



The Brussels low emission zone
ICCT workshop on remote sensing, 7-8 June 2018, London





Outline

- Brussels and its fleet
- Air quality in Brussels
- The Brussels' LEZ: how does it work?
- The Brussels' LEZ: what will it deliver?
- What's coming up
- A few challenges



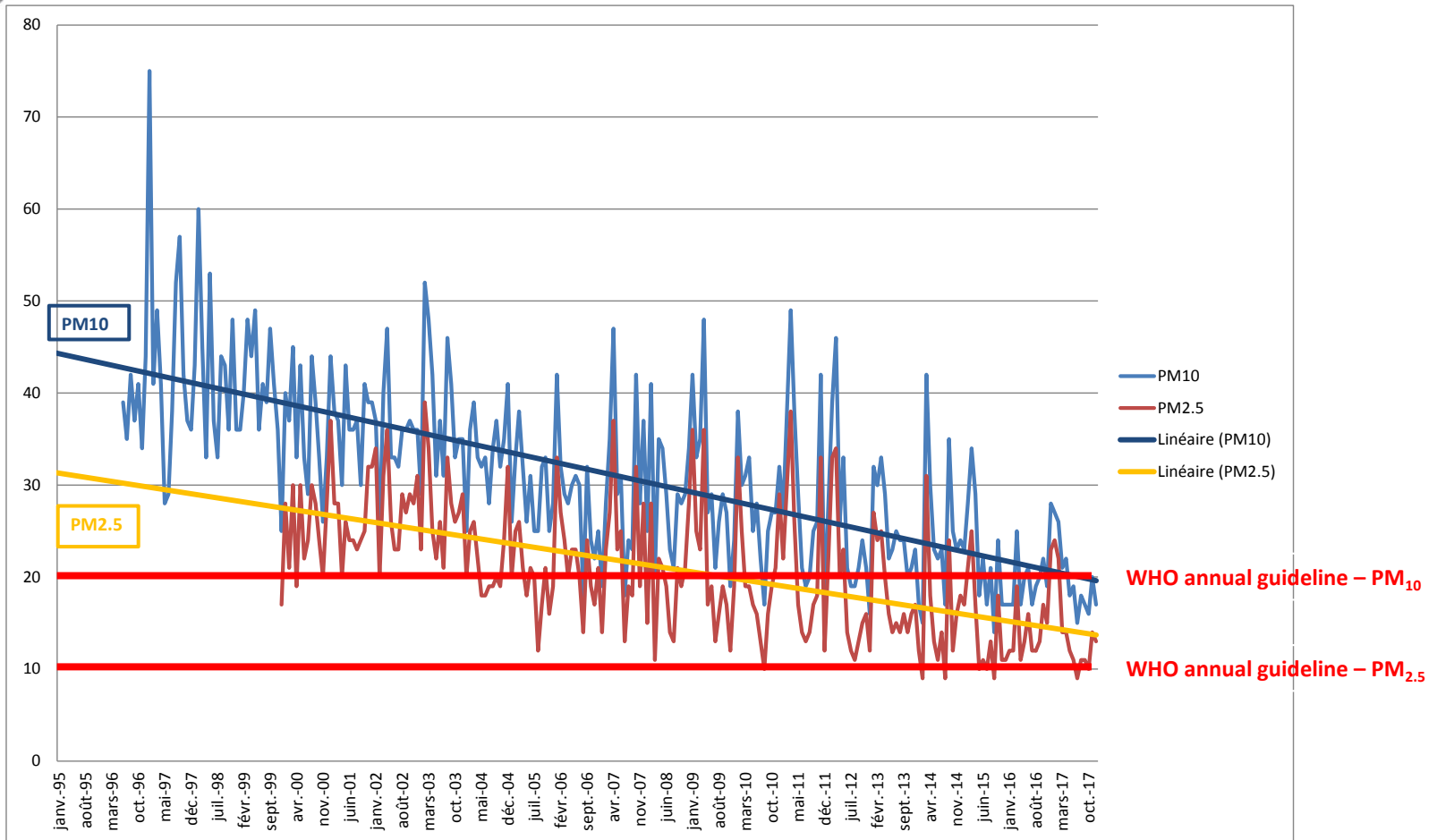
Brussels & its fleet

- 1,2 million inhabitants, 161 km²
- Around 600 000 vehicles registered in Brussels
 - 80% passenger cars
