Cost of inaction on air pollution – Synthesis of current knowledge

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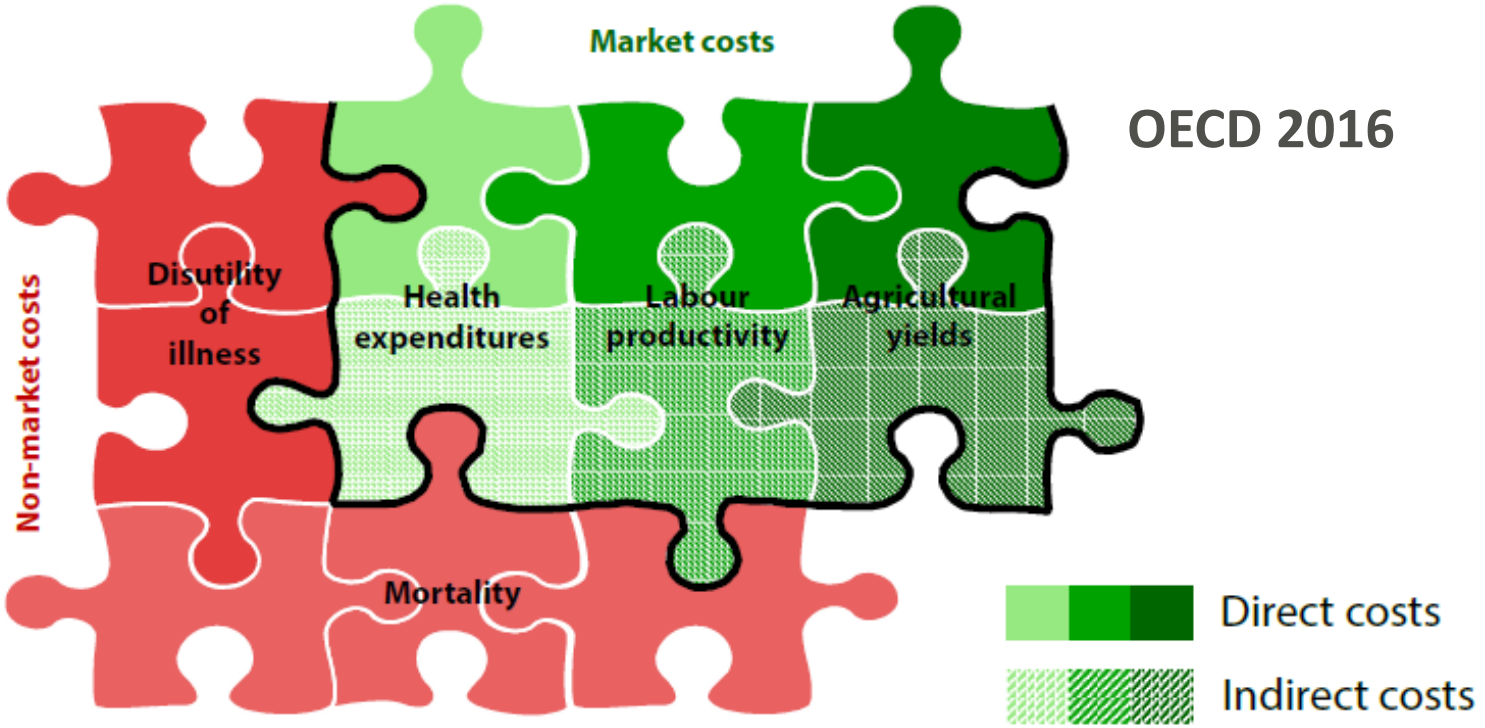
Policy Brief - Outline

Cost of Inaction – what do we mean?

