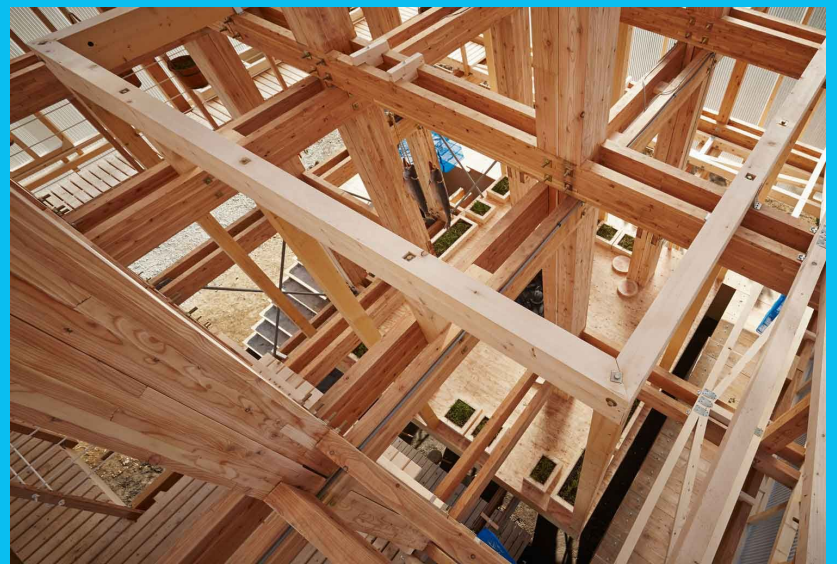
June 2025



Why cities matter and Oslo case study



André Aasrud
Senior Adviser
C40 Clean Construction Programme





Construction happens in cities

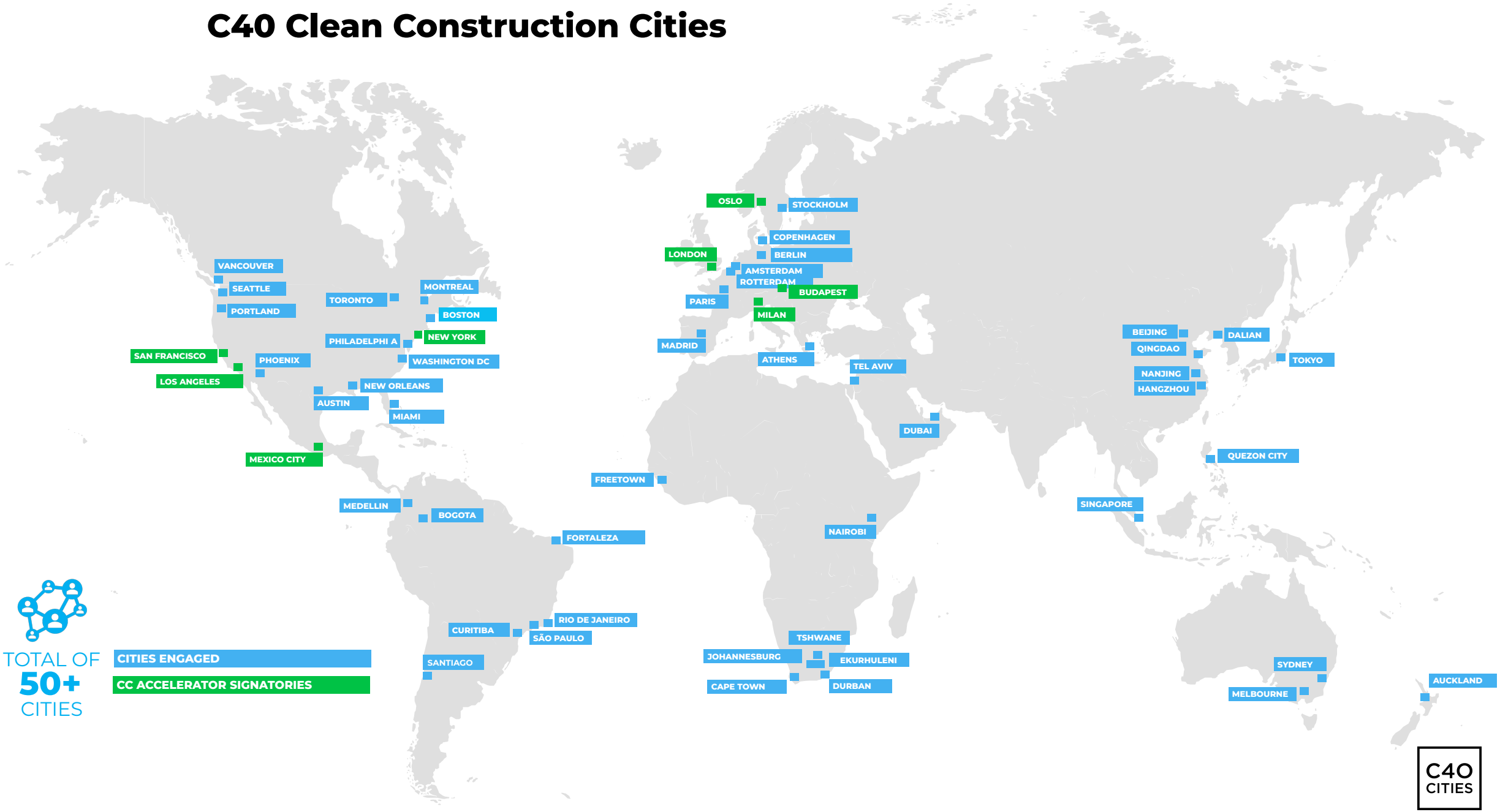
- By 2050, **2.5 billion more people** will live in cities

