

Adjustment DE-A regarding NO_x from Road Vehicles

PREFACE

When deriving proposals for national emission ceilings for negotiations of the 1999 Gothenburg Protocol, sector-specific emission estimates for the year 2010 were calculated at IIASA using a set of scenarios which assumed various technological abatement measures, policy incentives, and legislation available / in place or planned at that time. As a result, the 2010 emission by road transport in Germany was estimated at NO_x, (IIASA, 1999) ¹⁾. The over-all 2010 national emission ceiling (NEC) for NO_x, was set to 1,081 kt. When negotiating the EU NEC Directive two years later, Germany agreed to reduce its NO_x, emissions further, resulting in a NEC of 1,051 kt.

In its 2016 NEC emissions reporting, Germany provided a national total for NO_x, emissions of 1,337 kt for 2010. However, this total includes emissions from agricultural soils and other source categories not accounted for when setting the NEC. In addition, some assumptions made in 1999, including on emission factors from road traffic, turned out to be wrong in reality. Like in many other European countries, non-compliance with the 2010 NEC as set in 1999 was partly not caused by failed national mitigation policies, but by changes beyond the control of, and unforeseen by, the individual Party or Member State.

In order to differentiate such changes from policy failures in the responsibility of the individual Parties to the Gothenburg Protocol, a procedure (Inventory Adjustment) allowing the adjustment of emissions resulting from new emission categories, changes in estimation methodologies, emission factors etc. provided within the EMEP/EEA Guidebook, or other effects beyond national control with respect to complying to emission reduction obligations (EB, 2012a & c) ^{2), 3)} was agreed. This procedure is applicable also for existing NECs (EB, 2012b) ⁴⁾.

With respect to road transport, such an unforeseeable effect was the partial failure of several so-called “Euro norms” set on the EU level to reduce emissions from road vehicles. In this report, Germany presents an estimate of the NO_x, emissions resulting from the partial failure of the mitigation policy reflected by the Euro norms, and lays out the calculations leading to these estimates.

REASONS FOR MISSING THE GOTHENBURG CEILINGS

The TREMOD methodology applied for estimating emissions from road transportation in Germany has changed over time. These changes include updates of emission factors (EF) for various pollutants and other changes such as an extension of vehicle classification (and thus inclusion of emission factors associated with these new vehicle sub-categories) to improve the estimation's accuracy.

The main changes occurred for the emission factors and for the Heavy Duty Vehicles (HDV) fleet structure. This last point led to changes in emissions because of the reallocation of activities (consumption/traffic) between the sub-categories of vehicles.

For the formalism of the adjustments, it is difficult to flag whether the modifications for road transport are due to “methodological changes” or due to “changes of emission factor”. Therefore, only the term “change of methodology” will be used (even if at the NFR reporting level this may seem like a simple change in EFs).

So far as road transport is concerned, the inability to attain the emission ceiling is most likely to have been affected by a combination of technological changes within the fleet (which of course made their way into the several versions of TREMOD) combined with greater than originally expected dieselisation of the fleet.

ANALYSING THE PROBLEM: THE EUROPEAN PERSPECTIVE BASED ON COPERT

Already in 2011, these effects were demonstrated by Ntziachristos and Papageorgiou (2011) ⁵⁾. Here, the impacts of changing model versions and activity data in the context of meeting the EU NEC Directive ceiling commitments were examined for four European countries including Germany. Unfortunately, this comparison study was carried out within a COPERT environment. Therefore, the results gained cannot be transferred to the German TREMOD environment on a one-to-one level but nonetheless allow a highly illustrative insight in the reasons for not meeting the set ceiling. The study modeled fuel consumption and NO_x, emissions for four selected countries (Germany, France, Netherlands and Belgium) and found higher NO_x, emissions were estimated for the road transport sector than originally modelled by the RAINS model of IIASA (which underpinned the setting of 2010 ceilings). For Germany, this study shows that with the same activity data set (LIFE+

EC4MACS data from Amann et al. (2010)), NO_x, emissions estimated with COPERT II vs. COPERT 4 (v8.0) increase from 410 kt to 518 kt due to methodological changes, a difference of 282 kt. An additional consideration of changes in AD would lead to 620 kt of NO_x. However, as changes in AD are no valid adjustment reason, the latter value is for information only.

This was mainly due to: * NO_x, emission factors updated in COPERT 4 that did not follow the reductions as set by the emission standards for diesel passenger cars; * important part of diesel fuel consumption in the total fuel consumption of the road traffic.

The results of this study showed that it is the combination of different parameters which might affect the ability (to different extents) of a Party to attain the emission ceilings. In other words, the exceeding of NO_x, ceilings for road transport is due to:

Changes in methodology and emission factors

As these technologically driven changes (as reflected in the __evolution of the different so-called Euro norms__) lie outside the country's responsibility, current methodology and EFs have to be adjusted in a way to allow the comparison of the actual inventory and the Gothenburg ceilings.

Changes in the activity data

As the development of mileage driven and fuels used within a country (__Germany: stronger dieselisation__ then originally expected) is of the country's responsibility, this effect has to be excluded from any adjustment estimation.

IN-COUNTRY ANALYSIS: THE TREMOD PERSPECTIVE

INITIAL ASSUMPTION

In order to estimate the effect of NO_x, emissions resulting from the failure of the so-called Euro norms, the following procedure has been agreed by expert review teams in the last two years:

proposed amount of adjustable emissions = current AD x current EF - current AD x original EF = current AD x (current EF - original EF) = current EM - "artificial" current EM¹

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$$EM_{\text{adjustment}} = AD_{\text{current}} * EF_{\text{current}} - AD_{\text{current}} * EF_{\text{original}} = AD_{\text{current}} * (EF_{\text{current}} - EF_{\text{original}}) = EM_{\text{current}} - EM_{\text{current-artificial}}$$

with * **EM_{adjustment}**, = amount of emissions to be subtracted from National Totals * **AD_{current}**, = AD from latest TREMOD version as used for current submission * **EF_{current}**, = EF from latest TREMOD version as used for current submission * **EF_{original}**, = EF from TREMOD version used at the time NEC ceilings were set (here: TREMOD 3.1) * **EM_{current}**, = EM estimated from AD and EF from latest TREMOD version = EM reported for NFR 1.A.3.b with latest submission * **EM_{current-artificial}**, = EM estimated from AD from latest TREMOD version and EF from TREMOD version used at the time NEC ceilings were set (here: TREMOD 3.1)

APPLYING THE ORIGINAL METHODOLOGY

FRAMEWORK INFORMATION

The methodology used for estimating Germany's exhaust emissions from road transport when determining emissions ceilings of the Gothenburg Protocol (1999), was the second version of the EMEP/CORINAIR guidebook corresponding to COPERT II software. This method proposed NO_x, emission factors for

- passenger cars (PC): up to Euro 1
- light commercial vehicles (LCV2): up to Euro 1
- heavy duty vehicles (HDV): pre-EURO I only (conventional)

Back then, without better knowledge, the emission factors for the most recent standards were derived by directly applying

the expected reductions in emission standards.

However, as Germany does not use COPERT for compiling its road transport emissions inventory but a national model called TREMOD, the following comparison has to be carried out between the oldest version of TREMOD still available and the version as applied for the current inventory submission (2020).

Unfortunately, the oldest TREMOD version available for such comparison is TREMOD 3.1 from 2002 ⁶⁾, including the following set of NO_x emission factors:

- passenger cars (PC): up to Euro 4
- light commercial vehicles (LCV): up to Euro 4
- heavy duty vehicles (HDV) only up to EURO V

However, as this version includes the technological development since 1999 (when the ceilings were set based on COPERT II), the results from this analysis and the adjustment proposal based upon these results are likely to slightly underestimate the effect of technological changes since 1999 and must therefore be considered conservative.

THE COMPARISON

Application of the original NO_x methodology to the current road transport background activity data

The *basic activity data* (such as over-all fuel sold and traffic mileages by vehicle type, by fuel or by Euro regulation) implemented in TREMOD 3.1 differ significantly from those of the current TREMOD version especially for the more recent years as of 2005. In addition, *specific activity data* (such as fuel consumptions per vehicle type, per fuel or per Euro regulation) strongly depend on the TREMOD version.

Within this report, Germany re-estimates the NO_x emission within the TREMOD 3.1 model. To isolate the requested information, the original TREMOD 3.1 activity data was combined with emission factors from both TREMOD 3.1 and the currently used TREMOD 6.02 (Knörr et al., 2019a) ⁷⁾.

Description of the updated methodology used

The updated methodology, used in 2019 (for NFR submission 2021) and implemented in version 6.12 of the TREMOD software, considers emission factors of

- passenger cars (PC) up to Euro 6d
- light commercial vehicles (LCV) up to Euro 6d
- heavy duty vehicles (HDV) up to EURO VI

and

- motorized two-wheelers (M2W) up to Euro 4

Comparison of emission estimates made using the original and updated methodologies

The values of NO_x emissions presented in the table below are estimated with:

- TREMOD 3.1 model equations as initial methodology

and ,

- TREMOD 6.12 equations as methodology applied for NEC submission 2021.

The activity data applied to initial (here: oldest available) and most recent methodology, are those of the latest inventory provided with NEC submission 2021.

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cf. Also related columns in the Excel table "Annex_VII_Adjustments_summary_template_extended2_V2_Aprill15.xlsx" for road transport).

Table: Aggregated impact of adjustments on NO_x emissions from NFR 1.A.3.b

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Table 1: Resulting adjustment proposal 2020

> for year	= 2010	= 2011	= 2012	= 2013	= 2014	= 2015	= 2016	= 2017	= 2018									
~ proposed adjustment	~##red	-297.8##	~##red	-302.3##	~##red	-301.3##	~##red	-306.1##	~##red	-294.5##	~##red	-269.0##	~##red	-244.3##	~##red	-214.9##	~##red	-174.6##

The following screenshots show the TREMOD 3.1 / TREMOD 6.12 implementation comparisons per vehicle type/fuel/Euro regulation.

Activity Data

- * **current:** from TREMOD 6.12, as reported with the latest inventory submission
- * **adjusted:** has to be similar to **current** AD!
- * **difference:** as only recent AD are to be used for adjustment estimations, this value must be zero!

Implied Emission Factor

- * **current:** representing the ratio of current emissions and current AD
- * **adjusted:** representing the ratio of adjusted emissions and current AD
- * **difference:** shows percentual difference

NO_x Emissions

- * **current:** from TREMOD 6.12, as reported with the latest inventory submission
- * **adjusted:** estimated based on TREMOD 3.1 methodology and TREMOD 6.12 AD
- * **adjustment:** adjusted emissions minus current emissions
- * **difference:** percentual difference between current and adjusted emissions

