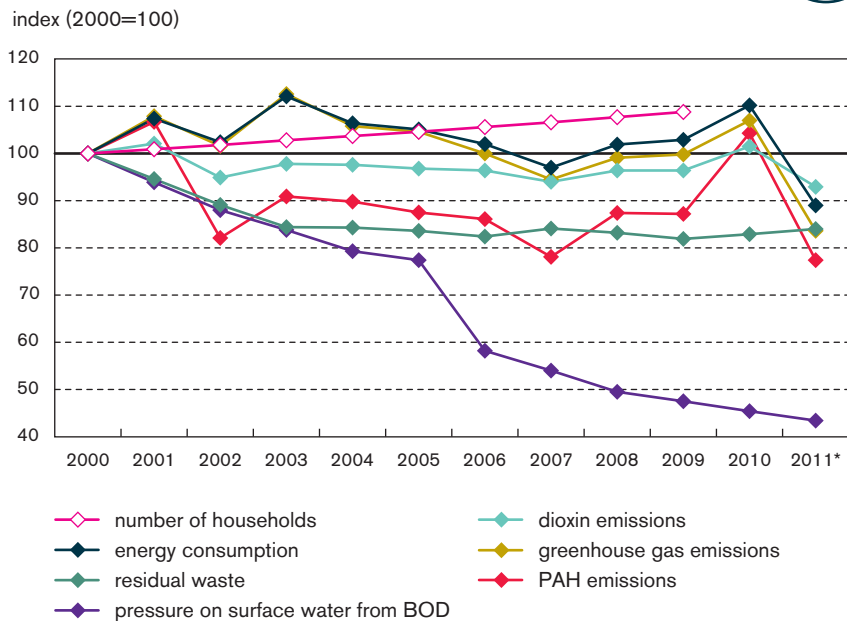




Eco-efficiency of households



* provisional figures

Source: MIRA based on ADSEI, Flanders Energy Balance VITO, OVAM, VMM

Pressure on surface water continues to decrease

The number of households increased by 9 % in the period 2000-2009. The pressure on the surface water with biochemical oxygen demand (BOD) decreased by more than half between 2000 and 2011. This decrease is due to the expansion and improvement of public waste water treatment network. The quantity of residual waste decreased by 16 % between 2000 and 2003 and remained fairly stable in the following years thanks to the successful selective collection.

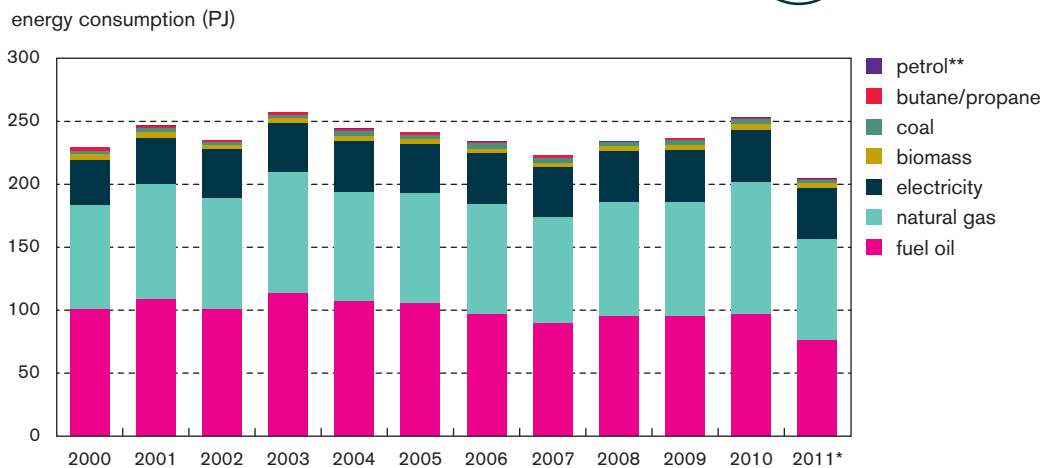
Emissions by households decrease due to lower heating demand in 2011

The energy consumption and greenhouse gas emissions by households are largely related to the heating of buildings and vary according to the climatological conditions. In the period 2007-2010, there was no longer a decoupling between the number of households versus the use of electricity and greenhouse gas emissions. In 2011, however, there was a marked decrease due to the lower heating demand. Between 2009 and 2010, the heating demand increased by 46 % as the result of the very harsh winter, and in 2011 it decreased by 33 % as the result of the mild winter. The decrease in the emission of polycyclic aromatic hydrocarbons (PAHs) and the emission of dioxins can also be explained by the lower heating demand in 2011. Of the total emission of dioxins by households in Flanders in 2011, 24 % came from the heating of buildings and 76 % from illegal burning of waste in the open air.