- **60%** of buildings that will exist in 2050 are yet to be built
  -> This means building a ***city like New York every month until 2050***

=> Cities drive the demand

C40 CITIES

C40 Clean Construction Cities



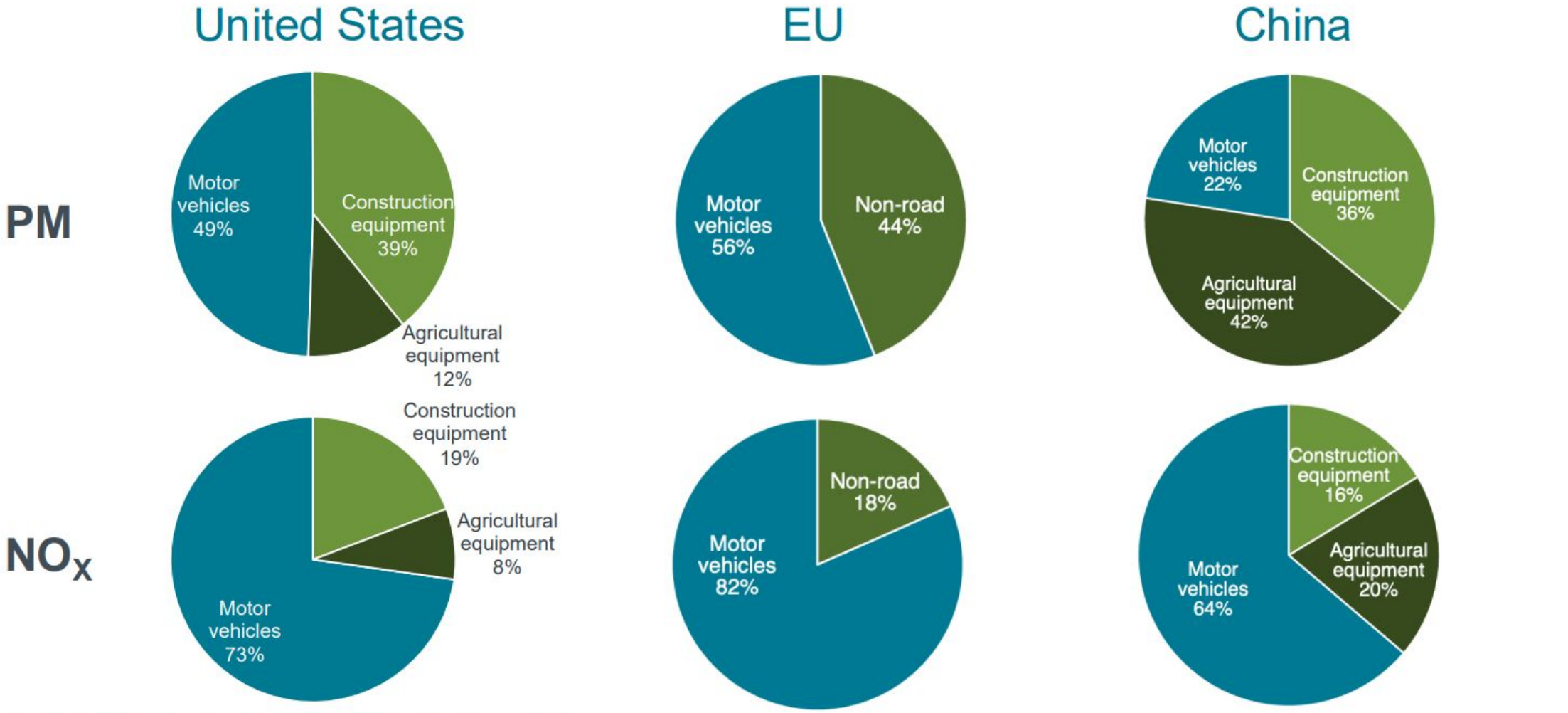
TOTAL OF **50+** CITIES

CITIES ENGAGED

CC ACCELERATOR SIGNATORIES

C40 CITIES

Non-road - a major contributor to local air pollution



Source (the U.S. and China): ICCT internal analyses and 2024 China Mobile Source Environmental Management Annual Report.

THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION THEICCT.ORG

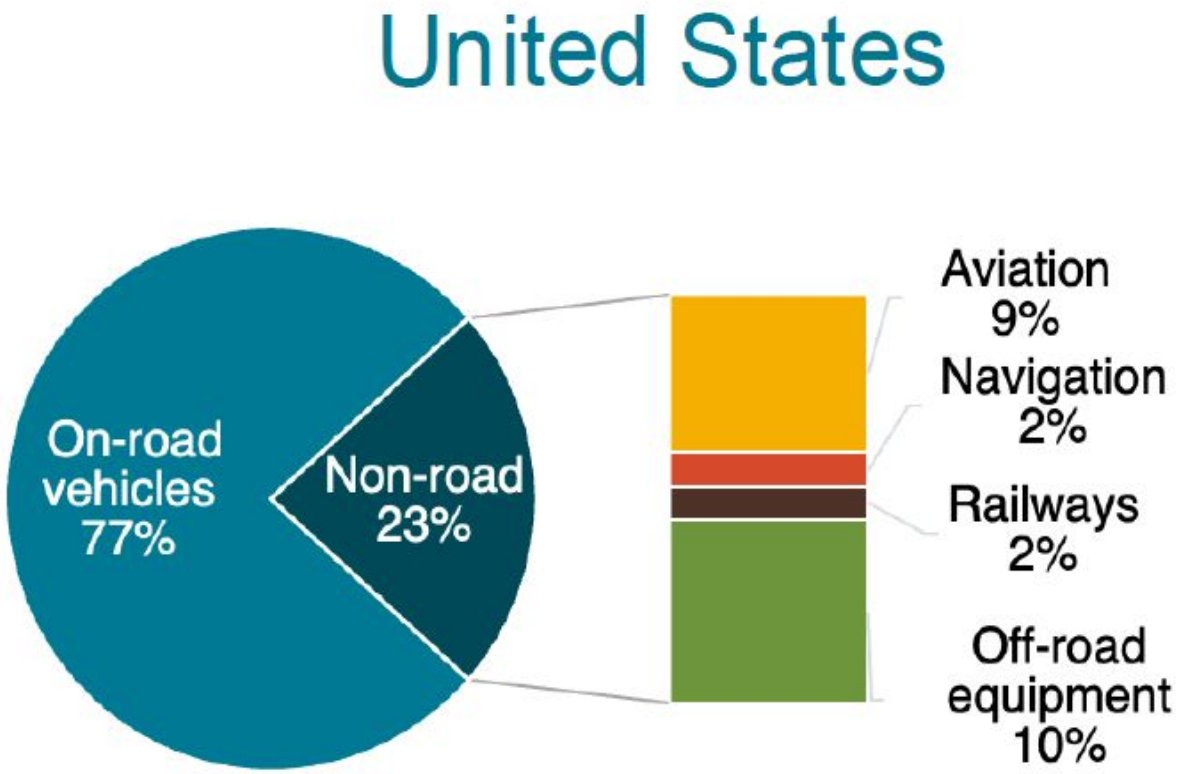
EU pollutant emissions is the average data of the Netherlands, Sweden, Finland, Denmark, Germany, and Switzerland: *Lončarević et al. (2022). Problems and Directions in Creating a National Non-Road Mobile Machinery Emission Inventory: A Critical Review. Sustainability.14(6), 3471*

Source: ICCT

...and GHG emissions

- The non-road sector - composed primarily of construction, agriculture, and railroad machinery - emits over **2 billion tonnes CO2e** per year globally.

