

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
¹ "artificial" current emissions = virtual current emissions assuming no changes in emission factors

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

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.

[!-

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

-]

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 [TJ]	in [%]	in [kg/TJ]	in [%]	in [%]	in [kg]	in [kg]	in [%]	in [%]
1.A.3.b.i	gasoline		795.957	795.957	0%	97.55	84.99	-13%	77.64.842	67.69.906	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	142.376.635	-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%	475.34	134.96	-72%	54.040.533	15.311.584	38.728.949	-72%
1.A.3.b.iii	diesel oil		48.844	48.844	0%	823.00	482.55	-23%	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	2.079.608	2.079.608	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	diesel oil		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	2.100.883	2.100.883	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	-8%	64.379.994	58.677.229	5.802.765	-8%
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	diesel oil		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	300.420.094	-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	diesel oil		51.716	51.716	0%	509.64	260.06	-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	-41%	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%	1.902.068	3.197.038	-1.294.951	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	diesel oil		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	diesel oil		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	180.65	82%	1.833.362	3.334.472	-1.501.090	82%
1.A.3.b TOTAL		2015	2.161.976	2.161.976	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	diesel oil		54.157	54.157	0%	424.73	388.24	-27%	23.002.109	16.833.117	6.168.992	-27%
1.A.3.b.iii	diesel oil		594.013	594.013	0%	226.31	180.97	-20%	134.431.899	107.496.262	26.935.637	-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	diesel oil		53.382	53.382	0%	370.80	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	diesel oil		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%	1.658.568	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	diesel oil		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	2.202.890	2.202.890	0%			0%	437.268.744	292.497.497	144.771.248	-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	13.685	13.685	0%	584.75	514.25	-12%	7.955.060	6.986.917	-958.143	-12%
		Car 1	36.541	36.541	0%	338.50	297.71	-12%	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	-3.569.995	-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	67%	2	2	0	0%
		Gasoline total	795.057	795.057	0%	592.55	514.25	-13%	37.644.642	31.650.586	-5.993.575	-16%
	Diesel Oil	pre-Cars	10.339	10.339	0%	318.13	264.95	-17%	383.760	327.255	-56.505	-15%
		Car 1	10.339	10.339	0%	294.42	245.17	-17%	3.044.428	2.741.387	-303.021	-10%
		Car 2	50.088	50.088	0%	406.90	299.19	-26%	29.372.795	19.974.210	-9.398.584	-32%
		Car 3	134.025	134.025	0%	542.54	170.54	-69%	72.645.173	23.929.276	-48.715.957	-67%
		Car 4	279.154	279.154	0%	304.37	140.58	-53%	107.299.180	39.243.811	-68.055.349	-63%
		Car 5	53.547	53.547	0%	434.70	140.58	-68%	23.275.735	7.527.796	-15.747.929	-68%
		Car 6	334	334	0%	257.62	140.58	-45%	85.044	46.553	-38.491	-45%
		Diesel oil total	529.380	529.380	0%	429.45	140.58	-67%	227.347.096	84.970.461	-142.376.635	-63%
		Pkx Total	1.325.337	1.325.337	0%	238.12	155.14	-35%	364.985.938	152.421.367	-152.364.570	-42%
	Gasoline	pre-Cars	1.249	1.249	0%	627.99	545.95	-13%	783.320	686.871	-96.449	-12%
		Car 1	367	367	0%	361.95	297.39	-18%	368.969	186.620	-182.348	-50%
		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	28.772	33%
		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	-0%	1.478.832	1.358.126	-120.706	-8%
1.A.3.b.i. Light Duty Vehicles (LDVs)	Gasoline	pre-Cars	4.876	4.876	0%	425.99	385.79	-9%	2.077.142	1.436.983	-640.129	-31%
		Car 1	9.989	9.989	0%	399.18	276.24	-30%	2.389.080	1.289.636	-1.099.444	-46%
		Car 2	13.126	13.126	0%	336.76	153.18	-54%	4.420.280	2.534.731	-1.885.529	-43%
		Car 3	33.249	33.249	0%	531.91	150.58	-72%	17.655.883	5.085.760	-12.569.123	-71%
		Car 4	54.581	54.581	0%	491.42	80.69	-84%	26.021.036	4.940.722	-21.080.314	-81%
		Car 5	1.629	1.629	0%	427.50	80.69	-81%	696.286	144.434	-551.772	-80%
		Car 6	0	0	0%	15.73	80.69	-81%	7	4	-3	-43%
		Gasoline total	113.450	113.450	0%	416.34	134.94	-68%	54.043.533	15.351.584	-38.691.949	-72%
	Diesel Oil	pre-Cars	119.175	119.175	0%	464.70	139.18	-70%	55.658.966	36.685.913	-18.973.053	-34%
		Car 1	3.382	3.382	0%	1096.25	1628.78	48%	3.674.087	3.432.644	-221.423	-6%
		Car 2	2.826	2.826	0%	749.41	732.14	-2%	2.117.871	2.125.595	7.723	0%
		Car 3	10.152	10.152	0%	801.96	643.47	-20%	8.140.119	6.532.213	-1.607.906	-20%
		Car 4	15.890	15.890	0%	633.22	437.25	-30%	13.065.776	7.289.299	-5.776.477	-44%
		Car 5	5.461	5.461	0%	448.63	351.65	-21%	2.650.016	1.501.527	-1.148.489	-43%
		Car 6	10.326	10.326	0%	337.28	182.33	-46%	3.882.417	1.882.644	-1.999.773	-51%
		Car 6	0	0	0%	0	0	0%	0	0	0	0%
		Diesel total	48.044	48.044	0%	623.80	482.55	-23%	29.931.266	23.183.732	-6.747.534	-23%
	Heavy Duty Vehicles (HDVs)	pre-Cars	10.185	10.185	0%	1040.16	787.37	-25%	10.510.623	7.754.136	-2.756.486	-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%	636.28	274.48	-57%	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	565.141	565.141	0%	446.67	271.83	-39%	293.148.243	154.696.160	-138.452.083	-47%
1.A.3.b.ii. Motorised Two-Wheelers (MOWs)	Gasoline	pre-Cars	7.973	7.973	0%	122.80	149.18	22%	372.721	1.189.393	216.502	58%
		Car 1	5.231	5.231	0%	123.77	165.74	34%	647.479	887.039	239.560	37%
		Car 2	3.587	3.587	0%	141.16	184.21	31%	585.362	696.681	111.319	19%
		Car 3	2.950	2.950	0%	38.11	184.21	381%	116.180	657.032	452.834	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%
		MOWs Total	19.172	19.172	0%	113.68	148.43	30%	2.243.149	3.326.034	1.072.885	48%
	Diesel Oil	pre-Cars	10.185	10.185	0%	1040.16	787.37	-25%	10.510.623	7.754.136	-2.756.486	-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%	636.28	274.48	-57%	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	565.141	565.141	0%	446.67	271.83	-39%	293.148.243	154.696.160	-138.452.083	-47%
	Heavy Duty Vehicles (HDVs)	pre-Cars	10.185	10.185	0%	1040.16	787.37	-25%	10.510.623	7.754.136	-2.756.486	-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%	636.28	274.48	-57%	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	565.141	565.141	0%	446.67	271.83	-39%	293.148.243	154.696.160	-138.452.083	-47%
1.A.3.b.iii. Motorised Two-Wheelers (MOWs)	Gasoline	pre-Cars	7.973	7.973	0%	122.80	149.18	22%	372.721	1.189.393	216.502	58%
		Car 1	5.231	5.231	0%	123.77	165.74	34%	647.479	887.039	239.560	37%
		Car 2	3.587	3.587	0%	141.16	184.21	31%	585.362	696.681	111.319	19%
		Car 3	2.950	2.950	0%	38.11	184.21	381%	116.180	657.032	452.834	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%
		MOWs Total	19.172	19.172	0%	113.68	148.43	30%	2,243,149	3,326,034	1,072,885	48%
	Diesel Oil	pre-Cars	10.185	10.185	0%	1040.16	787.37	-25%	10,510,623	7,754,136	-2,756,486	-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%	636,28	274,48	-57%	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	565,141	565,141	0%	446,67	271,83	-39%	293,148,243	154,696,160	-138,452,083	-47%
	Heavy Duty Vehicles (HDVs)	pre-Cars	10,185	10,185	0%	1040,16	787,37	-25%	10,510,623	7,754,136	-2,756,486	-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%

