Vision and Strategies on Reduction of Particle Emissions from Diesel Vehicles in Israel

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Outline:

Identify the Problem
Diesel Particles Cause Health Effects

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Characterize the Problem
Air Quality Monitoring, Emission Inventory

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Vision

↓

Strategy to achieve vision

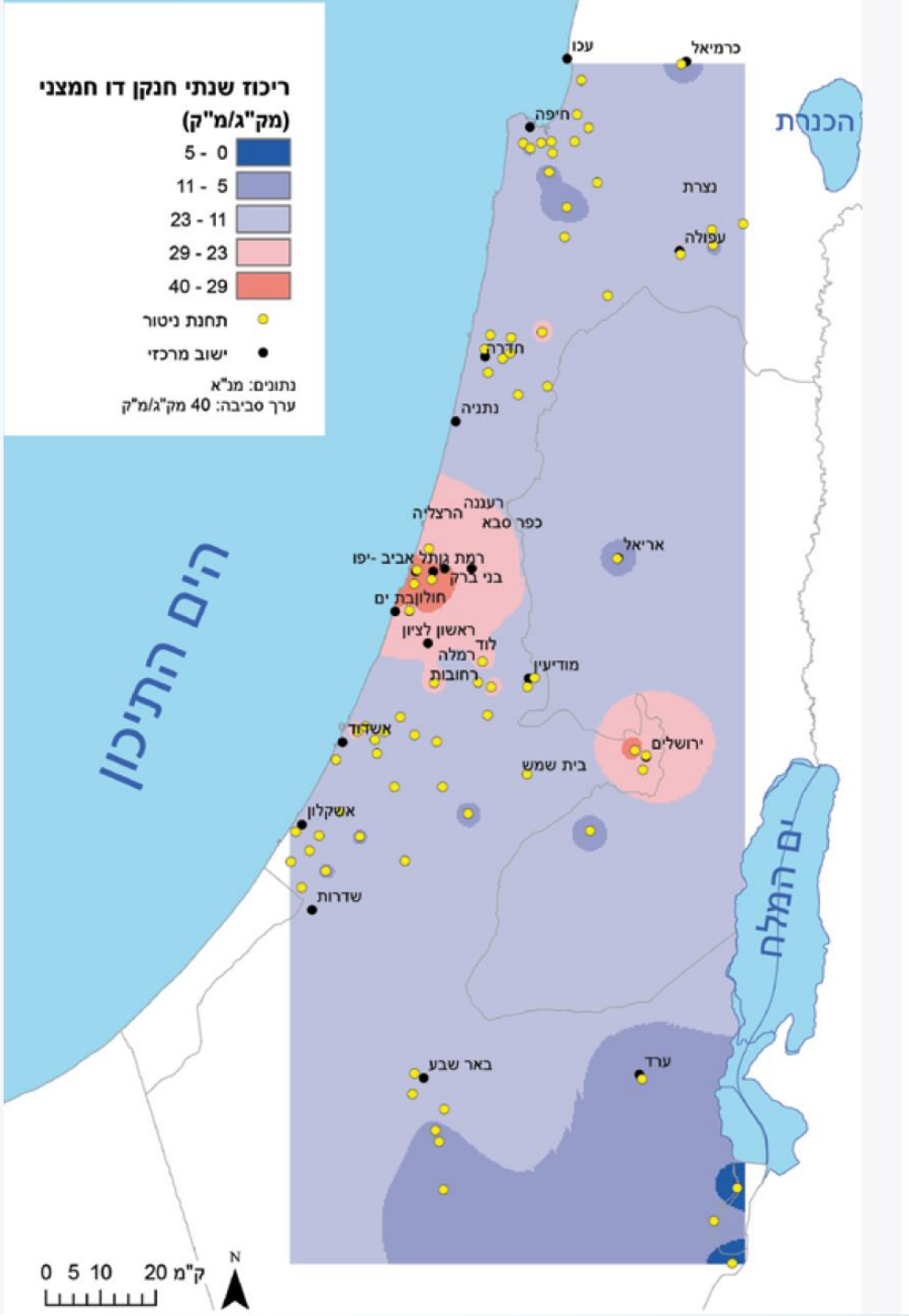
Diesel Particles Health Effects

- OECD/WHO 2014: Air pollution toll in Israel ~2,500 premature death a year
- ~ 50% from transportation
- Particles are number 1 environmental cause for premature death in Israel
- Total external cost due to air pollution ~ 20 billion NIS