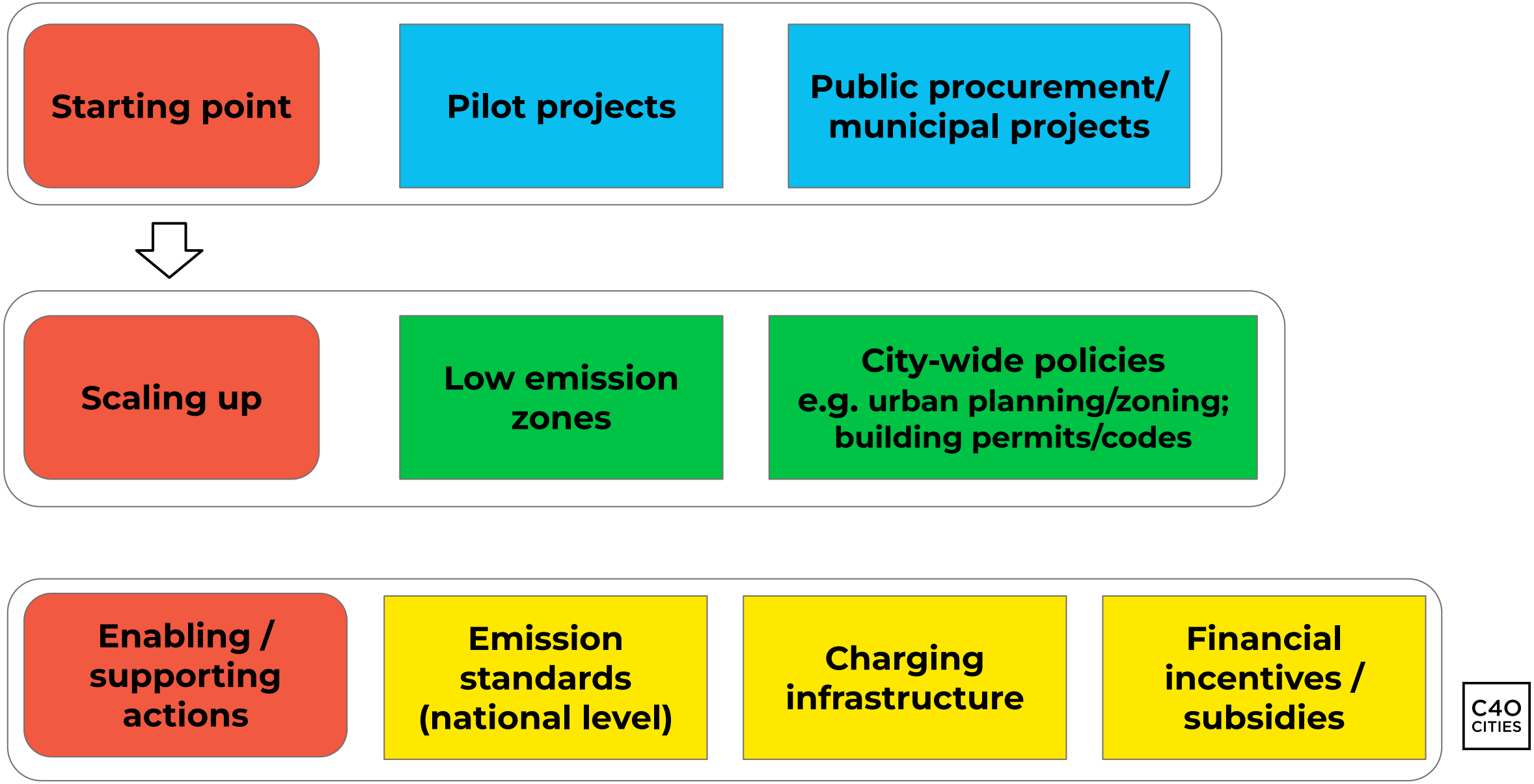
- This **exceeds the CO2 emissions of global maritime transport**.



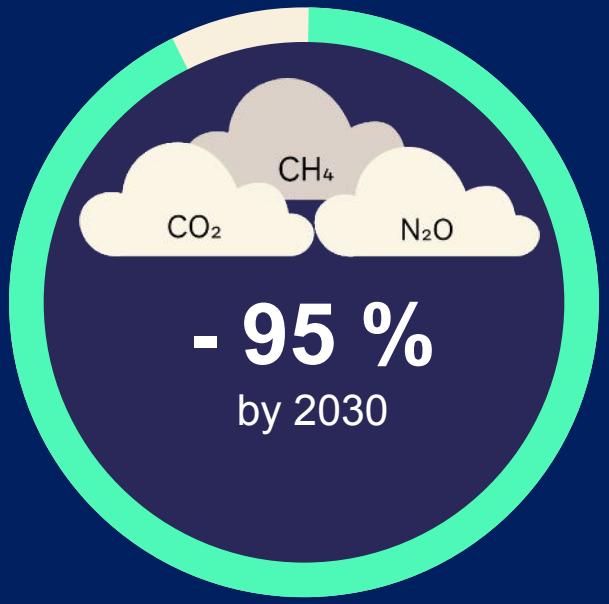
2019 U.S. transportation sector GHG emissions by source.
US EPA:. https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions
Aviation and navigation exclude international bunkers.