Adjustment details for 2023												
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 [%]	
1.A.3.a.i. Passenger Cars	Gasoline	pre-Cars	11,581	11,581	0%	607.72	635.39	-12%	7,026,041	6,189,785	-836,256	-12%
		Car 1	47,487	47,487	0%	348.56	341.62	-21%	16,571,746	11,426,129	-5,145,617	-31%
		Car 2	72,781	72,781	0%	194.27	172.82	-26%	13,487,749	10,039,380	-3,372,369	-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	142%	1,897,355	4,681,311	2,783,956	142%
	Gasoline total	790,267	790,267	0%	85.73	76.89	-9%	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	-17%
		Car 1	6,660	6,660	0%	267.79	266.44	-11%	1,980,364	1,771,787	-208,577	-11%
		Car 2	33,967	33,967	0%	406.82	279.27	-40%	13,987,432	7,445,646	-6,541,787	-40%
		Car 3	183,539	183,539	0%	564.82	176.63	-69%	58,399,037	18,434,837	-39,964,200	-69%
		Car 4	234,943	234,943	0%	398.41	146.46	-62%	91,724,195	34,488,997	-57,235,198	-62%
		Car 5	173,112	173,112	0%	434.89	146.46	-66%	75,284,364	25,353,375	-49,930,989	-66%
	Diesel oil total	555,245	555,245	0%	415.96	158.66	-64%	242,962,986	88,096,639	-154,866,347	-64%	
FCs Total	1,345,512	1,345,512	0%	234.61	115.29	-51%	386,442,896	146,673,867	-239,769,029	-51%		
1.A.3.b.i. Light Duty Vehicles (LDVs)	Gasoline	pre-Cars	962	962	0%	687.39	645.95	2%	607,179	621,160	13,981	2%
		Car 1	232	232	0%	803.24	383.22	-52%	199,985	70,295	-129,690	-60%
		Car 2	989	989	0%	271.16	195.74	-28%	269,134	133,538	-135,596	-50%
		Car 3	835	835	0%	89.38	98.33	10%	14,623	82,092	7,469	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%
	Gasoline total	5,657	5,657	0%	218.93	193.15	-12%	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	1,062,093	-306,661	-23%
		Car 1	3,666	3,666	0%	399.34	276.24	-30%	1,445,980	1,017,634	-428,346	-29%
		Car 2	8,479	8,479	0%	336.40	193.39	-42%	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	3,566,082	-9,484,199	-73%
		Car 4	59,485	59,485	0%	494.22	89.85	-82%	29,369,070	5,337,395	-24,031,675	-82%
		Car 5	15,964	15,964	0%	442.70	89.85	-80%	7,040,451	1,420,906	-5,619,545	-80%
	Diesel oil total	114,350	114,350	0%	485.91	126.17	-74%	55,186,382	13,741,354	-41,445,028	-74%	
LDVs Total	129,008	129,008	0%	469.51	123.61	-74%	56,344,903	14,834,656	-41,510,247	-74%		
1.A.3.b.ii. Heavy Duty Vehicles - Buses	Gasoline	pre-Cars	1,326	1,326	0%	1093.46	1918.46	4%	1,410,640	1,352,283	-58,357	-4%
		Car 1	1,246	1,246	0%	727.34	731.15	1%	1,017,476	1,017,184	-292	-0%
		Car 2	7,789	7,789	0%	703.46	643.34	-9%	5,085,091	4,597,478	-487,613	-10%
		Car 3	14,483	14,483	0%	629.94	437.61	-31%	9,073,197	6,089,744	-2,983,453	-33%
		Car 4	5,331	5,331	0%	468.10	361.86	-23%	2,642,179	1,675,777	-966,402	-37%
		Car 5	20,752	20,752	0%	347.84	182.99	-47%	7,219,563	3,787,467	-3,432,096	-48%
		Car 6	73	73	0%	64.52	182.99	286%	3,961	13,296	9,334	236%
		Buses Total	50,962	50,962	0%	533.22	384.33	-28%	27,141,913	19,565,288	-7,576,625	-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	96,736	96,736	0%	634.65	370.21	-42%	61,387,137	35,848,665	-25,538,472	-42%
		Car 4	50,550	50,550	0%	366.50	288.44	-21%	19,982,680	14,680,877	-5,301,723	-27%
		Car 5	485,981	485,981	0%	261.24	152.32	-42%	116,149,955	61,626,577	-54,523,378	-47%
Trucks Total	589,585	589,585	0%	385.33	224.69	-41%	224,829,180	132,064,753	-92,764,427	-41%		
1.A.3.b.iii. Motorized Two-Wheelers (MTWs)	Gasoline	pre-Cars	6,190	6,190	0%	122.76	151.03	23%	822,539	1,011,920	189,381	23%
		Car 1	4,386	4,386	0%	124.61	171.39	39%	536,615	738,050	201,435	38%
		Car 2	3,267	3,267	0%	136.22	184.56	43%	445,087	636,853	191,766	43%
		Car 3	3,984	3,984	0%	38.66	184.56	382%	19,386	778,616	759,230	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%
	MTWs Total	16,268	16,268	0%	107.43	173.28	61%	1,982,546	3,165,439	1,182,893	61%	
	1.A.3.b. Road Transport	Total	2,084,964	2,084,964	0%	295.79	151.71	-49%	616,721,438	396,381,343	-220,340,094	-49%