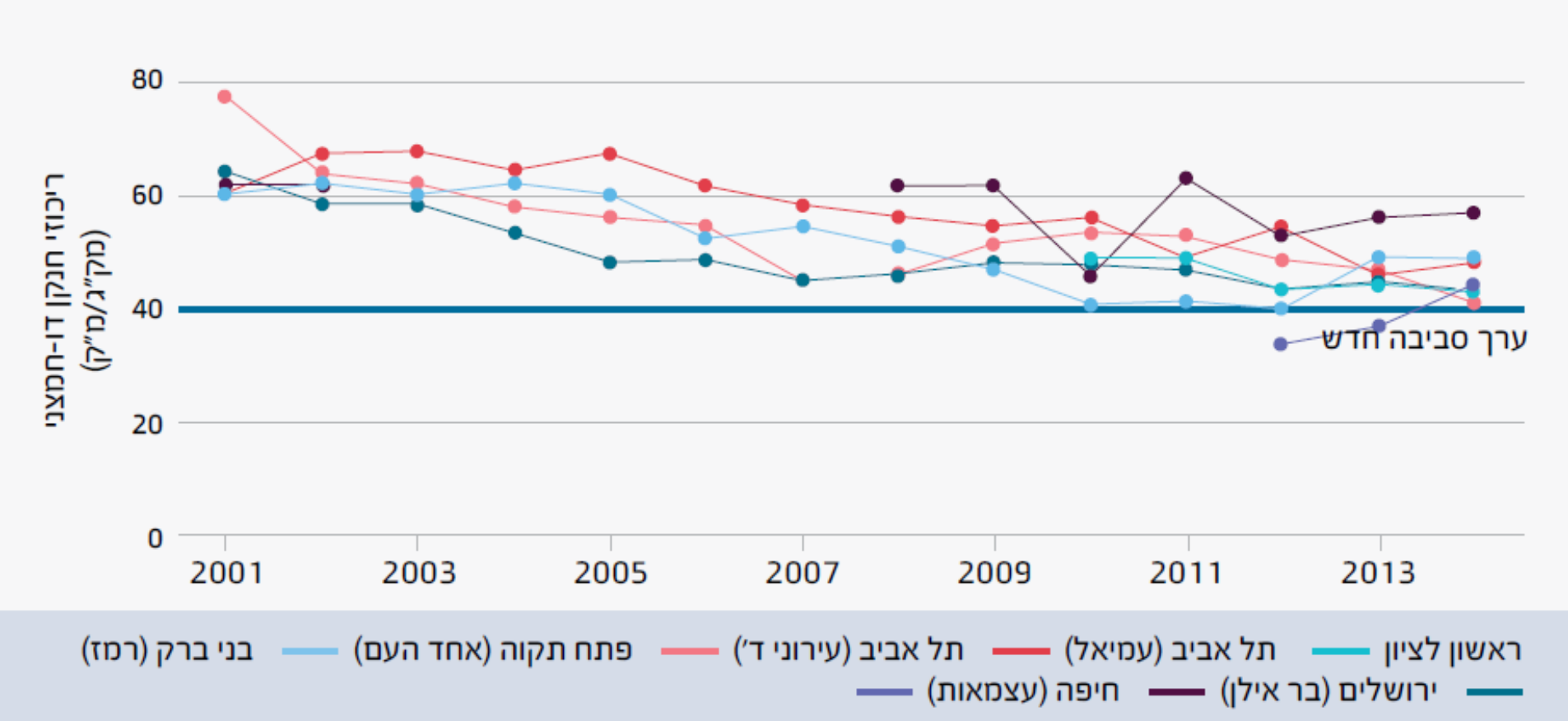
Characterize the Problem

Air Quality Monitoring

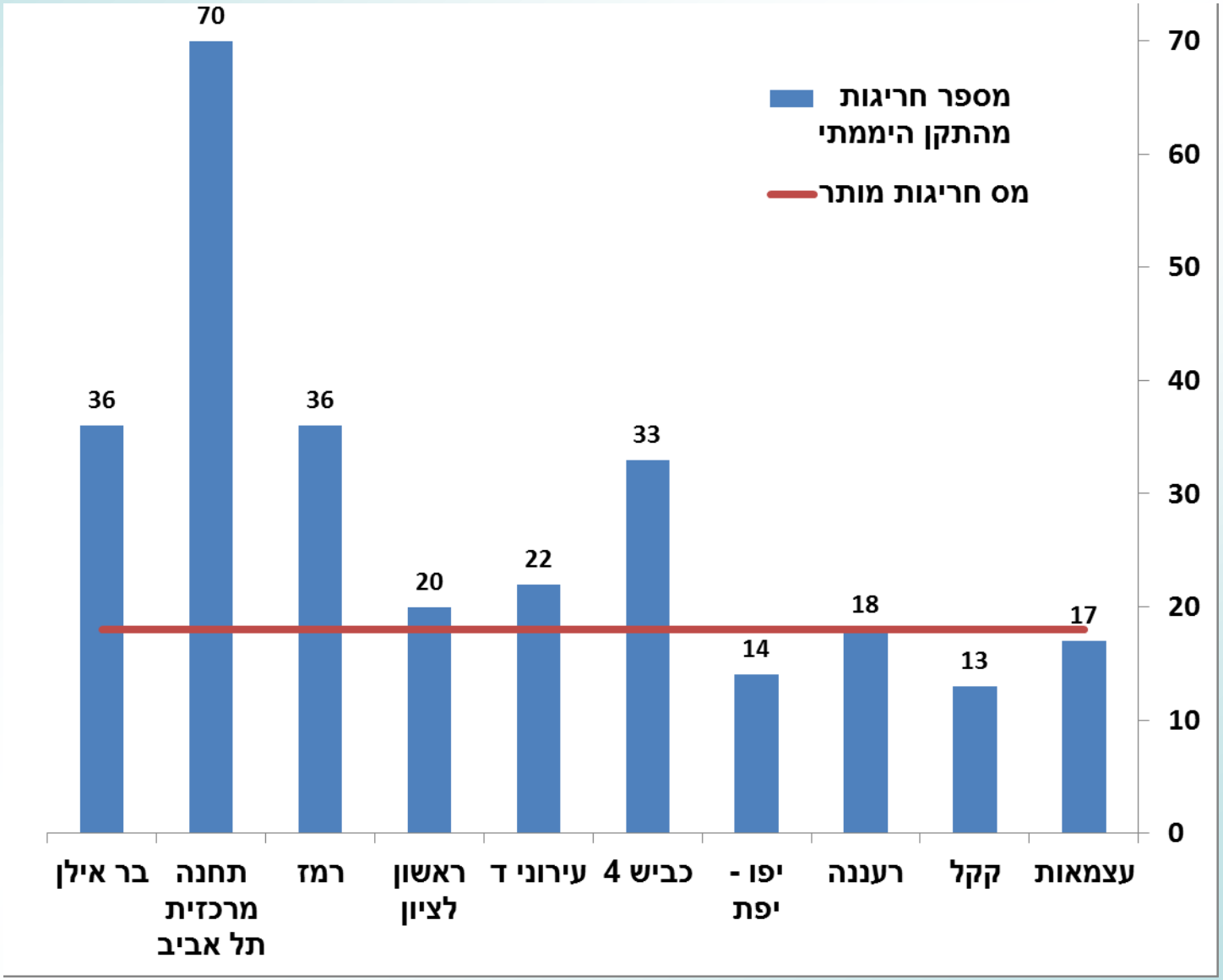
Ambient annual concentrations NO_2 2014