Adjustment overview for years 2010 to 2019

NFR Code	Fuel	Year	Activity Data			Implied Emission Factor			NO _x Emissions			
			current	adjusted	difference	current	adjusted	difference	current	adjusted	adjustment	difference
			in [TJ]		in [%]	in [kg/TJ]		in [%]		in [kg]		in [%]
1.A.3.b.i	gasoline		795.957	795.957	0%	97.55	84.99	-13%	77.64.842	67.690.906	9.993.935	-13%
1.A.3.b.i	diesel oil		629.380	629.380	0%	429.45	160.51	-63%	227.341.096	84.970.461	142.370.635	-63%
1.A.3.b.ii	gasoline		6.325	6.325	0%	255.87	214.75	-16%	1.618.432	1.358.328	260.104	-16%
1.A.3.b.ii	diesel oil		113.450	113.450	0%	476.34	134.96	-72%	54.040.533	15.311.584	38.728.949	-72%
1.A.3.b.iii	gasoline		48.844	48.844	0%	823.00	482.55	-42%	29.931.266	23.183.732	6.747.534	-23%
1.A.3.b.iii	diesel oil		566.741	566.741	0%	446.67	271.83	-39%	253.148.243	154.056.160	99.092.083	-39%
1.A.3.b.iv	gasoline		19.712	19.712	0%	113.68	168.43	48%	2.240.749	3.320.034	-1.079.285	48%
1.A.3.b TOTAL	2010		2.079.688	2.079.688	0%			0%	645.965.162	349.851.206	296.113.956	-46%
1.A.3.b.i	gasoline		794.688	794.688	0%	92.09	81.61	-11%	73.185.851	64.851.951	8.333.900	-11%
1.A.3.b.i	diesel oil		553.564	553.564	0%	434.12	159.22	-63%	240.313.791	88.138.959	152.174.832	-63%
1.A.3.b.ii	gasoline		6.118	6.118	0%	229.35	198.57	-13%	1.403.081	1.214.776	188.305	-13%
1.A.3.b.ii	diesel oil		115.967	115.967	0%	481.55	126.92	-74%	55.844.518	14.718.142	41.126.376	-74%
1.A.3.b.iii	gasoline		47.355	47.355	0%	592.65	448.99	-24%	28.071.221	21.268.323	6.804.898	-24%
1.A.3.b.iii	diesel oil		563.891	563.891	0%	410.38	244.97	-40%	231.410.271	138.135.342	93.273.929	-40%
1.A.3.b.iv	gasoline		19.289	19.289	0%	110.79	171.60	54%	2.137.002	3.299.162	-1.162.160	54%
1.A.3.b TOTAL	2011		2.106.883	2.106.883	0%			0%	632.365.736	331.625.655	300.740.081	-48%
1.A.3.b.i	gasoline		750.957	750.957	0%	85.73	78.00	-9%	64.379.994	58.677.229	5.802.765	-9%
1.A.3.b.i	diesel oil		555.245	555.245	0%	435.96	158.66	-64%	242.062.902	88.096.699	153.966.203	-64%
1.A.3.b.ii	gasoline		5.657	5.657	0%	218.93	193.15	-12%	1.238.520	1.092.662	145.859	-12%
1.A.3.b.ii	diesel oil		114.350	114.350	0%	481.91	128.17	-75%	55.106.362	13.741.354	41.365.008	-75%
1.A.3.b.iii	gasoline		50.902	50.902	0%	533.22	384.33	-28%	27.141.913	19.563.200	7.578.704	-28%
1.A.3.b.iii	diesel oil		589.585	589.585	0%	381.33	224.00	-41%	234.829.180	132.064.753	92.764.428	-41%
1.A.3.b.iv	gasoline		18.268	18.268	0%	107.43	173.28	61%	1.962.546	3.165.439	-1.202.893	61%
1.A.3.b TOTAL	2012		2.084.964	2.084.964	0%			0%	616.721.438	316.391.343	300.429.094	-49%
1.A.3.b.i	gasoline		749.114	749.114	0%	89.35	74.85	-7%	60.190.007	56.071.797	4.118.211	-7%
1.A.3.b.i	diesel oil		589.131	589.131	0%	437.14	158.71	-64%	257.633.728	93.499.010	164.134.718	-64%
1.A.3.b.ii	gasoline		5.578	5.578	0%	202.80	184.07	-9%	1.131.209	1.026.727	104.482	-9%
1.A.3.b.ii	diesel oil		118.777	118.777	0%	480.60	114.93	-76%	57.083.533	13.690.488	43.433.045	-76%
1.A.3.b.iii	gasoline		51.716	51.716	0%	509.64	368.06	-29%	26.350.969	18.620.843	7.730.126	-29%
1.A.3.b.iii	diesel oil		600.139	600.139	0%	353.06	287.93	-19%	211.887.531	124.788.469	87.099.062	-41%
1.A.3.b.iv	gasoline		18.229	18.229	0%	104.34	175.38	68%	1.902.688	3.197.038	-1.294.351	68%
1.A.3.b TOTAL	2013		2.132.683	2.132.683	0%			0%	616.079.063	316.854.371	300.224.692	-50%
1.A.3.b.i	gasoline		752.526	752.526	0%	76.03	73.09	-4%	57.215.533	54.988.921	2.216.612	-4%
1.A.3.b.i	diesel oil		626.845	626.845	0%	435.87	159.12	-63%	272.876.061	95.613.892	173.262.169	-63%
1.A.3.b.ii	gasoline		5.845	5.845	0%	190.34	176.49	-7%	1.112.584	1.031.612	80.972	-7%
1.A.3.b.ii	diesel oil		128.578	128.578	0%	475.56	110.96	-77%	61.146.575	14.267.237	46.879.338	-77%
1.A.3.b.iii	gasoline		49.143	49.143	0%	468.37	339.99	-27%	23.017.115	16.708.234	6.308.881	-27%
1.A.3.b.iii	diesel oil		572.754	572.754	0%	314.05	196.05	-38%	179.874.133	112.285.582	67.588.551	-38%
1.A.3.b.iv	gasoline		18.673	18.673	0%	100.59	179.24	78%	1.878.294	3.345.794	-1.467.499	78%
1.A.3.b TOTAL	2014		2.153.563	2.153.563	0%			0%	597.120.297	302.252.271	294.868.025	-49%
1.A.3.b.i	gasoline		715.156	715.156	0%	74.38	71.73	-4%	53.190.787	51.300.983	1.889.805	-4%
1.A.3.b.i	diesel oil		645.555	645.555	0%	426.19	159.80	-63%	275.130.233	103.163.501	171.966.732	-63%
1.A.3.b.ii	gasoline		5.793	5.793	0%	187.12	172.80	-8%	1.083.927	1.000.999	82.928	-8%
1.A.3.b.ii	diesel oil		135.386	135.386	0%	489.35	187.96	-77%	63.605.443	14.607.490	48.997.953	-77%
1.A.3.b.iii	gasoline		52.287	52.287	0%	458.96	327.99	-29%	23.997.817	17.149.448	6.848.370	-29%
1.A.3.b.iii	diesel oil		589.411	589.411	0%	266.69	187.51	-30%	157.189.675	110.620.703	46.568.973	-30%
1.A.3.b.iv	gasoline		18.459	18.459	0%	99.32	189.65	82%	1.833.362	3.334.472	-1.501.090	82%
1.A.3.b TOTAL	2015		2.161.376	2.161.376	0%			0%	575.931.265	301.877.596	274.053.670	-48%
1.A.3.b.i	gasoline		715.272	715.272	0%	79.93	76.65	-4%	50.736.367	50.535.049	201.318	0%
1.A.3.b.i	diesel oil		675.119	675.119	0%	410.36	160.76	-61%	277.041.660	108.535.230	168.506.430	-61%
1.A.3.b.ii	gasoline		5.926	5.926	0%	180.27	171.05	-5%	1.068.292	1.013.678	54.614	-5%
1.A.3.b.ii	diesel oil		144.068	144.068	0%	456.12	185.62	-77%	65.712.732	15.216.007	50.496.725	-77%
1.A.3.b.iii	gasoline		54.157	54.157	0%	424.73	388.24	-7%	23.002.109	16.683.117	6.308.992	-27%
1.A.3.b.iii	diesel oil		594.013	594.013	0%	226.31	180.97	-20%	134.431.699	107.496.262	26.935.437	-20%
1.A.3.b.iv	gasoline		18.785	18.785	0%	95.14	181.66	89%	1.805.897	3.412.476	-1.606.579	89%
1.A.3.b TOTAL	2016		2.207.339	2.207.339	0%			0%	553.790.558	302.901.820	250.897.738	-45%
1.A.3.b.i	gasoline		724.571	724.571	0%	67.66	69.88	3%	49.026.074	50.634.714	-1.607.640	3%
1.A.3.b.i	diesel oil		696.592	696.592	0%	390.65	161.95	-59%	272.126.091	112.810.721	159.315.370	-59%
1.A.3.b.ii	gasoline		6.186	6.186	0%	171.15	167.18	-2%	1.058.799	1.034.211	24.588	-2%
1.A.3.b.ii	diesel oil		153.284	153.284	0%	424.66	183.89	-76%	65.093.930	15.925.216	49.168.714	-76%
1.A.3.b.iii	gasoline		53.382	53.382	0%	379.80	286.71	-23%	19.793.901	15.304.828	4.489.073	-23%
1.A.3.b.iii	diesel oil		596.263	596.263	0%	195.02	175.92	-10%	116.671.141	106.246.508	11.424.633	-10%
1.A.3.b.iv	gasoline		19.160	19.160	0%	92.83	183.39	98%	1.778.674	3.513.787	-1.735.114	98%
1.A.3.b TOTAL	2017		2.251.437	2.251.437	0%			0%	525.549.410	304.469.986	221.079.424	-42%
1.A.3.b.i	gasoline		699.027	699.027	0%	64.42	68.36	6%	45.032.996	47.786.817	-2.753.820	6%
1.A.3.b.i	diesel oil		666.074	666.074	0%	371.66	163.30	-56%	247.556.063	108.768.604	138.787.459	-56%
1.A.3.b.ii	gasoline		6.315	6.315	0%	158.22	160.11	1%	999.199	1.011.138	-11.939	1%
1.A.3.b.ii	diesel oil		154.259	154.259	0%	384.71	182.69	-73%	59.344.525	15.840.310	43.504.215	-73%
1.A.3.b.iii	gasoline		51.634	51.634	0%	309.75	263.53	-15%	15.993.526	13.607.106	2.386.420	-15%
1.A.3.b.iii	diesel oil		585.186	585.186	0%	171.18	172.10	1%	180.173.337	180.710.869	-537.532	1%
1.A.3.b.iv	gasoline		18.497	18.497	0%	89.66	184.61	106%	1.658.588	3.414.767	-1.756.209	106%
1.A.3.b TOTAL	2018		2.180.993	2.180.993	0%			0%	478.758.206	291.139.612	179.618.593	-38%
1.A.3.b.i	gasoline		704.691	704.691	0%	62.30	68.45	10%	43.901.941	48.238.025	-4.336.084	10%
1.A.3.b.i	diesel oil		663.841	663.841	0%	345.81	165.07	-52%	229.566.088	109.582.982	119.983.106	-52%
1.A.3.b.ii	gasoline		6.683	6.683	0%	146.08	153.25	5%	976.219	1.034.150	-57.931	5%
1.A.3.b.ii	diesel oil		159.183	159.183	0%	347.42	181.90	-71%	55.303.535	16.221.445	39.082.090	-71%
1.A.3.b.iii	gasoline		52.939	52.939	0%	274.41	247.81	-10%	14.527.012	13.118.578	1.408.434	-10%
1.A.3.b.iii	diesel oil		595.913	595.913	0%	153.35	169.17	10%	91.380.760	106.809.376	-15.428.616	10%
1.A.3.b.iv	gasoline		18.750	18.750	0%	86.05	186.83	117%	1.613.450	3.502.941	-1.889.491	117%
1.A.3.b TOTAL	2019		2.202.899	2.202.899	0%			0%	437.268.744	292.497.697	144.771.048	-33%

