

Assessment of the proposed EU air quality directive

Are the proposed air quality limit values feasible in the Netherlands?
What will be the public health gains?

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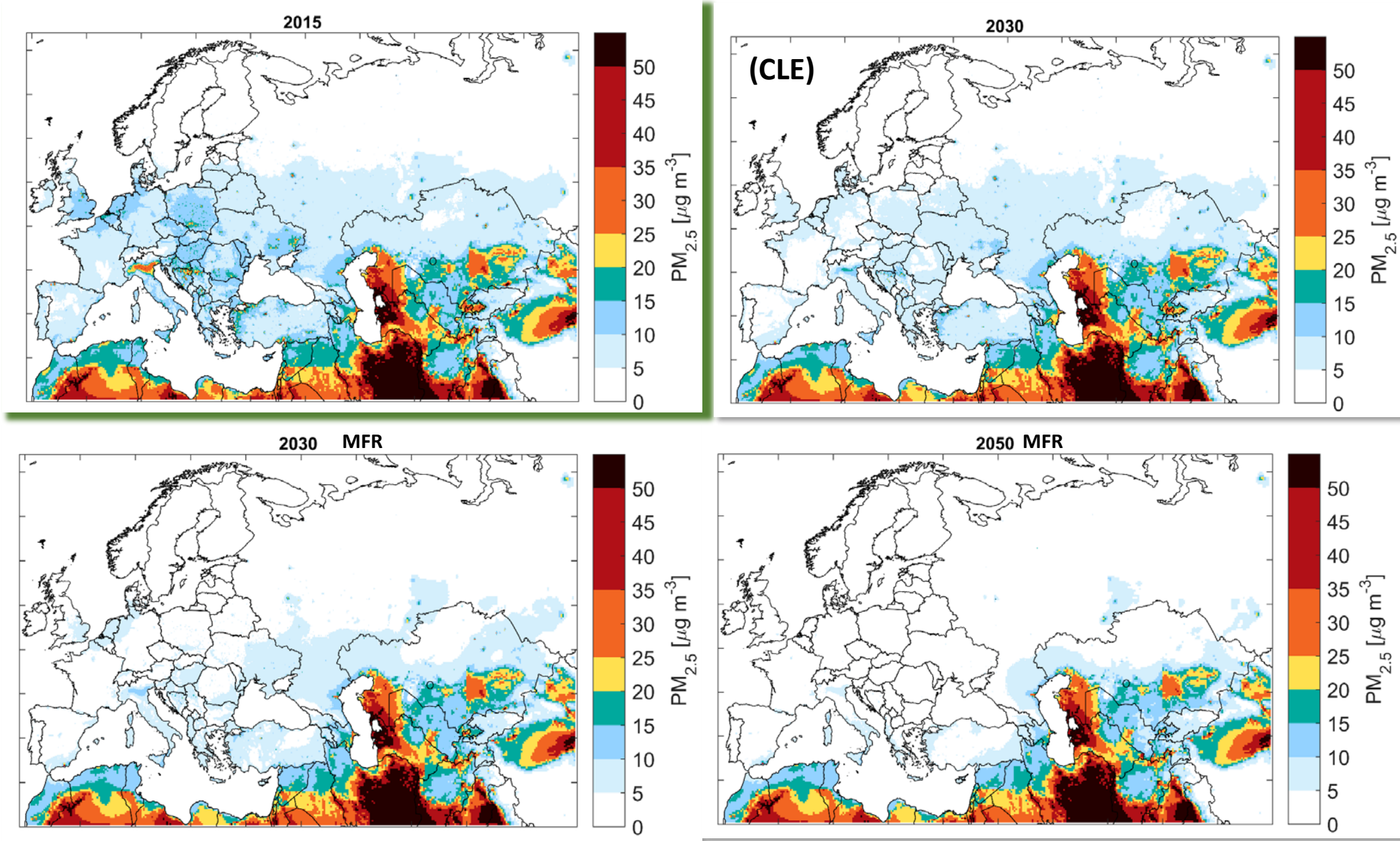
TFIAM52 - Utrecht 24-26 May 2023