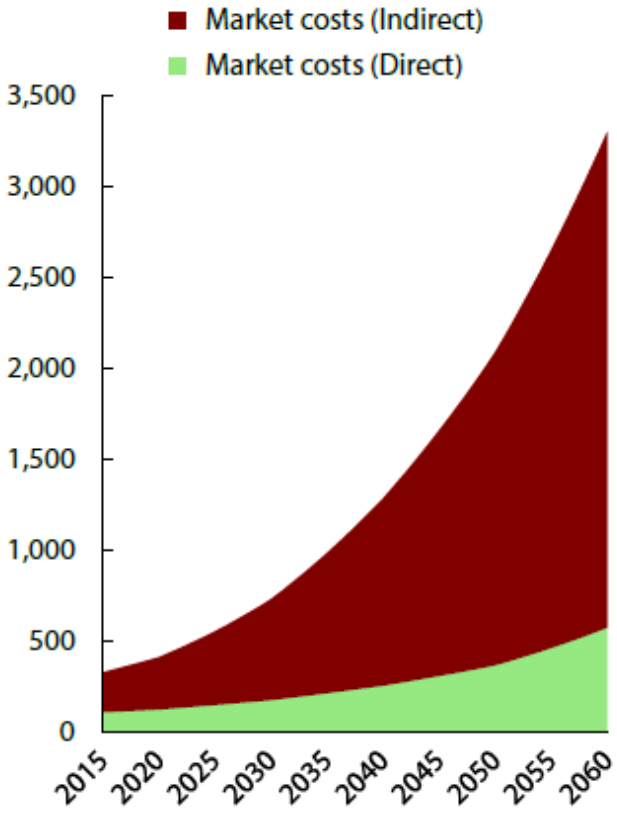
Damage from air pollition that can be avoided by action