Adjustment details for 2020

NFR Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions				
		current	adjusted	difference	current	adjusted	difference	current	adjusted	adjustment	difference	
		in [t]	in [t]	in [%]	in [g/t]	in [g/t]	in [%]	in [kg]	in [kg]	in [kg]	in [kg]	
1.A.3.a.i. Passenger Cars	Gasoline	pre-Cars	13,686	13,686	0%	584.75	514.25	-12%	7,955,060	6,996,917	-958,143	-12%
		Car 1	36,541	36,541	0%	338.50	297.71	-10%	25,915,925	19,189,262	-7,716,663	-30%
		Car 2	96,425	96,425	0%	172.95	135.63	-22%	16,580,020	13,020,026	-3,559,994	-22%
		Car 3	133,139	133,139	0%	58.51	70.18	20%	7,790,384	9,343,433	1,553,029	20%
		Car 4	444,991	444,991	0%	42.27	42.19	0%	18,911,389	18,773,529	-137,859	0%
		Car 5	31,234	31,234	0%	18.61	42.19	127%	581,142	1,317,737	736,595	127%
	Car 6	0	0	0%	25.08	42.19	62%	2	3	1	62%	
	Gasoline total	795,957	795,957	0%	92.55	84.39	-9%	77,646,642	67,656,596	-9,990,045	-13%	
	Diesel Oil	pre-Cars	1,915	1,915	0%	318.13	264.95	-17%	583,760	527,256	-56,504	-10%
		Car 1	10,339	10,339	0%	294.42	245.17	-17%	3,044,428	2,741,387	-303,041	-10%
Car 2		50,088	50,088	0%	406.90	299.19	-26%	20,372,795	10,974,210	-9,398,584	-46%	
Car 3		134,025	134,025	0%	542.54	176.54	-67%	72,645,173	23,929,276	-48,715,897	-67%	
Car 4		279,154	279,154	0%	304.37	140.58	-53%	107,299,180	39,243,811	-68,055,369	-63%	
Car 5		53,547	53,547	0%	434.70	140.58	-68%	23,276,735	7,527,796	-15,748,939	-68%	
Car 6	334	334	0%	257.62	140.58	-45%	85,044	46,953	-38,091	-45%		
Diesel oil total	529,380	529,380	0%	429.45	160.55	-63%	227,347,096	84,970,461	-142,376,635	-63%		
Pkx Total	1,325,337	1,325,337	0%	238.12	155.14	-36%	364,985,938	152,627,057	-212,358,881	-58%		
1.A.3.b.i. Light Duty Vehicles (LDVs)	Gasoline	pre-Cars	1,249	1,249	0%	627.99	640.95	1%	783,320	904,871	121,551	1%
		Car 1	367	367	0%	961.95	297.39	-69%	364,969	186,620	-178,349	-49%
		Car 2	1,393	1,393	0%	264.75	184.41	-30%	368,840	256,917	-111,923	-30%
		Car 3	856	856	0%	82.47	90.83	10%	70,631	77,625	6,994	10%
		Car 4	2,420	2,420	0%	36.32	44.90	24%	87,987	188,679	100,692	24%
		Car 5	49	49	0%	15.34	44.90	193%	750	2,218	1,468	193%
		Car 6	0	0	0%	0	0	0%	0	0	0	0%
		Gasoline total	6,345	6,345	0%	255.87	254.75	-1%	1,478,832	1,596,126	117,294	8%
		Diesel Oil	pre-Cars	4,876	4,876	0%	425.99	386.79	-9%	2,077,142	1,436,983	-640,159
	Car 1	9,989	9,989	0%	398.18	276.24	-30%	2,389,095	1,289,636	-1,099,459	-46%	
Car 2	13,126	13,126	0%	336.76	153.18	-54%	4,420,280	2,534,731	-1,885,549	-43%		
Car 3	33,249	33,249	0%	531.91	150.58	-72%	17,655,883	5,086,760	-12,569,123	-72%		
Car 4	54,581	54,581	0%	491.42	80.69	-84%	26,021,036	4,940,722	-21,080,314	-80%		
Car 5	1,629	1,629	0%	427.50	80.69	-79%	696,296	144,434	-551,862	-79%		
Car 6	0	0	0%	151.73	80.69	-47%	7	4	-3	-43%		
Diesel oil total	113,450	113,450	0%	476.34	134.94	-72%	54,043,533	15,351,584	-38,691,949	-72%		
LDVs Total	119,775	119,775	0%	464.70	139.18	-70%	55,658,966	16,685,913	-38,973,053	-70%		
1.A.3.b.ii. Heavy Duty Vehicle Buses	Diesel Oil	pre-Cars	3,382	3,382	0%	1096.25	1028.78	-6%	3,674,087	3,432,644	-241,443	-6%
		Car 1	2,826	2,826	0%	749.41	732.14	-2%	2,117,871	2,125,595	7,723	0%
		Car 2	10,152	10,152	0%	801.96	643.47	-20%	8,140,119	6,532,213	-1,607,906	-20%
		Car 3	15,090	15,090	0%	633.22	437.25	-30%	10,865,776	7,289,299	-3,576,477	-33%
		Car 4	5,461	5,461	0%	448.63	351.65	-22%	2,650,016	1,921,527	-728,489	-27%
		Car 5	10,326	10,326	0%	327.28	182.33	-44%	3,882,417	1,882,644	-1,999,773	-51%
		Car 6	0	0	0%	0	0	0%	0	0	0	0%
		Buses Total	48,044	48,044	0%	623.80	482.55	-23%	29,931,266	23,185,732	-6,745,534	-23%
		pre-Cars	10,185	10,185	0%	1040.16	787.37	-24%	10,510,623	7,754,136	-2,756,487	-26%
	Car 1	5,677	5,677	0%	758.59	575.55	-24%	4,261,383	3,287,681	-973,702	-23%	
Car 2	38,558	38,558	0%	817.62	524.79	-35%	31,525,526	20,234,619	-11,290,907	-36%		
Car 3	169,023	169,023	0%	626.28	274.48	-56%	161,136,182	59,617,271	-101,518,911	-63%		
Car 4	69,636	69,636	0%	368.34	280.62	-24%	27,183,867	20,146,636	-7,037,231	-26%		
Car 5	283,934	283,934	0%	276.42	151.65	-45%	78,643,643	43,115,897	-35,527,746	-45%		
Car 6	0	0	0%	0	0	0%	0	0	0	0%		
Trucks Total	566,741	566,741	0%	446.67	271.83	-39%	293,148,243	154,696,160	-138,452,083	-49%		
1.A.3.b.iii. Heavy Duty Vehicle Trucks & Lorries	Diesel Oil	pre-Cars	7,973	7,973	0%	122.80	149.18	22%	972,721	1,189,353	216,632	22%
		Car 1	5,231	5,231	0%	123.77	165.74	34%	647,479	887,039	239,560	34%
		Car 2	3,587	3,587	0%	141.16	184.21	31%	585,362	696,661	111,299	19%
		Car 3	2,950	2,950	0%	38.11	184.21	387%	116,180	657,032	540,852	387%
		Car 4	0	0	0%	0	0	0%	0	0	0	0%
		Car 5	0	0	0%	0	0	0%	0	0	0	0%
HDVs Total	19,172	19,172	0%	113.68	168.43	48%	2,243,149	3,326,034	1,082,885	48%		
1.A.3.b. Road Transport	Total	2,879,688	2,879,688	0%	219.62	168.23	-46%	645,965,162	349,851,296	-296,113,866	-46%	

Adjustment details for 2021

NFR Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions					
		current	adjusted	difference	current	adjusted	difference	current	adjusted	adjustment	difference		
		in [t]	in [t]	in [%]	in [g/t]	in [g/t]	in [%]	in [kg]	in [kg]	in [kg]	in [kg]		
1.A.3.a.i. Passenger Cars	Gasoline	pre-Cars	13,063	13,063	0%	592.96	534.68	-9%	7,720,235	6,979,435	-740,801	-10%	
		Car 1	61,979	61,979	0%	347.96	340.14	-2%	21,640,430	14,884,961	-6,755,469	-31%	
		Car 2	87,083	87,083	0%	178.38	136.58	-24%	15,620,983	11,883,782	-3,737,201	-24%	
		Car 3	124,330	124,330	0%	61.94	71.52	16%	7,683,891	8,891,671	1,207,780	16%	
		Car 4	442,185	442,185	0%	43.94	43.68	0%	19,384,914	19,376,439	-8,475	0%	
		Car 5	66,057	66,057	0%	18.58	43.68	135%	1,227,381	2,085,636	1,658,255	135%	
	Car 6	1	1	0%	25.05	43.68	65%	17	20	3	11%		
	Gasoline total	794,688	794,688	0%	92.69	81.65	-11%	73,165,851	64,851,551	-8,314,300	-11%		
	Diesel Oil	pre-Cars	1,711	1,711	0%	318.13	264.95	-17%	511,863	453,197	-58,666	-11%	
		Car 1	8,426	8,426	0%	297.32	245.85	-17%	2,585,115	2,239,987	-345,128	-13%	
Car 2		42,514	42,514	0%	407.93	279.27	-32%	17,384,549	9,321,916	-8,062,633	-46%		
Car 3		121,429	121,429	0%	555.36	176.55	-68%	67,437,053	21,681,386	-45,755,667	-68%		
1.A.3.b.i. Heavy Duty Vehicles (HDVs)	Gasoline	Car 4	264,943	264,943	0%	388.88	143.48	-63%	162,917,881	30,889,755	-132,028,126	-81%	
		Car 5	113,047	113,047	0%	435.12	143.48	-67%	49,536,960	16,332,974	-33,203,986	-67%	
		Car 6	695	695	0%	259.59	143.48	-45%	180,582	99,754	-80,828	-45%	
		Diesel oil total	553,564	553,564	0%	434.12	159.92	-63%	249,713,791	88,138,959	-161,574,832	-63%	
		Pkx Total	1,348,252	1,348,252	0%	232.52	133.47	-43%	713,499,642	152,990,510	-560,509,132	-78%	
		Diesel Oil	pre-Cars	1,084	1,084	0%	626.25	640.95	1%	482,074	760,373	278,299	58%
	Car 1		283	283	0%	818.74	584.47	-29%	243,289	86,158	-157,131	-65%	
	Car 2		1,184	1,184	0%	268.66	191.68	-29%	710,529	223,189	-487,340	-68%	
	Car 3		783	783	0%	85.97	95.39	11%	67,320	74,782	7,462	11%	
	1.A.3.b.ii. Heavy Duty Trucks & Lorries	Gasoline	Car 4	2,562	2,562	0%	37.38	46.51	24%	95,786	119,162	23,376	24%
Car 5			241	241	0%	16.13	46.51	189%	3,882	11,190	7,308	189%	
Car 6			0	0	0%	15.33	46.51	203%	1	2	1	203%	
Gasoline total			6,118	6,118	0%	229.35	186.57	-18%	1,483,081	1,254,776	-228,305	-15%	
Diesel Oil			pre-Cars	3,995	3,995	0%	425.99	386.79	-9%	1,988,280	1,225,652	-762,628	-38%
			Car 1	4,787	4,787	0%	398.71	276.24	-30%	1,984,260	1,030,426	-953,834	-48%
		Car 2	10,816	10,816	0%	336.90	153.18	-54%	3,644,582	2,091,063	-1,553,519	-43%	
		Car 3	28,876	28,876	0%	541.53	150.54	-72%	15,037,249	4,346,870	-10,690,379	-72%	
Diesel Oil		Car 4	60,032	60,032	0%	493.82	80.69	-84%	30,039,914	5,429,011	-24,610,904	-82%	
		Car 5	6,609	6,609	0%	449.36	80.69	-82%	2,930,190	584,364	-2,345,826	-80%	
	Car 6	0	0	0%	156.21	80.69	-49%	16	8	-6	-43%		
	Diesel oil total	115,967	115,967	0%	485.56	126.90	-74%	56,848,598	14,781,142	-42,067,456	-74%		
1.A.3.b.iii. Heavy Duty Trucks & Lorries	Gasoline	LDVs Total	122,085	122,085	0%	468.92	130.51	-72%	17,247,399	19,932,908	2,685,509	15%	
		pre-Cars	2,620	2,620	0%	1062.63	1918.76	8%	2,896,189	2,671,331	-224,858	-8%	
		Car 1	2,250	2,250	0%	752.91	751.43	0%	1,839,187	1,696,297	-142,890	-8%	
		Car 2	9,074	9,074	0%	804.17	543.36	-32%	7,827,125	5,037,695	-2,789,430	-36%	
		Car 3	14,181	14,181	0%	633.46	457.38	-29%	9,425,890	6,689,054	-2,736,836	-29%	
		Car 4	56,937	56,937	0%	448.88	351.91	-21%	2,363,338	1,685,274	-678,064	-29%	
	Diesel Oil	Car 5	13,296	13,296	0%	336.60	182.62	-46%	4,569,052	2,446,399	-2,122,653	-46%	
		Car 6	0	0	0%	0	0	0%	0	0	0	0%	
		Buses Total	47,365	47,365	0%	592.65	448.99	-24%	28,011,221	21,256,323	-6,754,898	-24%	
		Car 1	8,044	8,044	0%	1038.67	783.98	-25%	8,355,423	6,144,933	-2,210,490	-26%	
1.A.3.b.iv. Heavy Duty Trucks & Lorries	Gasoline	Car 2	4,384	4,384	0%	758.16	504.04	-33%	3,288,422	2,516,377	-772,044	-23%	
		Car 3	29,277	29,277	0%	817.97	520.31	-36%	23,947,123	15,233,223	-8,713,900	-36%	
		Car 4	521,521	521,521	0%	804.17	372.69	-53%	17,321,520	48,752,437	31,430,916	182%	
		Car 5	68,430	68,430	0%	305.25	152.63	-50%	22,977,784	15,968,483	-6,989,301	-30%	
		Car 6	342,175	342,175	0%	278.30	120.63	-57%	95,549,479	52,619,687	-42,929,792	-45%	
		Car 7	0	0	0%	0	0	0%	0	0	0	0%	
	Diesel Oil	Trucks Total	563,891	563,891	0%	418.38	244.97	-40%	233,431,671	138,136,342	-95,295,329	-40%	
		pre-Cars	7,389	7,389	0%	122.58	150.24	22%	965,588	1,110,176	144,588	15%	
		Car 1	4,085	4,085	0%	124.72	180.25	45%	539,299	685,547	146,248	27%	
		Car 2	3,544	3,544	0%	137.85	194.58	41%	488,552	680,633	192,081	41%	
1.A.3.b.v. Motorized Two-Wheelers (M2Ws)	Gasoline	Car 3	3,550	3,550	0%	39.55	154.58	382%	140,563	630,634	490,071	346%	
		Car 4	0	0	0%	0	0	0%	0	0	0	0%	
		Car 5	0	0	0%	0	0	0%	0	0	0	0%	
		Car 6	0	0	0%	0	0	0%	0	0	0	0%	
		M2Ws Total	79,819	79,819	0%	118.79	171.64	54%	2,137,082	3,299,152	1,162,069	54%	
		Total	2,160,883	2,160,883	0%	305.90	157.85	-48%	132,365,736	331,625,655	200,748,881	151%	

