

# Decarbonizing Urban Logistics

According to a [new report](#) from CONCITO - Denmark's green think tank **green city logistics can provide significant CO<sub>2</sub> reductions from urban goods and truck traffic**. Timely introduction of urban climate zones with access only for zero emission vehicles is the policy measure with the most obvious potential for reducing CO<sub>2</sub> emissions. The report describes nine specific cases with examples of city logistics solutions and strategies. The report also offers a review of the potential role of key market actors in driving through climate neutrality. It is found that the public sector will need to lead. A two-branched strategy should be rolled out. In the first branch the public sector should begin incorporating requirements for the use of zero- or low-emission (primarily electric) vehicles in public procurement and contracts that include transport. In the second branch major cities would be allowed to establish climate neutral zones where driving is restricted to zero-emission vehicles, with phase-in beginning after 2025. The specific design of zones should be undertaken in collaboration with local green logistics partnerships, consisting of key actors in the last mile supply chains.

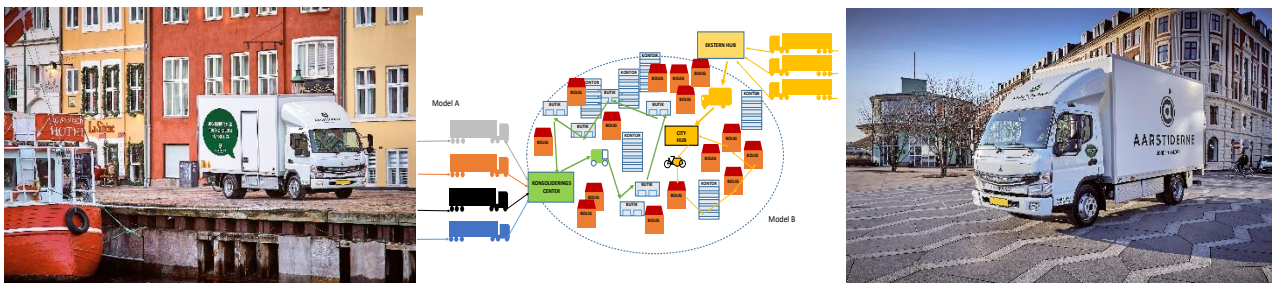


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A [new report](#) from CONCITO - Denmark's green think tank, argues that green city logistics with electrification can make a significant contribution to reducing CO<sub>2</sub> emissions from urban goods and truck traffic. The report is in Danish with an English Summary. The study was sponsored by the Danish Energy Fund.

*Green city logistics* is a strategic approach aiming for better utilization of limited capacity in vehicles and road space, as well as the use of low and zero emission vehicles for freight and service transport in cities.

*Timely introduction of urban climate zones with access only for zero emission vehicles* is the green city logistics policy measure with the most obvious potential for reducing CO<sub>2</sub> emissions. Introducing climate zones will strongly encourage the sector to decarbonize urban freight by shifting towards electric vehicles, further consolidating freight deliveries, utilizing efficiency windows like late-hour delivery options, and adopting more space-efficient solutions such as e-cargo-bikes and -scooters and delivery boxes.

Many transport companies today are keen to support the green agenda. However, they face barriers such as investment costs, technological uncertainty, and lack of clear demand for zero emission solutions. It will

require a strong political framework, as well as new local partnerships in Danish cities to accelerate the transition to decarbonized urban freight. The report charts a strategy to deliver those aims.

Data from the municipalities show that today, van and truck traffic account for a large share of transport CO<sub>2</sub> emissions in Danish cities. Up to 30 - 40% in central urban areas. The emissions are caused by a cross section of transported goods and services. Major shares of the CO<sub>2</sub> stem from: goods delivery to industry, retail and restaurants; building materials and construction equipment; service and facilities management; waste handling, and package deliveries e.g. from e-commerce. The latter still form a small, yet sharply rising share of the total emissions. The diversity of mixed transport functions and vehicle traffic in the city adds to the challenge of finding overall more effective solutions.

The report describes nine specific cases with examples of city logistics solutions and strategies mostly from neighboring countries. Some solutions show significant positive effects on factors such as driving range, intensity of deliveries, time consumption, economy and environment. However, there is often limited evidence available on the overall impact in terms of reducing total CO<sub>2</sub>-emissions in the city.