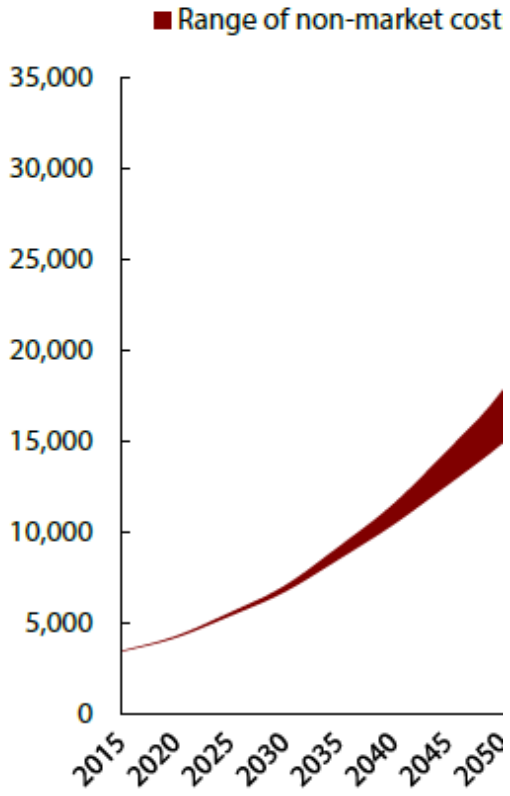


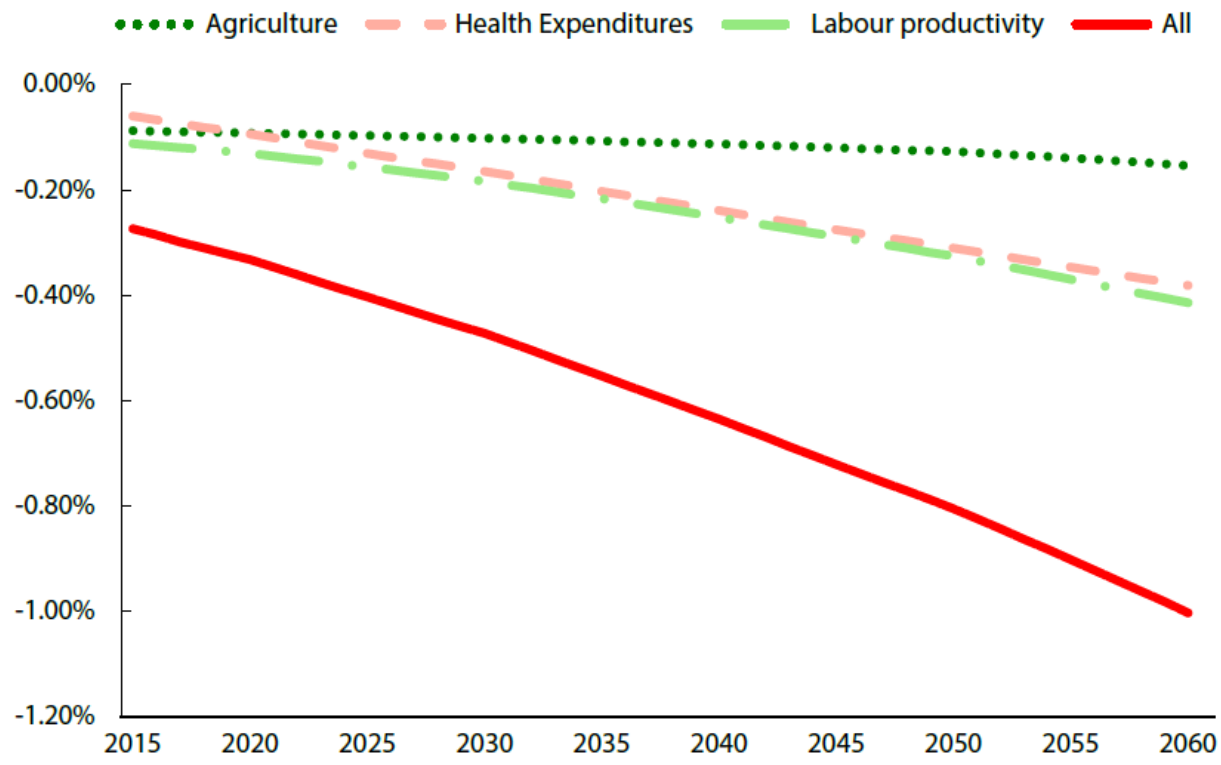
OECD 2016

Market costs, foregone values if no further action is taken

OECD 2016







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Estimates of current damage (mainly non-market values)

A

Billion Euro$_{2010}$

OECD	2015	1 240	5.3%	Mortality	OECD 2017
EMEP	2020	459 / 1385	-	Mortality, morbidity; median VOLY / mean VSL	IIASA 2018 CEP
Non-EU Balkan and EECCA	2020	137 / 416	-		

Lost working days – 1-4%

30% of the current total health damage in EMEP domain, according to IIASA 2018 (additional ARP model runs) – in the non-EU Balkan and EECCA countries.

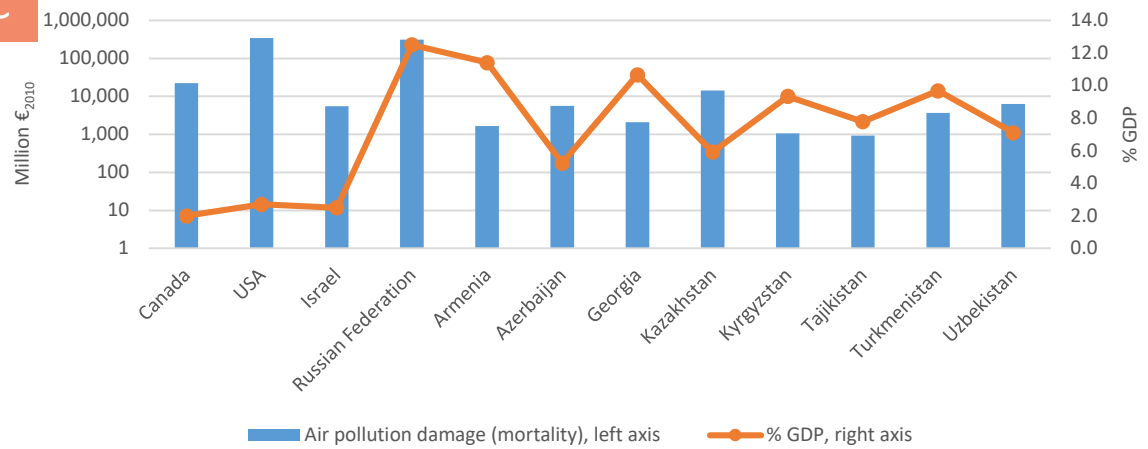
B

Million Euro$_{2010}$

Country	WHO 2015*, 2010		OECD 2017*, 2015		IIASA 2018**, 2020		IIASA 2018**, 2030	
	Value	% GDP	Value	% GDP	Value	% GDP	Value	% GDP
Albania	1 279	6.2	-	-	3 491	-	3 763	-
Austria	8 758	3.3	12 346	4.3	13 902	4.1	12 343	3.2
Belarus	12 638	11.3	-	-	19 810	-	18 637	-
Belgium	15 167	4.6	16 293	4.7	29 996	7.3	24 976	4.9
Bosnia and Herzegovina	1 640	6.4	-	-	5 699	-	5 627	-
Bulgaria	12 832	15.4	-	-	21 438	-	14 674	-
Croatia	4 828	7.5	-	-	10 509	-	8 238	-