Adjustment details for 2023

NFR Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions				
		current	adjusted	difference	current	adjusted	difference	current	adjusted	difference		
		in [t]	in [t]	in [%]	in [g/t]	in [g/t]	in [%]	in [kg]	in [kg]	in [%]		
1.A.3.a.i. Passenger Cars	Gasoline	pre-Cars	11,581	11,581	0%	607.72	635.38	-52%	7,035,041	6,189,785	-845,256	-52%
		Car 1	47,487	47,487	0%	348.56	341.62	-31%	16,571,746	11,426,129	-5,145,617	-31%
		Car 2	72,781	72,781	0%	194.27	137.82	-25%	13,487,749	10,035,380	-3,452,369	-25%
		Car 3	189,443	189,443	0%	63.89	72.62	14%	6,927,963	7,875,172	947,209	14%
		Car 4	489,541	489,541	0%	45.39	45.13	-1%	18,541,881	18,436,736	-105,145	-1%
		Car 5	181,961	181,961	0%	18.61	45.13	143%	1,897,355	4,681,311	2,783,956	143%
	Car 6	282	282	0%	25.05	45.13	74%	7,339	12,736	5,397	74%	
	Gasoline total	750,567	750,567	0%	85.73	78.88	-8%	64,379,964	58,577,229	-5,802,735	-9%	
	Diesel Oil	pre-Cars	1,487	1,487	0%	311.98	284.56	-9%	463,963	383,872	-80,091	-9%
		Car 1	6,660	6,660	0%	297.79	286.44	-4%	1,980,364	1,771,787	-208,577	-11%
Car 2		33,967	33,967	0%	406.82	279.27	-40%	13,887,432	7,445,646	-6,441,787	-46%	
Car 3		183,539	183,539	0%	564.82	176.63	-69%	58,389,037	18,434,837	-39,954,200	-68%	
Car 4		234,943	234,943	0%	398.41	146.46	-62%	91,724,190	34,488,997	-57,235,193	-62%	
Car 5		173,112	173,112	0%	434.89	146.46	-66%	75,284,364	25,353,375	-49,930,989	-66%	
Car 6	1,557	1,557	0%	259.84	146.46	-44%	484,664	220,086	-264,578	-44%		
Diesel oil total	555,245	555,245	0%	455.96	158.66	-64%	242,962,982	88,096,639	-154,866,343	-64%		
FCs Total	1,306,262	1,306,262	0%	234.61	152.29	-35%	386,442,896	146,673,867	-239,769,029	-35%		
1.A.3.b.ii. Heavy Duty Vehicles (LDV)	Gasoline	pre-Cars	962	962	0%	632.38	645.95	2%	607,779	621,146	13,417	2%
		Car 1	232	232	0%	803.24	183.22	-65%	199,985	70,295	-129,691	-61%
		Car 2	989	989	0%	271.16	195.74	-28%	268,134	133,538	-134,596	-28%
		Car 3	835	835	0%	89.38	98.33	10%	14,623	82,082	7,459	10%
		Car 4	2,030	2,030	0%	38.49	47.58	24%	78,155	96,691	18,536	24%
		Car 5	610	610	0%	16.36	47.58	182%	9,941	29,011	19,069	182%
	Car 6	0	0	0%	15.37	47.58	210%	2	6	4	210%	
	Gasoline total	5,657	5,657	0%	218.93	183.15	-16%	1,238,520	1,092,662	-145,858	-12%	
	Diesel Oil	pre-Cars	3,281	3,281	0%	424.46	386.79	-9%	1,368,754	1,022,093	-346,661	-9%
		Car 1	3,666	3,666	0%	398.34	276.24	-30%	1,445,980	1,017,634	-428,346	-30%
Car 2		8,479	8,479	0%	336.40	133.28	-49%	2,852,325	1,639,772	-1,212,553	-43%	
Car 3		23,785	23,785	0%	558.53	150.44	-73%	13,050,281	3,565,082	-9,485,199	-73%	
Car 4		59,485	59,485	0%	494.22	89.85	-82%	29,369,870	5,337,395	-24,032,475	-82%	
Car 5		15,964	15,964	0%	442.70	89.85	-80%	7,040,461	1,420,906	-5,619,555	-80%	
Car 6	1	1	0%	15.14	89.85	-61%	122	72	-50	-61%		
Diesel oil total	114,350	114,350	0%	485.91	126.17	-74%	55,186,382	13,741,354	-41,445,028	-74%		
LCVs Total	129,008	129,008	0%	489.51	125.61	-74%	56,344,903	14,834,656	-41,510,247	-74%		
1.A.3.b.iii. Heavy Duty Vehicles Buses	Gasoline	pre-Cars	1,326	1,326	0%	1093.46	1119.45	4%	1,410,640	1,352,283	-58,357	-4%
		Car 1	1,245	1,245	0%	727.34	731.15	1%	1,017,476	1,017,184	-292	-1%
		Car 2	7,789	7,789	0%	703.46	643.34	-9%	5,085,091	4,597,478	-487,613	-9%
		Car 3	14,483	14,483	0%	629.94	457.61	-27%	9,073,137	6,689,744	-2,383,393	-27%
		Car 4	5,331	5,331	0%	468.10	361.85	-22%	2,642,179	1,675,777	-966,402	-23%
		Car 5	20,752	20,752	0%	347.84	182.99	-47%	7,219,563	3,787,467	-3,432,096	-47%
	Car 6	73	73	0%	64.52	182.99	236%	3,961	13,295	9,334	236%	
	Buses Total	50,962	50,962	0%	533.22	384.33	-28%	27,141,913	19,965,288	-7,176,625	-28%	
	Diesel Oil	pre-Cars	6,922	6,922	0%	1036.95	758.82	-27%	7,107,543	5,252,345	-1,855,198	-27%
		Car 1	3,630	3,630	0%	743.70	570.57	-24%	2,721,326	2,071,111	-650,215	-24%
Car 2		23,577	23,577	0%	818.27	516.43	-37%	19,262,253	12,175,855	-7,086,398	-37%	
Car 3		96,735	96,735	0%	634.65	370.21	-42%	61,387,137	35,888,665	-25,498,472	-42%	
Car 4		50,550	50,550	0%	356.50	288.44	-19%	19,982,680	16,880,877	-3,101,723	-16%	
Car 5		485,981	485,981	0%	261.24	152.32	-42%	116,149,955	61,626,577	-54,523,378	-42%	
Car 6	2,380	2,380	0%	188.487	360.323	345%	188,487	360,323	171,836	233%		
Trucks Total	589,585	589,585	0%	385.33	224.69	-41%	224,829,180	132,064,153	-92,765,027	-41%		
1.A.3.b.iv. Two-Wheelers (M/MV)	Gasoline	pre-Cars	6,780	6,780	0%	122.76	151.03	23%	822,530	1,011,520	188,991	23%
		Car 1	4,386	4,386	0%	124.61	171.38	38%	536,615	738,050	201,435	38%
		Car 2	3,287	3,287	0%	136.22	184.55	45%	445,087	636,853	191,766	43%
		Car 3	3,984	3,984	0%	38.66	184.55	382%	18,386	778,616	760,230	382%
		Car 4	0	0	0%	0	0	0%	0	0	0	0%
		Car 5	0	0	0%	0	0	0%	0	0	0	0%
M/MV Total	18,268	18,268	0%	107.43	173.28	61%	1,982,546	3,185,438	1,202,891	61%		
1.A.3.b. Road Transport	Total	2,084,964	2,084,964	0%	295.79	151.71	-48%	616,721,438	396,381,343	-220,340,094	-48%	

Adjustment details for 2023

Table 1.3.a.i. Passenger Cars												
NFR Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions				
		current	adjusted	difference	current	adjusted	difference	current	adjusted	difference		
		in [t]	in [t]	in [%]	in [g/t]	in [g/t]	in [%]	in [kg]	in [kg]	in [%]		
1.A.3.a.i. Passenger Cars	Gasoline	pre-Cars	115,880	115,880	0%	618.27	649.35	-5%	7,011,641	6,967,452	-44,189	-5%
		Car 1	37,743	37,743	0%	353.78	341.68	-3%	13,362,966	9,129,436	-4,233,530	-32%
		Car 2	62,680	62,680	0%	188.93	139.33	-27%	11,889,922	8,722,244	-3,167,678	-27%
		Car 3	97,782	97,782	0%	66.38	73.19	10%	6,481,618	7,156,920	675,302	10%
		Car 4	397,911	397,911	0%	47.22	46.52	-1%	18,790,345	18,589,937	-200,407	-1%
		Car 5	138,063	138,063	0%	18.60	46.52	150%	2,583,150	6,439,691	3,856,541	150%
	Car 6	2,714	2,714	0%	25.99	46.52	79%	70,526	126,237	55,711	79%	
	Gasoline total	1,615,116	1,615,116	0%	88.35	74.85	-16%	68,190,887	56,671,737	-11,519,150	-17%	
	Diesel Oil	pre-Cars	1,389	1,389	0%	312.32	284.56	-9%	433,081	368,136	-64,945	-9%
		Car 1	5,425	5,425	0%	298.42	286.79	-4%	1,678,472	1,640,688	-37,784	-1%
Car 2		28,437	28,437	0%	406.84	279.91	-40%	11,563,522	6,253,531	-5,309,991	-46%	
Car 3		92,795	92,795	0%	574.33	176.67	-69%	53,284,956	16,579,373	-36,705,583	-69%	
Car 4		222,583	222,583	0%	393.55	149.27	-62%	87,598,471	33,225,566	-54,372,905	-62%	
Car 5		233,786	233,786	0%	435.42	149.27	-66%	101,787,275	34,884,788	-66,902,487	-66%	
Diesel oil total	589,131	589,131	0%	437.14	158.71	-64%	257,533,128	83,899,619	-173,633,509	-64%		
FCs Total	1,338,245	1,338,245	0%	237.40	111.77	-53%	317,723,135	146,571,356	-171,151,779	-53%		
1.A.3.a.ii. Heavy Duty Vehicles (LDV)	Gasoline	pre-Cars	981	981	0%	633.81	645.95	2%	568,320	575,293	6,973	1%
		Car 1	184	184	0%	803.50	183.22	-65%	187,281	59,328	-127,953	-65%
		Car 2	836	836	0%	274.42	291.18	21%	229,520	188,285	-41,235	-18%
		Car 3	784	784	0%	52.66	181.79	10%	72,691	79,780	7,089	10%
		Car 4	1,089	1,089	0%	43.70	48.89	12%	77,284	82,833	5,549	7%
		Car 5	965	965	0%	16.37	48.89	183%	15,187	47,288	32,101	183%
	Car 6	1	1	0%	17.66	48.89	176%	26	72	46	176%	
	Gasoline total	5,578	5,578	0%	262.86	184.67	-30%	1,137,289	1,096,727	-40,562	-4%	
	Diesel Oil	pre-Cars	2,744	2,744	0%	424.37	386.79	-9%	1,168,757	944,928	-223,829	-19%
		Car 1	2,945	2,945	0%	398.34	276.24	-30%	1,166,782	834,566	-332,216	-29%
Car 2		6,982	6,982	0%	336.92	133.28	-49%	2,340,147	1,350,674	-989,473	-42%	
Car 3		20,421	20,421	0%	568.12	150.38	-73%	11,437,995	3,070,913	-8,367,082	-73%	
Car 4		55,087	55,087	0%	497.72	90.45	-82%	27,774,440	5,048,416	-22,726,024	-82%	
Diesel oil total	29,024	29,024	0%	511.37	90.45	-82%	12,181,325	2,687,964	-9,493,361	-80%		
Car 5	41	41	0%	161.20	90.45	-40%	6,160	2,638	-3,522	-40%		
Diesel oil total	118,177	118,177	0%	488.66	114.63	-77%	57,083,523	13,656,480	-43,427,043	-76%		
LDVs Total	124,754	124,754	0%	464.14	116.63	-75%	58,214,142	14,677,216	-43,537,926	-75%		
1.A.3.a.iii. Heavy Duty Vehicles (HDV)	Diesel Oil	pre-Cars	1,172	1,172	0%	1066.69	1018.23	-5%	1,249,023	1,194,143	-54,880	-4%
		Car 1	1,054	1,054	0%	727.98	750.99	3%	766,620	731,181	-35,439	-5%
		Car 2	6,084	6,084	0%	784.07	643.48	-18%	5,734,981	4,770,721	-964,260	-17%
		Car 3	13,187	13,187	0%	626.43	586.86	-7%	12,632,580	11,980,980	-651,600	-5%
		Car 4	4,946	4,946	0%	868.55	812.70	-6%	2,279,061	2,329,714	50,653	2%
		Car 5	24,096	24,096	0%	358.88	183.44	-49%	8,435,643	4,420,134	-4,015,509	-48%
	Car 6	537	537	0%	44.76	183.44	310%	30,407	86,672	56,265	185%	
	Diesel total	51,776	51,776	0%	509.54	360.66	-29%	26,930,969	19,620,883	-7,310,086	-28%	
	Gasoline	pre-Cars	5,083	5,083	0%	1205.72	737.35	-39%	6,072,190	4,322,888	-1,749,302	-29%
		Car 1	2,985	2,985	0%	743.27	588.27	-21%	2,170,945	1,650,969	-519,976	-24%
Car 2		18,444	18,444	0%	818.17	573.47	-30%	15,089,981	9,489,975	-5,600,006	-37%	
Car 3		75,130	75,130	0%	633.53	367.33	-42%	47,581,440	27,787,590	-19,793,850	-42%	
Car 4		42,781	42,781	0%	366.90	287.37	-22%	16,936,887	12,280,770	-4,656,117	-28%	
Gasoline total	136,399	136,399	0%	361.70	212.67	-40%	132,318,154	86,776,186	-45,541,968	-35%		
Trucks Total	900,179	900,179	0%	93.87	152.65	-38%	913,082	2,750,630	1,837,548	201%		
Trucks Total	900,179	900,179	0%	93.87	287.93	-68%	211,871,351	124,188,409	-87,682,942	-41%		
1.A.3.b.i. Motorized Two-Wheelers (M2W)	Diesel Oil	pre-Cars	6,362	6,362	0%	123.57	151.79	23%	181,736	964,179	152,443	23%
		Car 1	4,013	4,013	0%	125.11	175.15	41%	582,073	694,880	112,807	30%
		Car 2	3,382	3,382	0%	132.24	195.68	48%	435,668	645,804	209,136	48%
		Car 3	4,682	4,682	0%	39.81	195.68	381%	181,610	882,175	710,565	381%
		Car 4	0	0	0%	0	0	0%	0	0	0	0%
		Car 5	0	0	0%	0	0	0%	0	0	0	0%
	Diesel total	18,229	18,229	0%	104.34	175.38	68%	1,962,085	5,187,638	3,224,553	68%	
	M2Ws Total	2,132,083	2,132,083	0%	208.88	145.35	-30%	616,079,063	390,854,371	-225,224,692	-37%	
	1.A.3.b. Road Transport											