Stricter Air Quality Limit Values, but less health gains than with WHO- guideline

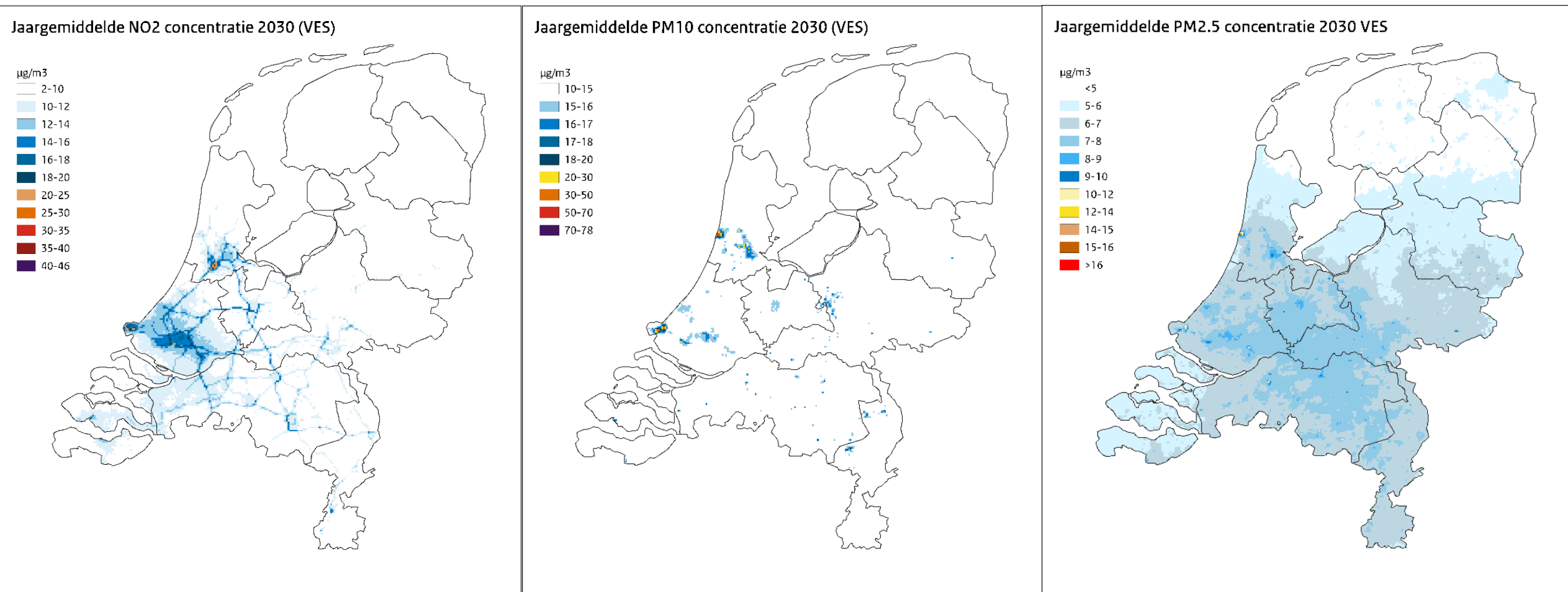
	Current Limit value	Proposed Limit value	WHO Guideline
PM2.5	25	10	5
PM10	40	20	15
NO ₂	40	20	10
Ozon (8u)	120	120	100

Maximum annual average concentrations of PM2.5, PM10 and NO₂; maximum 8-hour target value for ozone, in microgram per cubic meter ($\mu\text{g}/\text{m}^3$)

