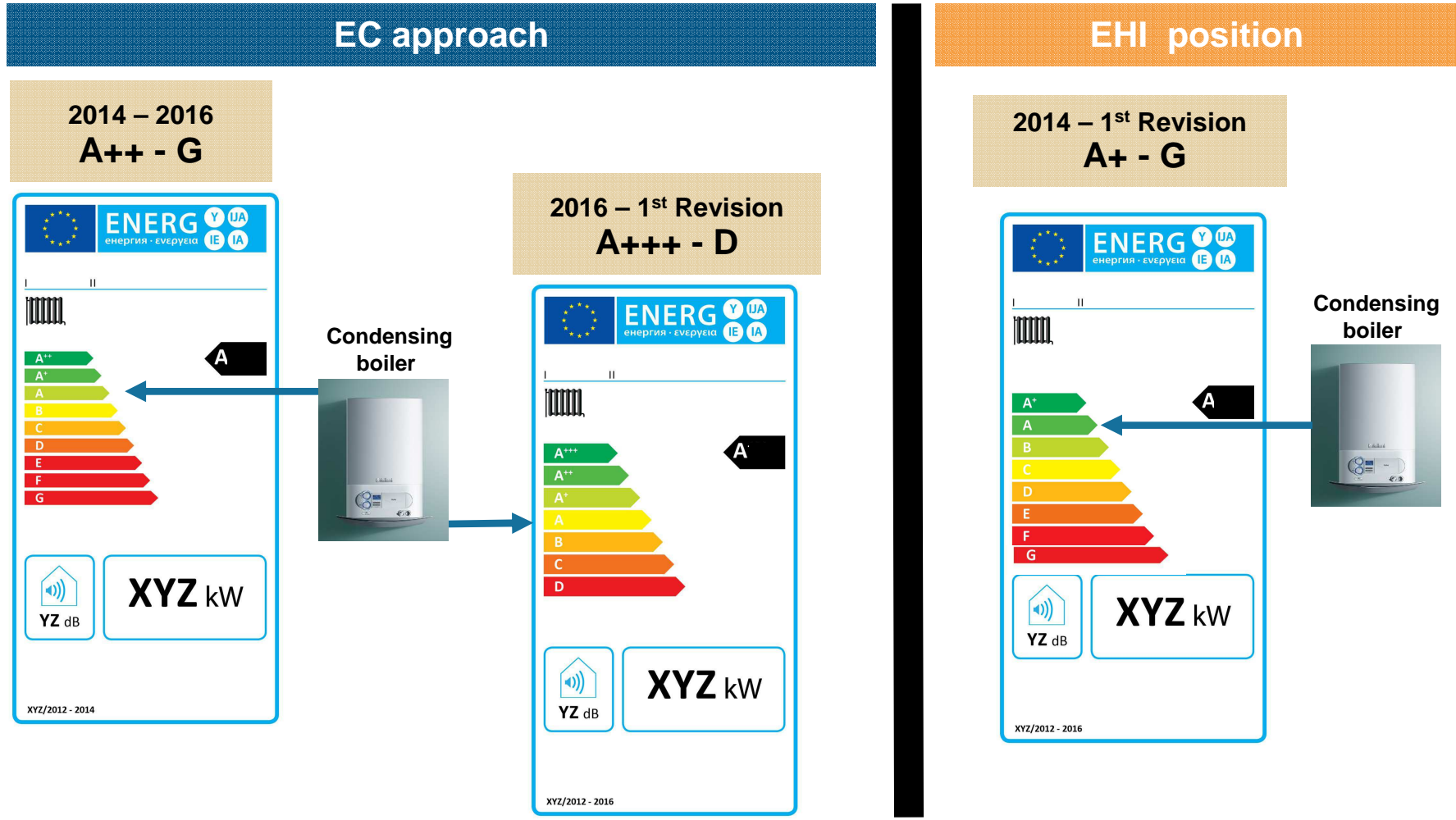
efficiency class	energy efficiency	Product Label						energy efficiency LT HP
		Fuel boiler space heaters and fuel combination boiler		cogeneration heater	Electric b + c	heat pumps	LT heat pumps	
A+++	≥ 150%					Best B/W HP		≥ 175%
A++	125%		* useful efficiency			B/W HP best A/W HP	B/W HP best A/W HP	150%
A+	98%			gas motor Stirling		A/W HP	A/W HP	123%
A	90%	Gas best cond. Oil best cond.	30%*			Low A/W HP	Low A/W HP	115%
B	82%	gas / oil cond.	100%*	86%				107%
C	75%	Gas OFnc	Gas FFnc					100%
D	37%	gas ST gas St pilot	oil LT					62%
E	34%				Electric boilers			59%
F	30%							55%
G	≤ 30%							≤ 55%
	rated output [kW]	B11 Combi ≤ 30 B11 heater ≤ 10	≤ 70 kW	70 - 400 kW	0 - 400 kW	0 - 400 kW	0 - 400 kW	rated output [kW]

| 06-June-2011 | EU Eco-label

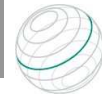
open flue nc boilers (B11) will be allowed even after 2016