 - 12% LDVs
 - 6% motorcycles
 - <1% buses & coaches
- Among 500 000 cars, around 37% company cars
- 57% diesel cars, 40% petrol cars (diesel decreases since 2015), alternatives 2%
- Number of registered cars not necessary representative of what circulates in the region



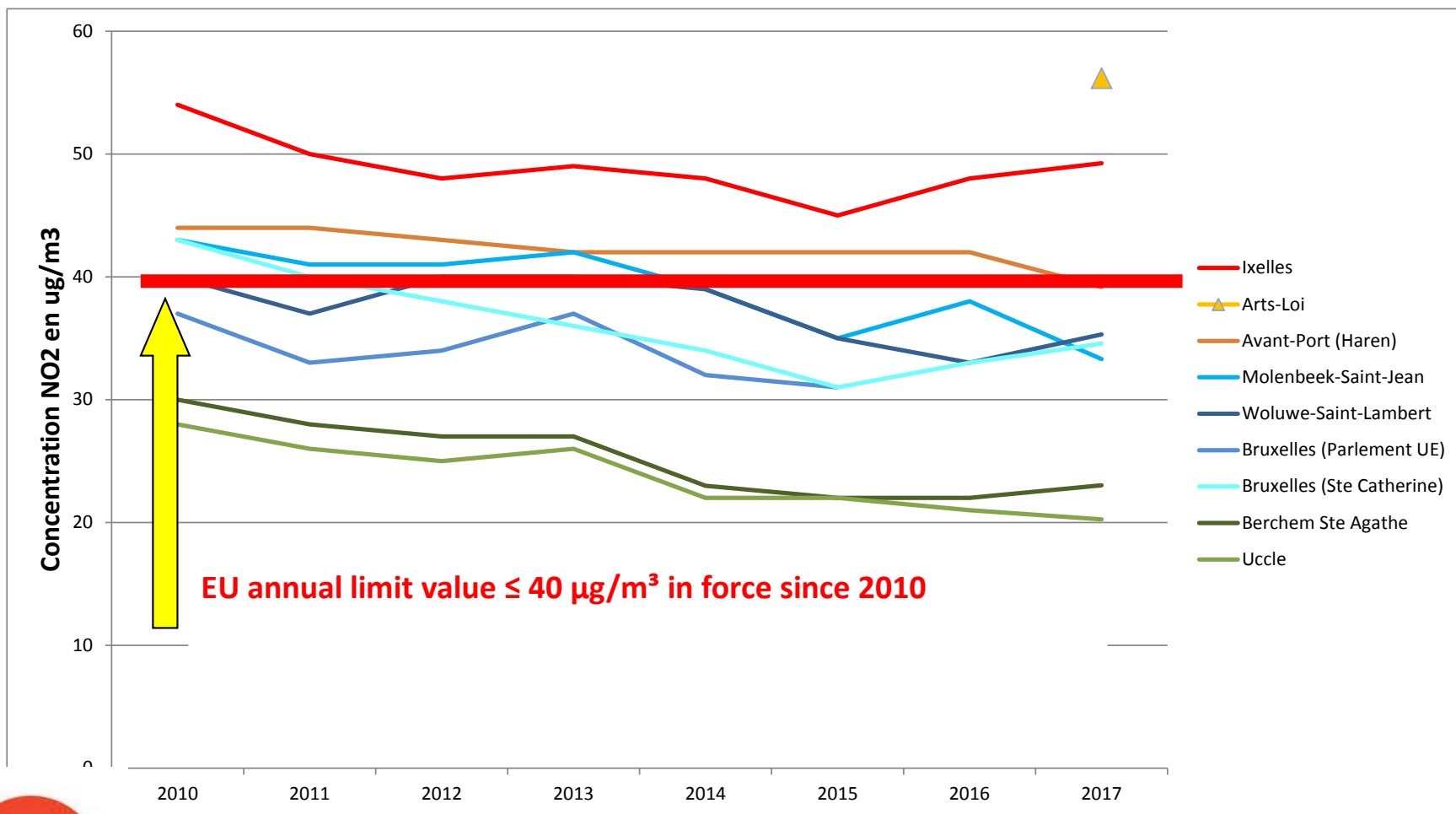
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Air quality: evolution of PM₁₀ and PM_{2,5} concentrations since 1995