NO_2 annual concentration in traffic related monitoring stations



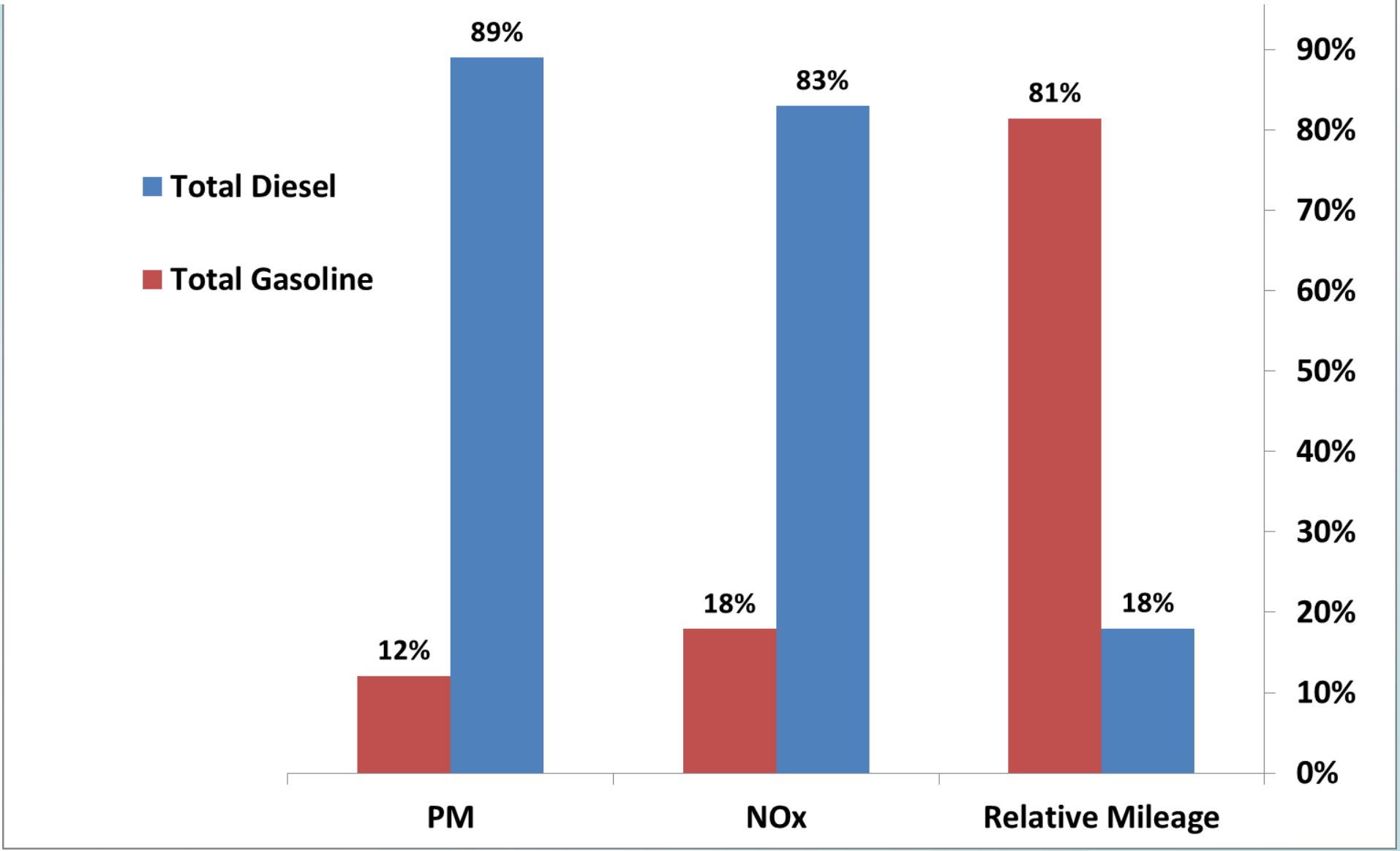
PM2.5 daily exceedance in traffic related monitoring station - 2015