Impact assessment European Commission

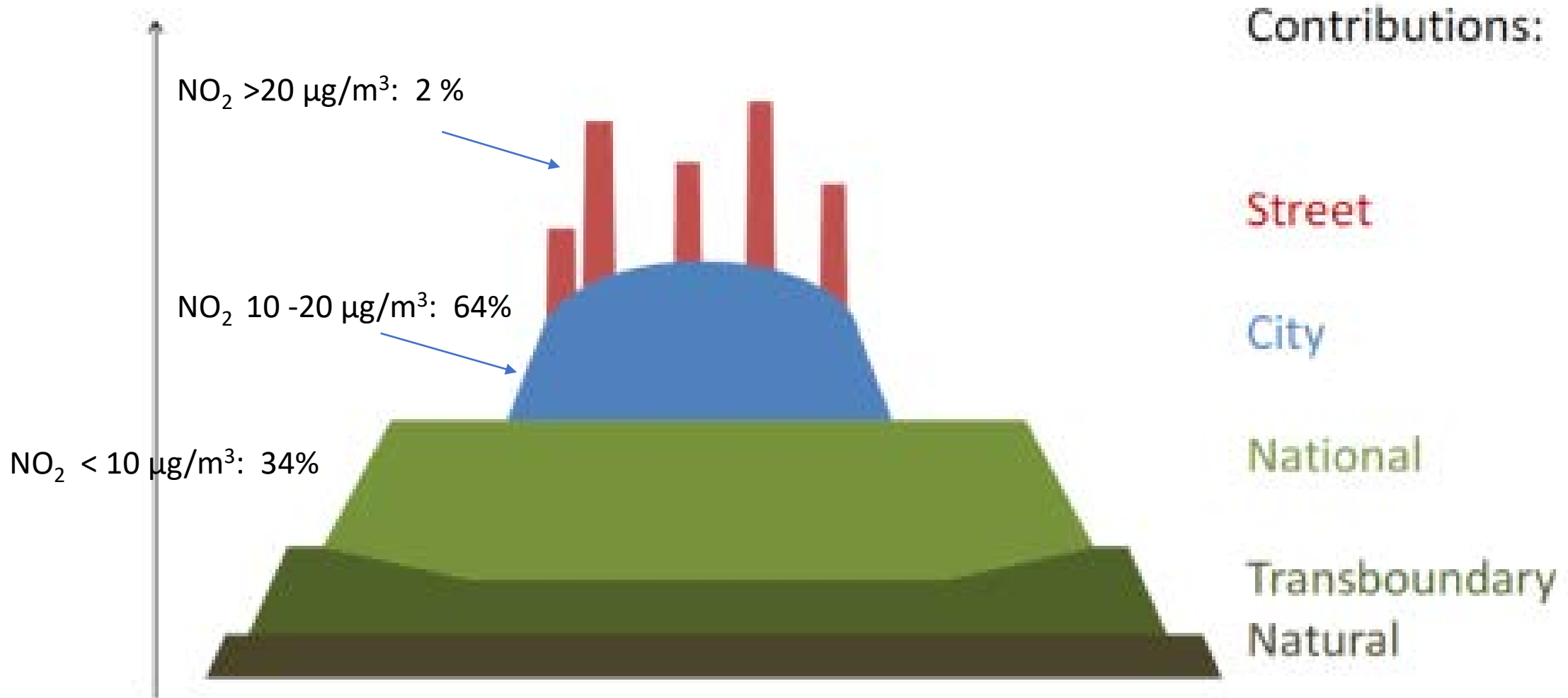


Air quality 2030 with existing air and climate measures