Source: ICCT

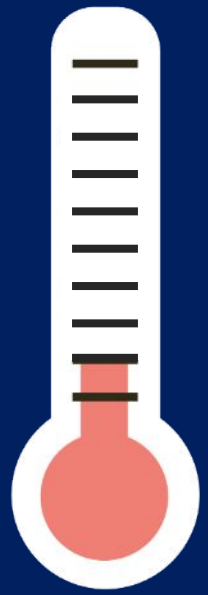
City Policy Framework - Non-Road Machinery



Climate goals



Reduce direct emissions



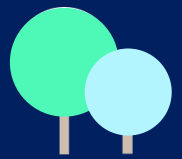
Withstand climate change



Reduce indirect emissions

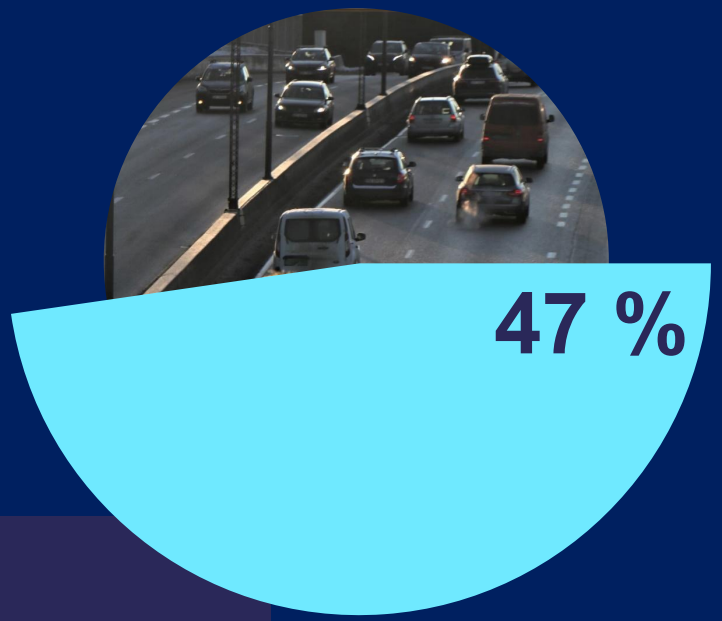


Reduce energy consumption



Conserve carbon storage

Key emission sources 2023



Mobility



Waste



Off-road machinery

Oslo



2016

Oslo requesting fossil-free construction sites

2017

Municipal construction projects fossil-free

2018

Establishing C40 Clean Construction & EU Big Buyers Initiative

2019

