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## The Ewringmann report on pump tourism (part 2)



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In this second part I will write on the different costs calculated in the report (which usually speaks of "external costs"). I will start with the costs associated to traffic inside the Luxembourg borders, then comment on the so-called global "climate" costs, and finally look carefully at the total costs caused by the emissions (=pollutants) attributed to the fuel bought at Luxembourg's gas stations.

### 3. Costs from the traffic inside Luxembourg

The following table (an edited original Tabelle 3, p.23) shows that the average external cost per driven km is about 0.11 € :

**Tabelle 3: Externe Kosten der in Luxemburg gefahrenen Fz/km**

	Kosten/100km from UBA	Mrd. Fz/km	Kosten/100 km (in €)	Externe Gesamtkosten (in Mrd. €)
<b>PKW</b>	<b>6,352</b>		<b>0,659</b>	<b>0,510</b>
Dieselfz.	4,891	8,33		0,407
Benzinfz.	1,461	7,03		0,103
<b>Inländer*</b>	<b>4,792</b>			<b>0,384</b>
Dieselfz.	3,690	8,33		0,307
Benzinfz.	1,102	7,03		0,077
<b>Pendler*</b>	<b>1,204</b>			<b>0,096</b>
Dieselfz.	0,927	8,33		0,077
Benzinfz.	0,277	7,03		0,019
<b>Sonst. Ausländer*</b>	<b>0,357</b>			<b>0,029</b>
Dieselfz.	0,275	8,33		0,023
Benzinfz.	0,082	7,03		0,006
<b>LKW</b>	<b>0,985</b>		<b>0,246</b>	
Ausländer	0,808	25,00**		0,202
Inländer	0,177	25,00**		0,044
<b>Busse</b>	<b>0,076</b>	<b>36,30</b>	<b>0,028</b>	
<b>Luxemburg gesamt</b>	<b>7,413</b>		<b>0,763</b>	<b>0,784</b>

The cost factors in column 3 are Umweltbundesamt (UBA) numbers, and include emissions of GHG, pollutants, procuring the fuel (but not the price of the fuel itself), damage to the environment, health and costs of accidents. I will not discuss the validity of these numbers (which could be exaggerated, knowing of UBA's tendency for dramatization). A 2008 [report](#) from the University of San Francisco comes to a similar conclusion, giving for instance a cost of 0.1146 US\$ per mile driven on a Honda Accord, which is close to 0.0703 €/km, the number the UBA uses for gasoline cars (lines "Benzinfz." in the table). The conclusion is that 7.413 billion km of traffic have external costs of 0.784 billion € (I use the term "billion" in the US sense, 1 billion = 1 Milliarde = 10^9). In my opinion, calculating the costs from the real driven km is the correct manner to do. The costs per km are IMHO surprisingly low, similar to the fuel costs per km of a mid-size car.

This result could be the final word of the report; on the positive side of the balance are 2440 jobs and a contribution to Luxembourg's GNP (gross national product) of approx. 1600 million € in 2012 (p. 47); on the negative sides are costs of 784 million € and 28 millions which must be paid to the Kyoto fund. **This gives a positive balance of 788 million € plus 2440 jobs.**

**If the report would have respected its mandate, it should conclude with the advice to leave everything as it is and not to try to destroy a very positive feature of Luxembourg's economy by so-called "environmental" political decisions.** But that is not the case, as will be shown in the next two discussion points.

### 4. Costs to the climate ("Klimafolgenkosten")

In chapter 3.1. the author tries to evaluate the climate relevant costs from all the quantities sold. This is a clear example of shifting the focus from examining in-border costs to "global" costs, of which only a tiny part could eventually attributed to Luxembourg. Actually, even ignoring this questionable focus shift, this whole chapter should be scrapped, as the uncertainties in putting numbers on the "climate" or "CO2" costs vary so enormously as to make any calculated result absolutely meaningless. In page 34, Ewringmann acknowledges that these attributed climate costs are, depending on the methodology used, anywhere **between 16 and 3000 million Euro** (yes: 3000 million, this is not a typo!). The only lesson told by such an extreme range is that the "science" to evaluate these climate costs actually is unusable, and should be considered as totally immature and unsettled.

So I will not write more on the chapter 3.1., but will pass on to the next chapter 3.2. on the costs of emitted pollutants.

### 5. Costs of traffic induced emissions.

Here the author again does not refrain from calculating the emissions costs from both the in-border used fuel and the exported fuel, a decision I strongly disagree with. In my opinion he should have made his calculations on the first category, and ignore the costs of pollution happening outside the country.