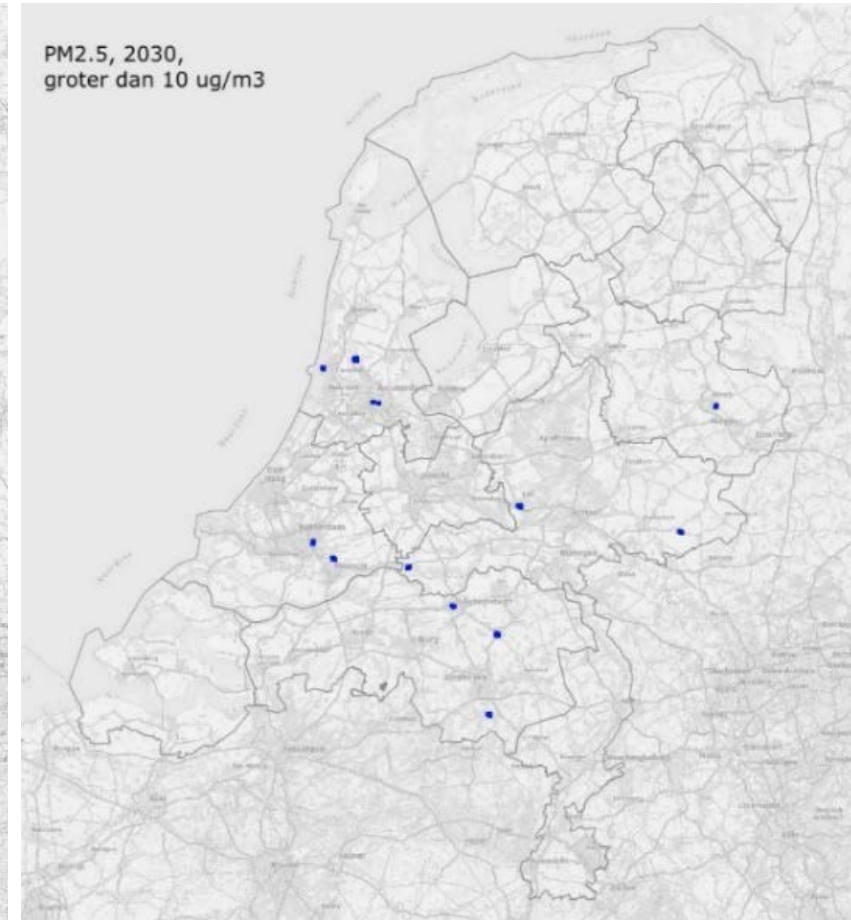
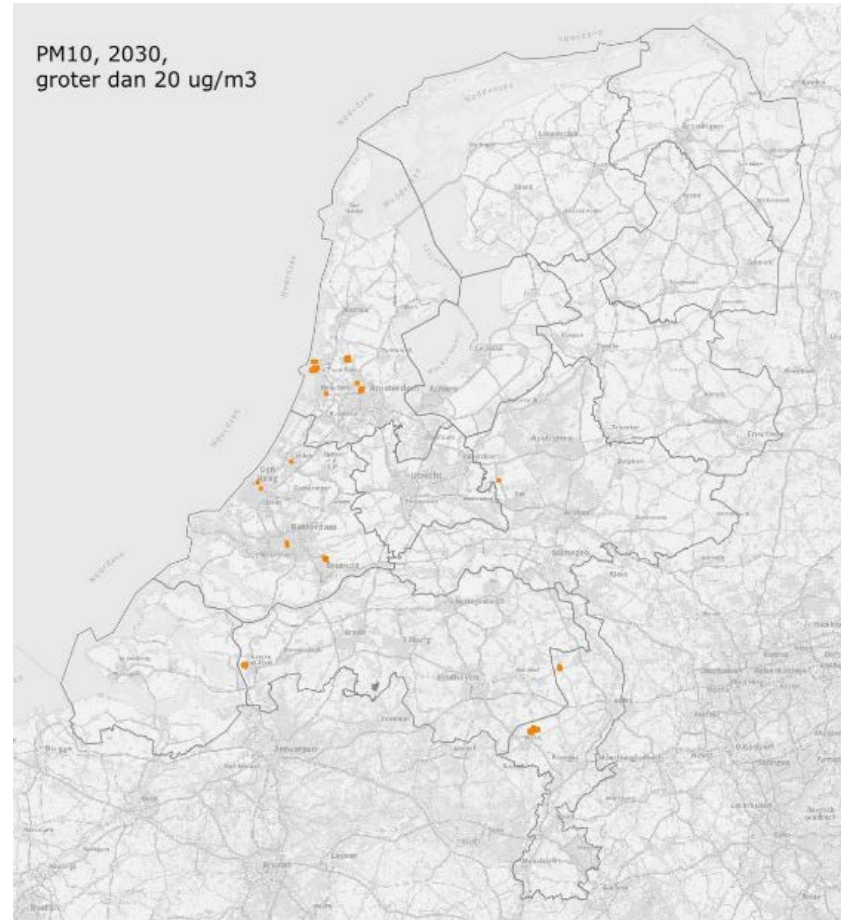
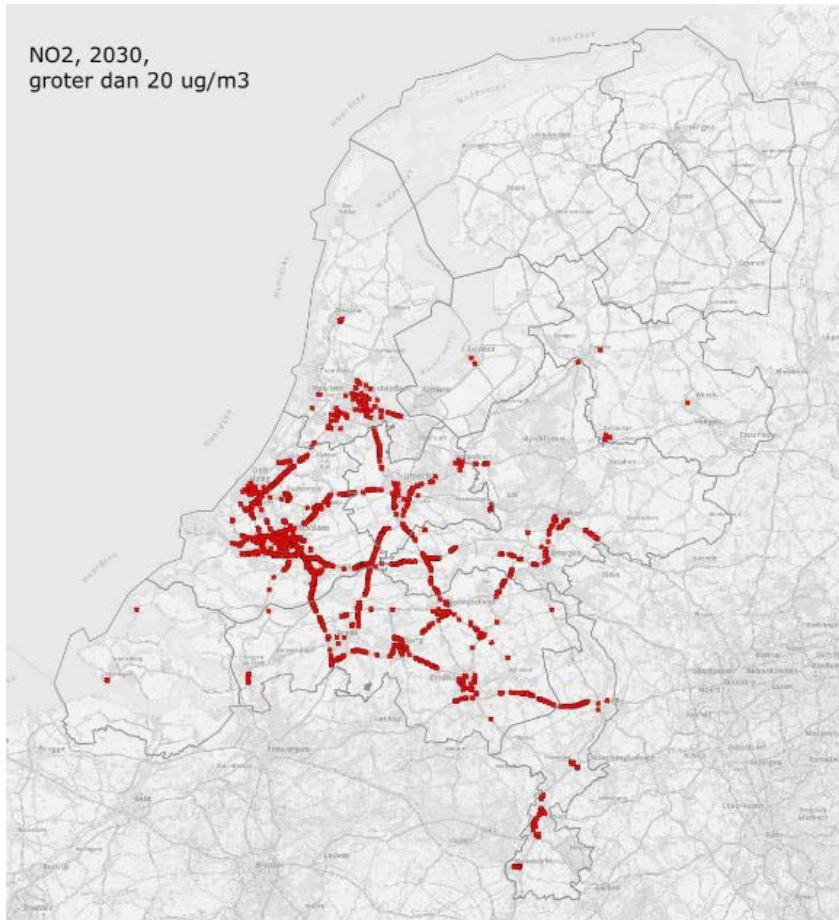


