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**REPORT FROM THE COMMISSION  
TO THE EUROPEAN PARLIAMENT AND THE COUNCIL**

**Monitoring the CO<sub>2</sub> emissions from new passenger cars in the EU:  
data for the year 2008**

# **REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL**

## **Monitoring the CO<sub>2</sub> emissions from new passenger cars in the EU: data for the year 2008**

### **1. INTRODUCTION**

Following Article 9 of Decision (EC) 1753/2000<sup>1</sup>, the Commission is required to submit to the European Parliament and Council annual reports based on the monitoring data submitted by Member States. The present Report concerns the monitoring data for year 2008.

The monitoring and reporting as defined in the Regulation (EC) 443/2009<sup>2</sup> will replace the one based on Decision (EC) 1753/2000. Article 15 of Regulation (EC) 443/2009 repeals Decision (EC) 1753/2000 with effect from 1 January 2010, with the exception of Articles 4, 9 and 10 until the monitoring report with 2009 data is submitted to the European Parliament.

### **2. TRENDS IN NEW PASSENGER CARS**

#### **2.1. Data quality and processing**

In 2008, 26 Member States submitted data according to Decision (EC) 1753/2000. Only Bulgaria did not submit any data. This is not expected to cause large distortions in average emissions because of the comparatively low number of registrations. Manual re-processing of data was necessary for a number of Member States due to the use of other fuel types than agreed upon, handling of unknown vehicles, application of the correction factor and other data implausibilities. These issues were addressed during the data evaluation procedure and they were successfully solved without significant data losses. Caution should be used when analyzing the time series as not all EU Member States are included for all years. While the highest effort is taken to present consistent series, some breaks in trends due to methodology and monitoring improvements might be occurring.

In comparison to the reports in previous years the aggregated data in this report are referring to all fuels (previously only figures with respect to petrol and diesel were reported) and in contrast to earlier reports, the CO<sub>2</sub> emissions figures are not corrected by 0.7%. This correction by 0.7% had been applied in assessing the progress made by the manufacturing associations ACEA, JAMA and KAMA, in order to compensate for a change in the test procedure that took place after their voluntary commitments were made<sup>3</sup>. These commitments have been superseded by Regulation (EC) 443/2009 and thus no monitoring of progress made by the associations towards their commitments is needed anymore. For reasons of continuity with previous reports, data per vehicle manufacturer association are presented in section 2.4.

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<sup>1</sup> Decision (EC) 1753/2000 of the European Parliament and of the Council establishing a scheme to monitor the average specific emissions of CO<sub>2</sub> from new passenger cars, OJ L 202, 10.8.2000.

<sup>2</sup> Regulation (EC) 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars, OJ L 140, 5.6.2009

<sup>3</sup> More information related to the 0.7% correction can be found in COM(2002) 693 final and COM(2004) 78 final.

Data for alternative fuel vehicles are included for the first time in the monitoring report due to their increasing market share and improved data quality. This includes vehicles reported in the following fuel categories: Liquefied Petroleum Gas (LPG), Natural Gas (NG), Electric, Hydrogen, Dual Fuel, Petrol-Bioethanol, Petrol-LPG, Petrol-NG as well as vehicles reported in the category Other.

## 2.2. Average CO<sub>2</sub> emissions from new passenger cars

The average specific CO<sub>2</sub> emissions in the year 2008 were 153.5 gCO<sub>2</sub>/km. This is a decrease by 3.3% or 5.2 grams per kilometre from the previous year (158.7 gCO<sub>2</sub>/km in 2007) which is the largest relative drop in specific emissions since the beginning of the monitoring scheme. While some of this reduction may have been due to the onset of the economic crisis, the data indicate that there has not been any substantial downsizing of the car fleet as the average power stayed the same and mass fell only slightly to its 2006 level. Both petrol and diesel vehicles improved by more than 5 grams per kilometre in comparison to the year 2007. Since the year 2000, petrol vehicles improved by 11% while diesel vehicles only by 6%. On the other hand, alternative fuel vehicles (AFV) improved by 34% since year 2000. In 2008 the share of AFV almost doubled since the previous year and AFV are now accounting for 1.3% of new passenger car registrations.