Draft
2012-02-02

ErP LOT 1 - Energy Labels for Gas boilers



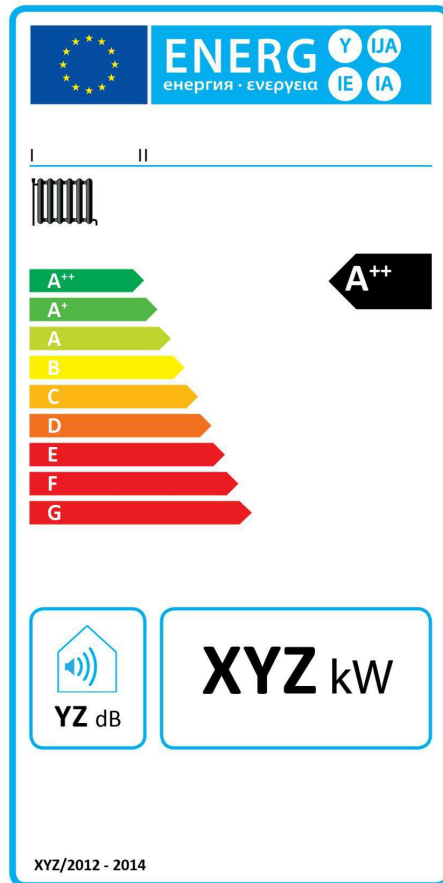
The EC approach discredits Condensing boilers and will hinder the market trend to high efficient products



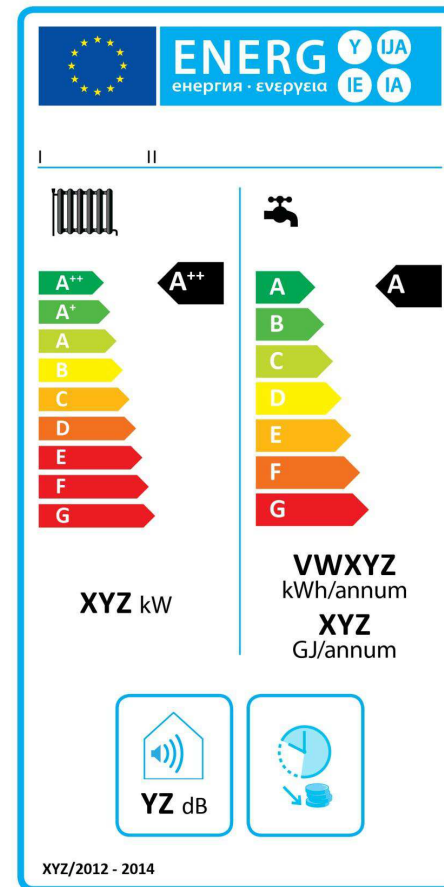
ErP LOT 1 - Energy Labels for Gas boilers