Adjustment details for 2004

Adjustment details for 2024												
NFR Code	Fuel	Activity Data			Implied Emissions Factor			NO _x Emissions				
		current in [T]	adjusted in [T]	difference in [%]	current in [kg/T]	adjusted in [kg/T]	difference in [%]	current in [kg]	adjusted in [kg]	adjustment difference in [%]		
1.A.3.1.i - Passenger Cars	Gasoline	pre-Euro	11,607	11,607	0%	612.37	644.11	-11%	7,132,088	6,337,444	-796,644	-11%
		Euro 1	30,667	30,667	0%	36.77	243.93	-32%	11,082,246	7,480,641	-3,601,706	-32%
		Euro 2	53,486	53,486	0%	798.58	140.31	-29%	19,514,477	7,584,432	-11,930,045	-29%
		Euro 3	67,234	67,234	0%	69.31	723.93	7%	8,065,588	6,459,797	-1,605,791	-20%
		Euro 4	387,739	387,739	0%	49.18	47	-3%	19,009,445	18,266,987	-742,457	-4%
		Euro 5	171,270	171,270	0%	15.97	47.80	157%	3,183,252	6,187,591	3,004,339	157%
	Euro 6	93,215	93,215	0%	25.57	47.80	84%	267,555	433,036	165,481	62%	
	Gasoline total	752,526	752,526	0%	76.03	73.09	-4%	57,215,533	54,990,921	-2,224,612	-4%	
	Diesel Oil	pre-Euro	1,341	1,341	0%	311.73	264.56	-15%	417,967	366,326	-51,642	-12%
		Euro 1	4,082	4,082	0%	298.92	267.29	-10%	1,482,294	1,387,643	-94,651	-6%
		Euro 2	23,934	23,934	0%	406.71	220.45	-46%	9,734,484	5,276,409	-4,458,084	-46%
		Euro 3	62,749	62,749	0%	585.53	178.81	-69%	48,481,320	14,796,245	-33,685,085	-69%
		Euro 4	211,237	211,237	0%	27.27	211.77	-87%	1,547,768	32,973,743	31,425,976	2035%
		Euro 5	285,011	285,011	0%	137.77	317.68	130%	104,721,363	45,978,373	-58,742,990	-56%
	Diesel oil total	626,045	626,045	0%	235.34	151.72	-41%	4,170,560	2,440,406	-1,729,154	-41%	
PCs total	1,338,571	1,338,571	0%	239.44	120.15	-51%	33,001,584	15,645,283	-17,356,301	-53%		
Gasoline	pre-Euro	980	980	0%	634.74	645.56	2%	568,683	576,724	8,041	1%	
	Euro 1	173	173	0%	868.27	389.96	-54%	150,074	53,675	-96,409	-64%	
	Euro 2	148	148	0%	284.73	287.11	21%	212,880	154,839	-58,042	-27%	
	Euro 3	171	171	0%	98.62	185.21	1%	75,592	81,670	6,078	8%	
	Euro 4	1,067	1,067	0%	43.47	50.15	15%	81,139	83,616	2,476	3%	
	Euro 5	1,374	1,374	0%	17.41	50.15	193%	23,617	60,916	37,299	158%	
Euro 6	17	17	0%	18.06	50.15	179%	312	670	357	115%		
Gasoline total	5,845	5,845	0%	994.34	776.49	-23%	5,112,584	4,011,452	-1,101,132	-22%		
Diesel Oil	pre-Euro	2,537	2,537	0%	428.16	389.79	-10%	5,085,979	776,259	-4,309,720	-85%	
	Euro 1	2,588	2,588	0%	393.62	275.25	-30%	987,136	539,880	-447,256	-45%	
	Euro 2	6,087	6,087	0%	438.81	193.25	-42%	3,985,995	1,180,889	-2,805,106	-70%	
	Euro 3	19,220	19,220	0%	571.75	150.68	-74%	19,417,076	2,744,056	-16,673,020	-86%	
	Euro 4	52,381	52,381	0%	698.70	81.89	-88%	35,464,485	4,780,194	-30,684,291	-86%	
	Euro 5	167,149	167,149	0%	438.44	81.89	-81%	29,486,234	4,268,626	-25,217,608	-86%	
Diesel oil total	128,528	128,528	0%	475.56	150.94	-71%	55,148,525	5,261,237	-50,887,288	-92%		
LDNs total	134,423	134,423	0%	463.16	113.81	-75%	62,699,160	10,907,489	-51,791,671	-83%		
1.A.3.1.ii - Heavy Duty Vehicles (HDV)	Diesel Oil	pre-Euro	984	984	0%	1069.48	1919.23	0%	1,052,364	1,082,921	29,557	3%
		Euro 1	837	837	0%	728.12	730.98	0%	609,232	628,309	19,077	3%
		Euro 2	5,596	5,596	0%	704.36	645.67	-10%	4,394,320	3,633,441	-760,887	-17%
		Euro 3	11,221	11,221	0%	673.20	668.08	-37%	7,080,740	5,145,520	-1,935,220	-28%
		Euro 4	4,270	4,270	0%	461.93	351.73	-24%	1,937,643	1,484,919	-452,724	-24%
		Euro 5	22,042	22,042	0%	354.55	183.99	-49%	7,726,951	4,655,332	-3,071,619	-40%
	Euro 6	4,182	4,182	0%	42.78	183.99	300%	178,913	796,475	617,562	300%	
	Buses total	49,143	49,143	0%	468.37	339.99	-27%	23,017,155	16,708,234	-6,308,921	-27%	
	pre-Euro	4,782	4,782	0%	1034.34	737.35	-29%	4,945,942	3,525,808	-1,420,134	-29%	
	Euro 1	2,285	2,285	0%	748.06	581.41	-22%	1,650,680	1,237,759	-412,948	-25%	
Euro 2	13,629	13,629	0%	817.90	510.38	-30%	11,146,069	6,955,738	-4,191,131	-30%		
Euro 3	54,685	54,685	0%	632.52	364.37	-42%	34,589,677	19,927,830	-14,661,847	-42%		
Euro 4	16,037	16,037	0%	796.37	285.34	-60%	13,681,150	9,087,988	-4,593,162	-60%		
Euro 5	389,269	389,269	0%	363.82	151.73	-59%	118,712,782	59,846,665	-58,866,117	-59%		
Euro 6	74,214	74,214	0%	61.95	153.65	168%	3,937,089	11,568,592	7,631,413	194%		
Trucks total	572,754	572,754	0%	513.85	396.65	-23%	339,834,133	172,289,562	-167,544,571	-49%		
1.A.3.1.iii - Heavy Duty Vehicles & Tractors & Lorries	Diesel Oil	pre-Euro	6,185	6,185	0%	122.85	150.04	20%	766,185	974,368	218,182	29%
		Euro 1	3,037	3,037	0%	124.71	174.84	40%	478,514	670,859	192,346	40%
		Euro 2	3,365	3,365	0%	128.94	196.25	52%	433,674	660,730	226,504	52%
		Euro 3	5,365	5,365	0%	39.53	196.25	390%	269,772	1,061,189	791,417	366%
		Euro 4	0	0	0%	0	0	0%	0	0	0	0%
Euro 5	0	0	0%	0	0	0%	0	0	0	0%		
MDNs total	18,637	18,637	0%	108.96	176.24	61%	1,838,254	3,346,794	1,488,499	18%		
1.A.3.b - Road Transport	Total	2,153,563	2,153,563	0%	27,227	140.35	-68%	597,140,287	362,252,271	-234,888,025	-40%	