But still above WHO recommended level!

Air quality: evolution of annual NO₂ concentrations since 2010



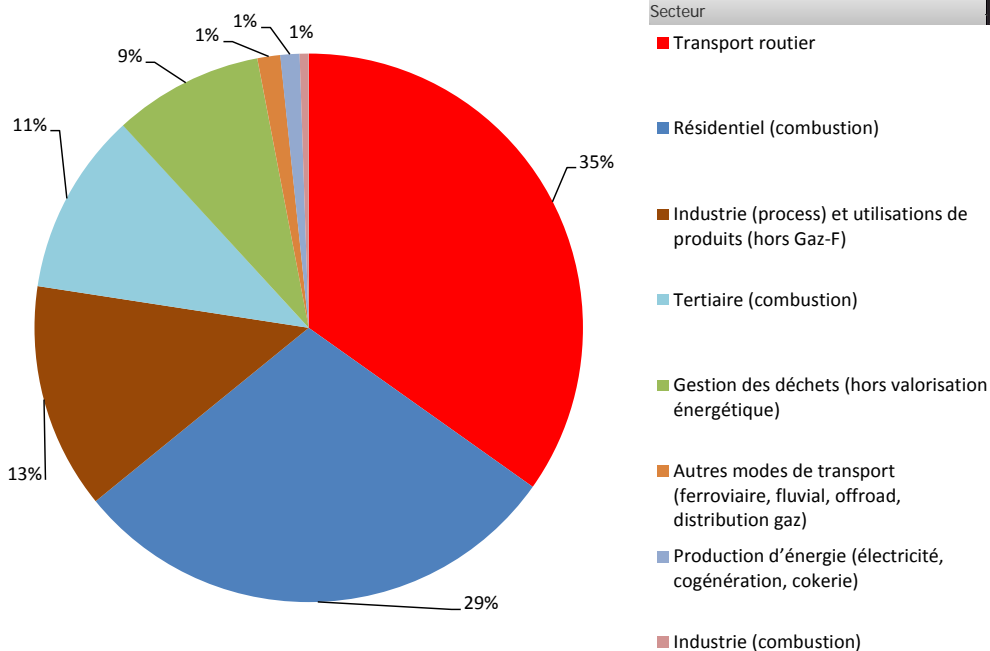
The EU annual limit value (≤ 40 µg/m³) is still breached

! Problem at stations close to traffic !