Adjustment details for 2023												
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 [%]	
1.A.3.a.i. Passenger Cars	Gasoline	pre-Cars	11,680	11,680	0%	619.27	649.35	-50%	7,011,541	6,967,452	-1,644,889	-95%
		Car 1	37,743	37,743	0%	353.78	261.88	-32%	13,362,986	9,129,495	-4,233,501	-31%
		Car 2	62,680	62,680	0%	108.93	139.33	-27%	11,889,922	8,722,244	-3,167,678	-27%
		Car 3	97,792	97,792	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	748,114	748,114	0%	88.35	74.85	-16%	69,190,687	56,671,737	-12,518,950	-18%
	Diesel Oil	pre-Cars	1,389	1,389	0%	112.74	244.56	-50%	1,643,081	248,136	-1,394,945	-85%
		Car 1	5,426	5,426	0%	298.42	266.79	-11%	1,678,472	1,680,688	17,884	11%
		Car 2	28,437	28,437	0%	406.84	279.91	-40%	11,563,522	6,253,531	-5,309,991	-46%
		Car 3	92,195	92,195	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	34,894,788	-66,892,487	-66%
		Car 6	4,536	4,536	0%	259.53	149.27	-42%	1,177,151	677,045	-500,106	-42%
		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	1,337,245	1,337,245	0%	237.40	111.77	-53%	317,723,735	146,571,356	-171,152,379	-53%
	Gasoline	pre-Cars	981	981	0%	633.81	645.95	2%	1,683,320	1,751,291	67,971	4%
		Car 1	194	194	0%	803.50	386.27	-45%	167,261	59,328	-107,933	-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	191.79	10%	72,691	79,780	7,089	10%
		Car 4	1,089	1,089	0%	43.70	48.89	13%	77,284	82,833	5,549	7%
		Car 5	966	966	0%	16.37	48.89	183%	15,187	47,268	32,081	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%	1,131,299	1,096,727	-34,572	-3%
	Diesel Oil	pre-Cars	2,744	2,744	0%	424.37	386.79	-9%	1,168,757	944,928	-223,829	-19%
		Car 1	2,946	2,946	0%	399.34	276.25	-30%	1,166,782	834,596	-332,186	-29%
		Car 2	6,982	6,982	0%	336.92	133.39	-42%	2,340,147	1,350,614	-989,533	-42%
		Car 3	20,421	20,421	0%	568.12	150.38	-73%	11,437,988	3,670,821	-7,767,167	-73%
Diesel Oil	Car 4	55,087	55,087	0%	607.72	90.45	-42%	27,776,440	5,040,454	-22,735,986	-42%	
	Car 5	29,024	29,024	0%	441.97	90.45	-40%	13,181,325	2,687,954	-10,493,371	-40%	
	Car 6	41	41	0%	161.28	90.45	-40%	6,168	2,688	-3,479	-56%	
	Diesel oil total	118,777	118,777	0%	488.86	154.83	-76%	57,083,513	13,656,488	-43,427,025	-76%	
LDWs Total	124,934	124,934	0%	488.84	158.63	-69%	58,214,142	14,677,219	-43,537,927	-69%		
1.A.3.a.ii. Heavy Duty Vehicles (HDV)	pre-Cars	1,172	1,172	0%	1098.69	1193.23	-4%	1,249,028	1,134,143	-114,885	-9%	
	Car 1	1,054	1,054	0%	727.68	759.39	2%	786,020	791,181	24,951	3%	
	Car 2	6,684	6,684	0%	764.87	643.48	-16%	3,324,968	4,379,371	1,054,403	31%	
	Car 3	11,187	11,187	0%	638.43	473.65	-25%	5,832,880	5,998,226	2,264,575	27%	
	Car 4	4,946	4,946	0%	460.55	351.71	-24%	2,278,051	1,739,736	-538,354	-24%	
	Car 5	26,096	26,096	0%	848.98	183.48	-40%	8,435,583	4,240,743	-4,194,761	-40%	
	Car 6	537	537	0%	44.76	183.48	170%	24,047	86,672	74,625	170%	
	Buses Total	31,716	31,716	0%	508.94	340.06	-29%	25,369,989	16,620,843	-7,738,126	-29%	
1.A.3.a.iii. Heavy Duty Vehicle: Trucks & Lorries	pre-Cars	5,983	5,983	0%	1030.72	737.35	-29%	6,072,170	4,322,888	-1,749,303	-29%	
	Car 1	2,944	2,944	0%	748.27	583.47	-24%	2,176,946	1,650,980	-525,877	-24%	
	Car 2	16,885	16,885	0%	818.17	510.25	-37%	10,080,881	6,494,975	-3,585,906	-37%	
	Car 3	45,517	45,517	0%	633.52	387.73	-39%	47,587,448	27,881,577	-19,705,871	-39%	
	Car 4	42,781	42,781	0%	356.96	287.27	-27%	16,936,867	12,289,770	-4,647,097	-27%	
	Car 5	436,980	436,980	0%	261.70	152.65	-40%	123,181,324	66,796,436	-56,384,887	-40%	
	Car 6	18,020	18,020	0%	913.87	183.48	-20%	913,082	2,750,630	1,837,548	201%	
	Trucks Total	680,139	680,139	0%	353.96	287.33	-21%	218,587,511	124,188,449	-97,899,062	-47%	
1.A.3.b.iv. Miscellaneous Two-Wheelers (MOWs)	pre-Cars	6,352	6,352	0%	123.97	151.79	23%	781,736	964,170	182,433	23%	
	Car 1	4,013	4,013	0%	125.91	173.15	39%	582,073	634,880	52,807	9%	
	Car 2	3,362	3,362	0%	132.24	158.58	40%	436,688	648,894	209,136	48%	
	Car 3	4,562	4,562	0%	39.81	158.58	281%	181,610	882,175	716,565	281%	
	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%	
	MOWs Total	18,229	18,229	0%	104.34	175.38	68%	1,962,088	3,197,038	1,234,951	68%	
1.A.3.b. Road Transport	Total	2,132,083	2,132,083	0%	268.88	182.67	-50%	616,073,963	310,854,371	-305,224,692	-50%	

Adjustment details for 2024												
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 [g]	in [g]	in [g]	in [g]	
1.A.3.a.i. - Passenger Cars	Gasoline	pre-Cars	11.647	11.647	0%	812.37	844.11	-11%	7.132.688	6.327.484	-796.844	-11%
		Car 1	30.667	30.667	0%	368.77	343.93	-32%	11.082.246	7.480.641	-3.621.706	-32%
		Car 2	53.486	53.486	0%	198.58	140.31	-29%	10.514.477	7.584.432	-3.018.844	-29%
		Car 3	87.374	87.374	0%	65.31	73.93	7%	6.955.589	6.459.797	-494.218	-7%
		Car 4	387.759	387.759	0%	45.16	47.80	-3%	19.093.585	18.536.099	-523.557	-3%
		Car 5	171.270	171.270	0%	18.59	47.80	151%	3.183.282	0.187.581	-5.004.299	151%
		Car 6	10.315	10.315	0%	25.97	47.80	84%	267.855	433.096	225.248	84%
		Gasoline total	752.426	752.426	0%	76.40	73.89	-3%	57.215.533	54.598.501	-2,216,412	-3%
	Diesel Oil	pre-Cars	1.341	1.341	0%	311.73	284.66	-9%	417.947	364.246	-42,722	-9%
		Car 1	4.892	4.892	0%	298.92	267.28	-11%	1.482.284	1.387.643	-156,951	-11%
		Car 2	23.934	23.934	0%	408.71	320.45	-20%	9.734.484	5,276,480	-4,458,004	-46%
		Car 3	82.749	82.749	0%	585.53	176.81	-69%	48.481.830	14.796.245	-33,685,585	-69%
		Car 4	211.237	211.237	0%	297.27	151.77	-42%	83.917.680	32,059,973	-51,857,706	-62%
		Car 5	285.011	285.011	0%	436.38	151.77	-65%	124.721.396	43,370.300	-81,343,896	-65%
		Car 6	16.081	16.081	0%	259.34	151.77	-41%	4.170.580	2.440.686	-1,729,814	-41%
		Diesel oil total	626.045	626.045	0%	415.87	159.12	-62%	272,876,061	99,613,892	-173,262,169	-62%
		Pkcs Total	1,338,571	1,338,571	0%	298.44	152.15	-53%	138,091,584	154,652,853	-175,478,269	-53%
	Gasoline	pre-Cars	986	986	0%	632.44	645.95	2%	193,683	278.724	18,844	2%
		Car 1	173	173	0%	968.27	989.98	64%	150.074	53.575	-96,499	-64%
		Car 2	748	748	0%	204.73	287.11	-21%	212.888	154.839	-58,029	-27%
		Car 3	771	771	0%	98.62	185.21	-7%	75.982	81.070	5,078	7%
		Car 4	1.087	1.087	0%	43.47	50.15	15%	81.139	83.618	2,479	15%
		Car 5	1.374	1.374	0%	17.11	50.15	183%	23.517	68.918	45,401	183%
		Car 6	17	17	0%	18.06	50.15	179%	212	670	657	179%
		Gasoline total	5.845	5.845	0%	598.34	176.49	-7%	1,112,584	1,031,852	-88,732	-7%
1.A.3.b.i. - Light Duty Vehicles (LDVs)	Gasoline	pre-Cars	2.537	2.537	0%	428.16	386.79	-21%	1,985.919	1,776,259	-207,559	-21%
		Car 1	2.588	2.588	0%	393.82	276.25	-40%	987.136	639.898	-347,328	-40%
		Car 2	6.087	6.087	0%	338.91	133.25	-42%	1,385.995	1,180.889	-428,126	-42%
		Car 3	18.220	18.220	0%	571.75	150.58	-74%	10,417,076	2,742,056	-7,675,020	-74%
		Car 4	52.361	52.361	0%	498.70	91.69	-82%	26,164,486	4,703,746	-21,394,748	-82%
		Car 5	46.749	46.749	0%	438.44	91.69	-79%	20,496,234	4,258,026	-16,237,709	-79%
	Diesel Oil	pre-Cars	187	187	0%	151.18	91.69	-40%	29.829	17.974	-11,855	-40%
		Car 1	187	187	0%	151.18	91.69	-40%	29.829	17.974	-11,855	-40%
		Car 2	187	187	0%	151.18	91.69	-40%	29.829	17.974	-11,855	-40%
		Car 3	187	187	0%	151.18	91.69	-40%	29.829	17.974	-11,855	-40%
		Car 4	187	187	0%	151.18	91.69	-40%	29.829	17.974	-11,855	-40%
		Car 5	187	187	0%	151.18	91.69	-40%	29.829	17.974	-11,855	-40%
		Diesel oil total	187	187	0%	151.18	91.69	-40%	29.829	17.974	-11,855	-40%
		LDVs Total	134,423	134,423	0%	463.56	153.81	-75%	62,299,160	55,298,849	-6,998,311	-75%
1.A.3.b.ii. - Heavy Duty Vehicles (HDVs)	Gasoline	pre-Cars	984	984	0%	1099.48	1919.23	-5%	1,062.384	1,062.921	-48.443	-5%
		Car 1	837	837	0%	728.12	130.99	-3%	659.232	628.359	18.127	-3%
		Car 2	5.586	5.586	0%	704.95	643.67	-9%	4,384.320	3,683.441	-798,887	-9%
		Car 3	11.221	11.221	0%	621.20	458.38	-27%	7,082.740	5,143.628	-1,939,228	-27%
		Car 4	4.270	4.270	0%	461.10	361.79	-21%	1,972.610	1,584.978	-467,632	-24%
		Car 5	22.042	22.042	0%	368.55	183.99	-49%	7,726.921	4,065.632	-3,671,389	-49%
	Diesel Oil	pre-Cars	4.182	4.182	0%	42.78	183.99	330%	178.913	789.476	610,563	330%
		Car 1	4.182	4.182	0%	42.78	183.99	330%	178.913	789.476	610,563	330%
		Car 2	4.182	4.182	0%	42.78	183.99	330%	178.913	789.476	610,563	330%
		Car 3	4.182	4.182	0%	42.78	183.99	330%	178.913	789.476	610,563	330%
		Car 4	4.182	4.182	0%	42.78	183.99	330%	178.913	789.476	610,563	330%
		Car 5	4.182	4.182	0%	42.78	183.99	330%	178.913	789.476	610,563	330%
		Diesel oil total	49,143	49,143	0%	468.37	339.99	-27%	23,017,115	16,788,234	-6,308,881	-27%
		HDVs Total	4.182	4.182	0%	1034.34	737.35	-29%	4,945.942	3,525,898	-1,428,134	-29%
1.A.3.b.iii. - Heavy Duty Vehicles (HDVs) - Trucks & Lorries	Gasoline	pre-Cars	2.285	2.285	0%	748.66	581.41	-22%	1,600.685	1,237.759	-412,848	-26%
		Car 1	13.023	13.023	0%	817.90	510.38	-38%	11,445.862	6,565.738	-4,891,131	-38%
		Car 2	54.685	54.685	0%	632.52	384.41	-42%	36,589.677	19,927.835	-16,661,841	-42%
		Car 3	34.037	34.037	0%	396.37	285.34	-30%	13,481.158	9,711.896	-3,779,262	-28%
		Car 4	389.263	389.263	0%	282.92	153.66	-46%	110,112,782	59,688.043	-50,424,748	-46%
		Car 5	34.214	34.214	0%	63.96	153.66	189%	3,937.089	11,368.682	7,421,413	189%
	Diesel Oil	pre-Cars	572.754	572.754	0%	314.85	196.65	-38%	179,874,133	112,285,582	-67,588,551	-38%
		Car 1	572.754	572.754	0%	314.85	196.65	-38%	179,874,133	112,285,582	-67,588,551	-38%
		Car 2	572.754	572.754	0%	314.85	196.65	-38%	179,874,133	112,285,582	-67,588,551	-38%
		Car 3	572.754	572.754	0%	314.85	196.65	-38%	179,874,133	112,285,582	-67,588,551	-38%
		Car 4	572.754	572.754	0%	314.85	196.65	-38%	179,874,133	112,285,582	-67,588,551	-38%
		Car 5	572.754	572.754	0%	314.85	196.65	-38%	179,874,133	112,285,582	-67,588,551	-38%
		Diesel oil total	572.754	572.754	0%	314.85	196.65	-38%	179,874,133	112,285,582	-67,588,551	-38%
		Trucks Total	572.754	572.754	0%	314.85	196.65	-38%	179,874,133	112,285,582	-67,588,551	-38%
1.A.3.b.iv. - Motorised Two-Wheelers (MOWs)	Gasoline	pre-Cars	6.185	6.185	0%	122.85	158.64	29%	795.185	974.388	218.182	29%
		Car 1	3.037	3.037	0%	124.71	174.84	40%	478.514	670.859	192.346	40%
		Car 2	3.365	3.365	0%	128.94	186.25	52%	433.874	680.370	226.504	52%
		Car 3	5.385	5.385	0%	38.53	186.25	380%	299.722	1,041.189	821.467	380%
		Car 4	0	0	0%	0	0	0%	0	0	0	0%
		Car 5	0	0	0%	0	0	0%	0	0	0	0%
		MOWs Total	18,673	18,673	0%	108.59	179.24	78%	1,878,294	3,386,734	1,488,498	78%
		1.A.3.b. - Road Transport	2,153,563	2,153,563	0%	277.27	140.35	-49%	597,120,297	362,252,271	-234,868,025	-49%