C

Based on WHO 2015, OECD 2017



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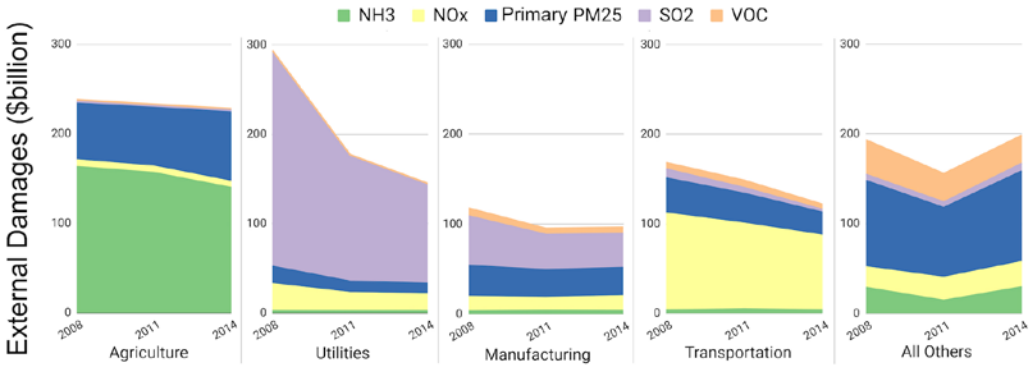
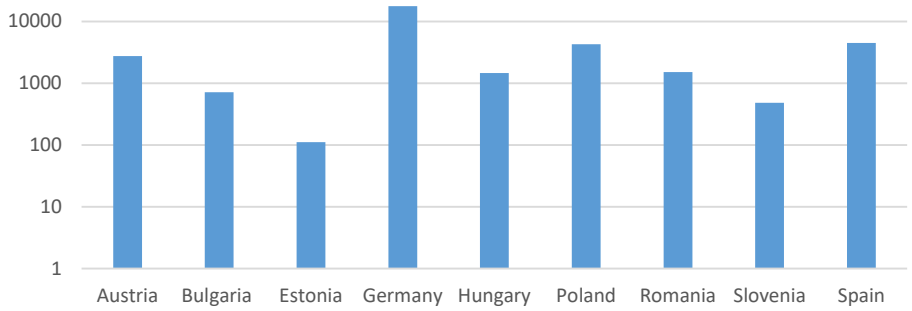
Tschofen 2019, USA



E

CE Delft 2018 (Diesel)