Background: sources of NO_x and PM₁₀ emissions in the Brussels region

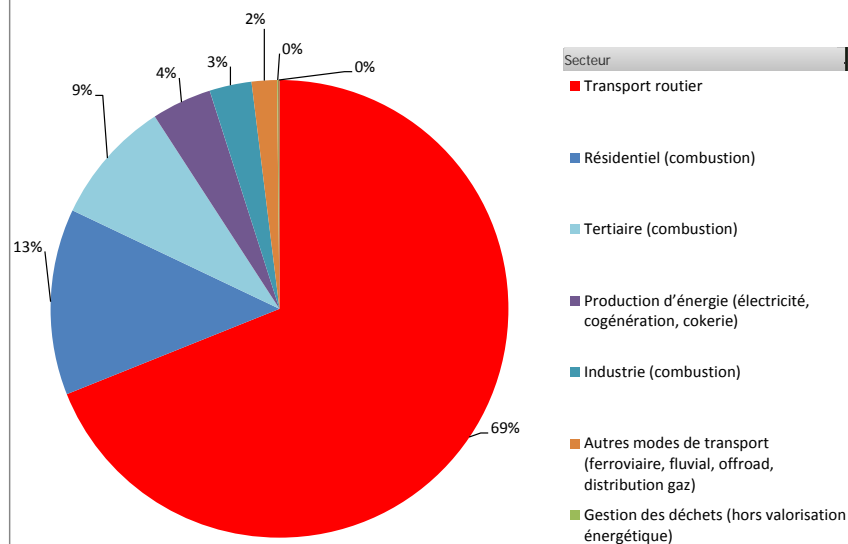
PM₁₀ emission sources

PM10 en 2016



NOx emission sources

NOx en 2016



Diesel cars emit 3 to 20 times more NOx than petrol cars!






The Brussels' LEZ

How does it work?

Success of a LEZ depends on a number of parameters

- Geographical coverage
- Timing
- Environmental emission standards
- Vehicles concerned
- Dérogations for certain vehicle concerned
- Mode of control: manual, video or both
- Support for alternatives
- Communication