Adjustment details for 2025												
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 [%]	current	adjusted	adjustment	difference	
								in [kg]	in [kg]		in [%]	
1.A.3.a.i. - Passenger Cars	Gasoline	pre-Cars	11.380	11.380	0%	833.33	844.11	-1%	7,266.152	6,191.942	-1,014.168	-14%
		Car 1	34.112	34.112	0%	371.34	345.71	-34%	8,963.681	5,924.574	-3,029,288	-34%
		Car 2	42.925	42.925	0%	297.78	142.69	-32%	8,918.785	6,099.659	-2,818,648	-32%
		Car 3	72.871	72.871	0%	73.86	74.74	1%	5,381.361	5,448.237	64,897	1%
		Car 4	363.474	363.474	0%	52.36	49.62	-5%	18,485.637	17,326.221	-1,159,416	-6%
		Car 5	180.783	180.783	0%	19.11	49.62	151%	3,454.481	0,861,456	-5,406,375	151%
		Car 6	29.612	29.612	0%	25.70	49.62	84%	790.781	1,451,433	652,752	84%
		Gasoline total	715.156	715.156	0%	76.38	71.73	-6%	53,196.187	51,380.983	-1,889,895	-4%
	Diesel Oil	pre-Cars	1.282	1.282	0%	313.32	284.66	-9%	367.917	339.733	-28,184	-9%
		Car 1	4.279	4.279	0%	298.14	267.84	-10%	1,261.930	1,129,989	-132,821	-10%
		Car 2	19.689	19.689	0%	407.80	220.36	-46%	8,013,587	4,339,738	-3,674,788	-46%
1.A.3.a.ii - Light Duty Vehicles (LDV)	Gasoline	pre-Cars	71.044	71.044	0%	595.91	179.64	-70%	42,271,648	12,739,492	-29,551,688	-70%
		Car 1	192.414	192.414	0%	184.47	184.47	0%	72,229,657	72,044,459	-18,523,268	-0%
		Car 2	364.356	364.356	0%	434.57	157.65	-65%	137,292,230	43,890,244	-95,400,969	-65%
		Car 3	52.575	52.575	0%	293.76	154.67	-41%	13,557,082	8,180,394	-5,356,778	-41%
		Diesel Oil total	645.565	645.565	0%	426.19	159.89	-63%	275,133,283	183,913,591	-91,766,732	-63%
		P/Cs total	1,360,721	1,360,721	0%	245.26	133.52	-53%	526,331,000	154,484,484	-371,856,516	-53%
		Car 1	979	979	0%	654.37	646.56	-1%	575,380	647,977	7,434	1%
		Car 2	150	150	0%	895.83	311.83	-65%	134,523	40,851	-87,872	-65%
	Car 3	629	629	0%	298.27	212.94	-29%	87,533	133,879	46,354	29%	
	Car 4	781	781	0%	95.56	188.62	3%	73,363	76,155	2,798	3%	
	Car 5	1,720	1,720	0%	95.66	51.30	-9%	82,965	80,246	-2,726	-9%	
Car 6	1,620	1,620	0%	18.41	51.30	175%	29,912	83,086	53,274	175%		
Car 7	84	84	0%	18.71	51.30	174%	1,752	4,884	3,162	174%		
Gasoline total	5,793	5,793	0%	187.52	172.88	-8%	1,083,937	1,080,999	-3,826	-8%		
1.A.3.a.iii - Heavy Duty Vehicles (HDV)	Diesel Oil	pre-Cars	2,323	2,323	0%	418.91	386.79	-26%	968,185	712,631	-253,654	-26%
		Car 1	2,186	2,186	0%	391.47	225.25	-43%	824,270	453,227	-371,043	-43%
		Car 2	5,025	5,025	0%	324.81	153.29	-49%	1,632,286	971,286	-660,928	-49%
		Car 3	15,718	15,718	0%	258.26	150.67	-24%	3,112,414	2,365,703	-746,710	-24%
		Car 4	47,480	47,480	0%	91.73	71.74	-22%	23,782,396	2,340,298	-21,448,098	-22%
		Car 5	62,146	62,146	0%	436.13	91.74	-79%	27,090,214	5,680,295	-21,392,809	-79%
		Car 6	635	635	0%	154.91	91.74	-40%	87,768	60,230	-26,528	-40%
		Diesel Oil total	135,356	135,356	0%	888.35	187.96	-77%	63,565,843	16,681,496	-46,884,353	-77%
	LDVs total	141,098	141,098	0%	437.76	170.62	-61%	64,589,539	15,686,498	-48,903,081	-61%	
	Car 1	979	979	0%	1070.34	1013.23	-5%	1,048,372	995,256	-53,116	-5%	
	Car 2	747	747	0%	738.26	751.91	3%	543,471	581,636	38,165	3%	
Car 3	5,211	5,211	0%	707.43	464.54	-10%	4,163,687	3,369,004	-794,683	-10%		
Car 4	15,782	15,782	0%	632.86	488.67	-24%	2,741,732	1,714,989	-1,026,742	-24%		
Car 5	4,686	4,686	0%	869.70	351.99	-59%	2,154,006	1,514,177	-639,829	-59%		
Car 6	36,257	36,257	0%	368.77	184.59	-49%	8,737,088	4,477,641	-4,269,427	-49%		
Car 7	5,224	5,224	0%	63.13	184.59	247%	277,542	964,226	686,684	247%		
Diesel total	12,827	12,827	0%	438.96	327.99	-26%	23,997,817	17,149,448	-6,848,378	-26%		
1.A.3.a.iv - Heavy Duty Vehicle: Trucks & Lorries	Diesel Oil	pre-Cars	4,379	4,379	0%	1034.69	737.35	-29%	4,483,571	3,184,428	-1,294,143	-29%
		Car 1	1,983	1,983	0%	748.71	553.48	-26%	1,387,291	1,025,551	-361,740	-26%
		Car 2	11,082	11,082	0%	817.38	587.98	-30%	3,072,940	2,532,440	-540,500	-30%
		Car 3	47,482	47,482	0%	316.65	261.66	-18%	12,888,779	9,744,748	-3,144,030	-18%
		Car 4	39,233	39,233	0%	356.88	287.32	-20%	11,572,860	9,294,190	-2,278,759	-20%
		Car 5	309,736	309,736	0%	264.17	153.49	-40%	83,413,973	50,654,496	-32,757,477	-40%
		Car 6	170,787	170,787	0%	67.49	153.49	167%	8,913,364	26,292,037	16,388,684	167%
		Trucks total	589,431	589,431	0%	268.69	189.33	-30%	197,189,675	119,920,933	-76,268,642	-30%
	pre-Cars	5,744	5,744	0%	125.41	157.28	25%	720,441	953,470	183,828	25%	
	Car 1	1,517	1,517	0%	107.40	176.22	39%	444,086	619,819	171,733	39%	
	Car 2	3,382	3,382	0%	107.35	196.53	55%	430,680	664,965	236,306	55%	
Car 3	5,911	5,911	0%	48.29	196.53	309%	234,136	1,144,416	910,289	309%		
Car 4	0	0	0%	16.96		-180%	89	84	-5	-5%		
Car 5	0	0	0%			0%	0	0	0	0%		
MOWs total	18,859	18,859	0%	98.52	189.65	80%	1,833,382	5,334,472	1,501,098	80%		
1.A.3.b - Road Transport	Total	2,161,056	2,161,056	0%	265.86	129.65	-48%	575,935,265	381,697,596	-174,853,678	-48%	