Table 1: Average CO<sub>2</sub> emissions from new passenger cars by fuel

gCO <sub>2</sub> /km	2000	2001	2002	2003	2004	2005	2006	2007	2008
All fuels	172.2	169.7	167.2	165.5	163.4	162.4	161.3	158.7	153.5
Petrol	177.4	175.3	173.5	171.7	170.0	168.1	164.9	161.6	156.6
Diesel	160.3	159.7	158.1	157.7	156.2	156.5	157.9	156.3	151.1
Alter. fuel	208.0	207.4	179.2	164.7	147.9	149.4	151.1	140.0	137.0

Table 2: Share of fuel type in new passenger cars

%	2000	2001	2002	2003	2004	2005	2006	2007	2008
Petrol	68.9%	64.0%	59.2%	55.5%	51.9%	50.7%	49.4%	47.3%	47.3%
Diesel	31.0%	35.9%	40.7%	44.4%	47.9%	49.1%	50.3%	51.9%	51.4%
Alter. fuel	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%	0.3%	0.7%	1.3%

Table 3: Average CO<sub>2</sub> emissions from new passenger cars by member state

<b>gCO<sub>2</sub>/km</b>	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	168.0	165.6	164.4	163.8	161.9	162.1	163.7	162.9	158.1
Belgium	166.5	163.7	161.1	158.1	156.5	155.2	153.9	152.8	147.8
Cyprus					173.4	173.0	170.1	170.3	165.6
Czech Rep.					154.0	155.3	154.2	154.2	154.4
Denmark	175.7	172.9	170.0	169.0	165.9	163.7	162.5	159.8	146.4
Estonia					179.0	183.7	182.7	181.6	177.4
Finland	181.1	178.1	177.2	178.3	179.8	179.5	179.2	177.3	162.9
France	163.6	159.8	156.8	155.0	153.1	152.3	149.9	149.4	140.1
Germany	182.2	179.5	177.4	175.9	174.9	173.4	172.5	169.5	164.8
Greece	180.3	166.5	167.8	168.9	168.8	167.4	166.5	165.3	160.8
Hungary					158.5	156.3	154.6	155.0	153.4
Ireland	161.3	166.6	164.3	166.7	167.6	166.8	166.3	161.6	156.8
Italy	155.1	158.3	156.6	152.9	150.0	149.5	149.2	146.5	144.7
Latvia					192.4	187.2	183.1	183.5	180.6
Lithuania					187.5	186.3	163.4	176.5	170.1
Luxembourg	176.7	177.0	173.8	173.5	169.7	168.6	168.2	165.8	159.5
Malta					148.8	150.5	145.9	147.8	146.9
Netherlands	174.2	174.0	172.4	173.5	171.0	169.9	166.7	164.8	157.9
Poland					154.1	155.2	155.9	153.7	153.1
Portugal	169.2		154.0	149.9	147.1	144.9	145.0	144.2	138.2
Romania								154.8	156.0
Slovakia						157.4	152.0	152.7	150.1
Slovenia					152.7	157.2	155.3	156.3	155.9
Spain	159.2	156.8	156.4	157.0	155.3	155.3	155.6	153.2	148.2
Sweden	200.0	200.2	198.2	198.5	197.2	193.8	188.6	181.4	173.9
UK	185.4	177.9	174.8	172.7	171.4	169.7	167.7	164.7	158.2

Chart 1: Evolution of CO<sub>2</sub> emissions from new passenger cars by fuel (EU27)