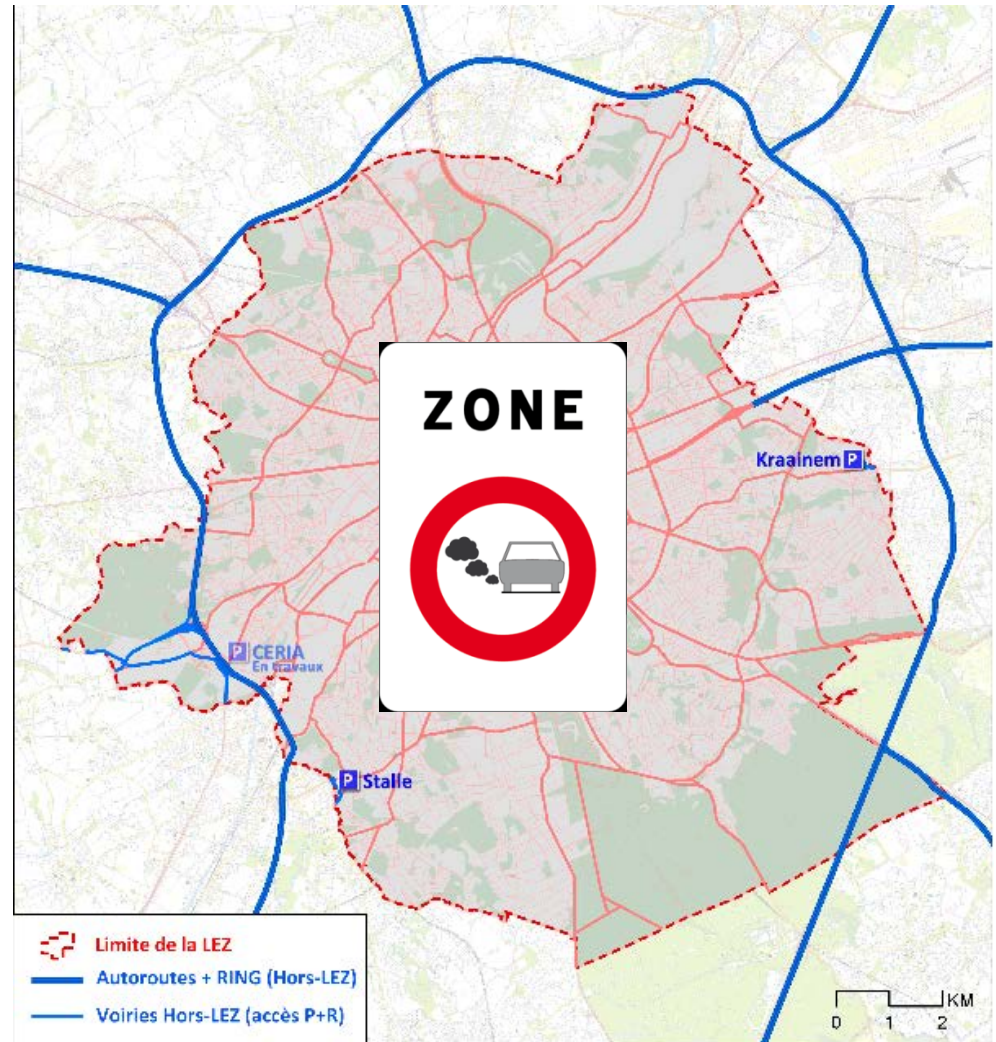


Air quality
impact

Public
acceptance +
modal shift

Geographical coverage

Whole region expect for the ring and a few roads to access 3 transit parkings (Céria, Stalle, Kraaniem)



Access criteria - diesel

| Diesel | 2018 | 2019 | 2020 | 2022 | 2025 |
|--------------|-----------|-----------|-----------|-----------|-----------|
| EURO 6 | Access | Access | Access | Access | Access |
| EURO 5 | Access | Access | Access | Access | No access |
| EURO 4 | Access | Access | Access | No access | No access |
| EURO 3 | Access | Access | No access | No access | No access |
| EURO 2 | Autorisé | No access | No access | No access | No access |
| EURO 1 | No access | No access | No access | No access | No access |
| No EURO norm | No access | No access | No access | No access | No access |



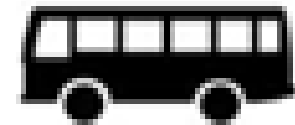
Access criteria – petrol, LPG, CNG

| Petrol/LPG/CNG | 2018 | 2019 | 2020 | 2022 | 2025 |
|----------------|--------|-----------|-----------|-----------|-----------|
| EURO 6 | Access | Access | Access | Access | Access |
| EURO 5 | Access | Access | Access | Access | Access |
| EURO 4 | Access | Access | Access | Access | Access |
| EURO 3 | Access | Access | Access | Access | Access |
| EURO 2 | Access | Access | Access | Access | No access |
| EURO 1 | Access | No access | No access | No access | No access |
| No EURO norm | Access | No access | No access | No access | No access |

LEZ - concerned

- Passenger cars
- Buses and coaches
- Vans ≤ 3.5 ton

-> Belgian and foreign vehicles



In case of non compliance

- High fine (350€ if car is not compliant)
- Daily pass (35€, max. 8 times per year)
- Use of alternatives



LEZ – exemptions / derogations



- ✓ Two-wheeled motor vehicles
- ✓ Heavy goods vehicles (>3.5 tonnes)
- ✓ Agricultural or forestry tractors (with tracks or wheels)
- ✓ Electric and hydrogen-powered vehicles
- ✓ “Old-timer” vehicles registered in Belgium
- ✓ Priority vehicles
- ✓ Vehicles used in emergency situations or rescue operations at the request of the fire brigade, the police, the army, the civil protection force or the highway authorities
- ✓ Vehicles of the army



Not concerned = automatic and permanent derogation



- ✓ Vehicles adapted to carry people with disabilities and who own disability card
- ✓ Vehicles equipped with a wheelchair lift
- ✓ Motorhomes
- ✓ “Old-timer” vehicles that are more than 30 years old and that are registered abroad
- ✓ Vehicles that are more than 30 years old and for which the “old-timer” form of the vehicles is part of the business concept
- ✓ Vehicles specially adapted for markets, fairgrounds, parades, ...
- ✓ Vehicles specially equipped for maintenance and control of public interest infrastructures and installations.
- ✓ In all other cases, daily pass can be purchased for 35 euro (max 8 per year)
- ✓ Administrative derogation also possible