Average annual concentrations at 1x1 km resolution

The higher the spatial resolution, the more exceedances



Calculated exceedances within 20m from roads (for each 100m road)



Reliability of measurements

Allowable uncertainty margins for concentrations around the annual limit value:

+/- 6 $\mu\text{g}/\text{m}^3$ voor NO_2 (+/- 30%) \rightarrow 26 $\mu\text{g}/\text{m}^3$ still acceptable?

+/- 3 $\mu\text{g}/\text{m}^3$ voor $\text{PM}_{2.5}$ (+/- 30%)

+/- 4 $\mu\text{g}/\text{m}^3$ voor PM_{10} (+/- 20%)

Average Exposure Reduction = indicator for health gains

	NO2	PM2.5
North	44%	28%
East	43%	31%
West	36%	26%
South	41%	30%
<i>Reduction target</i>	25%	25%

Unweighted average of expected reductions in concentration at city background stations between 2018-2020 and 2030 (with existing policy)

Are background stations representative for exposure?

North (1) = Groningen

East (2) = Nijmegen, Enschede

South (3) = Heerlen, Veldhoven, Breda

West (17) = Amsterdam (7), Zaanstad, Utrecht, Den Haag (2),
Schiedam, Rotterdam (3), Ridderkerk, Dordrecht

Health gains of additional measures as proposed in Climate and Nitrogen policy of the Netherlands

Measure

Reduction in YOLL

1	Zero emission vehicles	3650
2	Ban on domestic wood burning	3057
3	Transition industry (climate)	2634
4	Transition agriculture (nitrogen)	2205
5	Clean marine shipping	1880
6	Clean inland shipping	1638