Traffic related air pollution in 2016, million €$_{2010}$

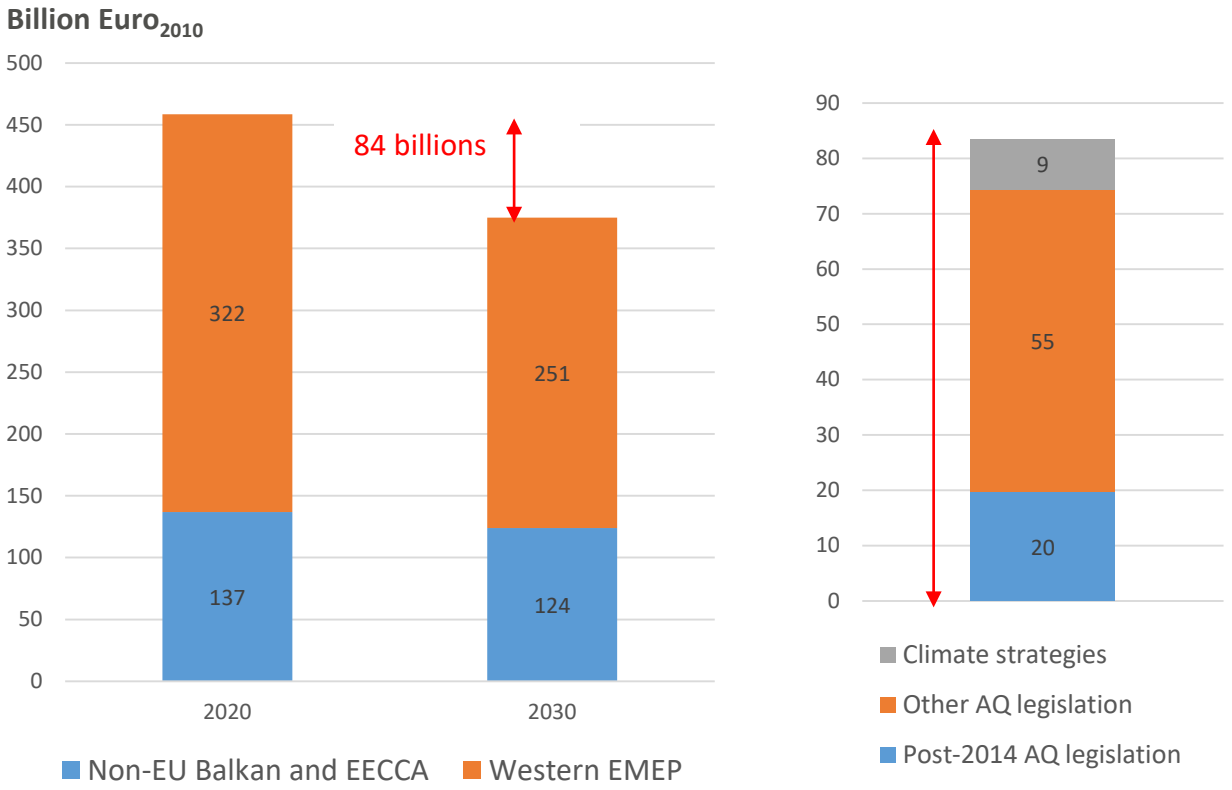


F

Greenpeace 2020: Global costs of air pollution from fossil fules are estimated at 6 billion Euro$_{2010}$ per day, or 3.3% of the world's GDP.

Benefits of action – non-market costs

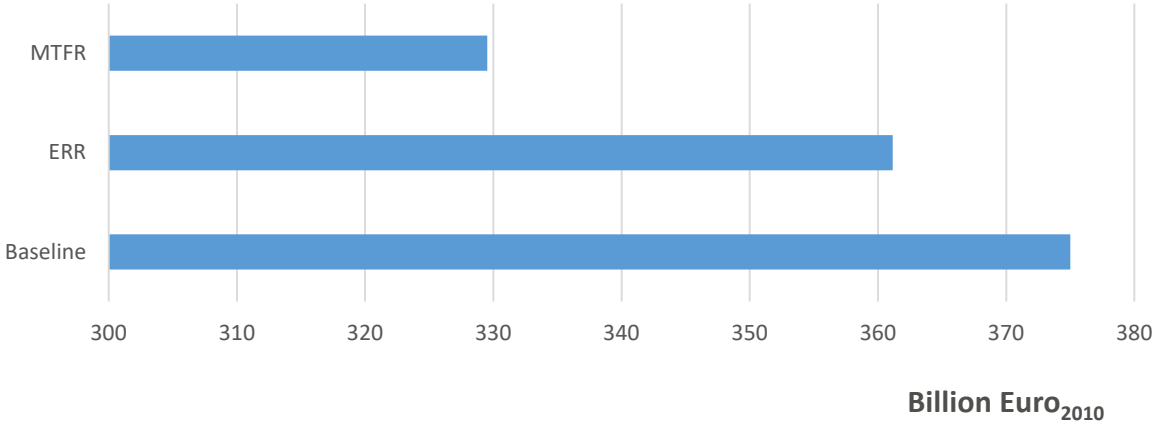
Benefits of action in place



Potential benefits of action non-taken yet

ERR – 14 billion Euro$_{2010}$ potential benefit in 2030

MTFR – 45 billion Euro$_{2010}$ potential benefit in 2030



Based on scenarios "EU Outlook 2017 – ver. Dec. 2018"