Adjustment details for 2026												
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 [%]	
1.A.3.a.i - Passenger Cars	Gasoline	pre-Cars	15 782	15 782	0%	634.75	644.11	-14%	7 470 914	6 410 967	-1 059 947	-14%
		Car 1	20 270	20 270	0%	372.25	341.68	-8%	7 545 483	4 886 888	-2 658 595	-36%
		Car 2	36 062	36 062	0%	212.73	143.11	-33%	7 671 581	5 180 897	-2 510 683	-33%
		Car 3	83 039	83 039	0%	76.17	75.50	-1%	4 881 482	4 759 259	-122 223	-1%
		Car 4	334 413	334 413	0%	53.74	50.17	-7%	17 369 364	16 777 445	-1 192 489	-7%
		Car 5	183 374	183 374	0%	19.09	50.17	163%	3 580 745	9 189 834	5 609 089	163%
	Car 6	65 332	65 332	0%	25.67	50.17	89%	1 768 917	3 327 855	1 558 938	89%	
	Gasoline total	715 272	715 272	0%	79.93	70.65	-9%	58 736 267	50 535 049	-8 201 218	-14%	
	Diesel Oil	pre-Cars	1 280	1 280	0%	364.76	264.66	-16%	386 262	339 173	-47 089	-12%
		Car 1	3 749	3 749	0%	298.36	269.64	-10%	1 122 449	1 011 626	-111 425	-10%
		Car 2	16 584	16 584	0%	407.19	221.43	-46%	6 720 132	3 663 964	-3 056 168	-46%
		Car 3	81 398	81 398	0%	802.50	179.24	-78%	36 991 999	11 085 409	-25 906 590	-70%
		Car 4	175 040	175 040	0%	405.76	156.24	-61%	71 362 220	27 474 086	-43 878 214	-61%
		Car 5	299 054	299 054	0%	433.34	156.24	-64%	130 032 044	46 019 229	-83 912 815	-64%
	Car 6	116 034	116 034	0%	268.75	156.24	-41%	30 427 555	10 232 785	-19 194 770	-63%	
	Diesel oil total	625 119	625 119	0%	418.36	160.76	-61%	277 941 660	188 535 230	-89 406 430	-61%	
Pkx Total	1 380 391	1 380 391	0%	235.75	154.41	-35%	627 778 627	199 070 280	-428 708 347	-68%		
Gasoline	pre-Cars	910	910	0%	602.79	645.35	11%	593 186	547 543	-45 643	-8%	
	Car 1	136	136	0%	908.31	312.78	-66%	122 126	42 425	-79 701	-65%	
	Car 2	540	540	0%	308.39	217.84	-29%	162 311	117 737	-44 574	-27%	
	Car 3	650	650	0%	108.43	111.57	3%	70 432	72 731	2 299	3%	
	Car 4	1 684	1 684	0%	43.06	52.36	21%	78 714	84 003	5 289	7%	
	Car 5	1 724	1 724	0%	19.82	52.36	164%	34 157	80 258	46 101	164%	
	Car 6	363	363	0%	19.85	52.36	181%	6 764	18 992	12 228	181%	
	Gasoline total	5 506	5 506	0%	588.27	171.66	-7%	1 068 292	1 013 678	-54 614	-5%	
Diesel Oil	pre-Cars	2 189	2 189	0%	414.81	385.79	-7%	899 549	846 433	-53 116	-6%	
	Car 1	1 790	1 790	0%	391.89	276.25	-29%	780 189	385 371	-394 798	-50%	
	Car 2	4 223	4 223	0%	323.43	153.31	-53%	1 365 594	676 452	-689 142	-50%	
	Car 3	13 582	13 582	0%	558.91	150.77	-74%	8 064 323	2 040 233	-6 024 090	-74%	
	Car 4	43 141	43 141	0%	504.48	32.40	-94%	21 783 989	3 986 141	-17 777 788	-82%	
	Car 5	74 231	74 231	0%	434.16	32.40	-93%	32 223 283	6 658 730	-25 564 553	-79%	
	Car 6	4 921	4 921	0%	113.49	32.40	-71%	755 285	454 676	-300 609	-40%	
	Diesel oil total	148 068	148 068	0%	454.12	185.62	-77%	65 712 732	15 256 007	-50 456 726	-77%	
	LNx Total	149 994	149 994	0%	445.23	188.29	-76%	66 781 025	16 229 684	-50 551 340	-76%	
1.A.3.b.i - Heavy Duty Vehicles - Buses	Diesel Oil	pre-Cars	891	891	0%	1076.81	1919.23	78%	964 197	988 234	24 037	2%
		Car 1	583	583	0%	731.36	732.67	0%	433 675	446 236	12 561	3%
		Car 2	4 375	4 375	0%	708.25	645.03	-9%	3 440 614	2 822 621	-617 993	-18%
		Car 3	10 333	10 333	0%	632.87	458.91	-27%	6 530 364	4 741 827	-1 788 537	-27%
		Car 4	4 449	4 449	0%	475.90	382.29	-20%	2 117 219	1 566 881	-550 338	-26%
		Car 5	34 380	34 380	0%	364.36	185.22	-49%	8 935 974	4 517 517	-4 418 457	-49%
		Car 6	9 126	9 126	0%	62.79	185.22	196%	573 066	1 680 431	1 107 365	196%
		Buses Total	54 157	54 157	0%	404.73	388.24	-2%	23 082 189	16 885 117	-6 197 072	-27%
	Gasoline	pre-Cars	3 933	3 933	0%	1034.81	737.35	-29%	4 087 249	2 980 379	-1 106 870	-29%
		Car 1	1 555	1 555	0%	748.16	587.92	-22%	1 163 482	789 813	-373 669	-32%
		Car 2	8 876	8 876	0%	817.75	585.42	-28%	7 258 047	4 486 626	-2 771 421	-38%
		Car 3	34 167	34 167	0%	638.91	588.64	-9%	21 553 280	12 251 155	-9 302 125	-43%
		Car 4	34 287	34 287	0%	394.94	281.86	-29%	9 640 384	6 885 621	-2 754 763	-29%
		Car 5	269 735	269 735	0%	267.22	153.60	-42%	74 680 233	39 976 610	-34 623 623	-46%
		Car 6	261 480	261 480	0%	61.77	153.60	149%	16 149 289	40 204 036	24 054 748	149%
		Trucks Total	594 013	594 013	0%	226.31	180.97	-20%	134 431 899	101 496 262	-32 935 637	-24%
1.A.3.b.ii - Motorised Two-Wheelers (MOWs)	Gasoline	pre-Cars	5 543	5 543	0%	125.59	155.78	24%	696 072	883 289	187 218	24%
		Car 1	3 360	3 360	0%	127.11	177.29	39%	427 113	585 796	158 683	39%
		Car 2	3 375	3 375	0%	125.94	187.68	50%	421 961	687 078	265 117	63%
		Car 3	6 443	6 443	0%	48.36	187.68	381%	209 627	1 273 671	1 064 044	508%
		Car 4	66	66	0%	17.47	187.68	1071%	1 134	12 632	11 498	1071%
		MOWs Total	16 185	16 185	0%	96.14	181.68	89%	1 885 897	3 452 476	1 566 579	89%
1.A.3.b - Road Transport	Total	2 267 339	2 267 339	0%	258.89	137.22	-46%	553 799 598	362 981 620	-190 817 978	-46%	