Adjustment details for 2015

Adjustment details for 2025													
NFR Code	Fuel	Activity Data				Implied Emissions				NO _x Emissions			
		current	adjusted	difference	in %	current	adjusted	difference	in %	current	adjusted	adjustment	difference
		in T/a	in T/a	in T/a	in %	in kg/Ta	in kg/Ta	in kg/Ta	in %	in kg	in kg	in kg	in %
1.A.3.b.i - Passenger Cars	Gasoline	pre-Cars	11,380	11,380	0%	633.23	644.11	-14%	7,206,112	6,191,942	-1,014,169	-14%	
		Ears 1	24,112	24,112	31%	371.34	245.71	-34%	8,953,081	5,904,574	-3,048,508	-34%	
		Ears 2	42,905	42,905	32%	207.78	142.08	-32%	8,938,785	5,698,650	-3,240,135	-32%	
		Ears 3	72,971	72,971	37%	73.85	74.74	1%	5,391,361	5,446,237	54,876	1%	
		Ears 4	363,474	363,474	47%	62.36	49.02	-21%	18,485,037	17,398,421	-1,086,616	-6%	
		Ears 5	180,783	180,783	3%	19.11	49.02	157%	3,464,481	6,081,456	2,616,975	157%	
	Ears 6	29,612	29,612	0%	25.70	49.02	84%	700,781	1,451,432	650,750	84%		
	Gasoline total	715,156	715,156	0%	34.38	71.73	4%	53,980,197	51,380,983	-2,600,806	-5%		
	Diesel Oil	pre-Cars	1,282	1,282	0%	314.33	264.56	-16%	387,917	339,733	-48,184	-12%	
		Ears 1	4,219	4,219	21%	298.14	267.64	-10%	1,261,500	1,129,889	-131,611	-10%	
		Ears 2	19,689	19,689	0%	407.90	220.36	-46%	8,013,587	4,338,719	-3,674,868	-46%	
		Ears 3	71,044	71,044	4%	595.91	179.04	-70%	42,271,648	12,719,962	-29,551,686	-70%	
		Ears 4	192,410	192,410	4%	401.42	154.07	-62%	17,237,055	20,644,450	3,407,395	20%	
		Ears 5	364,346	364,346	4%	432.47	154.07	-65%	122,280,453	46,980,244	-75,300,209	-62%	
Ears 6	52,576	52,576	0%	319.76	154.07	-51%	13,657,062	6,180,304	-7,476,758	-51%			
Diesel oil total	645,565	645,565	0%	468.19	199.69	-57%	275,132,238	163,163,511	-111,968,727	-57%			
PCs total	1,360,721	1,360,721	0%	246.28	115.52	-53%	308,321,600	154,484,484	-153,836,516	-53%			
1.A.3.b.ii - Heavy Duty Vehicles (HDVs)	Gasoline	pre-Cars	979	979	0%	654.37	645.96	-1%	5,375,380	547,977	-4,827,403	-91%	
		Ears 1	150	150	0%	895.83	311.93	-65%	134,523	46,851	-87,672	-65%	
		Ears 2	629	629	2%	298.27	212.94	-29%	187,533	133,879	-53,654	-29%	
		Ears 3	771	771	3%	105.58	186.62	78%	73,369	76,155	2,786	3%	
		Ears 4	1,720	1,720	2%	47.96	51.30	6%	80,558	86,248	5,726	7%	
		Ears 5	1,620	1,620	3%	18.41	51.30	179%	29,812	83,686	53,874	179%	
	Ears 6	84	84	0%	19.71	51.30	174%	1,752	4,894	3,142	174%		
	Gasoline total	5,763	5,763	0%	582.52	122.88	-8%	5,883,597	1,680,990	-4,202,587	-72%		
	Diesel Oil	pre-Cars	2,323	2,323	0%	418.91	589.79	40%	968,185	172,531	-795,654	-82%	
		Ears 1	2,186	2,186	1%	391.47	216.25	-45%	834,270	453,227	-381,043	-54%	
		Ears 2	5,025	5,025	0%	334.81	133.25	-49%	1,632,295	971,296	-660,998	-40%	
		Ears 3	15,781	15,781	0%	588.26	150.67	-74%	3,112,414	2,385,713	-726,701	-24%	
		Ears 4	47,480	47,480	0%	501.73	81.74	-84%	23,782,396	3,680,298	-19,402,098	-84%	
		Ears 5	62,516	62,516	0%	369.73	81.74	-78%	27,089,214	5,498,250	-21,590,964	-82%	
Ears 6	635	635	0%	154.91	81.74	-47%	87,758	46,851	-40,907	-47%			
Diesel oil total	135,584	135,584	0%	404.35	187.94	-71%	63,565,443	16,601,490	-46,963,953	-73%			
LDVs total	141,098	141,098	0%	497.76	110.62	-81%	64,568,530	15,688,480	-48,880,051	-74%			
1.A.3.b.iii - Heavy Duty Vehicles (HDVs)	Gasoline	pre-Cars	979	979	0%	1070.34	1019.23	-5%	1,048,372	990,255	-58,116	-6%	
		Ears 1	747	747	7%	738.26	715.91	-3%	564,471	581,636	16,965	3%	
		Ears 6	5,211	5,211	0%	707.43	644.45	-9%	4,183,087	3,588,604	-594,483	-14%	
		Ears 11	11,262	11,262	0%	633.90	456.67	-28%	7,141,732	5,174,590	-1,966,822	-28%	
		Ears IV	6,586	6,586	0%	888.70	361.59	-59%	2,156,086	1,614,177	-541,909	-25%	
		Ears V	26,267	26,267	0%	369.73	154.19	-49%	8,737,648	4,477,641	-4,260,007	-49%	
	Ears VI	5,234	5,234	0%	63.13	181.78	287%	277,542	964,225	686,684	287%		
	Diesel total	52,897	52,897	0%	498.86	327.99	-29%	23,997,871	17,149,448	-6,848,316	-29%		
	Diesel Oil	pre-Cars	4,319	4,319	0%	1034.63	737.35	-29%	4,468,571	3,184,428	-1,284,143	-29%	
		Ears I	1,063	1,063	0%	748.71	563.48	-24%	1,387,291	1,025,551	-361,740	-26%	
		Ears II	11,082	11,082	0%	817.90	587.50	-29%	9,072,940	6,633,460	-2,439,301	-28%	
		Ears III	43,481	43,481	0%	631.55	361.64	-43%	27,460,779	15,724,621	-11,736,147	-43%	
		Ears IV	29,233	29,233	0%	366.88	263.72	-28%	11,572,860	8,294,180	-3,278,680	-28%	
		Ears V	309,726	309,726	0%	264.17	163.48	-38%	83,413,973	50,456,496	-32,957,477	-39%	
Trucks total	730,718	730,718	0%	672.48	418.19	-38%	9,913,154	56,292,416	46,379,262	468%			
Trucks total	589,411	589,411	0%	264.89	187.55	-30%	187,889,625	130,562,373	-46,880,973	-25%			
1.A.3.b.iv - Motorized Two-Wheelers (M2Ws)	pre-Cars	5,744	5,744	0%	125.41	117.28	-2%	720,441	983,470	163,028	23%		
	Ears 1	3,517	3,517	0%	127.40	176.22	38%	448,086	619,819	171,733	38%		
	Ears 2	3,382	3,382	0%	127.35	196.50	55%	430,660	685,965	236,305	55%		
	Ears 3	5,011	5,011	0%	49.29	196.50	389%	236,125	1,144,415	918,289	389%		
	Ears 4	0	0	0%	16.96		-100%	0	894	735	1001%		
	Ears 5	0	0	0%			0%	0	0	0	0%		
M2Ws total	18,659	18,659	0%	99.32	180.65	82%	1,833,982	5,334,472	3,500,490	82%			
1.A.3.b Road Transport Total		2,161,502	2,161,502	0%	264.39	139.26	-48%	575,931,265	381,607,396	-194,323,870	-34%		

Adjustment details for 2026

NFR Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions			
		current	adjusted	difference	current	adjusted	difference	current	adjusted	difference	
		in [t]	in [t]	in [%]	in [g/t]	in [g/t]	in [%]	in [t]	in [t]	in [%]	
1.A.3.a.i - Passenger Cars	Gasoline	pre-Cars	11,782	11,782	0%	634.75	644.11	-14%	7,470,914	6,410,967	-1,059,947
		Car 1	20,270	20,270	0%	372.25	201.68	-35%	7,545,483	4,988,888	-2,556,595
		Car 2	36,062	36,062	0%	212.73	143.11	-33%	7,671,581	5,180,897	-2,490,684
		Car 3	83,039	83,039	0%	76.17	75.50	-1%	4,881,482	4,759,259	-122,223
		Car 4	334,413	334,413	0%	53.74	50.17	-7%	17,369,364	16,777,445	-591,919
		Car 5	183,374	183,374	0%	19.09	50.17	163%	3,580,745	9,189,834	5,609,089
		Car 6	66,332	66,332	0%	26.67	50.17	88%	1,768,917	3,327,855	1,558,938
	Gasoline total	715,272	715,272	0%	78.93	70.65	-10%	58,736,267	50,535,049	-8,201,218	
	Diesel Oil	pre-Cars	1,280	1,280	0%	308.76	264.56	-14%	386,262	339,172	-47,090
		Car 1	3,749	3,749	0%	1,122.49	1,011.62	-10%	1,122,449	1,011,626	-111,423
		Car 2	16,584	16,584	0%	407.19	221.43	-46%	6,720,132	3,653,964	-3,066,168
		Car 3	81,398	81,398	0%	802.50	179.24	-78%	36,981,999	11,085,409	-25,896,590
		Car 4	175,940	175,940	0%	405.76	156.24	-61%	71,362,220	27,474,086	-43,888,134
Car 5		299,654	299,654	0%	433.34	156.24	-64%	130,032,044	46,019,229	-83,912,815	
1.A.3.b.i - Heavy Duty Vehicles (HDV)	Gasoline	pre-Cars	116,084	116,084	0%	268.75	156.24	-41%	30,427,555	10,232,785	-20,194,770
		Car 1	425,119	425,119	0%	418.36	160.76	-61%	277,947,660	188,535,230	-89,412,430
		Car 2	1,380,391	1,380,391	0%	235.75	154.41	-35%	327,778,627	199,070,280	-128,708,347
		Car 3	910	910	0%	602.79	645.95	-7%	593,186	587,543	-5,643
		Car 4	136	136	0%	908.31	312.78	-66%	122,126	42,425	-79,701
		Car 5	540	540	0%	308.39	217.84	-29%	162,311	117,737	-44,574
		Car 6	650	650	0%	108.43	111.57	-3%	70,432	72,731	2,299
	Diesel Oil	pre-Cars	1,684	1,684	0%	43.06	52.36	7%	78,714	84,003	5,289
		Car 1	1,724	1,724	0%	19.82	52.36	164%	34,157	80,258	46,101
		Car 2	363	363	0%	19.85	52.36	181%	6,764	19,992	13,228
		Car 3	5,506	5,506	0%	588.27	171.66	-7%	1,068,292	1,013,478	-54,814
		Car 4	2,189	2,189	0%	414.81	386.79	-7%	899,849	846,433	-53,416
		Car 5	1,780	1,780	0%	391.89	276.25	-29%	780,189	585,371	-194,788
1.A.3.b.ii - Heavy Duty Vehicles (HDV) Trucks & Lorries	Gasoline	pre-Cars	4,223	4,223	0%	323.43	153.31	-53%	1,365,994	676,452	-689,542
		Car 1	13,582	13,582	0%	588.91	150.77	-74%	8,064,323	2,940,233	-5,124,090
		Car 2	43,141	43,141	0%	504.48	32.40	-93%	21,783,989	3,986,141	-17,797,848
		Car 3	74,231	74,231	0%	434.16	32.40	-93%	32,223,283	6,688,780	-25,534,503
		Car 4	4,921	4,921	0%	113.49	32.40	-71%	755,285	454,676	-300,609
		Car 5	148,068	148,068	0%	454.12	185.62	-59%	65,712,732	15,256,007	-50,456,725
		Car 6	148,994	148,994	0%	445.23	188.29	-58%	66,781,025	16,271,484	-50,509,541
	Diesel Oil	pre-Cars	881	881	0%	1076.81	1319.23	-2%	564,197	588,234	24,037
		Car 1	583	583	0%	731.36	732.67	0%	433,675	446,236	12,561
		Car 2	4,375	4,375	0%	708.25	645.03	-9%	3,440,614	2,822,621	-617,993
		Car 3	10,333	10,333	0%	632.87	458.91	-27%	6,539,364	4,741,827	-1,797,537
		Car 4	4,449	4,449	0%	475.90	382.29	-20%	2,117,219	1,686,881	-430,338
		Car 5	34,380	34,380	0%	366.36	185.22	-49%	8,935,974	4,517,517	-4,418,457
1.A.3.b.iii - Heavy Duty Vehicles (HDV) Trucks & Lorries	Gasoline	pre-Cars	9,126	9,126	0%	62.79	185.22	196%	573,066	1,680,431	1,107,365
		Car 1	54,157	54,157	0%	404.73	388.24	-2%	23,082,189	16,885,117	-6,197,072
		Car 2	3,933	3,933	0%	1,034.81	737.35	-29%	4,087,249	2,980,379	-1,106,870
		Car 3	1,555	1,555	0%	748.16	587.92	-21%	1,163,482	789,813	-373,669
		Car 4	8,876	8,876	0%	817.75	585.42	-28%	7,258,047	4,486,626	-2,771,421
		Car 5	34,167	34,167	0%	638.91	568.04	-11%	21,553,280	12,251,155	-9,302,125
		Car 6	34,287	34,287	0%	396.94	281.86	-29%	9,640,364	6,885,621	-2,754,743
	Diesel Oil	pre-Cars	269,735	269,735	0%	287.22	153.60	-46%	74,680,233	39,976,610	-34,703,623
		Car 1	281,480	281,480	0%	61.77	153.60	149%	16,149,280	40,304,036	24,154,756
		Car 2	5,543	5,543	0%	125.59	155.78	24%	696,072	883,289	187,217
		Car 3	3,360	3,360	0%	127.11	177.29	39%	427,113	585,796	158,683
		Car 4	3,375	3,375	0%	125.94	187.68	50%	421,961	687,078	265,117
		Car 5	6,443	6,443	0%	48.36	187.68	281%	209,627	1,273,671	1,064,044
1.A.3.b.iv - Motorized Two-Wheelers (M2W)	Gasoline	pre-Cars	85	85	0%	17.47	187.68	1031%	1,134	12,632	11,498
		Car 1	0	0	0%	0	0	0%	0	0	0
		Car 2	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 3	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 4	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 5	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 6	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
	M2Ws Total	pre-Cars	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 1	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 2	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 3	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 4	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 5	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
1.A.3.b.v - Road Transport	Gasoline	pre-Cars	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 1	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 2	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 3	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 4	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 5	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 6	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
	M2Ws Total	pre-Cars	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 1	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 2	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 3	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 4	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 5	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
1.A.3.b.vi - Road Transport	Gasoline	pre-Cars	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 1	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 2	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 3	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 4	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 5	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 6	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
	M2Ws Total	pre-Cars	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 1	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 2	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 3	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 4	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 5	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
1.A.3.b.vii - Road Transport	Gasoline	pre-Cars	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 1	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 2	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 3	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 4	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 5	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 6	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
	M2Ws Total	pre-Cars	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 1	18,185	18,185	0%	95.14	181.68	89%	1,885,897	3,452,476	1,566,579
		Car 2	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 3	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 4	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778
		Car 5	2,287,339	2,287,339	0%	258.89	137.22	-46%	553,799,598	362,981,820	-190,817,778