The analysis takes a closer look at four types of improvement measures:

- consolidation of deliveries to fewer vehicles, in order to reduce empty loads and save kilometers
- delivery in off-peak hours, such a night time in order to avoid congested streets
- conversion from diesel vehicles to alternative fuels and technologies, and
- the use of small light such as electric scooters and bicycles.

*Conversion from diesel to electricity* appears to be the single measure with the greatest potential for CO<sub>2</sub> reduction. At the same time electrification offers significant improvements in energy efficiency, operating costs and urban environmental impact. Other technical solutions such as biodiesel, gas, hydrogen and electrofuels tend to fall short in one or more of these areas. However, also electrification face challenges that need to be overcome, such as high purchase costs, and time consuming recharging needs.

Other improvement measures such as consolidation centers or off-peak delivery primarily satisfy other aims than CO<sub>2</sub>-reduction, such as better economy, improved accessibility, or a cleaner urban environment.

Experience and research shows that measures such as electrification and consolidation can be combined to achieve multiple results. However, more complex solutions also tend to be more costly and cumbersome to create and scale up. In general green city logistic solutions should be tailored locally based on the specific condition of each city and market. Meanwhile there is need for a common frameworks and standards for industry to be able to adapt in scale and nor face inconsistent requirements in individual cities.

The report also offers a review of the potential role of key actors in driving through climate neutrality for urban logistics. Market players such as shippers, logistics companies, transport operators, service providers and customer represent partly conflicting interests and each have limited inducements to drive forward green transport demand. Hence, despite growing awareness of climate and environmental challenges, it is unlikely that a swift transition to zero emission logistics will driven by the market actors alone. The public sector will need to lead.

The analysis points to two main approaches, both of which should be put into play:

In the *demand-driven* approach, the transition is promoted by customers requesting or demanding green transport solutions for delivering goods or services. Here, the public sector could take the lead by incorporating requirements for the use of zero- or low-emission vehicles in connection with public procurement

and contracts that include transport as part of or condition for the provision (e.g. delivery of catering, or school supplies). Advanced cities like Copenhagen are already preparing to implement such an approach. A common set of standards for climate-neutral transport deliveries should be developed, to help municipal procurement offices implement transformative, yet realistic requirements.

In the *regulation-driven* approach, permission to drive within designated climate neutral zones in the larger cities should be restricted to zero-emission vehicles. This will require central government to redefine current zoning regulations. The zones should be established with sufficient lead time for industry to adapt, say from 2025 onwards. The specific delimitation and design of each zone should be developed in local green logistics partnerships, catalyzed by municipalities and involving key actors in the local transport and logistics markets. Technical requirements, such as standards for vehicles fulfilling zone access criteria, as well as the overall time schedule for the scheme, should be defined early on by central government, in order to ensure a transparent and level transition period for industry. This approach is already pursued by the Government of the Netherlands, through a scheme adopted in 2018 targeting 30-40 municipalities.

The two approaches should be supplemented by temporary incentive schemes to help overcome cost barriers for purchasing zero emission freight vehicles or establishing charging facility.

Municipalities should initiate a local preparatory process already now, without necessarily awaiting central policy schemes. This effort could be part of local Climate Action Plans that a majority of Danish municipalities are currently developing as part of the nationwide DK2020 project.

*All municipalities* should begin formulating a green public procurement strategy for transport with the following main steps:

- Mapping of which transport tasks are included in deliveries and services to the municipality
- Determine phased zero emission requirements for vehicles involved, based on a common standard
- Defining public procurement task that can be consolidated to limit vehicle traffic
- Issue tenders on the required deliveries and services

*The larger municipalities* should initiate a process to prepare the city's goods transport for conversion to zero emissions. Main elements should be:

- With the municipality as catalyst, a local partnership is established on climate-neutral logistics with the participation of representatives of transport companies and other important actors.
- Municipality and partnership maps the future need for infrastructure for charging for electric trucks
- Partnerships help prepare a concrete zoning delimitation suitable for the city's structure, business and local environment, etc.
- National government provides assistance for the local partnerships, inspired by the Dutch scheme 'Collaborative project expertpool city logistics'.

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