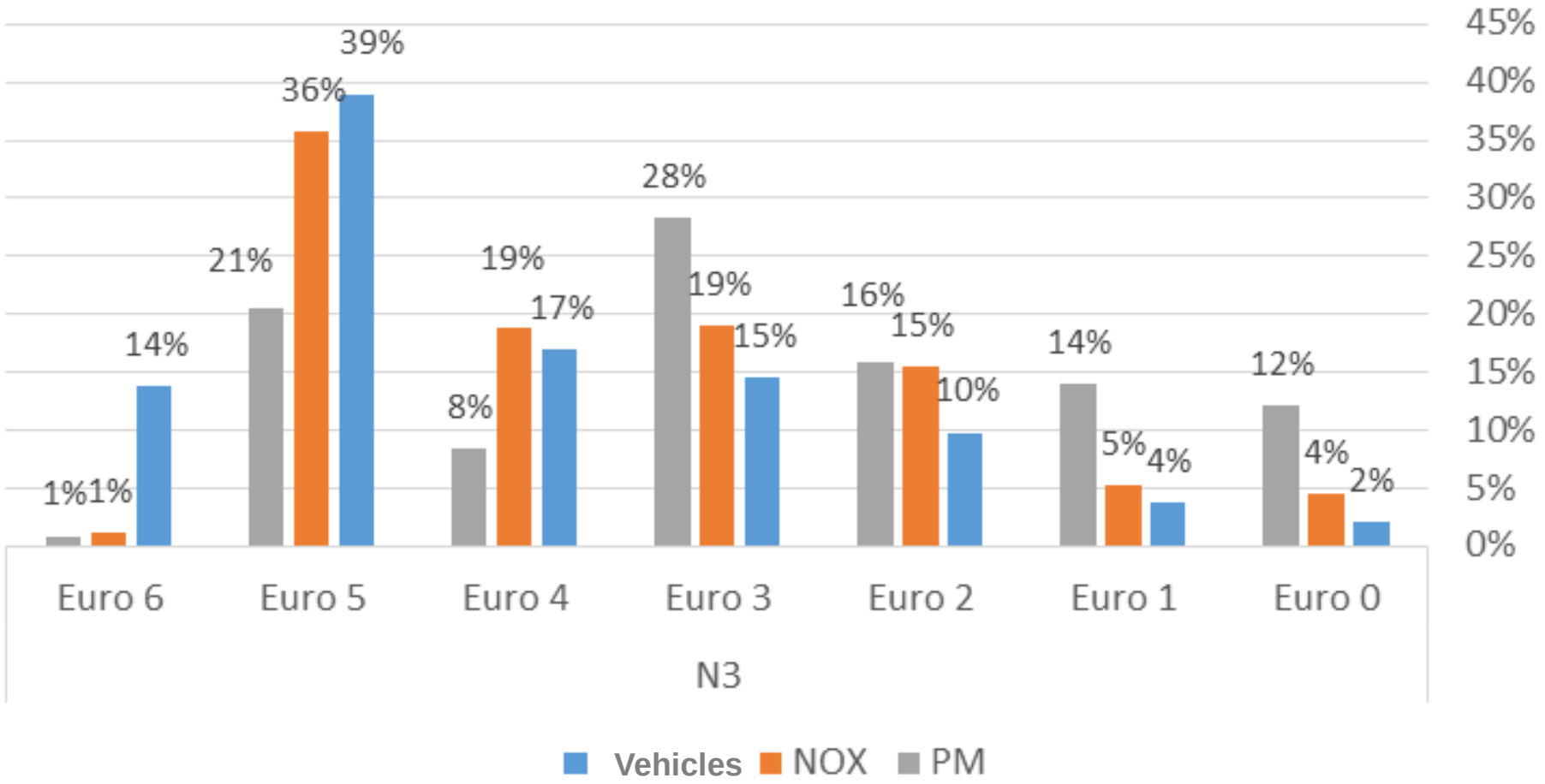
Emission Inventory

Diesel Vs. Gasoline

Relative Emission and Mileage, Israeli Fleet 2015