Adjustment details for 2027

NFR Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions				
		current	adjusted	difference	current	adjusted	difference	current	adjusted	difference		
		in [t]	in [t]	in [%]	in [g/t]	in [g/t]	in [%]	in [t]	in [t]	in [%]		
1.A.3.a.i - Passenger Cars	Gasoline	pre-Cars	12,282	12,282	0%	636.73	644.11	-9%	7,814,267	6,680,187	-1,134,080	
		Car 1	17,449	17,449	0%	372.96	341.68	-36%	6,588,311	4,217,644	-2,370,667	
		Car 2	30,435	30,435	0%	217.43	141.75	-35%	6,617,570	4,314,140	-2,303,430	
		Car 3	54,271	54,271	0%	78.48	76.27	-3%	4,254,938	4,139,376	-115,562	
		Car 4	315,086	315,086	0%	54.96	51.26	-7%	17,316,320	16,511,881	-804,439	
		Car 5	180,240	180,240	0%	19.17	51.26	167%	3,485,382	9,239,815	5,754,433	
		Car 6	114,791	114,791	0%	26.66	51.26	92%	3,063,235	5,884,372	2,821,137	
		Gasoline total	724,571	724,571	0%	87.66	80.88	-8%	49,046,874	40,534,474	-8,512,400	
	Diesel Oil	pre-Cars	1,370	1,370	0%	368.96	254.56	-31%	386,963	341,626	-45,337	
		Car 1	3,360	3,360	0%	298.17	271.67	-9%	1,082,288	910,182	-172,106	
		Car 2	13,788	13,788	0%	407.17	222.43	-46%	5,914,130	3,066,393	-2,847,737	
		Car 3	52,128	52,128	0%	808.95	179.65	-78%	31,696,478	9,364,788	-22,331,690	
		Car 4	187,947	187,947	0%	418.16	158.34	-61%	64,733,485	24,983,323	-39,750,162	
1.A.3.b.i - Heavy Duty Vehicles (HDV)	Gasoline	Car 5	283,480	283,480	0%	423.99	158.34	-63%	120,187,695	44,873,190	-75,314,505	
		Car 6	184,768	184,768	0%	262.61	158.34	-40%	48,521,183	29,255,985	-19,265,198	
		Diesel oil total	686,562	686,562	0%	394.65	161.95	-59%	272,126,081	112,890,717	-159,235,364	
		Flx Total	1,421,142	1,421,142	0%	245.98	155.61	-36%	521,152,955	163,425,191	-357,727,764	
		Diesel Oil	pre-Cars	940	940	0%	611.41	645.95	-7%	612,247	596,878	-15,369
			Car 1	124	124	0%	908.23	312.78	-66%	112,083	39,682	-72,401
			Car 2	485	485	0%	302.12	221.62	-27%	140,344	102,950	-37,394
			Car 3	596	596	0%	118.57	115.36	-3%	65,955	68,812	2,857
	Car 4		1,476	1,476	0%	58.72	53.38	-9%	74,877	78,816	3,939	
	Car 5		1,680	1,680	0%	21.73	53.38	146%	35,240	89,034	53,794	
	Car 6		910	910	0%	19.18	53.38	187%	17,052	49,080	32,028	
	Gasoline total		6,186	6,186	0%	171.55	167.18	-2%	1,058,799	1,034,211	-24,588	
	Diesel Oil	pre-Cars	2,067	2,067	0%	413.41	386.79	-7%	860,499	811,163	-49,336	
Car 1		1,538	1,538	0%	398.47	276.25	-30%	680,795	511,158	-169,637		
Car 2		3,580	3,580	0%	321.26	153.04	-53%	1,143,793	687,293	-456,500		
Car 3		11,684	11,684	0%	595.30	150.79	-75%	6,940,879	1,758,747	-5,182,132		
Car 4		39,050	39,050	0%	506.70	33.69	-93%	19,789,647	3,635,035	-16,154,612		
Car 5		75,789	75,789	0%	432.66	33.69	-92%	32,790,965	7,054,945	-25,736,020		
Car 6		19,625	19,625	0%	151.71	33.69	-78%	2,977,439	1,026,876	-1,950,563		
Diesel oil total		153,284	153,284	0%	404.66	183.89	-55%	65,083,900	26,948,714	-38,135,186		
1.A.3.b.ii - Heavy Duty Vehicles (HDV)	Diesel Oil	LDV total	199,470	199,470	0%	414.83	186.35	-74%	66,152,129	16,969,427	-49,182,702	
		pre-Cars	736	736	0%	707.33	193.23	-73%	790,259	750,425	-39,834	
		Car 1	411	411	0%	721.97	352.57	-51%	380,684	389,062	8,408	
		Car 2	3,325	3,325	0%	797.91	362.49	-55%	2,820,887	1,247,480	-1,573,407	
		Car 3	8,578	8,578	0%	621.37	459.12	-26%	4,478,440	2,948,717	-1,529,723	
		Car 4	3,823	3,823	0%	474.97	345.79	-27%	1,952,180	1,347,630	-604,550	
		Car 5	21,913	21,913	0%	363.93	185.64	-49%	7,937,974	4,063,646	-3,874,329	
		Car 6	16,686	16,686	0%	68.52	185.84	270%	86,215	272,590	186,375	
	Buses Total	53,382	53,382	0%	318.80	280.71	-23%	19,793,981	15,384,828	-4,409,153		
	Trucks & Lorries	pre-Cars	3,686	3,686	0%	1,034.40	713.35	-29%	3,730,272	2,659,676	-1,070,596	
		Car 1	1,311	1,311	0%	748.03	468.38	-37%	980,942	614,151	-366,790	
		Car 2	7,087	7,087	0%	817.66	583.45	-30%	5,746,836	3,580,026	-2,166,810	
		Car 3	26,886	26,886	0%	838.17	350.72	-44%	15,942,611	9,583,881	-6,358,729	
Car 4		90,082	90,082	0%	797.77	276.34	-30%	7,666,416	4,679,166	-2,987,250		
Car 5		186,265	186,265	0%	366.16	154.36	-41%	19,280,799	11,536,367	-7,744,432		
Car 6		396,065	396,065	0%	66.82	154.35	131%	3,985,366	41,798,611	37,813,245		
Trucks Total		598,263	598,263	0%	595.82	179.92	-96%	116,611,141	105,268,508	-11,342,633		
1.A.3.b.iii - Motorized Two-Wheelers (MWV)	Gasoline	pre-Cars	5,330	5,330	0%	125.91	157.19	25%	671,885	830,789	158,903	
		Car 1	3,257	3,257	0%	126.39	177.86	41%	411,617	579,244	167,627	
		Car 2	3,396	3,396	0%	122.55	180.33	48%	415,280	673,548	258,268	
		Car 3	6,741	6,741	0%	40.22	180.33	350%	271,187	1,336,956	1,065,769	
		Car 4	430	430	0%	19.29	180.33	983%	7,862	86,270	78,408	
		Car 5	0	0	0%	0.00		0%	0	0	0	
		MWV total	19,160	19,160	0%	92.83	183.39	96%	5,788,674	5,653,187	-134,487	
		Road Transport Total	2,291,437	2,291,437	0%	234.33	135.23	-42%	525,545,490	384,486,958	-141,058,532	

Adjustment details for 2018

ACTIVITY DATA												
NFR Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions				
		current	adjusted	difference	current	adjusted	difference	current	adjusted	adjustment	difference	
		in [t]	in [t]	in [%]	in [g/t]	in [g/t]	in [%]	in [kg]	in [kg]	in [%]	in [%]	
1.A.3.a.i - Passenger Cars	Gasoline	pre-Cars	12,219	12,219	0%	637.58	644.11	-65%	7,780,965	6,648,721	-1,132,234	-55%
		Car 1	14,362	14,362	0%	374.34	341.68	-36%	5,371,161	3,448,643	-1,922,518	-36%
		Car 2	34,285	34,285	0%	221.97	111.68	-60%	5,360,977	2,688,163	-2,672,814	-50%
		Car 3	43,642	43,642	0%	88.16	76.96	-4%	3,487,781	3,358,617	-139,164	-4%
		Car 4	278,738	278,738	0%	55.98	52.30	-7%	15,683,488	14,576,755	-1,106,733	-7%
		Car 5	186,830	186,830	0%	19.35	52.30	170%	3,228,282	8,725,688	5,497,406	170%
	Car 6	193,041	193,041	0%	6.00	52.30	0%	4,190,422	8,718,250	4,527,828	89%	
	Gasoline total	689,027	689,027	0%	64.42	68.36	6%	45,032,966	47,186,817	2,153,851	5%	
	Diesel Oil	pre-Cars	1,363	1,363	0%	303.16	264.96	-16%	171,851	345,173	173,322	101%
		Car 1	2,849	2,849	0%	298.17	272.65	-9%	862,432	775,165	-87,267	-9%
		Car 2	10,784	10,784	0%	407.20	222.87	-45%	4,391,383	2,483,536	-1,907,848	-45%
		Car 3	40,786	40,786	0%	812.49	180.15	-71%	24,932,029	7,333,241	-17,598,788	-71%
		Car 4	130,534	130,534	0%	414.71	180.40	-51%	54,133,837	20,937,329	-33,196,508	-51%
		Car 5	251,212	251,212	0%	416.25	180.40	-51%	104,585,786	40,253,731	-64,332,055	-51%
Car 6	228,685	228,685	0%	254.87	180.40	-31%	58,284,140	35,680,446	-22,603,694	-31%		
Diesel oil total	666,074	666,074	0%	375.66	163.38	-56%	247,596,063	188,748,684	-158,847,459	-56%		
FCs Total	1,365,101	1,365,101	0%	214.34	154.68	-28%	262,589,060	156,555,421	-106,033,639	-40%		
Gasoline	pre-Cars	911	911	0%	944.51	645.95	-31%	596,851	582,652	-14,199	-2%	
	Car 1	188	188	0%	911.58	312.78	-66%	98,528	33,895	-64,633	-66%	
	Car 2	377	377	0%	303.84	224.45	-26%	114,682	84,713	-29,969	-26%	
	Car 3	511	511	0%	111.92	116.84	4%	57,282	60,739	3,457	6%	
	Car 4	1,275	1,275	0%	52.02	54.36	4%	65,290	69,278	3,988	4%	
	Car 5	1,483	1,483	0%	23.70	54.36	129%	35,160	80,626	45,466	129%	
Car 6	1,643	1,643	0%	19.18	54.36	182%	39,550	89,326	49,776	182%		
Gasoline total	6,315	6,315	0%	154.22	160.11	4%	999,199	1,011,138	11,939	1%		
1.A.3.b.i - Light Duty Vehicles (LDVs)	Gasoline	pre-Cars	1,872	1,872	0%	411.51	386.79	-6%	771,337	574,742	-196,595	-26%
		Car 1	1,285	1,285	0%	389.94	276.25	-29%	483,129	272,286	-210,843	-44%
		Car 2	2,942	2,942	0%	318.56	193.88	-39%	965,389	550,789	-414,599	-43%
		Car 3	9,383	9,383	0%	558.10	150.74	-73%	5,689,152	1,411,297	-4,277,855	-75%
		Car 4	33,232	33,232	0%	508.42	93.81	-82%	16,929,185	3,117,457	-13,811,728	-82%
		Car 5	66,283	66,283	0%	432.92	93.81	-78%	28,684,080	6,217,860	-22,466,220	-78%
	Car 6	39,482	39,482	0%	158.79	93.81	-41%	5,941,615	3,686,228	-2,255,387	-38%	
	Diesel oil total	154,259	154,259	0%	384.71	182.69	-53%	98,344,525	55,880,318	-42,464,207	-53%	
	LDVs Total	180,574	180,574	0%	375.80	184.94	-52%	69,343,125	96,851,449	27,508,324	40%	
1.A.3.b.ii - Heavy Duty Vehicles - Buses	Diesel Oil	pre-Cars	547	547	0%	1078.15	1919.23	-43%	589,267	557,147	-32,120	-5%
		Car 1	237	237	0%	732.77	132.57	-82%	173,678	138,368	-35,310	-20%
		Car 2	2,270	2,270	0%	787.83	646.33	-18%	1,780,686	1,487,437	-293,249	-16%
		Car 3	6,757	6,757	0%	638.89	459.32	-27%	4,262,734	3,183,482	-1,079,252	-27%
		Car 4	3,043	3,043	0%	473.16	382.73	-19%	1,439,790	1,073,333	-366,457	-25%
		Car 5	18,189	18,189	0%	362.42	186.37	-49%	6,463,265	3,375,016	-3,088,249	-48%
		Car 6	20,670	20,670	0%	64.89	186.37	288%	1,176,026	3,682,314	2,506,288	288%
		Buses Total	51,634	51,634	0%	309.75	283.53	-9%	15,993,526	13,687,186	-2,306,340	-15%
	Diesel Oil	pre-Cars	3,262	3,262	0%	1034.82	737.35	-29%	3,375,359	2,485,071	-890,288	-27%
		Car 1	1,094	1,094	0%	747.82	488.39	-31%	818,052	512,378	-305,674	-37%
Car 2	5,544	5,544	0%	817.44	581.68	-29%	4,532,180	2,781,516	-1,750,664	-39%		
Car 3	20,583	20,583	0%	629.54	563.68	-10%	12,367,751	7,277,279	-5,090,472	-44%		
Car 4	15,912	15,912	0%	358.89	276.23	-23%	6,334,421	4,386,424	-1,947,997	-31%		
Car 5	154,983	154,983	0%	250.40	154.68	-38%	45,964,153	24,283,389	-21,680,764	-47%		
Car 6	381,799	381,799	0%	68.78	154.68	125%	28,251,482	69,665,886	41,414,404	146%		
Trucks Total	585,186	585,186	0%	515.18	172.19	-66%	188,173,537	180,760,889	-7,412,648	-4%		
1.A.3.b.iii - Motorized Two-Wheelers (M2Ws)	Gasoline	pre-Cars	4,940	4,940	0%	128.95	188.61	46%	622,656	783,451	160,795	26%
		Car 1	2,966	2,966	0%	128.14	177.73	41%	374,114	527,294	153,180	41%
		Car 2	3,221	3,221	0%	128.33	188.64	46%	387,596	639,833	252,237	65%
		Car 3	6,241	6,241	0%	48.24	188.64	384%	25,126	1,239,686	988,560	384%
		Car 4	1,130	1,130	0%	58.41	188.64	873%	23,066	224,582	201,516	873%
Car 5	0	0	0%	0.00	188.61	0%	0	0	0	0%		
M2Ws Total	18,487	18,487	0%	85.68	188.61	188%	1,658,558	3,454,167	1,795,609	188%		
1.A.3.b - Road Transport		2,180,983	2,180,983	0%	215.85	133.49	-38%	478,758,286	291,129,612	-187,628,674	-38%	