Adjustment details for 2027													
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 [%]		
1.A.3.a.i - Passenger Cars	Gasoline	pre-Cars	12 282	12 282	0%	636.73	644.11	-16%	7 614 267	6 680 187	-1 134 080	-16%	
		Car 1	17 449	17 449	0%	372.96	341.68	-8%	6 588 311	4 217 644	-2 370 667	-36%	
		Car 2	30 435	30 435	0%	217.43	141.75	-35%	6 617 570	4 314 140	-2 303 430	-36%	
		Car 3	54 271	54 271	0%	78.48	76.27	-3%	4 254 938	4 139 376	-115 562	-3%	
		Car 4	315 086	315 086	0%	54.96	51.26	-7%	17 316 320	16 511 881	-1 194 438	-7%	
		Car 5	180 240	180 240	0%	19.17	51.26	161%	3 485 382	9 239 815	5 754 433	161%	
	Gasoline total	724 571	724 571	0%	67.66	60.88	-9%	49 046 874	38 634 374	-10 412 500	-14%		
	Diesel Oil	pre-Cars	1 790	1 790	0%	364.36	264.56	-13%	483 963	347 620	-136 343	-13%	
		Car 1	3 760	3 760	0%	298.17	271.67	-9%	1 082 288	910 182	-172 106	-9%	
		Car 2	13 788	13 788	0%	407.17	222.43	-46%	5 614 130	3 066 393	-2 547 736	-46%	
Car 3		52 128	52 128	0%	808.95	179.65	-78%	31 696 478	9 364 788	-22 331 690	-70%		
1.A.3.a.ii - Heavy Duty Vehicles (LDV)	Gasoline	Car 4	187 047	187 047	0%	418.16	158.34	-61%	64 733 485	24 983 323	-39 750 162	-61%	
		Car 5	283 480	283 480	0%	423.99	158.34	-63%	120 187 695	44 073 190	-76 114 505	-63%	
		Car 6	184 768	184 768	0%	262.61	158.34	-40%	48 521 183	20 255 985	-28 265 198	-58%	
		Diesel oil total	686 582	686 582	0%	394.65	161.95	-59%	272 126 081	112 890 717	-159 235 364	-59%	
		Pkx Total	1 421 162	1 421 162	0%	225.98	155.61	-30%	521 152 965	163 445 435	-357 707 530	-68%	
		Diesel Oil	pre-Cars	940	940	0%	611.41	645.35	11%	612 247	686 978	5 432	1%
	Car 1		124	124	0%	908.23	312.78	-66%	112 083	39 682	-72 401	-65%	
	Car 2		485	485	0%	302.12	221.62	-27%	140 344	102 950	-37 394	-27%	
	Car 3		596	596	0%	118.57	115.36	-3%	65 955	68 812	2 857	4%	
	1.A.3.a.iii - Light Duty Vehicles (LDV)	Gasoline	Car 4	1 476	1 476	0%	50.72	53.38	5%	74 877	78 816	3 938	5%
Car 5			1 680	1 680	0%	21.73	53.38	146%	35 240	89 034	53 794	146%	
Car 6			910	910	0%	19.18	53.38	181%	17 052	49 080	31 928	181%	
Gasoline total			6 186	6 186	0%	171.55	167.18	-2%	1 058 799	1 034 211	-24 588	-2%	
pre-Cars			2 067	2 067	0%	413.41	385.79	-7%	899 549	811 163	-88 386	-10%	
Car 1			1 538	1 538	0%	399.47	276.25	-29%	680 176	331 158	-349 018	-50%	
Diesel Oil		Car 2	3 580	3 580	0%	321.26	153.04	-53%	1 343 793	687 293	-656 500	-50%	
		Car 3	11 684	11 684	0%	595.38	150.73	-75%	5 240 937	1 758 232	-3 482 705	-67%	
		Car 4	39 050	39 050	0%	367.76	83.03	-42%	19 749 647	3 626 025	-16 123 622	-82%	
		Car 5	75 789	75 789	0%	432.66	83.03	-79%	32 790 366	7 054 565	-25 735 801	-79%	
Diesel oil total	153 284	153 284	0%	424.66	183.89	-57%	65 081 930	15 925 274	-49 156 674	-74%			
1.A.3.a.iv - Heavy Duty Vehicles (HDV)	Diesel Oil	LDVx Total	159 470	159 470	0%	414.83	186.35	-54%	66 152 129	16 959 427	-49 192 702	-74%	
		pre-Cars	736	736	0%	707.33	101.23	-8%	190 259	150 425	-39 834	-5%	
		Car 1	411	411	0%	723.97	152.57	-79%	300 684	39 082	-8 459	-3%	
		Car 2	3 325	3 325	0%	731.91	646.79	-10%	2 523 087	2 147 480	-475 606	-19%	
		Car 3	8 678	8 678	0%	671.23	459.12	-31%	6 473 480	3 984 085	-2 489 395	-38%	
		Car 4	3 923	3 923	0%	474.07	352.49	-26%	1 912 380	1 347 680	-564 700	-29%	
	Bees	Car 5	21 913	21 913	0%	363.92	186.48	-49%	7 937 975	4 053 686	-3 884 291	-49%	
		Car 6	14 586	14 586	0%	68.52	186.84	219%	854 215	2 732 580	1 878 375	219%	
		Bees total	53 382	53 382	0%	318.80	286.71	-23%	19 793 981	19 384 680	-4 089 871	-23%	
		pre-Cars	3 686	3 686	0%	1034.40	719.35	-29%	3 730 272	2 659 076	-1 071 256	-29%	
1.A.3.a.v - Heavy Duty Vehicle: Trucks & Lorries	Diesel Oil	Car 1	1 711	1 711	0%	748.03	483.48	-37%	902 942	614 151	-286 696	-37%	
		Car 2	7 387	7 387	0%	817.96	540.55	-34%	3 794 676	3 580 026	-2 226 851	-30%	
		Car 3	26 586	26 586	0%	626.17	444.81	-29%	12 942 041	9 652 565	-3 289 476	-26%	
		Car 4	39 082	39 082	0%	397.77	279.34	-30%	7 956 414	5 637 047	-2 368 368	-30%	
		Car 5	264 365	264 365	0%	268.16	154.36	-47%	49 280 789	31 085 347	-17 735 342	-47%	
		Car 6	335 065	335 065	0%	65.82	154.36	135%	21 985 366	11 573 641	-29 273 725	135%	
	Trucks total	598 263	598 263	0%	695.92	179.92	-16%	116 671 141	185 248 680	68 577 539	16%		
	pre-Cars	Car 1	5 336	5 336	0%	125.91	157.19	25%	671 080	830 180	166 851	25%	
		Car 2	3 257	3 257	0%	126.39	177.06	41%	411 617	579 244	167 627	41%	
		Car 3	3 396	3 396	0%	122.55	180.33	42%	476 293	675 548	257 348	42%	
Car 4		6 711	6 711	0%	41.22	180.33	363%	271 187	1 336 565	1 065 348	393%		
1.A.3.b - Motorized Two-Wheelers (MOW)	Gasoline	Car 5	430	430	0%	18.26	180.33	988%	7 782	86 276	77 498	988%	
		MOWs total	19 160	19 160	0%	52.81	183.39	96%	1 038 424	3 551 787	1 275 114	96%	
		pre-Cars	Car 1	2 291 427	2 291 427	0%	273.43	175.23	-42%	525 563 450	384 685 986	-221 877 424	-42%
			Car 2	2 291 427	2 291 427	0%	273.43	175.23	-42%	525 563 450	384 685 986	-221 877 424	-42%
			Car 3	2 291 427	2 291 427	0%	273.43	175.23	-42%	525 563 450	384 685 986	-221 877 424	-42%
			Car 4	2 291 427	2 291 427	0%	273.43	175.23	-42%	525 563 450	384 685 986	-221 877 424	-42%
	pre-Cars	Car 1	2 291 427	2 291 427	0%	273.43	175.23	-42%	525 563 450	384 685 986	-221 877 424	-42%	
		Car 2	2 291 427	2 291 427	0%	273.43	175.23	-42%	525 563 450	384 685 986	-221 877 424	-42%	
		Car 3	2 291 427	2 291 427	0%	273.43	175.23	-42%	525 563 450	384 685 986	-221 877 424	-42%	
		Car 4	2 291 427	2 291 427	0%	273.43	175.23	-42%	525 563 450	384 685 986	-221 877 424	-42%	

