Environmental zones in the Netherlands

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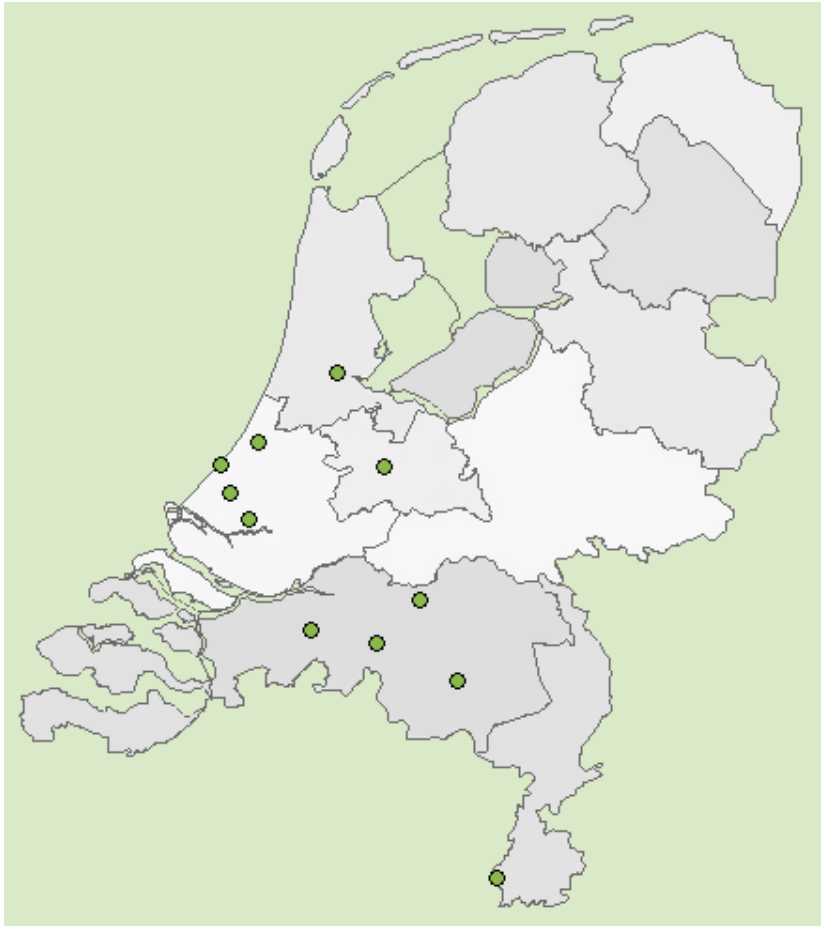
Environmental zones in the Netherlands, 2012