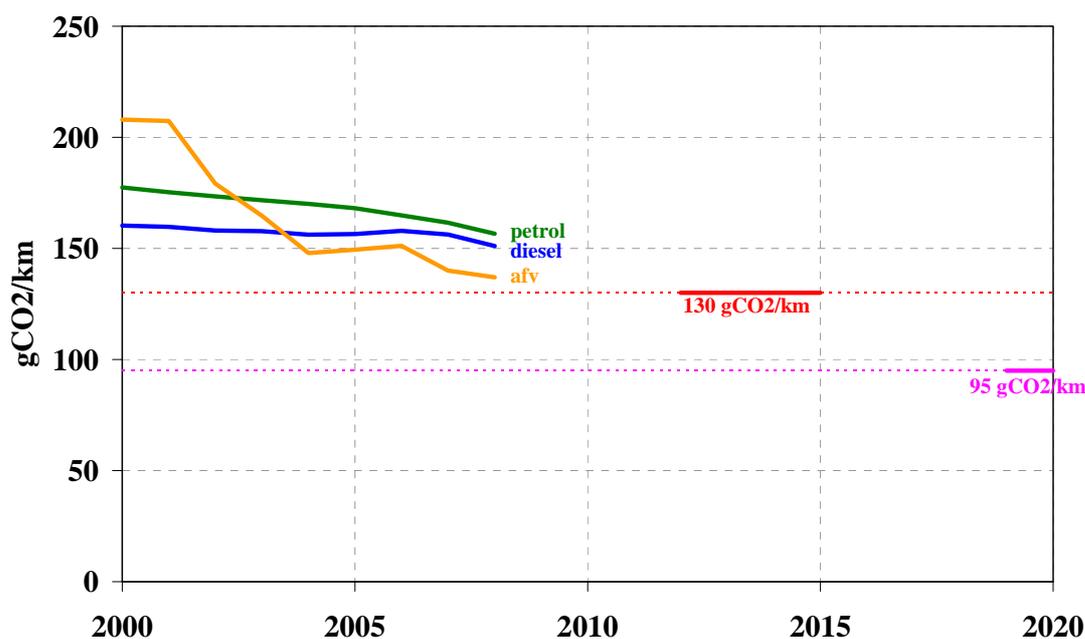


Table 4: Average CO<sub>2</sub> emissions from new passenger cars by region

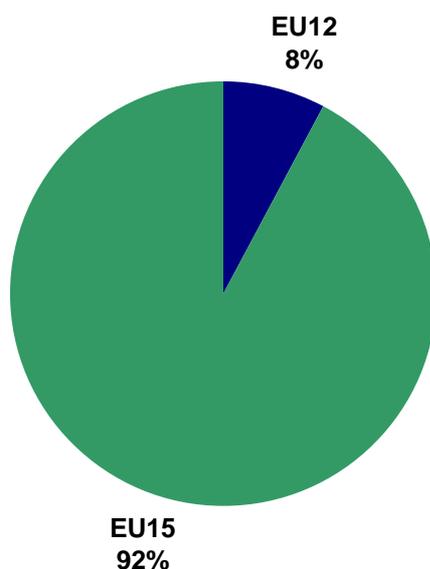
	EU15			EU10			EU25 / EU27 <sup>4</sup>		
	All fuels	Petrol	Diesel	All fuels	Petrol	Diesel	All fuels	Petrol	Diesel
2005	162.6	168.8	156.5	158.1	159.2	155.3	162.4	168.1	156.5
2006	161.5	165.4	157.9	157.3	157.9	155.8	161.3	164.9	157.9
2007	158.8	161.9	156.4	157.7	158.0	156.9	158.7	161.6	156.3
2008	153.3	156.5	151.0	155.5	155.7	155.2	153.5	156.6	151.1