Adjustment details for 2020													
NER Code	Fuel	Activity Data			Implied Emission Factor			NO _x Emissions					
		current	adjusted	difference in [%]	current	adjusted	difference in [%]	current	adjusted	difference in [%]			
1.A.3.a.i.ii - Passenger Cars	Gasoline	pre-Care	13,560	13,560	0%	638.56	644.11	-1%	8,664,521	7,382,896	-1,281,625	-15%	
		Car 1	12,427	12,427	0%	378.32	241.68	-36%	4,761,480	3,083,383	-1,688,096	-35%	
		Car 2	20,086	20,086	0%	225.58	82.50	-64%	4,531,070	1,888,678	-2,642,392	-59%	
		Car 3	36,236	36,236	0%	82.22	76.12	-7%	2,977,940	2,928,186	-49,754	-2%	
		Car 4	255,220	255,220	0%	57.94	53.29	-8%	14,559,285	13,599,621	-959,664	-7%	
		Car 5	160,537	160,537	0%	18.77	53.29	170%	3,153,720	8,554,356	5,390,636	170%	
	Diesel Oil	pre-Care	296,529	296,529	0%	25.53	25.53	0%	5,235,029	11,050,573	5,775,544	110%	
		Gasoline Total	776,691	776,691	0%	62.36	68.45	10%	43,981,941	40,236,625	-3,735,804	-9%	
		Car 1	2,736	2,736	0%	333.76	264.96	-21%	91,180	73,823	-17,357	-21%	
		Car 2	2,565	2,565	0%	269.00	272.05	1%	766,913	687,786	-89,127	-12%	
		Car 3	8,991	8,991	0%	467.79	229.18	-44%	3,620,286	2,037,440	-1,582,846	-44%	
		Car 4	33,019	33,019	0%	815.11	180.43	-71%	20,370,125	5,957,443	-14,412,682	-71%	
1.A.3.a.ii - Light Duty Vehicles (LDV)	Gasoline	pre-Care	111,335	111,335	0%	419.17	162.44	-61%	46,688,085	10,805,228	-35,882,857	-77%	
		Car 1	231,784	231,784	0%	341.27	162.44	-46%	95,117,643	37,650,387	-57,466,256	-60%	
		Car 2	273,511	273,511	0%	227.36	162.44	-29%	62,167,348	49,421,489	-12,745,859	-21%	
		Gasoline Total	63,041	63,041	0%	419.17	162.44	-61%	229,566,688	109,582,562	-119,984,126	-52%	
	Diesel Oil	pre-Care	1,368,532	1,368,532	0%	199.83	115.32	-42%	273,000,000	157,041,887	-115,958,113	-42%	
		Car 1	926	926	0%	643.69	646.95	1%	661,420	687,592	26,172	4%	
		Car 2	97	97	0%	515.26	312.78	-39%	88,963	30,396	-58,567	-66%	
		Car 3	316	316	0%	364.63	224.45	-39%	96,158	70,846	-25,312	-26%	
		Car 4	1,407	1,407	0%	112.60	121.47	8%	50,365	54,283	3,918	8%	
		Car 5	1,126	1,126	0%	53.00	55.26	4%	93,602	82,189	-11,413	-12%	
1.A.3.b.i - Heavy Duty Vehicle Fleets	Gasoline	pre-Care	1,361	1,361	0%	36.24	74.88	106%	36,248	74,888	48,640	134%	
		Car 1	6,430	6,430	0%	19.75	55.26	180%	45,383	133,713	88,330	195%	
		Gasoline Total	2,483	2,483	0%	546.88	115.35	-8%	594,299	1,042,156	447,857	76%	
	Diesel Oil	pre-Care	1,764	1,764	0%	418.96	386.79	-7%	725,711	547,376	-188,336	-26%	
		Car 1	1,079	1,079	0%	420.85	215.25	-49%	420,285	232,256	-188,029	-45%	
		Car 2	2,334	2,334	0%	315.98	154.79	-50%	377,662	4,524,700	-2,952,932	-75%	
1.A.3.b.ii - Heavy Duty Vehicle Fleets Trucks & Lorries	Gasoline	pre-Care	7,640	7,640	0%	601.11	150.79	-75%	4,587,943	1,154,711	-3,433,232	-75%	
		Car 1	20,311	20,311	0%	512.20	94.57	-82%	16,788,280	2,715,154	-14,073,126	-82%	
		Car 2	68,749	68,749	0%	624.30	94.57	-85%	25,469,800	5,552,428	-19,917,372	-78%	
		Car 3	88,711	88,711	0%	641.56	94.57	-85%	9,614,506	6,229,982	-3,384,524	-35%	
		Gasoline Total	159,183	159,183	0%	347.42	181.98	-71%	55,293,335	36,241,445	-19,051,890	-35%	
		Diesel Oil Total	165,866	165,866	0%	339.31	183.67	-46%	56,579,954	17,245,936	-39,334,018	-69%	
	1.A.3.b.iii - Heavy Duty Vehicle Fleets Buses	Diesel Oil	pre-Care	489	489	0%	1090.20	1919.23	-45%	586,987	476,258	-110,729	-19%
			Car 1	147	147	0%	736.37	732.57	-1%	169,212	110,593	-58,619	-35%
			Car 2	1,611	1,611	0%	1,079.47	646.77	-40%	1,221,445	1,041,621	-179,824	-15%
			Car 3	5,769	5,769	0%	631.65	459.55	-27%	3,686,361	2,623,779	-1,062,572	-29%
			Car 4	2,707	2,707	0%	473.80	362.68	-24%	1,362,961	966,413	-396,548	-29%
			Car 5	17,100	17,100	0%	362.81	186.64	-49%	6,213,175	3,186,814	-3,026,361	-50%
1.A.3.b.iv - Motorized Two-Wheelers (MOWs)	Gasoline	Car 6	35,135	35,135	0%	68.43	186.64	269%	1,518,981	4,498,133	2,979,152	196%	
		Buses Total	52,939	52,939	0%	214.41	247.85	14%	14,527,092	13,118,978	-1,408,114	-10%	
		Car 1	3,140	3,140	0%	1034.96	737.35	-29%	3,260,020	2,376,443	-883,577	-27%	
		Car 2	969	969	0%	747.60	468.39	-37%	724,240	453,754	-270,486	-37%	
		Car 3	4,560	4,560	0%	817.42	581.04	-29%	3,734,343	2,280,567	-1,453,776	-39%	
		Car 4	16,307	16,307	0%	628.94	351.58	-44%	10,320,323	5,716,580	-4,603,743	-44%	
1.A.3.b.v - Motorized Two-Wheelers (MOWs)	Gasoline	Car 5	195,313	195,313	0%	386.86	273.43	-29%	8,236,679	3,689,326	-4,546,353	-55%	
		Car 6	195,313	195,313	0%	295.13	154.92	-48%	8,236,679	3,689,326	-4,546,353	-55%	
		Car 7	432,480	432,480	0%	72.98	154.92	110%	11,375,480	67,083,653	55,708,173	491%	
		Trucks Total	959,913	959,913	0%	953.39	165.17	-83%	15,580,760	100,899,376	85,318,616	554%	
		pre-Care	4,913	4,913	0%	125.69	164.79	31%	664,997	732,771	67,774	10%	
		Car 1	2,835	2,835	0%	125.39	177.29	41%	365,456	582,589	217,133	59%	
1.A.3.b.vi - Motorized Two-Wheelers (MOWs)	Gasoline	Car 2	3,084	3,084	0%	119.33	186.86	67%	390,224	616,317	246,093	63%	
		Car 3	6,082	6,082	0%	49.03	186.86	387%	240,284	1,183,617	943,333	397%	
		Car 4	2,085	2,085	0%	21.69	186.86	871%	43,489	386,647	343,158	791%	
		Car 5	1	1	0%	0.00	186.86	0%	0	0	0	0%	
		Car 6	12,170	12,170	0%	86.95	186.83	113%	5,813,450	5,592,941	-220,509	-4%	
		MOWs Total	2,262,080	2,262,080	0%	158.56	132.83	-33%	47,268,744	292,497,493	144,771,248	306%	