	2000	2006	2007	2008	2009	2010	2011*
number of households (x 1 000)	2 392	2 526	2 550	2 577	2 601
dioxin emissions (mg)	32 552	31 374	30 584	31 387	31 376	33 056	30 251
energy consumption (PJ)	230	234	223	234	237	253	205
greenhouse gas emissions (ktonnes CO ₂ -eq)	12 915	12 911	12 210	12 800	12 883	13 822	10 800
residual waste (ktonnes)	1 138	939	958	948	933	943	952
PAH emissions (kg)	83 201	71 604	65 015	72 746	72 585	86 761	64 411
pressure on surface water from BOD (ktonnes O ₂)	35	20	19	17	16	16	15



Energy consumption by households



* provisional figures

**energy consumption by off-road vehicles (lawnmowers, leaf blowers, quads, etc.)

Source: MIRA based on Flanders Energy Balance VITO

Energy consumption in 2011 lower due to mild winter

Households use energy for the heating, cooling and ventilation of buildings, the production of warm water, lighting, and the use of electric appliances. In 2011, the share of the households accounted for 13 % of the gross domestic energy consumption in Flanders.

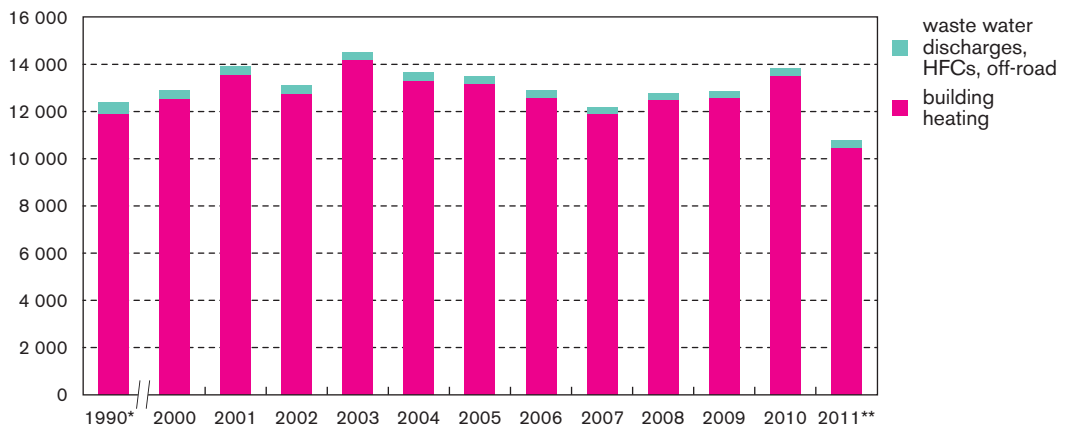
The total energy consumption of the households has decreased from 229.9 PJ in 2000 to 204.6 PJ in 2011 (-11 %). The energy consumption has fluctuated over the years, partly as a result of the varying temperatures in the winter months. Overall, the energy consumption increased by 7 % in 2010 and decreased by 14 % in 2011 as compared to 2009. During a very cold winter, as in 2010, the heating demand increases (+26 % with respect to 2009), whereas a relatively mild winter, as in 2011, causes the opposite effect (-16 % with respect to 2009). The use of fuel oil, natural gas, coal and wood followed the same trend, a 9 % increase in 2010 and a 16 % decrease in 2011 with respect to 2009. The households use these fuels (total share of 80 % in energy consumption) mainly for home heating. The electricity consumption decreased by 2 % between 2007 and 2011.

Through measures, such as the installation of roof or attic floor insulation and the replacement of single glass and inefficient heating installations, the Pact 2020 wants to achieve a significant decrease in the energy consumption of buildings. In 2011, 24 % of the houses were not yet equipped with roof or attic insulation, 8 % had only single glass and 31 % of the natural gas boilers and 69 % of the fuel oil boilers were still low-performance boilers.

energy consumption (PJ)	2000	2006	2007	2008	2009	2010	2011*
fuel oil	100.3	96.4	89.7	95.3	95.0	96.9	75.8
natural gas	83.1	87.9	84.1	90.5	91.3	104.9	81.0
electricity	36.1	40.1	39.5	40.4	41.2	41.4	40.4
biomass (wood)	4.4	3.7	3.3	3.8	3.8	4.6	3.3
coal	2.6	4.2	4.3	3.2	3.2	3.8	2.7
butane/propane	2.8	1.5	1.7	0.6	1.7	1.2	0.9
petrol**	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<i>total</i>	<i>229.9</i>	<i>234.4</i>	<i>223.0</i>	<i>234.3</i>	<i>236.5</i>	<i>253.2</i>	<i>204.6</i>

Emission of greenhouse gases by households

DPSIR

greenhouse gas emissions (ktonnes CO₂-eq)

* HFC emission figures are only available from 1995 onwards. 1995 emissions were used for 1990.

** provisional figures

Source: MIRA based on EIL (VMM)

Energy consumption of buildings determines the greenhouse gas emissions

Households accounted for 14.4 % in 2010, or 10 800 ktonnes CO₂ equivalents of the total Flemish greenhouse gas emissions. Of this, 10 466 ktonnes CO₂-eq (96.9 %) is the result of the burning of fuel mainly for the heating of buildings and warm water (for the shower and the dishwasher). The remaining 3.1 % are emissions originating from the discharge of waste water and septic tanks (2.4 %), off-road emissions from, among others, lawnmowers and quads (0.4 %), and emission of HFCs used as a coolant in refrigerators and air-conditioning installations (0.3 %).