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2012-02-02

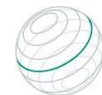
System Boilers



Combi boilers

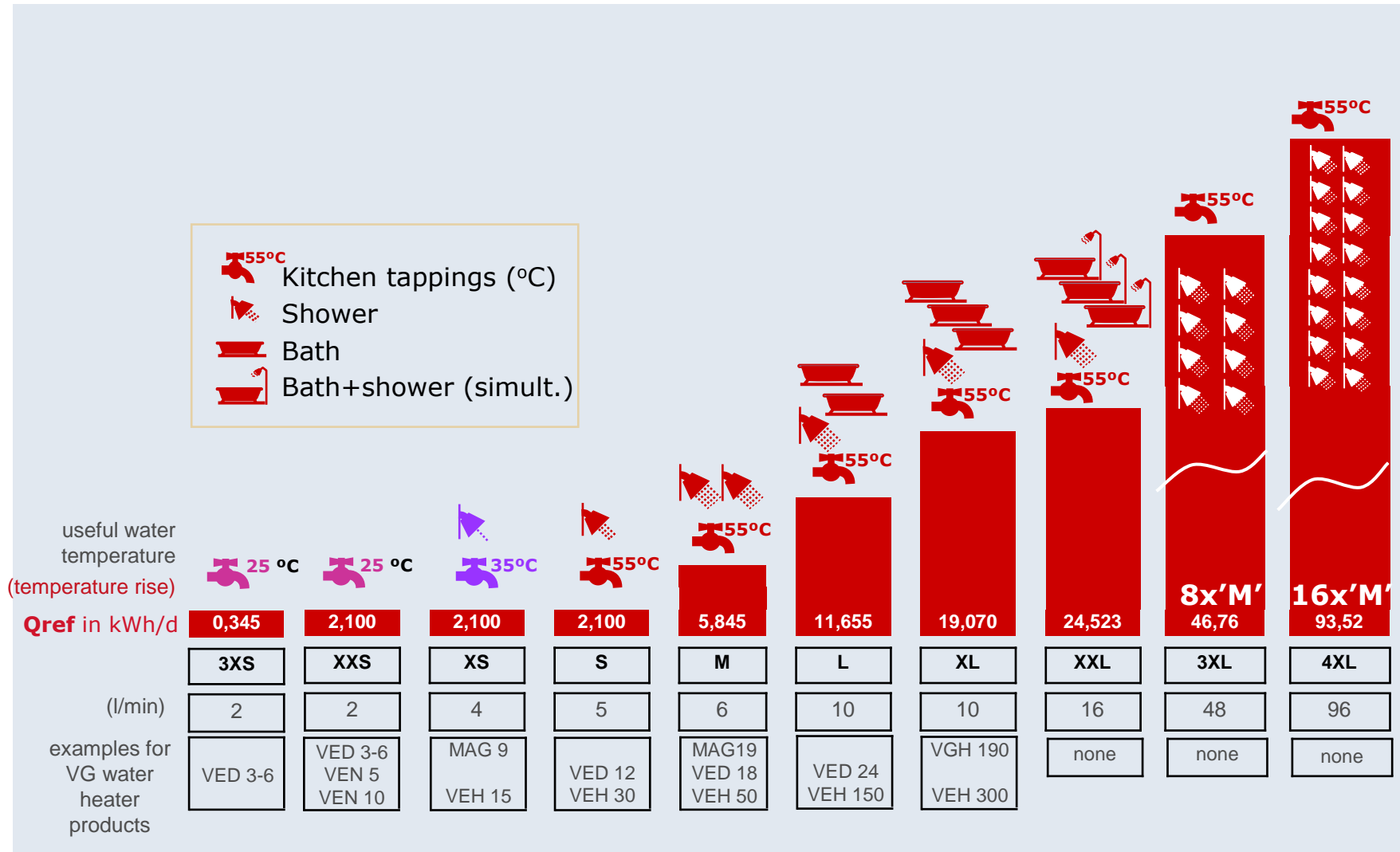


The heating- and DHW-efficiency will be display



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2012-02-02

Water heating load profiles of water heaters and Combi boilers

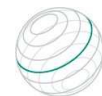
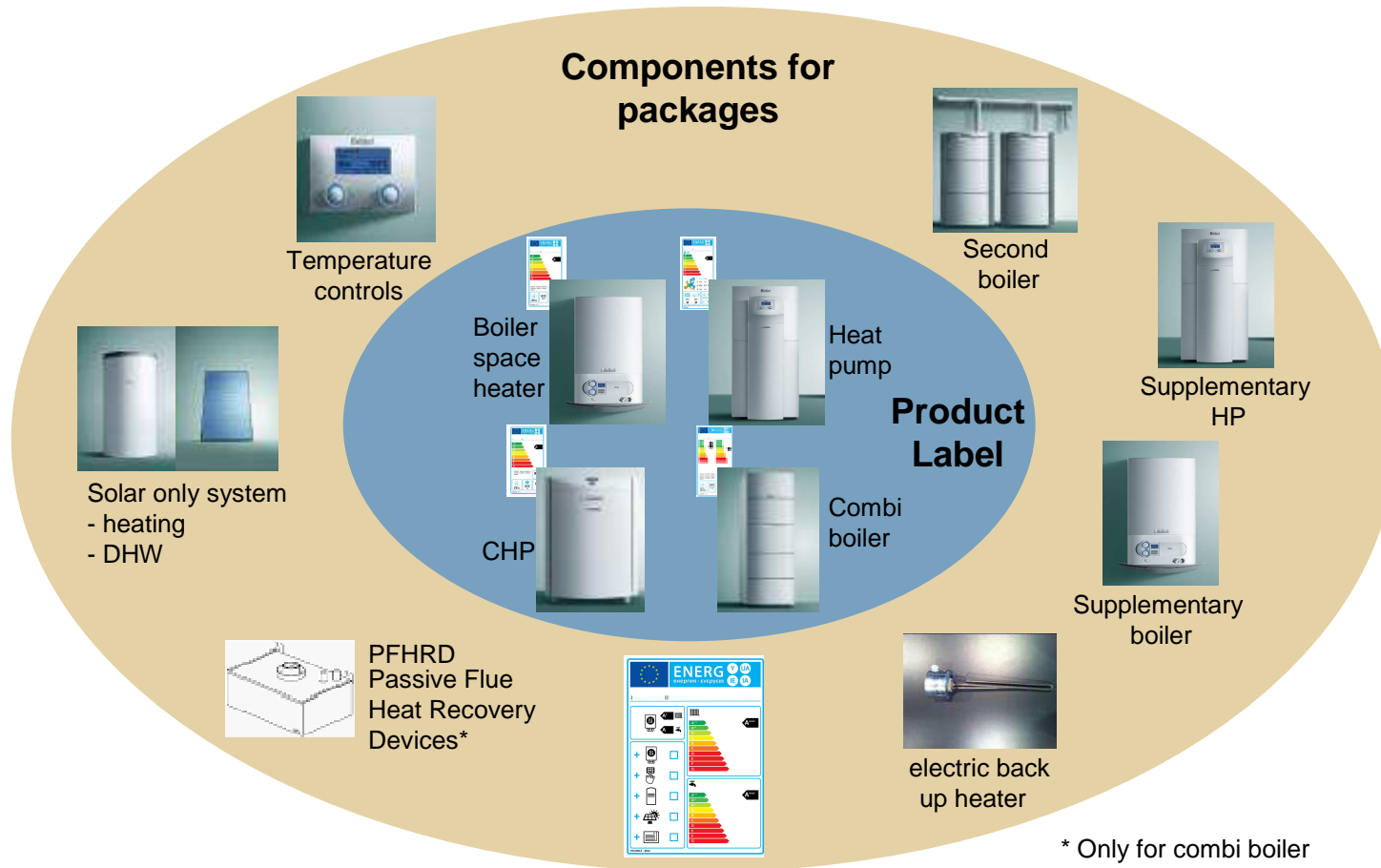


The maximum load profil shall be declared




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2012-02-02

ErP LOT 1 - Packages




ErP LOT 1 - Package calculation



Condensing boiler
VC 206/4-7

+




Solar collector
VFK 150 12m²

+



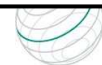
Buffer tank
VPS 500

+



control
calorMATIC 620

Seasonal space heating energy efficiency of boiler	92 'I' %
Temperature control From fiche of temperature control	+ +2 %
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Class I = 1 %, Class II = 2 %, Class III = 1,5 %, Class IV = 2 %, Class V = 3 %, Class VI = 4 %, Class VII = 3,5 %, Class VIII = 5 % </div>	
Second boiler From fiche of second boiler	(- 'I') × 'II' = ± 0 %
Second boiler: Seasonal space heating energy efficiency (in %)	
Solar contribution From fiche of solar-only system	+ +8 %