Standardised tender award criteria & pilot project

2020

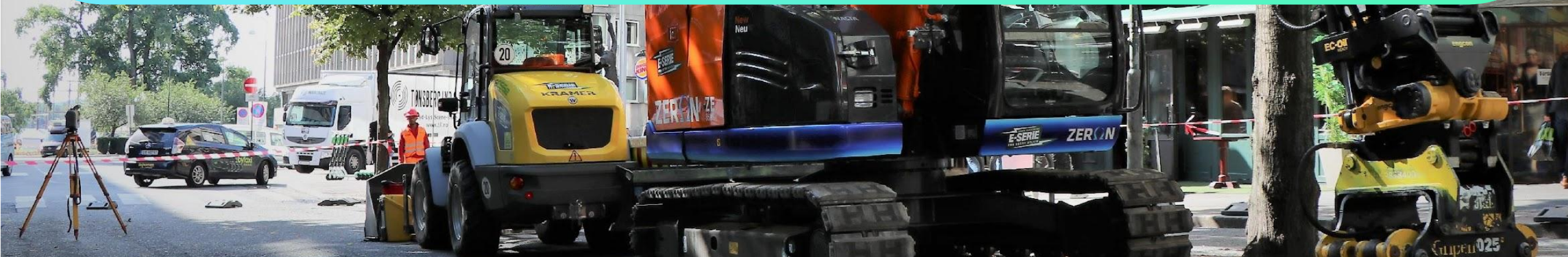
Zoning permit requirements

2025

Municipal projects emission-free

2030

Zero emission construction city wide



A procurement strategy to drive innovation

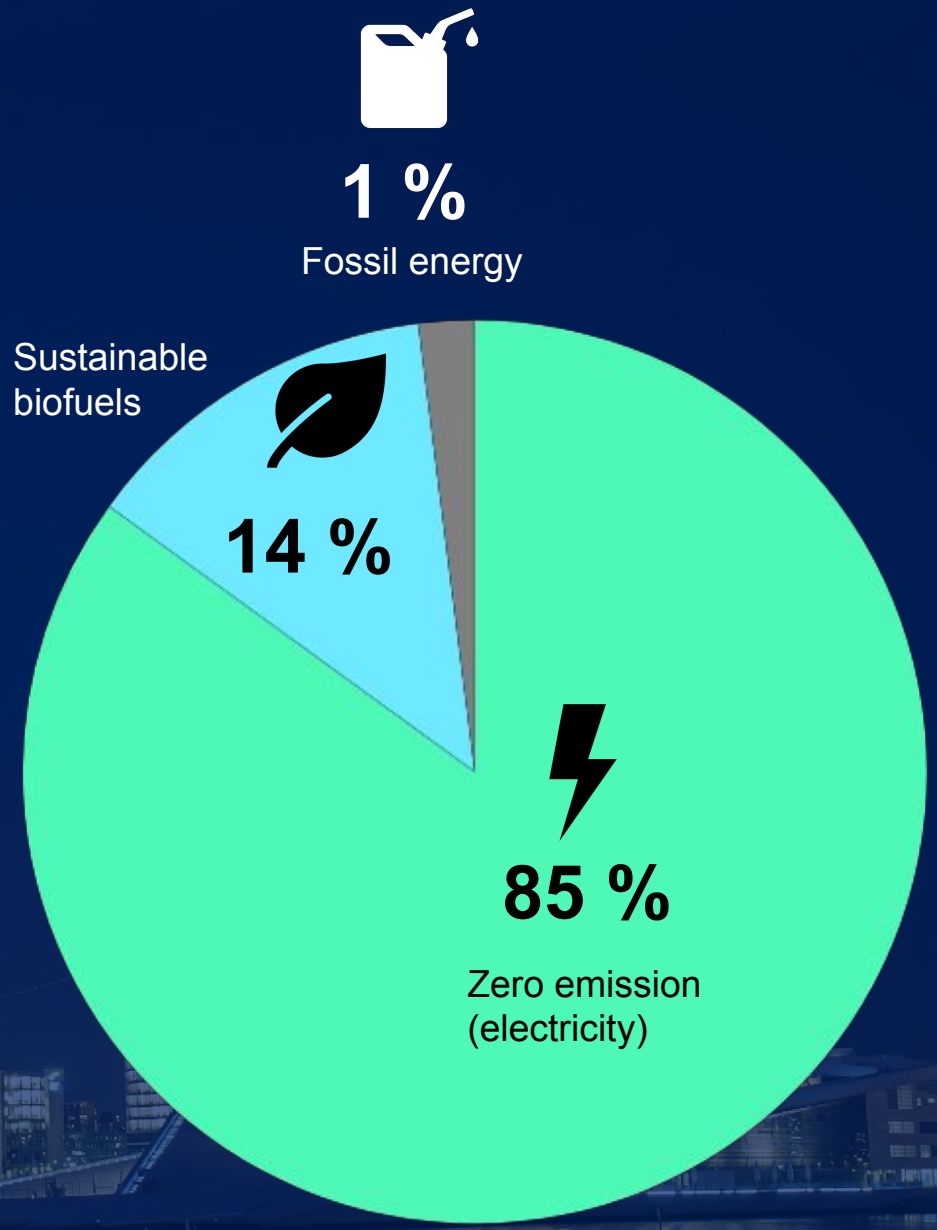
- Oslo procures goods, services and works for 3 billion Euro annually
- Invests for 2 billion Euro
  - – 400 contract notices – 550 000 invoices
- All planned procurement shall be based on the goal of becoming a zero-emission city
- The city awards a premium on low/zero emission solutions in construction contracts