ERR = cost-effective achievement of NECD emission reduction requirements

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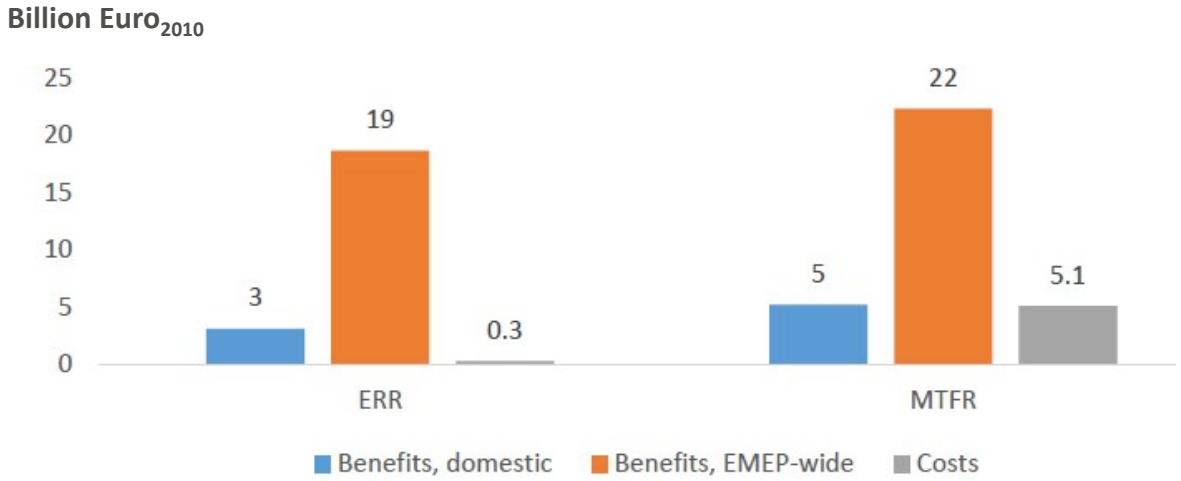
Benefits of action vs costs of action (CBA)

Strategy, measure	Benefit-to-cost ratio	Source
Clean Air Act (USA)	31	USEPA 2011
USEPA regulations between 2004 and 2014	>4	OMB 2015
Clean Air Policy Package: Final proposal (EU 28)	12-42	TSAP 11
BATC compliance, steel production facilities	3.3 - 14	Ricardo 2018
PM2.5 emissions by 25% (EU)	>200	OECD 2019 Europe
NEC Directive (current measures), effect in 2030 (EMEP), according to REF-scenarios	*7/26*	*IIASA 2018*
ERR on top of baseline, effect in 2030 (EU-28)	*22 /80*	*IIASA 2018*