The author first gives a table showing that the costs of a pollutant are not a given number, but vary with the country where the pollution does occur. As these costs are modulated by population density, mean income etc., they are nearly double for Luxembourg than for the average EU:

**Tabelle 15: Grenzschaadskosten aus Luftschadstoffemissionen**

	EU-Durchschnitt		Luxemburg	
	Unterer Wert*	Oberster Wert*	Unterer Wert*	Oberster Wert*
SO <sub>2</sub>	5.600	16.000	9.800	28.000
NO <sub>x</sub>	4.400	12.000	8.700	24.000
NH <sub>3</sub>	11.000	31.000	25.000	72.000
VOCs	950	2.800	2.700	8.000

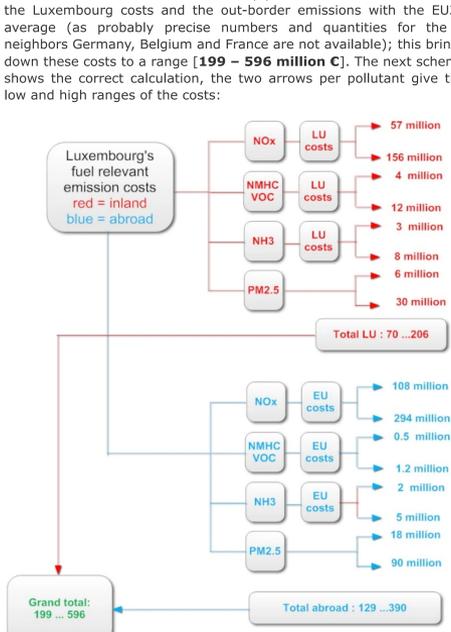
This table of the costs in €/ton (metric ton) does not give those of PM2.5 fine particles, which are assumed anything between 81400 and 392600 €/t. The author gives a total of 308 tons of PM2.5 emitted from all the fuel sold; with 75% exported, this amounts to an inland cost in the range of [6 - 30 million €] and an out of border cost to [18 - 90 million €].

Now comes what I consider a serious error: in calculating the total costs, the author simply multiplies the total pollutant quantities with the unitary costs applicable for Luxembourg and finds a range of **[295 - 817 million €]**, with rounded numbers:

**Tabelle 16: Externe Kosten aus Luftschadstoffemissionen in Luxemburg**

	Emissionsmengen (in t)			Spezifische Kosten		Gesamte externe Kosten (in Mio. Euro)	
	Inland	Export	Gesamt	Kosten/t (ir €) niedrig	Kosten/t (in €) hoch	niedrig	hoch
NO <sub>x</sub>	6.500	24.500	31.000	8.700	24.000	270.000	744.000
SO <sub>2</sub>	11	23	34	9.800	28.000	0.333	0.952
NMHC	1.463	437	1.900	2.700	8.000	5.130	15.200
NH <sub>3</sub>	108	162	270	25.000	72.000	6.750	19.440
PM 2.5			308	41.000	120.000	12.628	36.960
<b>Gesamt</b>						<b>294.841</b>	<b>816.552</b>

What he should have done is to multiply the in-border emissions with the Luxembourg costs and the out-border emissions with the EU27 average (as probably precise numbers and quantities for the 3 neighbors Germany, Belgium and France are not available); this brings down these costs to a range **[199 - 596 million €]**. The next scheme shows the correct calculation, the two arrows per pollutant give the low and high ranges of the costs:



The number of 817 million is what the media focused on; as shown there are at least two good reasons why this number is wrong:

- » the calculation method is wrong
- » the range of the UBA unitary costs for the PM2.5 (the lower costs are for out-of-town emissions) is unbelievable large

and finally, and once again, I disagree completely in adding the costs related to exported emissions to a total which is meaningless in the frame of the mandated report (and should be given as a curiosity at most).

After correctly writing (p. 40) that "...ist kein Anlass, Luxemburg pauschal als Verursacher dieser Kosten anzusehen", the author by a twitch of logic concludes that "Dennoch ist es durchaus plausibel und gerechtfertigt, Luxemburg...die Bilanz der Gesamtexternalitäten vorzuhalten". **No, it is not !**

If we include the costs of inland emissions into the previous balance, we still find a largely positive balance of [582 ... 718] million € plus 2440 jobs. **But this calculation is moot, as the report's mission was to focus on the costs of the pump tourism (in the larger sense of total exported fuel); there is absolutely no reason to include the inland costs due to pollutants in this analysis, as these costs are almost independent of and not caused by the pump tourism.**

(end of part 2)  
(to be continued with part 3)

### A remark added the 23-Dec-2016:

a. The WHO (World Health Organization) sets the standards (or guidelines) for air pollution. Here are the guidelines for the annual or other time-interval mean concentrations:

NO2: 40 ug/m3

SO2 : 20 ug/m3 as the maximum 24h mean

O3 : 100 ug/m3 as the maximum 8h mean

SO2: 20 ug/M3 as the maximum 24h mean

It should be noted that in 2014 **92% of the world population did not meet WHO standards.** This is a clear sign that at least some of these guidelines might be over the top. An example can be found in [this report](#) on O3 and PM2.5 pollution in the industry free Great Smoky Mountains National Park: In the 7 years 2008 to 2014, the yearly mean of the 8h averages exceeded 40 ppbV (= 86 ug/m3) during 3 years. The EPA wants to limit O3 exposure to 60-70 ppbV, close to the natural background in the GSMNP. In 2016, the O3 limit was exceeded for several days in 8 of the 24 US National Parks; the Sequoia NP holds the record with 92 days of exceedance during the year 2016 open season ([link](#)).

b. NO2 annual levels:

The following map from the EEA shows the 2013 mean annual NO2 levels: clearly large cities and industrial regions usually exceed the 40 ug/m3 limit (red and brown points).



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