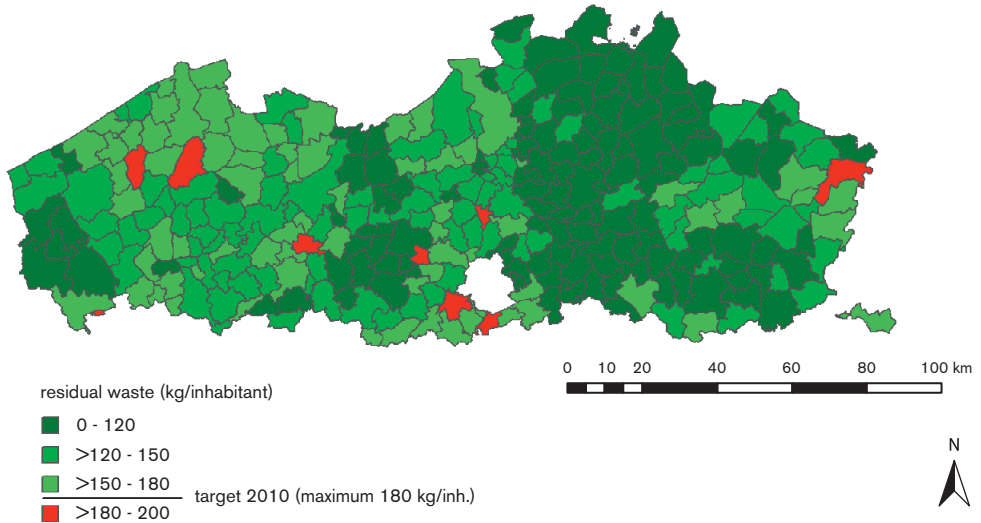
The emissions of greenhouse gases from households decreased by 12.8 % in 2011 with respect to 1990. The emissions are strongly dependent on the heating demand and can, therefore, be largely explained by the outside temperatures. In 2011, the heating demand was 33 % less than in 2010. Greenhouse gas emissions decreased by 22 % with respect to 2010.

Greenhouse gas emissions can be reduced, among other ways, by energy saving measures, by switching from fossil fuels with a high carbon content to fossil fuels with a lower carbon content, or by promoting the use of renewable energy sources.

greenhouse gas emissions (ktonnes CO ₂ -eq)	1990*	2000	2007	2008	2009	2010	2011**
CO ₂	11 800	12 454	11 815	12 411	12 499	13 422	10 425
CH ₄	292	198	161	154	155	168	148
N ₂ O	199	190	194	196	197	201	195
HFCs	99	73	41	39	31	31	31
<i>total</i>	<i>12 389</i>	<i>12 915</i>	<i>12 210</i>	<i>12 800</i>	<i>12 883</i>	<i>13 822</i>	<i>10 800</i>

Amount of residual waste from households

DPSIR



In 143 municipalities, a correction factor was applied on the basis of factors such as tourism, family size and age structure (Implementation Plan for the Environmentally Sound Management of Household Waste).

Source: OVAM

25

Big differences between municipalities

The MINA plan 4 (2011-2015) reiterates the target for household residual waste of the MINA plan 3+ (2008-2010): by 2015, a maximum of 150 kg household residual waste is to be collected per inhabitant at the Flemish regional level. This target has already been achieved since 2009: since that year the amount of residual waste has stagnated at slightly less than 150 kg per inhabitant.

The amount of residual waste collected per municipality varied from 73 to 299 kg per inhabitant in 2011. 40 % of the municipalities collected less residual waste than the year before. In about one-third of those municipalities, there were decreases of 10 to no less than 87 kg per inhabitant. These significant decreases result, among other things, from the decline in the amount of bulk waste. In a growing number of municipalities, inhabitants in fact have to pay for the collection of bulk waste. This will become obligatory for all municipalities as from 1 July 2013. The selective collection of mixed plastics and hard plastics is also gaining in importance. 60 % of the Flemish municipalities collected more residual waste than in 2010. In about one-quarter of those municipalities, there were increases of 10 to even 80 kg per inhabitant.

Not all municipalities are reaching 2010 target

The Implementation Plan for the Environmentally Sound Management of Household Waste states that each municipality may collect no more than 180 kg of residual waste per inhabitant as of 2010. Factors such as tourism, family size and age structure, have an effect on the quantity of residual waste. For this reason, a correction factor was applied to 143 municipalities to evaluate the quantity of residual waste against the municipal targets. In 2011, 9 of the 308 municipalities had not yet achieved this target, which is one municipality less than in 2010. By contrast, 226 municipalities, after application of the correction factor, collected 150 kg residual waste per inhabitant.