Solar contribution: Collector size (in m ²) Tank volume (in m ³) Collector efficiency (in %) Tank rating: A* = 0,95, A = 0,91, B = 0,86, C = 0,83, D-G = 0,81	
Calculation: ('III' × 12 + 'IV' × 0,5) × 0,9 × (0,68 / 100) × 0,83 =	
Supplementary heat pump From fiche of heat pump	+ 0 %
Supplementary heat pump: seasonal space heating energy efficiency (in %)	
Solar contribution AND Supplementary heat pump Select smaller value	- 0 %
Calculation: 0,5 × OR 0,5 × =	
Seasonal space heating energy efficiency of package	102 %
Seasonal space heating energy efficiency class of package	<div style="border: 1px solid black; padding: 5px; display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <input type="checkbox"/> G < 30% </div> <div style="text-align: center;"> <input type="checkbox"/> F ≥ 30% </div> <div style="text-align: center;"> <input type="checkbox"/> E ≥ 34% </div> <div style="text-align: center;"> <input type="checkbox"/> D ≥ 37% </div> <div style="text-align: center;"> <input type="checkbox"/> C ≥ 75% </div> <div style="text-align: center;"> <input type="checkbox"/> B ≥ 82% </div> <div style="text-align: center;"> <input type="checkbox"/> A ≥ 90% </div> <div style="text-align: center;"> <input checked="" type="checkbox"/> A* ≥ 98% </div> <div style="text-align: center;"> <input type="checkbox"/> A** ≥ 125% </div> <div style="text-align: center;"> <input type="checkbox"/> A*** ≥ 150% </div> </div>