Oslo

Share of work at the **municipal construction sites**

in Oslo 2024

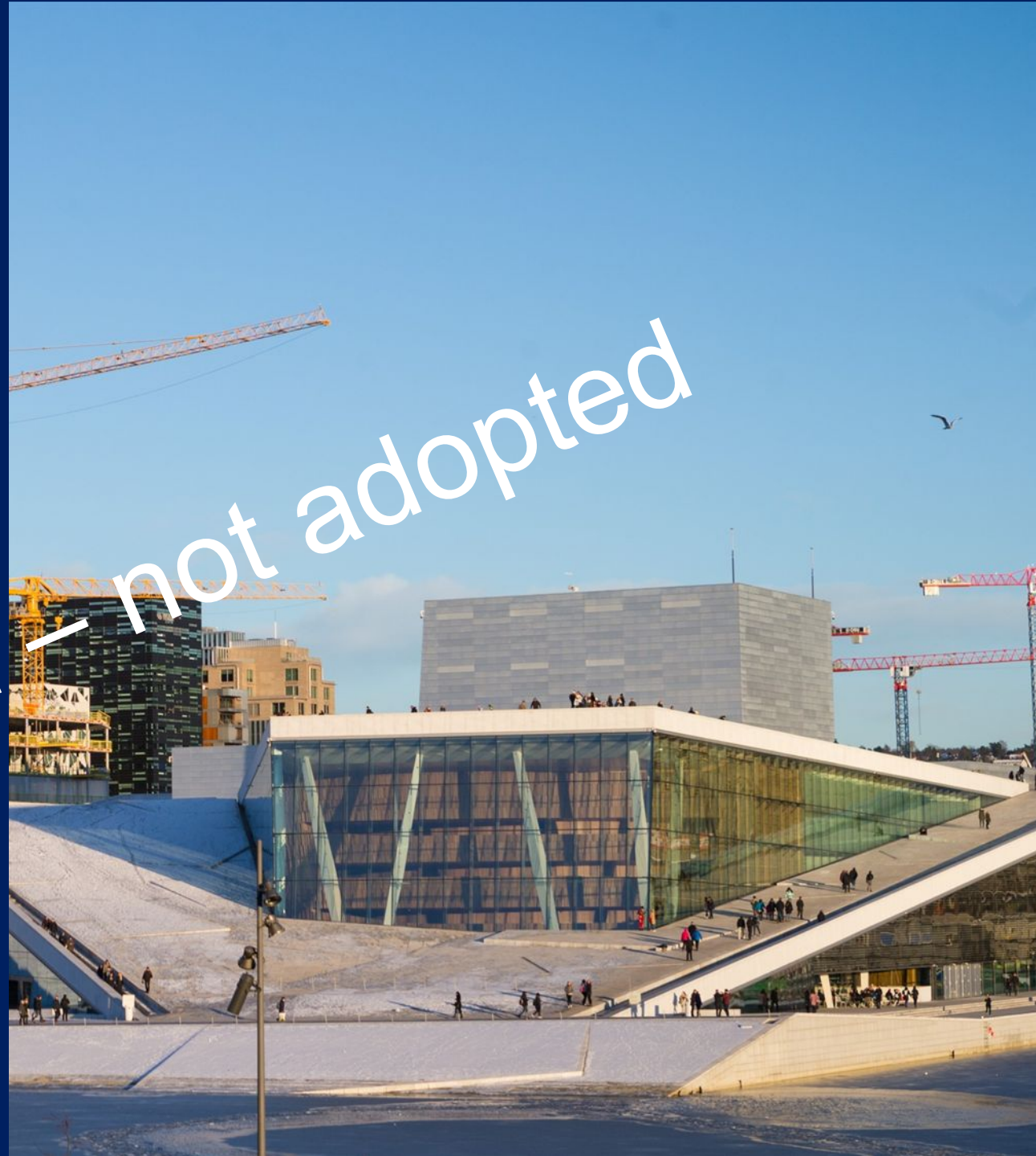


Proposed new planning regulation

- At least 50 % of energy use in all private and public construction projects should be zero emission

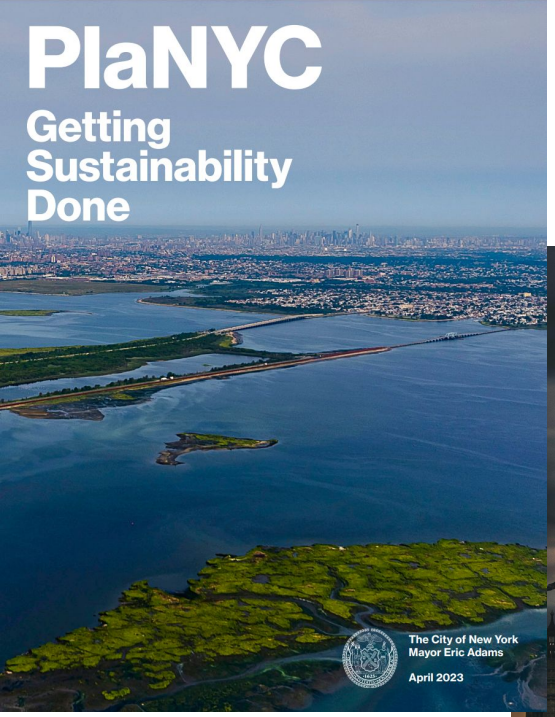
- From 2030, all construction work in Oslo should be zero emission

Proposal – not adopted

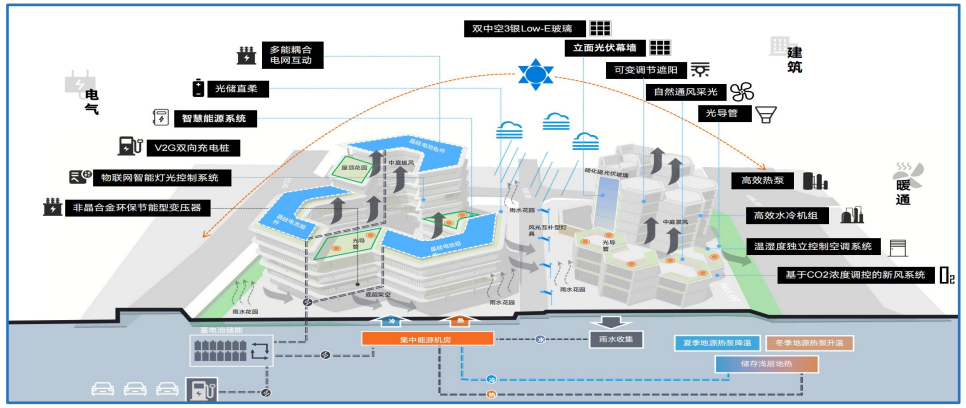


Oslo

Policy examples C40 cities







New York City

PlaNYC (2023)