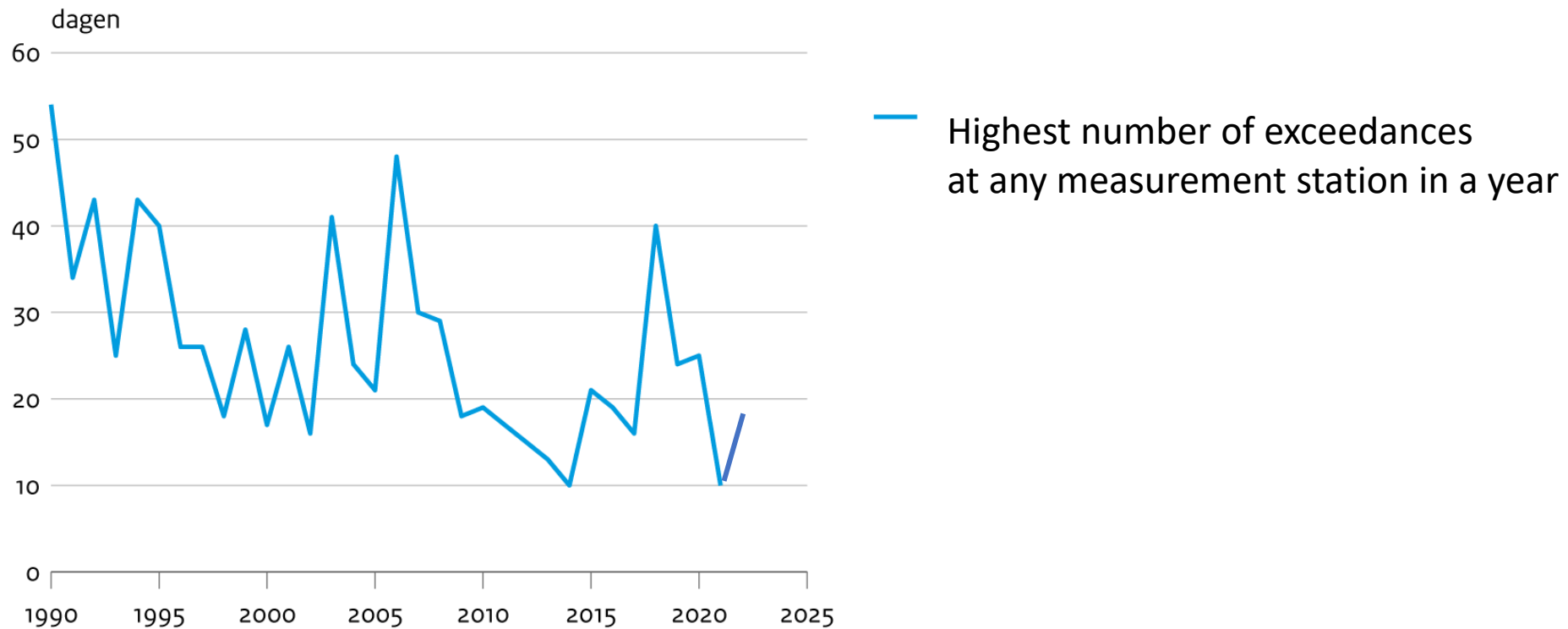
Health gains in 2030 on top of existing policies

With existing policy around 70.000 YOLL would remain in 2030

With WHO guideline levels 40.000 YOLL would remain

Meeting the target value for ozone (18 days with more $120 \mu\text{g}/\text{m}^3$) is uncertain

Overschrijding richtwaarde voor ozon



Bron: RIVM/DCMR/GGD Amsterdam, 2022.

According to EEA, ozone causes 9% of the health impacts (PM2.5 = 66%, NO₂ = 25%)

Policy conclusions

1. The proposed limit value for PM_{2.5} is the same as the target of the existing air quality policy in the Netherlands (the 2005 WHO guideline)
2. Ammonia emission reduction contributes to lower PM_{2.5} concentrations
3. The proposed directive guarantees less import of air pollution with associated health benefits
4. To meet the NO₂-limit value everywhere along roads, NO_x-emissions from vehicles would have to be reduced ~10% extra than with existing policy
5. Local fine tuning will be needed to enable housing projects within cities and near harbors