Table 2: annual NO_x adjustment proposals, in kilotonnes

on Emission Inventories and Projections (CEIP): CEIP/Adjustment RR/2014/GERMANY: Review of the 2014 Adjustment Application by Germany, URL: https://webdab01.umweltbundesamt.at/download/adjustments2014/Adjustment_Review_Report_GERMANY_2014.pdf?cgiproxy_skip=1, 5 August 2014 : 10 : CEIP, 2014b: Centre on Emission Inventories and Projections (CEIP): ECE/EB.AIR/GE.1/2014/10: Review of adjustment applications 2014; URL: http://www.ceip.at/fileadmin/inhalte/emep/pdf/2015/ece.eb.air.ge.1.2014.10.edited.ae_formatting_accepted.ko.pdf, 5 August 2014 : 11 : CEIP, 2015a: Centre on Emission Inventories and Projections (CEIP): CEIP/Adjustment RR/2015/Germany: Review of the 2015 Adjustment Application by Germany, URL: https://webdab01.umweltbundesamt.at/download/adjustments2015/Germany2015-adj.pdf?cgiproxy_skip=1, September 2015 : 12 : CEIP, 2015b: Centre on Emission Inventories and Projections (CEIP): CE/EB.AIR/GE.1/2015/10–ECE/EB.AIR/WG.1/2015/13: Review of adjustment applications 2015; URL: http://www.ceip.at/fileadmin/inhalte/emep/Adjustments/ece.eb.air.ge.1.2015.10_ece.eb.air.wg.1.2015.13.AV.pdf, 6 July 2015 : 13 : CEIP, 2016a: Centre on Emission Inventories and Projections (CEIP): Review of the 2016 Adjustment Application by Germany, URL: https://webdab01.umweltbundesamt.at/download/adjustments2016/Germany2016-adj.pdf?cgiproxy_skip=1, 2016 : 14 : CEIP, 2016b: Centre on Emission Inventories and Projections (CEIP): ECE/EB.AIR/GE.1/2016/10–ECE/EB.AIR/WG.1/2016/18: Review of adjustment applications 2016; URL: http://www.ceip.at/fileadmin/inhalte/emep/pdf/2016/ECE_EB.AIR_GE.1_2016_10_E.pdf, 2016 : 15 : CEIP, 2017a: Centre on Emission Inventories and Projections (CEIP): ECE/EB.AIR/GE.1/2017/10–ECE/EB.AIR/WG.1/2017/20: Review of adjustment applications 2017; URL: http://www.ceip.at/fileadmin/inhalte/emep/pdf/2017/Advance_ece_eb_air_ge_1_2017_10_ece_eb_air_wg_1_2017.pdf, 2017 : 16 : CEIP, 2018a: Centre on Emission Inventories and Projections (CEIP): ECE/EB.AIR/GE.1/2018/10–ECE/EB.AIR/WG.1/2018/21: Review of adjustment applications 2018; URL: https://www.ceip.at/fileadmin/inhalte/emep/pdf/2018/ADJ_ece.eb.air.ge.1.2018.10-ece.eb.air.wg.1.2018.21_advance.pdf, 2018 : 17 : CEIP, 2019a: Centre on Emission Inventories and Projections (CEIP): ECE/EB.AIR/GE.1/2019/10–ECE/EB.AIR/WG.1/2019/22: Review of adjustment applications 2019; URL: https://www.ceip.at/fileadmin/inhalte/emep/pdf/2019/ECE_EB.AIR_GE.1_2019_10-1909789E.pdf, 2019 : 18 : Keller et al. (2017): Keller, M., Hausberger, S., Matzer, C., Wüthrich, P., & Notter, B.: Handbook Emission Factors for Road Transport, version 3.3 (Handbuch Emissionsfaktoren des Straßenverkehrs 3.3) URL: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=2ahUKEwj0y67pi5foAhWB16QKHfpYDIgQFjAAegQIAhAB&url=https%3A%2F%2Fwww.hbefa.net%2Fd%2Fdocuments%2FHBEFA33_Hintergrundbericht.pdf&usq=AOvVaw2sOF884KtccVyWLItdt1CIZ - Dokumentation, Bern, 2017. : 19 : Notter et al. (2019): Keller, M., Althaus, H.-J., Cox, B., Knörr, W., Heidt, Ch., Biemann, K., Räder, D.: Handbook Emission Factors for Road Transport, version 4.1 (Handbuch Emissionsfaktoren des Straßenverkehrs 4.1), HBEFA 4.1 Development Report; URL: https://www.hbefa.net/e/documents/HBEFA41_Development_Report.pdf, Bern, Heidelberg, 21. August 2019. [bibliography](#)

¹⁾ (bibcite 4)

²⁾ (bibcite 1)

³⁾ (bibcite 3)

⁴⁾ (bibcite 2)

⁵⁾ (bibcite 4)

⁶⁾ (bibcite 5)

⁷⁾ (bibcite 6)

⁸⁾ (bibcite 18)

⁹⁾ (bibcite 19)