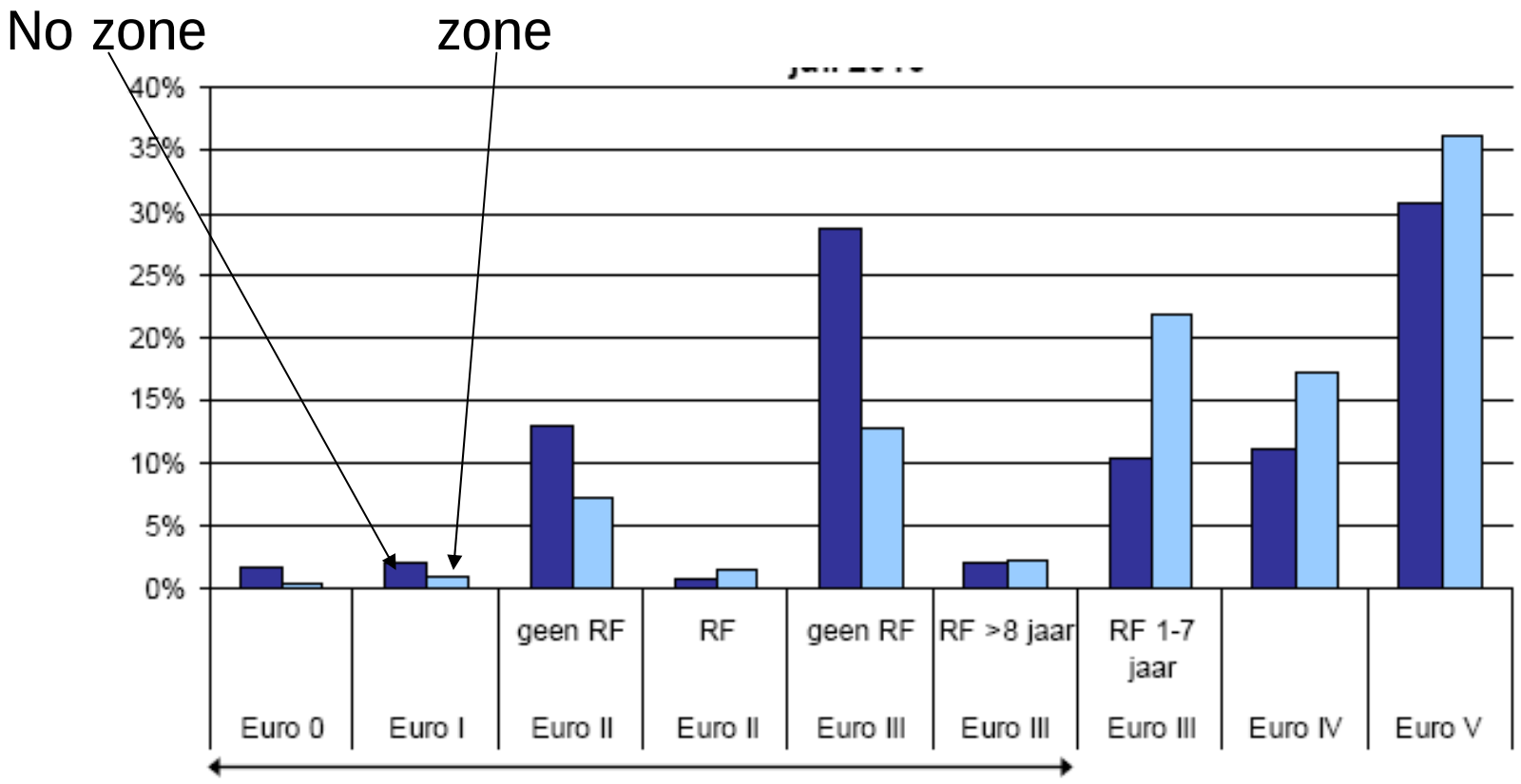


http://www.milieuzones.nl/locaties-milieuzones

The current rules

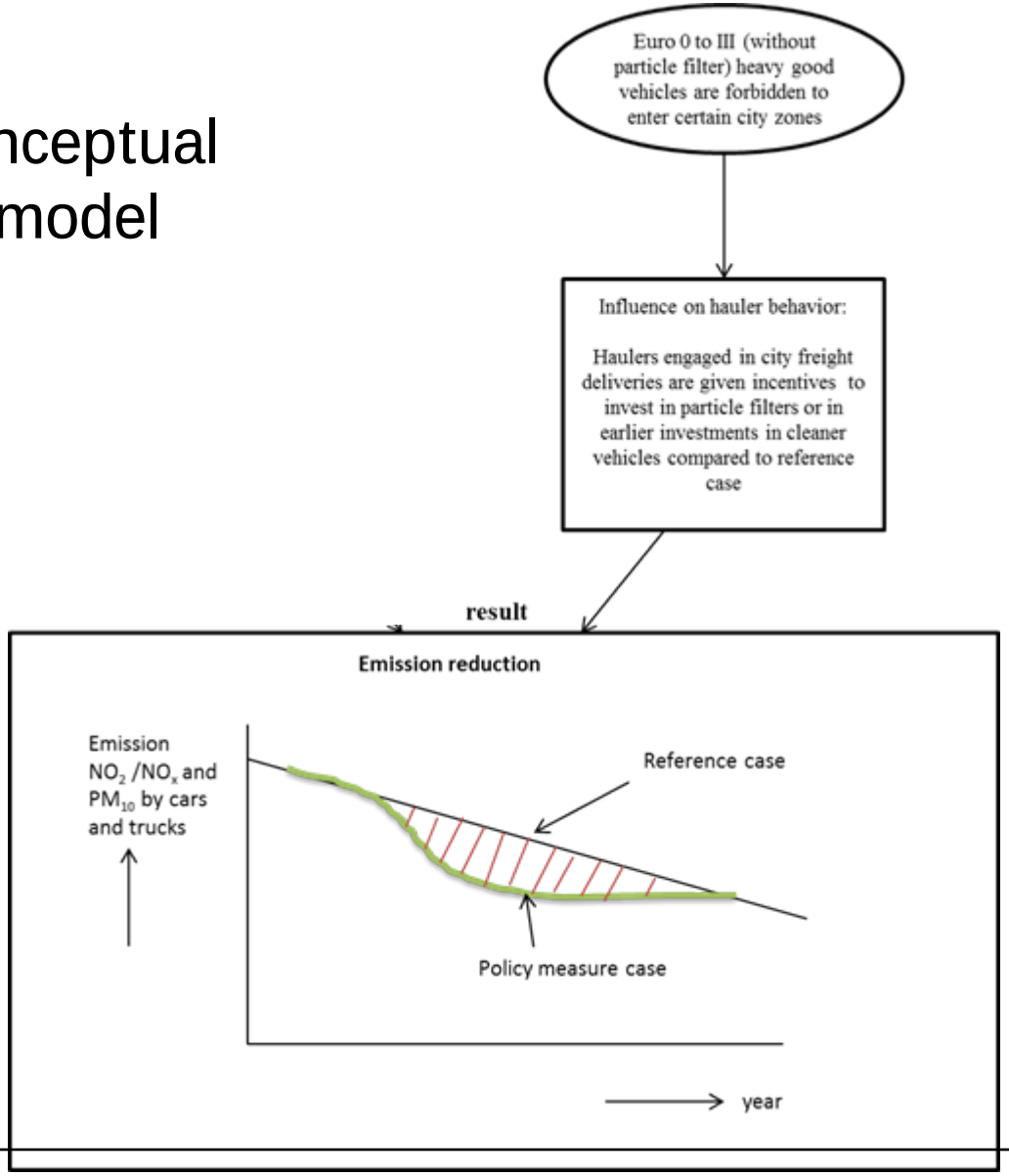
Period of exemptions	Exemptions to enter the zone (only applicable for lorries >3500 kg):
From 1 January 2010 to 1 July 2013	1. Euro IV motor or higher; 2. Euro III motor with certified particle filter and younger than 8 year compared to the date of first allowance; 3. lorries which use other fuel than diesel.
From 1 July 2013	1. Euro IV motor or higher; 2. lorries which use other fuel than diesel.