Action: Implement performance- based standards for low carbon materials and **equipment** by 2025

Executive Order 23 (2022)

Requires City capital project making their best efforts to use electric construction equipment

North American Electric Construction Coalition

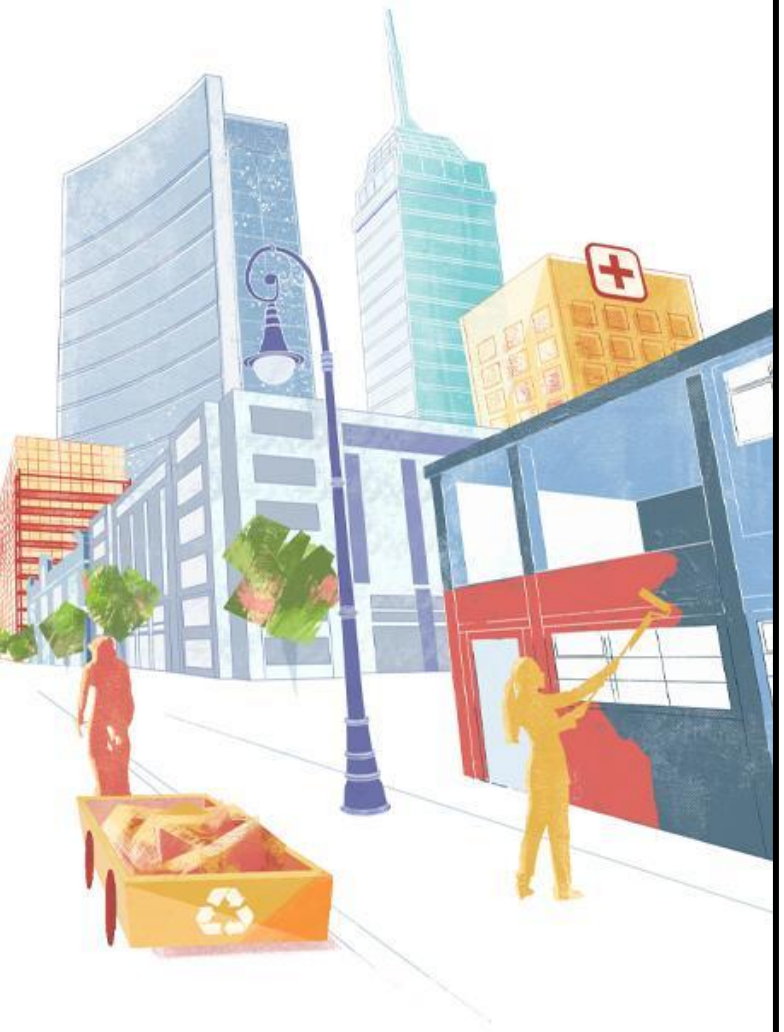
London

Low Emission Zone standards will get tighter over time: By 2040, only zero emission machinery will be allowed

Chinese cities

Hangzhou, Dalian and Chengdu piloting zero emission construction sites

C40 CITIES



Resources on zero emission machinery

Webinar

- C40 webinar on zero emission construction sites

Case studies and City profiles

- How Oslo is driving a transition to Clean Construction, Zero emission construction site case study and Advantages of zero emission construction

Guidelines

- Guidelines for zero emission construction sites

Map of City Actions

- Clean Construction Policy Explorer

Clean Construction E-Learning Course

- Clean Construction E-learning course for city officials

Other non-C40 resources

Impact assessment of zero emission building processes in Oslo (Sintef Research)

Technology and Market Assessment of Zero-Emission Off-Road Equipment (Calstart)

Article on policies by China to better support the transition to zero-emission construction equipment (ICCT)

Survey of emission free construction sites (Sintef Research)

Current power demand at construction sites (Sweco)

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C40 CITIES

Thank you

Reducing emissions from construction machinery

Opportunities

- Improved air quality and less noise and GHG emissions
- Improved work environment for construction workers
- Construction in dense urban areas lends itself well to electrification
- Lower maintenance/energy costs

Challenges

- Investment costs – expensive today, competitive in medium term
- Limited access to heavy-duty equipment
- Access to sufficient power/charging at sites - requires better planning





North American Electric Construction Coalition

- Initiative by New York City in collaboration with C40
- 8 cities and industry leaders committed to developing the electric construction equipment market
- Signatories have potential to send a demand signal and spur significant market growth
- Leverage cities role as leaders to build industry partnerships and create opportunities to develop the market for electric construction equipment

C40 CITIES