Domestic/national vs EMEP-wide perspective – example for Germany

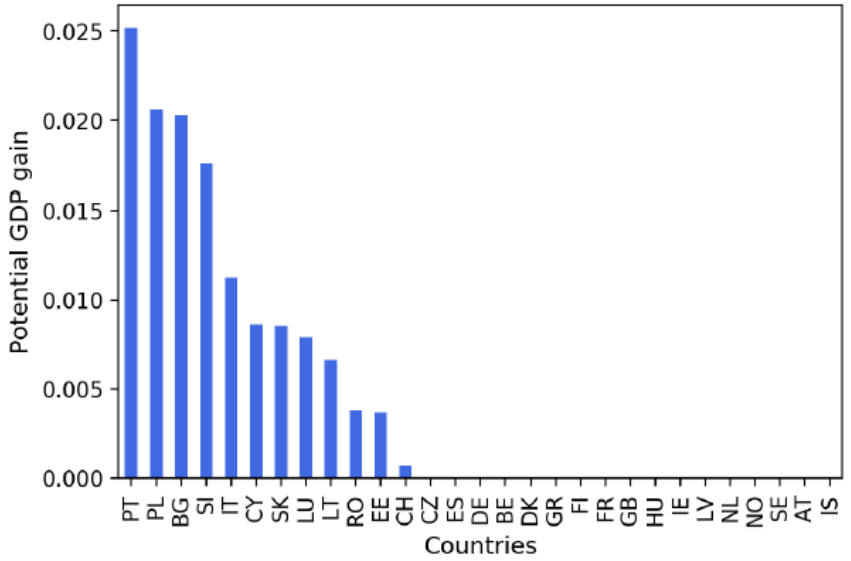


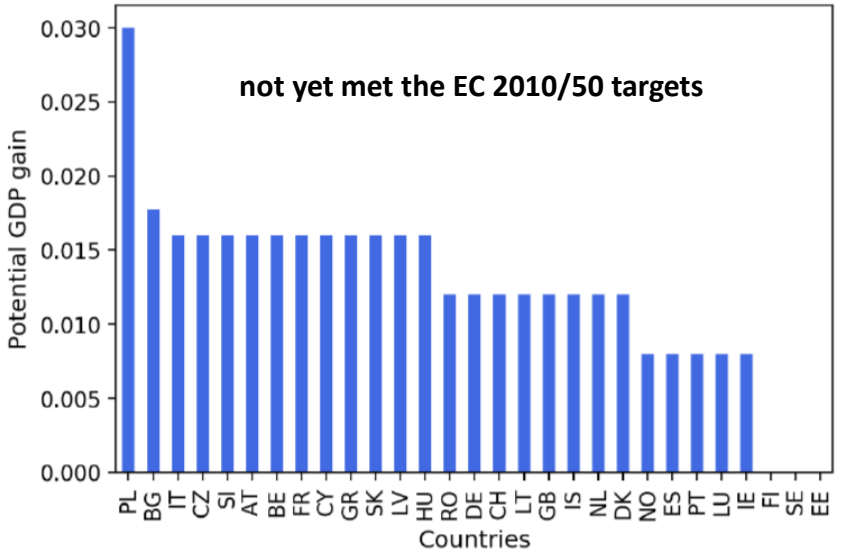
B/C ratio		Mid VOLY	Mid VSL
ERR	Domestic perspective	18	72
	EMEP-wide perspective	61	445
MTFR	Domestic perspective	1.04	4.2
	EMEP-wide perspective	2.9	18.5

Benefits of action – market effects (GDP gain)

OECD 2019 - The economic costs of air pollution: Evidence for Europe

- 1 μg/m^3 increase in $PM_{2.5}$ concentration causes a 0.8% reduction in real GDP the same year.
- 95% of this impact is due to reductions in output per worker, which can occur through greater absenteeism at work or reduced labour productivity.
- Public policies to reduce air pollution may contribute positively to economic growth. Reaching the AQ targets for 2010-2020 would increase European GDP by 1.25% (up to 3% in the most polluted countries)
- Economic benefits from reducing emissions of $PM_{2.5}$ by 25% across Europe are estimated as 200 greater than corresponding abatement costs (under assumption that costs translate linearly into reductions in concentration of similar magnitude).
- **!!! More stringent air quality regulations could be warranted based solely on economic grounds, even ignoring the large benefits in terms of avoided mortality.**





Key messages (draft)

- In more than half of the UNECE countries the current monetary damage to health and ecosystems due to ambient air pollution corresponds to >5% of GDP. In 10 countries, the damage is >10% of GDP. The monetized damage is – as a percentage of GDP - in the eastern part of the UNECE region significantly higher than in the western part.
- *Benefits of action: due to existing policies the monetary damage up to 2030 is expected to be reduced by ~20% (between 2020 and 2030).* The expected damage reduction will (as a percentage of GDP) be higher in the western part of the UNECE-region. Labour productivity losses contribute to up to 4% of the total benefits.
- *Costs of inaction: up to 12% of the monetary damage in the EMEP region in 2030 could be avoided by additional policy actions, at least 4% - with reasonable costs*. Especially in the eastern part of the UNECE-region there is a large potential to reduce the costs of inaction.
- The costs of taking action tend to be significantly lower than the cost of inaction.
- The 'damage cost approach' is a useful tool to assess the external costs new infrastructure or installations, but requires further development. Often these assessment tool only look at local or national damage, while transboundary damage is omitted. A comprehensive assessment would require including all external effects.

Thank you!

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