Impact environmental zones on shares (July 2010)



Goudappel, 2010

Conceptual model



Changes in real-world emission factors medium heavy lorries (VERSIT+ model, TNO)

		NO_x Roads in built-up areas (g/km)	NO_x Roads in other areas (g/km)	PM_{10} Roads in built-up areas (g/km)	PM_{10} Roads in other areas (g/km)
Euro 0	1988	16	11	0.8	0.4
Euro I	1992	10	6	0.5	0.2
Euro II	1996	11	7	0.2	0.1
Euro III	2000	**11**	6	0.3	0.1
Euro III with particle filter		**11**	6	0.1	0.05
Euro IV	2005	**10**	5	0.05	0.02
Euro V	2008	**10**	3	0.05	0.02

Some impacts and cost-benefit

	Favorable assumptions	Unfavorable assumptions
Air quality NO_2 concentration along roads	± 0% to 1% bottlenecks earlier solved compared to reference	±0%
Air quality PM_{10} concentration along busy urban roads[a)]	Average reduction ± 0.1% (earlier compared to reference)	±0%
Emission reduction NO_x total PM_{10} urban area PM_{10} outs. built-up	 - 500 tons - 30 tons - 20 tons	 - 90 tons - 2 tons - 4 tons
Costs (Euros**)** Implementation costs Earlier investments Particle filters Total	 3 million 5 million 3 million **11 million**	 3 million 2 million 1 million **6 million**
Benefits (Euros)	**9 million**	**1 - 2 million**

Main conclusion

- Low Emission Zone Policy is not very effective on air quality and the policy is not efficient.
- However, possible traffic safety improvements were not included in the CBA...

Main reason for disappointment

The ‘cleaner’ Lorries less cleaner than expected beforehand (PBL, 2011):

- the SCR catalysts do not seem to function optimally on urban roads
- it is possible that truck manufacturers have optimized their motors and emission reduction technologies in order to comply with the European emission test cycle
- retrofitted particle filters less effective

Main lesson for this kinds of policies

- For the design of policies based on EU vehicle emission standard regulations in the future,
- Test the robustness of a policy ex ante with a wide range of possible real-world emission factors, *including insights that real-world emission factors could turn out to be disappointing compared to test values.*

References

- Goudappel Coffeng en Buck Consultants International (2010), Landelijke effectstudie milieuzones vrachtverkeer 2010, Deventer: Goudappel Coffeng
- http://www.milieuzones.nl/
- PBL (2011), Milieubalans 2010, Bilthoven/Den Haag: Planbureau voor de Leefomgeving
- http://www.tno.nl/downloads/lowres_TNO_VERSIT.pdf