Example: N3 Category Vehicles
Relative Emission, Israeli Fleet 2015



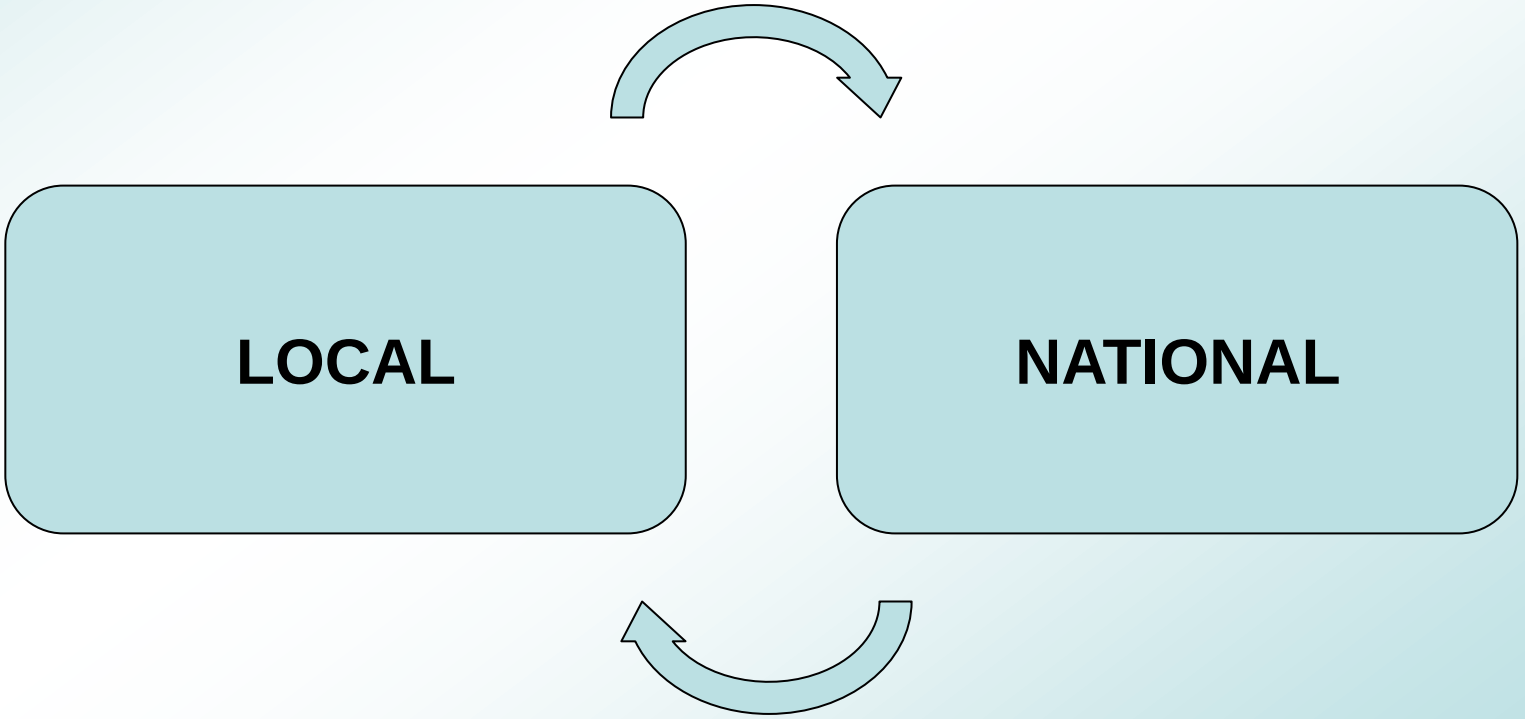
Short Summary: Characterization of the problem