In 2008 the EU15 member states accounted for the vast majority of new passenger car registrations. The difference between the EU15 and EU10 in CO<sub>2</sub> emissions of petrol vehicles decreased from almost 10 grams per kilometre in 2005 to less than 1 gram per kilometre in 2008 – new cars in the EU10 having lower CO<sub>2</sub> emissions per kilometre. On the other hand, the average CO<sub>2</sub> emissions of the new diesel passenger cars sold in EU15 are lower than those of the new diesel car fleet sold in EU10. While in 2005-2006 new diesel passenger cars in the EU15 were emitting on average 1-2 grams per kilometre more than the EU10, in 2008 new

<sup>4</sup> EU15 includes Austria, Belgium, Denmark, Finland, France, Greece, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and UK. EU10 includes Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovenia and the Slovak Republic. EU25 includes EU15 and EU10. EU27 includes EU25, Romania and Bulgaria. However due to missing data, Bulgaria is currently not included in EU27 for all years, Romania not included for year 2005 and 2006.

diesel passenger cars in the EU15 were emitting on average more than 4 grams less CO<sub>2</sub> per kilometre than new vehicles in the EU10. In total, new passenger cars registered in the EU15 in the year 2008 have lower CO<sub>2</sub> emissions than new passenger cars in the EU10 for the first time since the beginning of monitoring the CO<sub>2</sub> emissions of new passenger cars.

Chart 2: Registrations of new passenger cars by region in year 2008



### 2.3. Other car characteristics: engine power, engine capacity and mass

While the average engine power of new passenger cars had been increasing in previous years, it remained constant between the years 2007 and 2008. The average engine power of petrol powered vehicles is seen to increase over time much more slowly than that of diesel vehicles. The 2008 data for the average engine power of AFV are confirming the decreasing trend of previous years.

Table 5: Average engine power of new passenger cars by fuel

kW	2000	2001	2002	2003	2004	2005	2006	2007	2008
All fuels	x <sup>5</sup>	x <sup>5</sup>	77	79	80	81	83	84	84
Petrol	x <sup>5</sup>	x <sup>5</sup>	75	76	76	76	77	77	77
Diesel	80	86	81	82	83	85	89	90	90
Alter. fuel	68	75	77	74	69	69	69	61	61

<sup>5</sup> excluded due to implausible figures reported by member states

The slowly decreasing trend of the average engine capacity of new passenger cars slightly accelerated in the year 2008. The average engine capacity has seen the strongest drop since the beginning of the reporting.

Table 6: Average engine capacity of new passenger cars by fuel

<b>cm<sup>3</sup></b>	2000	2001	2002	2003	2004	2005	2006	2007	2008
All fuels	1691	1714	1731	1743	1730	1726	1724	1719	1690
Petrol	1520	1560	1570	1572	1571	1573	1561	1546	1518
Diesel	1984	1981	1961	1948	1904	1886	1885	1880	1856
Alter. fuel	1432	1602	1672	1628	1581	1561	1562	1424	1387

The average mass of new passenger cars decreased for the first time, going back to the level of 2006, after it had been continuously increasing in previous years. The mass decreased only slightly for petrol and diesel vehicles. On the other hand, AFV became lighter on average by 34 kg and their average mass is now very close to that of petrol vehicles. Data before 2004 is not shown in the table due to known problems in Member State reporting during that period of time. For data before 2004 as well as detailed explanations of the origin of the mass data and all other mass related notes see Table 2 in the Annex of the previous report COM(2009)9 final.

Table 7: Average mass of new passenger cars by fuel

<b>kg</b>	2004	2005	2006	2007	2008
All fuels	1347	1356	1372	1379	1373
Petrol	1237	1235	1238	1235	1228
Diesel	1463	1479	1501	1510	1508
Alter. fuel	1415	1404	1392	1271	1237