Non-automatic derogation (must be requested + accepted) limited to 3 years

Enforcement – Belgian vehicles

- Enforcement via automatic number plate recognition (ANPR)
One network of video protection for Brussels
- ANPR camera have two purposes:
 - ✓ Police (e.g. speed limit control)
 - ✓ LEZ
- +/- 200 caméras, half of which are already installed
- Data linked with national database for vehicles (DIV) combined with LEZ databases for registrations, derogations, daily passes, fines

Foreign vehicles = not data! Mandatory registration via LEZ website.

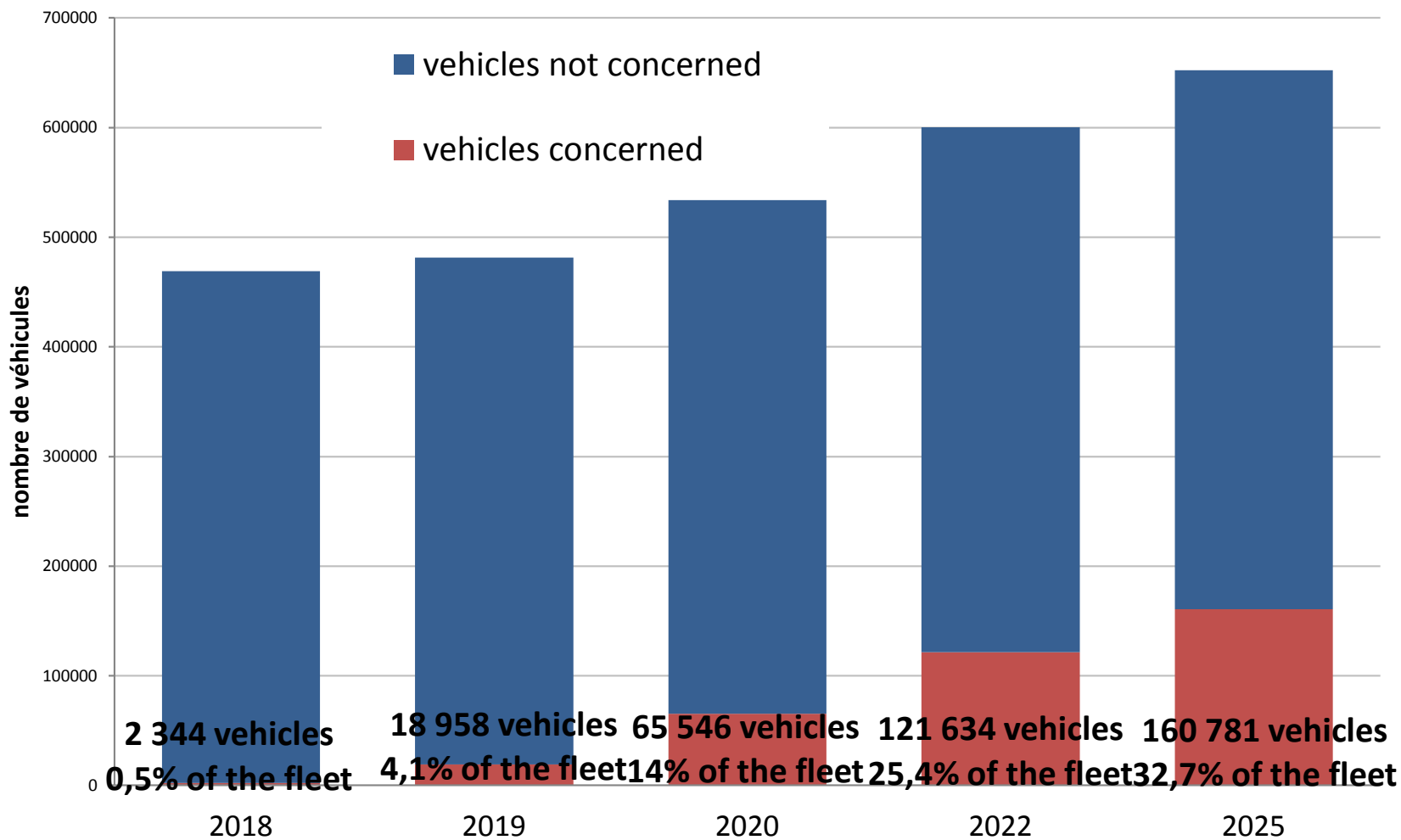




The Brussels' LEZ

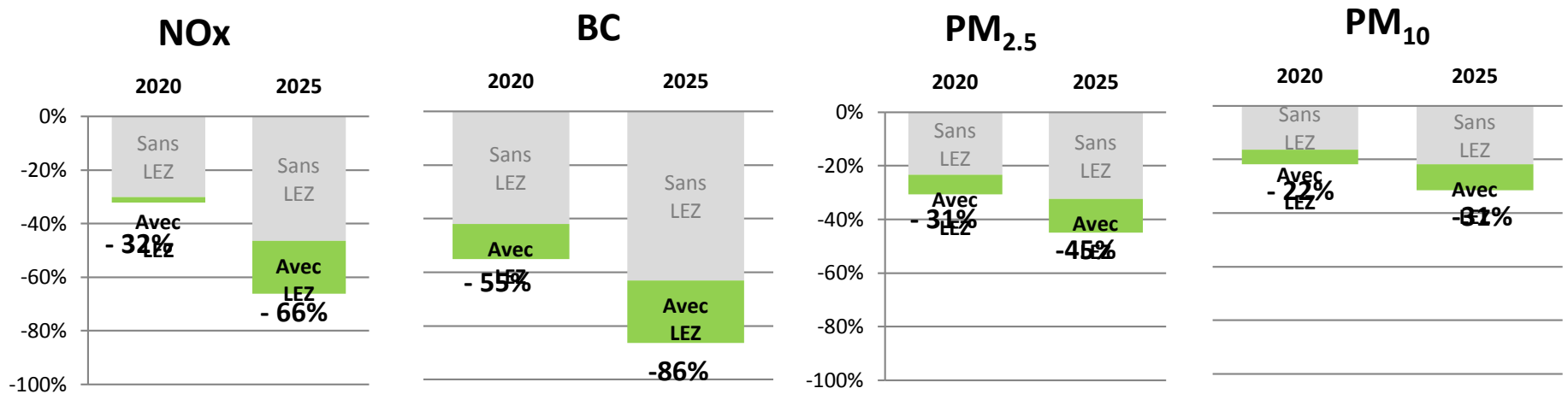
What will it deliver?

Number of vehicles concerned



LEZ - projected emission reduction

Emission from all road transport (also LEZ exclusions e.g. HDV.)
Baseyear 2015



- Biggest impact on NOx & BC emissions
- Baseline scenario (without LEZ) leads to already 22 to 63% emission reductions in 2025 (compared to 2015)
- LEZ speeds up « natural » renewal of the fleet (up to 50% additional gains)
- **Expected compliance with NO2 limit value between 2020 and 2025**
- New WLTP + RDE test cycles play a key role for effective NOx emission reductions



What's coming up

- 1st October 2018: first fines
- 1st January 2019: stricter criteria
- July 2019: first data from cameras
- February 2019: publication of first evaluation report
- Diesel ban by 2030, petrol ban to follow
- Upcoming stakeholder consultation on how to implement the ban



A few challenges in relation to existing (and future) LEZ

- Public acceptance, social dimension
- Enforcement of foreign vehicles
- Lack of information about motorcycles
- Euro norm vs. real emissions
- Controlling frauds (DPF removal, urea fraud)
- Future LEZ: diesel/petrol/CNG bans > which timing, derogations, etc.
- Beyond fuel/technology bans: modal shift needed!

Questions?

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