- High NO_2 and $PM_{2.5}$ at metropolitans
- Unknown PN / BC levels
- Poor air quality near heavy traffic roads
- Highest concentrations near Bus lanes and HD trucks traffic → Diesel
- Major emission sources: Euro 0 to Euro 3 diesel vehicles

Vision – Particle Emissions from Vehicles

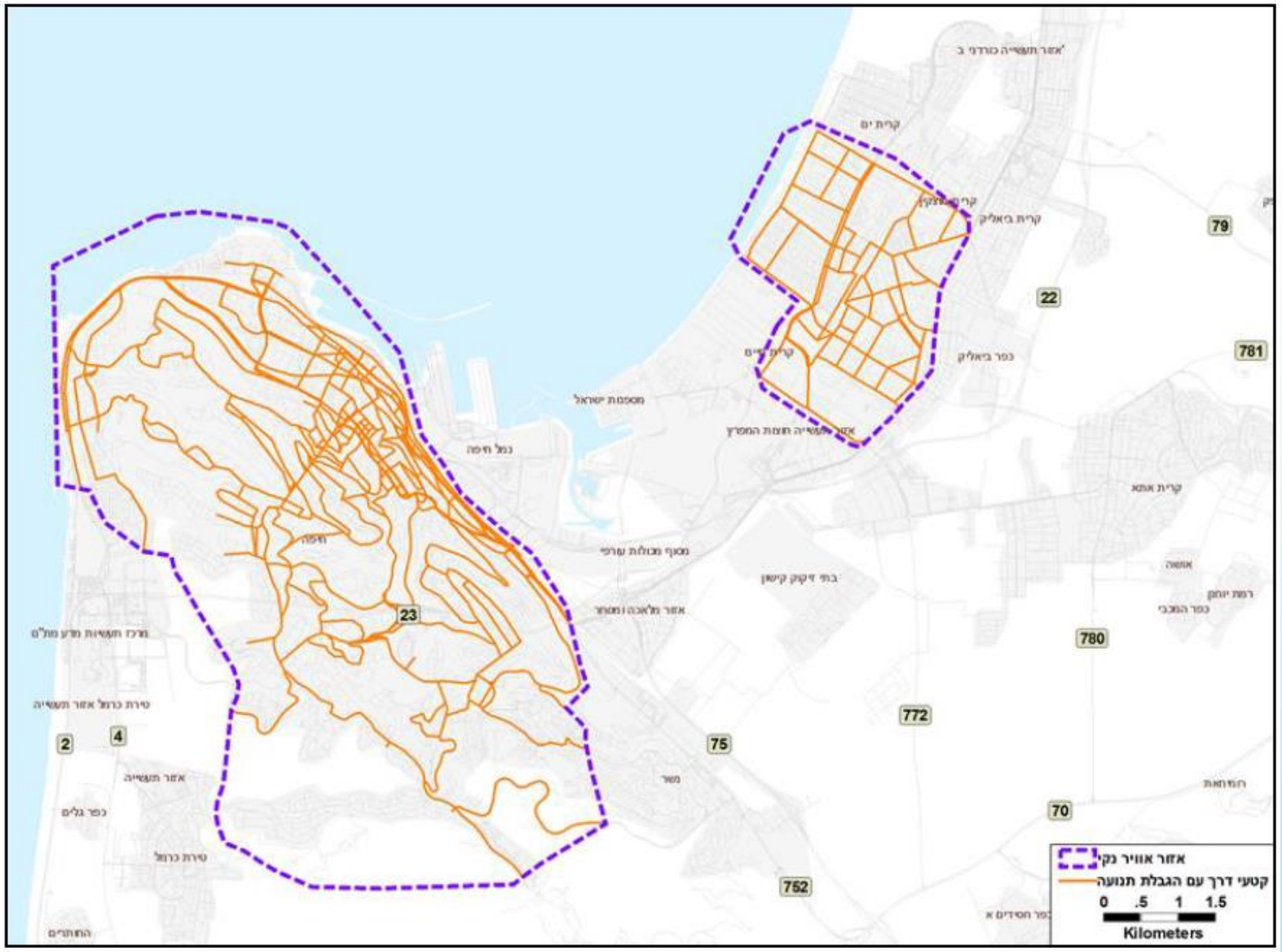
- **New vehicles – avoid diesel (if possible)**
  - City buses - Electric
  - Distribution trucks, Refuse trucks – CNG
  - Taxis – Hybrid / Electric
  - Coaches and Heavy Trucks – Euro VI Diesel
- **Existing Diesel fleet**
  - Retrofitted with DPF throughout Israel
  - Scrapped