Table 8: Average mass of new passenger cars by member state

kg	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	1290	1314	1335	1426	1432	1435	1449	1445	1431
Belgium	1250	1288	1319	1361	1375	1396	1407	1423	1425
Cyprus					1205	1277	1316	1354	1372
Czech Rep.					1704	1242	1247	1261	1275
Denmark	1253		1306	1325	1327	1324	1328	1370	1320
Estonia					1349	1408	1433	1465	1456
Finland	1753	1752	1759	1336	1355	1381	1401	1437	1442
France	1221	1254	1280	1305	1327	1341	1349	1375	1387
Germany	1310	1332	1352	1381	1408	1412	1424	1433	1425
Greece	1186	1172	1223	1262	1277	1287	1304	1314	1311
Hungary					1182	1203	1237	1264	1288
Ireland	1133	1248	1276	1265	1314	1341	1372	1441	1440
Italy	1586	1604	1632	1649	1259	1277	1294	1287	1285
Latvia					1452	1445	1468	1502	1498
Lithuania					1433	1448	1483	1481	1467
Luxembourg	1826	1834	1851	1442	1471	1487	1504	1498	1490
Malta									1317
Netherlands	1221	1260	1264	1301	1314	1337	1332	1350	1323
Poland					1181	1242	1271	1304	1260
Portugal			1229	1254	1295	1329	1352	1365	1352
Romania								1268	1286
Slovakia						1174			
Slovenia					1246	1305	1316	1340	1350
Spain	1137	1266	1725	1317	1335	1374	1395	1416	1400
Sweden	1423	1448	1454	1472	1467	1470	1488	1503	1488
UK		1347	1356	1392	1387	1374	1390	1394	1380

## 2.4. Monitoring data by association

For reasons of continuity with previous reports, data in this section are presented as per vehicle manufacturer association. In year 2008, CO<sub>2</sub> emissions from new passenger cars decreased for each association. In comparison to 2007, ACEA decreased its average emissions by 4.7 grams, JAMA by 5.8 grams and KAMA by 10.5 grams.

Table 9: Average CO<sub>2</sub> emissions from new passenger cars by association

<b>gCO<sub>2</sub>/km</b>	2000	2001	2002	2003	2004	2005	2006	2007	2008
ACEA	170.4	168.2	165.6	163.7	161.8	161.1	160.8	158.1	153.3
JAMA	180.9	177.9	174.9	173.3	170.9	167.4	162.5	160.5	154.8
KAMA	185.5	186.8	184.7	180.0	168.7	167.8	165.4	161.3	150.8

While the average mass of new passenger cars produced by ACEA in 2008 stayed at the same level as in 2007, new passenger cars from JAMA and KAMA decreased in weight by 20 kg and 52 kg respectively.

Table 10: Average mass of new passenger cars by association

<b>kg</b>	2000	2001	2002	2003	2004	2005	2006	2007	2008
ACEA	1351	1369	1418	1406	1355	1365	1379	1386	1385
JAMA	1308	1379	1375	1380	1310	1309	1322	1335	1315
KAMA	1295	1366	1447	1454	1298	1340	1381	1371	1319

The effect of the current financial crisis and economic downturn can be seen in the lower number of new passenger car registrations for each association in the year 2008. When compared to year 2007, we observe a decrease by 8%. This amount of new passenger car registrations corresponds roughly to the amount of registrations observed 4-5 years ago.

Table 11: Registrations of new passenger cars by association (in thousands)

'000	2000	2001	2002	2003	2004	2005	2006	2007	2008
ACEA	10 864	11 088	11 602	11 481	12 163	12 024	12 114	12 401	11 509
JAMA	1 542	1 301	1 502	1 704	2 002	2 058	2 156	2 234	2 001
KAMA	415	322	325	427	630	737	714	757	665
Other <sup>6</sup>	17	50	71	70	58	39	26	27	24
Total <sup>7</sup>	12 838	12 761	13 500	13 682	14 853	14 858	15 010	15 419	14 199

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<sup>6</sup> includes non-identified new passenger cars (vehicles for which members states did not report correctly the required information)

<sup>7</sup> total registration of new passenger cars as covered by reporting EU member states