Draft
2012-02-02

ErP Label for packages

LOT 1

space heater package

combination heater package

LOT 2

water heater packages

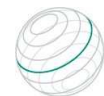
In addition to the package fiche, the label for packages has to be used

Agenda

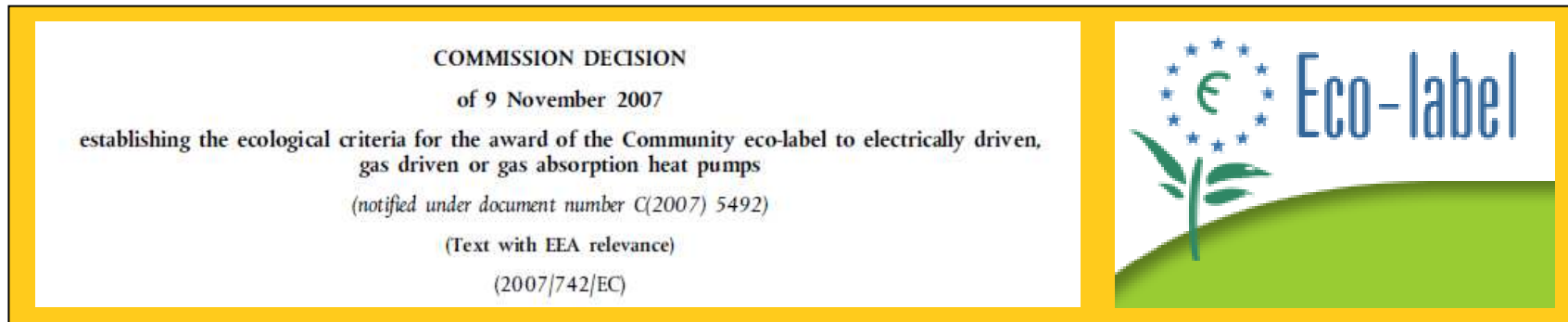
1. Current labels for gas boilers

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EU Eco-label



- General introduction in 1992
- at present voluntary labels for 26 different product groups
TV's, domestic refrigerators, washing machines, heat pumps ...
- extension planned to additional product groups (target: 40)
- Life-cycle approach
- 3rd party certification
- Current requirements for heat pumps extended until Dec. 2012
- Final requirements for **Hydronic central heating generators < 400 kW** are expected soon



EU Ecolabel for *Hydronic central heating generators*

Criteria \ Heating generator technology	Gas boiler Oil boiler	Biomass boiler	Gas-driven hydronic heat pump	Electrically-driven hydronic heat pump	Cogeneration
1- Minimum energy efficiency	Etas > 90 % for all heat generators				
2 – Greenhouse gas emissions	220	-	220	180	220
3 – Refrigerant and secondary refrigerant	-	-	x	x	-
4 – Nitrogen oxides (NOx) emissions limit	60 45	150/190 mg/m ³	Sorp: 45 mot: 110	-	ext. 120 mot: 500
5 – Organic carbon (OGC) emissions limit	-	5	-	-	-
6 – Carbon monoxide (CO) emissions limit	50 25	200 mg/m ³	Sorp: 25 mot: 100	-	ext. 25 mot: 100
7 – Particulate matter (PM) emissions limit	-	40-70 20/30	-	-	Oil: < 1
8 – Noise	-	-	x	x	x
9 – Hazardous substances and materials	x	x	x	x	x
10 – Substances listed in accordance with Article 59(1) of Regulation (EC) 1907/2006	x	x	x	x	x
11- Plastic parts	x	x	x	x	x
12- Product design for sustainability	x	x	x	x	x
13 – Installation and user information	x	x	x	x	x
14 – Information appearing on the Ecolabel	x	x	x	x	x

0 – 400 kW output

Option 2: < 220 g CO₂ equivalents / kWh

mg/kWh

mg/m³ (10% O₂)

mg/kWh

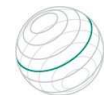
mg/m³

Sound power level dB(A)

REACH, CLP

REACH Directive

draft criteria Nov. 2011
discussion GPP Jan 2012



timing ErP Lot 1 and EU Ecolabel