Adjustment details for 2019

Detailed Data for 2022												
NFR Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions				
		current	adjusted	difference	current	adjusted	difference	current	adjusted	difference		
		in [t]	in [t]	in [%]	in [g/t]	in [g/t]	in [%]	in [kg]	in [kg]	in [%]		
1.A.3.a.i - Passenger Cars	Gasoline	pre-Cars	13,648	13,648	0%	638.58	644.11	-55%	8,664,621	7,382,686	-1,281,935	-55%
		Car 1	12,427	12,427	0%	378.32	341.68	-36%	4,781,480	3,083,383	-1,698,096	-36%
		Car 2	20,086	20,086	0%	225.58	92.59	-59%	4,531,070	1,858,018	-2,672,852	-59%
		Car 3	38,216	38,216	0%	82.22	76.12	-7%	2,977,840	2,829,186	-148,654	-5%
		Car 4	295,220	295,220	0%	57.04	53.29	-7%	14,588,285	13,589,621	-998,664	-7%
		Car 5	180,537	180,537	0%	19.77	53.29	170%	3,173,728	8,584,356	5,410,628	170%
		Car 6	285,636	285,636	0%	25.63	53.29	180%	5,285,099	11,010,782	5,725,683	180%
	Gasoline total	784,031	784,031	0%	62.36	68.45	10%	43,961,941	48,238,025	4,276,084	10%	
	Diesel Oil	pre-Cars	2,736	2,736	0%	313.70	264.96	-16%	913,180	724,921	-188,259	-21%
		Car 1	2,845	2,845	0%	298.16	272.65	-9%	786,913	687,786	-99,127	-13%
		Car 2	8,891	8,891	0%	407.19	222.16	-44%	3,620,286	2,037,480	-1,582,806	-44%
		Car 3	33,079	33,079	0%	815.11	180.42	-71%	20,310,125	5,967,483	-14,342,642	-71%
		Car 4	111,335	111,335	0%	419.17	182.44	-51%	48,688,685	18,085,228	-30,603,457	-51%
		Car 5	231,784	231,784	0%	419.37	182.44	-50%	95,117,643	37,650,997	-57,466,646	-51%
		Car 6	273,511	273,511	0%	227.36	182.44	-20%	62,183,230	44,429,184	-17,754,046	-29%
	Diesel oil total	663,841	663,841	0%	345.81	165.67	-52%	229,566,088	189,582,982	-139,983,106	-52%	
	FCs Total	1,368,532	1,368,532	0%	699.83	155.32	-78%	273,668,029	157,821,007	-115,847,022	-42%	
	Gasoline	pre-Cars	909	909	0%	644.89	645.95	1%	687,449	581,952	-105,497	-15%
		Car 1	87	87	0%	915.20	312.78	-66%	88,953	30,396	-58,557	-66%
Car 2		316	316	0%	304.63	224.45	-26%	95,158	70,848	-24,310	-26%	
Car 3		447	447	0%	112.68	121.47	8%	59,355	54,283	-5,072	-8%	
Car 4		1,126	1,126	0%	53.08	55.26	4%	59,652	62,199	2,547	4%	
Car 5		1,361	1,361	0%	25.34	55.26	180%	34,240	74,680	40,440	180%	
Car 6		2,420	2,420	0%	18.75	55.26	180%	45,383	133,753	88,370	180%	
Gasoline total		6,483	6,483	0%	144.88	153.25	5%	974,279	1,044,150	69,871	5%	
Diesel Oil	pre-Cars	1,744	1,744	0%	418.96	386.79	-7%	725,111	541,376	-183,735	-26%	
	Car 1	1,079	1,079	0%	389.52	276.25	-29%	420,285	232,256	-188,029	-45%	
	Car 2	2,334	2,334	0%	315.90	194.79	-39%	737,682	454,630	-283,052	-39%	
	Car 3	7,649	7,649	0%	601.11	150.79	-75%	4,537,943	1,244,462	-3,293,481	-75%	
	Car 4	20,711	20,711	0%	512.28	94.57	-82%	14,788,380	2,716,154	-12,072,226	-82%	
	Car 5	68,794	68,794	0%	436.30	84.57	-79%	25,499,080	5,552,420	-19,946,660	-79%	
	Car 6	59,031	59,031	0%	146.18	81.57	-35%	8,616,586	5,722,892	-2,893,694	-33%	
	Diesel oil total	159,183	159,183	0%	347.42	191.98	-41%	55,383,325	36,221,485	-19,161,840	-35%	
LDNs Total	165,866	165,866	0%	339.31	183.97	-46%	56,229,594	37,245,956	-19,033,638	-46%		
1.A.3.a.ii - Heavy Duty Vehicles & Buses	Diesel Oil	pre-Cars	489	489	0%	1086.23	1191.23	-6%	588,087	478,258	-109,829	-19%
		Car 1	147	147	0%	738.37	752.57	2%	188,212	110,953	-77,259	-41%
		Car 2	1,611	1,611	0%	723.67	645.57	-10%	1,271,445	1,041,621	-229,824	-18%
		Car 3	5,709	5,709	0%	639.49	466.75	-27%	3,885,281	2,623,779	-1,261,502	-33%
		Car 4	2,747	2,747	0%	473.92	242.84	-49%	1,382,041	969,434	-412,607	-30%
		Car 5	17,190	17,190	0%	362.91	186.64	-49%	6,219,175	3,180,791	-3,038,384	-50%
		Car 6	25,335	25,335	0%	69.43	186.64	269%	5,918,901	4,686,133	-1,232,768	-21%
	Buses Total	52,939	52,939	0%	274.81	247.85	-10%	14,547,072	11,518,878	-3,028,194	-21%	
	Diesel Oil	pre-Cars	3,140	3,140	0%	1034.98	737.35	-29%	3,250,020	2,370,443	-879,577	-27%
		Car 1	989	989	0%	747.90	581.04	-23%	724,240	453,754	-270,486	-37%
Car 2		4,560	4,560	0%	817.42	581.04	-29%	3,734,343	2,288,967	-1,445,376	-39%	
Diesel Oil	pre-Cars	16,377	16,377	0%	628.94	371.48	-44%	13,900,323	6,758,540	-7,141,783	-51%	
	Car 1	15,127	15,127	0%	396.86	269.43	-31%	12,235,679	5,689,320	-6,546,359	-46%	
	Car 2	185,213	185,213	0%	965.15	282.89	-71%	36,960,499	8,949,449	-28,011,050	-76%	
	Car 3	432,496	432,496	0%	72.98	154.92	110%	11,175,486	67,683,853	56,508,367	155%	
Trucks Total	395,913	395,913	0%	73.15	169.17	18%	95,380,190	180,893,736	85,513,546	181%		
1.A.3.b.i - Motorized Two-Wheelers (M2W)	Gasoline	pre-Cars	4,913	4,913	0%	125.89	164.79	31%	664,997	792,791	127,794	19%
		Car 1	2,835	2,835	0%	129.39	177.29	31%	355,496	582,589	227,093	64%
		Car 2	3,094	3,094	0%	119.23	180.86	67%	389,224	615,317	226,093	58%
		Car 3	6,082	6,082	0%	43.03	180.86	381%	284,284	1,193,617	909,333	381%
		Car 4	2,085	2,085	0%	21.68	180.86	817%	43,489	386,647	343,158	817%
M2Ws Total	18,190	18,190	0%	86.95	186.83	157%	1,615,490	5,562,941	3,947,451	171%		
1.A.3.b. Road Transport Total		2,262,080	2,262,080	0%	99.58	132.83	33%	67,268,146	292,497,437	164,771,248	33%	

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
< Adjustment 2014 (accepted)	-105.6	-101.3	-95.7	-91.7						
< Adjustment 2015 (accepted)	-100.3	-95.5	-89.9	-85.1						
< Adjustment 2016 (accepted)	-151.3	-146.9	-145.1	-142.5	-128.1					
< Adjustment 2017 (accepted)	-151.3	-146.8	-145.0	-142.4	-127.2	-100.9				
< Adjustment 2018 (accepted)	-172.3	-174.5	-177.4	-180.4	-171.5	-148.9	-123.2			
< Adjustment 2019 (accepted)	-172.3	-174.5	-177.4	-180.3	-171.4	-148.8	-123.3	93.7		
< Adjustment 2020 (accepted)	-297.8	-302.3	-301.3	-306.1	-294.5	-269.0	-244.3	-214.9	-174.6	
Adjustment 2021 (proposal)										
Change against Adjustment 2020										

The noticeable differences between the 2017 and 2018 adjustment proposals resulted from an ad-hoc revision of the *Handbook Emission Factors for Road Transport* (HBEFA, version 3.3) in the aftermath of the so-called “Diesel-gate”.⁸⁾

The even bigger changes between adjustment 2019 and adjustment proposal 2020 result from an additional rather fundamental revision of the *Handbook Emission Factors for Road Transport* now available in version 4.1 >⁹⁾ strongly effecting the TREMOD model underlying Germany's emission reporting for road transport and hence any adjustments of NO_x, emissions.

With such major model revision between submissions 2019 and 2020, the current adjustment proposal differs significantly from the adjustment applied for and accepted in 2019.

Adjustment description as provided in IIRs 2014 and 2015:

[image Description%20Adjustment%20DE-A%20-%20NOx%20from%201.A.3.b%20Road%20transport%20-%20IIRs%202014%20%26%202015.pdf](#)

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