Strategy



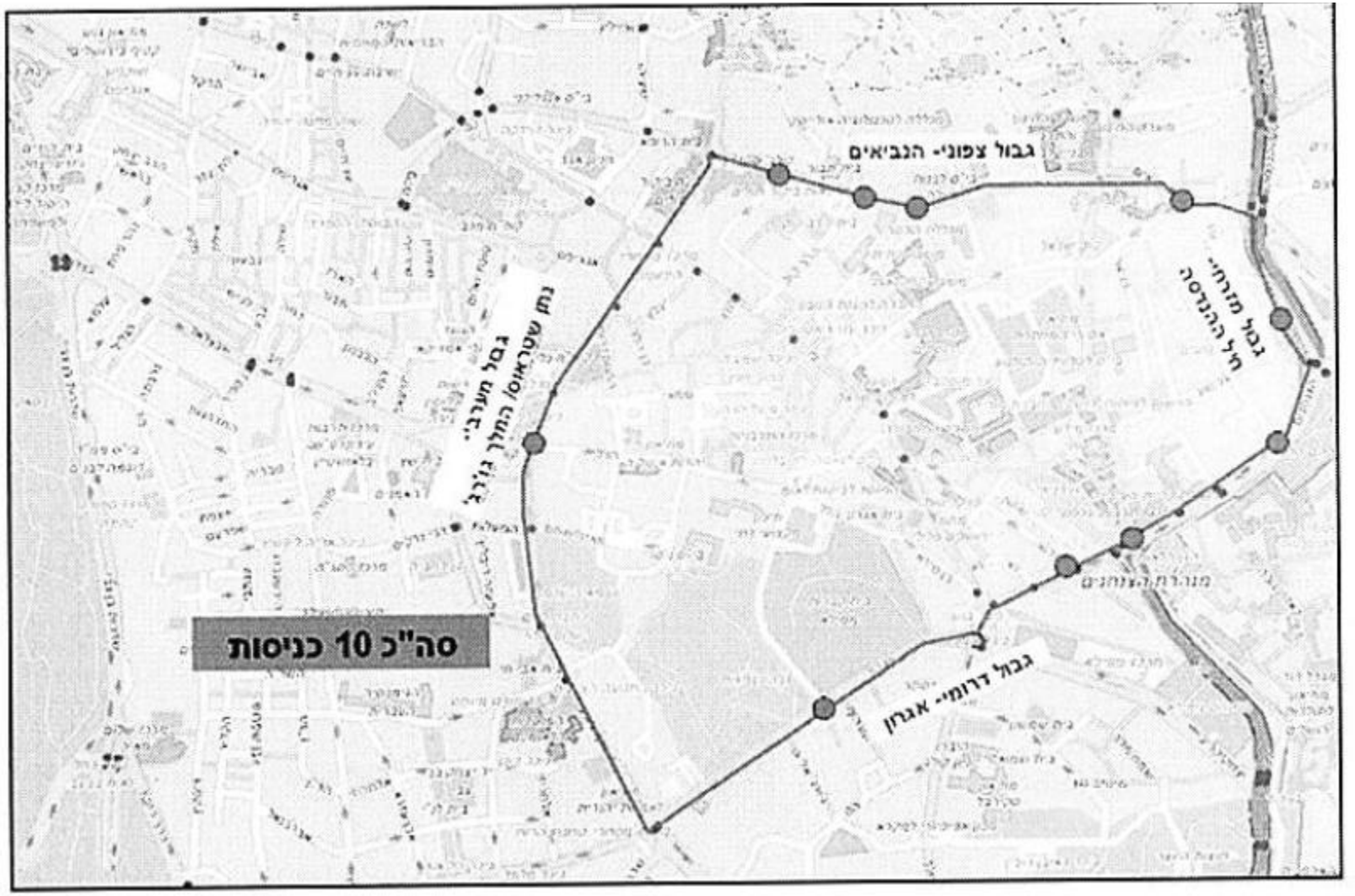
Strategy – Local Level

A plan for Low Emission Zone in Haifa

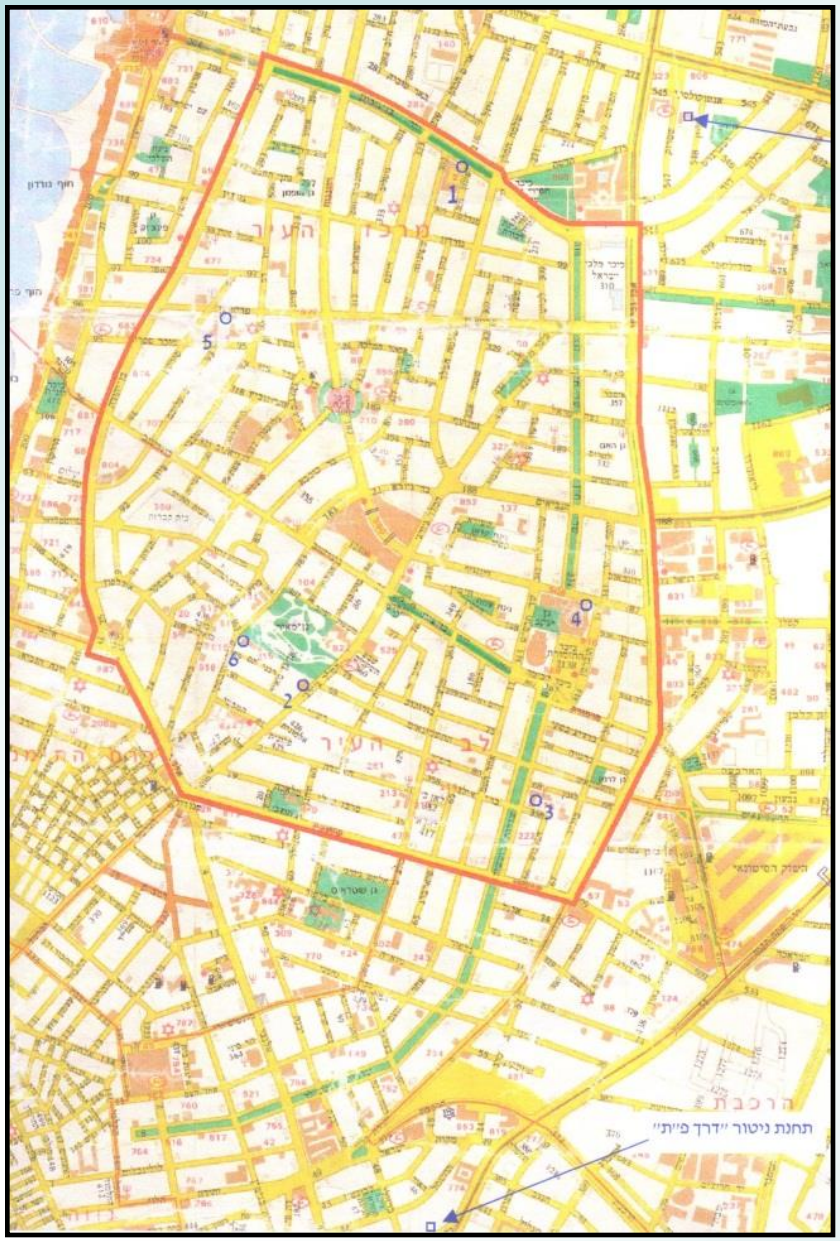


Source: Haifa municipality

A plan for Low Emission Zone in Jerusalem



Source: Jerusalem municipality



A plan for Low emission zone in Tel-Aviv

Source: Tel-Aviv municipality

Strategy – Local Level

- Plan LEZ
- Legislate LEZ
- Public involvement
- Operate LEZ
- Enforcement

Strategy – National Level

National Level – Support local LEZ

- Legislative infrastructure
- Vehicle emission classification and marking
- Traffic signs - LEZ
- Retrofit procedures
- Retrofit incentives and support
- Air quality monitoring

National Level – All Israel LEZ?

- Incentivize scrapping of “big polluters”
- Retrofit incentives and support
- Increase public awareness and support
- Gradually regulate LEZ on national level

All Israel LEZ?
Case study – refuse trucks

Inventory ~ 1,370 trucks:

290 ≤ Euro III
730 Euro IV – Euro V
350 Euro VI

Strategy:

- 10 million NIS for subsidizing DPF
- Regulate mandatory use of low emission refuse trucks

Next Sector: City Buses…

Thank You