



## Notat

### Orientering om indgåelse af en klimakontrakt – Københavns Kommunes deltagelse i EU's Cities Mission

#### Resumé

Teknik- og Miljøudvalget orienteres om en Climate City Contract (herefter klimakontrakt), der er udarbejdet af Teknik- og Miljøforvaltningen som led i Københavns Kommunes deltagelse i EU Missionen "100 Climate-Neutral and Smart Cities in 2030". Klimakontrakten er et arbejdsdokument, der beskriver, hvordan København planlægger at nå ambitionen om klimaneutralitet i 2030 og knytter an til den nuværende KBH 2025 Klimaplan. Når EU-Kommissionen har godkendt kontrakten, tildeles Københavns Kommune officielt en 'Mission Label' i anerkendelse af byens klimaambitioner.

#### Baggrund

Københavns Kommune blev i april 2022 sammen med 100 andre byer inden for EU udvalgt af EU-Kommissionen til at deltage i EU's Mission "100 Climate-Neutral and Smart Cities in 2030". Fra Danmark deltager også Aarhus og Sønderborg.

Siden udvælgelsen har Teknik og Miljøforvaltningen deltaget i en række erfaringsudvekslingsmøder med de andre byer, EU Kommissionen og tilknyttede eksperter for at høste viden og inspiration til fordel for Københavns fremtidige klimaarbejde. Forvaltningen påbegyndte i januar 2024 udarbejdelsen af klimakontrakten.

#### Klimakontrakten

Klimakontrakten beskriver, hvordan Københavns Kommune planlægger at nå ambitionen om klimaneutralitet i 2030. Klimakontrakten vil dertil blive anvendt som udgangspunkt for at dele Københavns klimaambitioner med de andre byer og EU Kommissionen. Det forventes, at EU Kommissionen godkender kontrakten senest marts 2025.

Ambitionen om at nå klimaneutralitet i 2030 knytter sig udelukkende til Københavns Kommunes deltagelse i EU Missionen, og er ikke en del af Klimaplan 2035 (hvor målet er klimapositivitet). Med andre ord knytter klimakontrakten sig til KBH 2025 Klimaplanens overordnede mål om klimaneutralitet i 2025.

Når EU-Kommissionen har evalueret og godkendt kontrakten, bliver Københavns Kommune officielt tildelt en "Mission Label" i anerkendelse af kontraktens ambitionsniveau, troværdighed og kvalitet. En "Mission Label" kan efterfølgende anvendes positivt af Københavns Kommune

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nationalt og internationalt i forbindelse med fx finansierings- og projektansøgninger samt til kommunikationsformål.

Klimakontrakten består af tre komponenter, som forvaltningen har udarbejdet med afsæt i retningslinjer og skabeloner fra EU-kommissionen:

- *Commitments* (bilag 1) - beskriver Københavns Kommunes formål med at deltage i Cities Mission samt Københavns overordnede klimamål, ambitionsniveau, strategiske prioriteter og planlagte handlinger. Det er også i dette dokument, at medunderskriverne angiver, hvordan de støtter op om gennemførelsen af planen.
- *Action Plan* (ikke vedlagt) - beskriver status for Københavns klimaarbejde samt de strategier, handlinger og understøttende foranstaltninger der er nødvendige for at opnå klimaneutralitet i 2030.
- *Investment Plan* (ikke vedlagt) - beskriver status for klimainvesteringer, et overslag over de investeringer der skal foretages af hovedaktørerne (kommunen, forsyningselskaberne, borgere og den private sektor) for at opnå klimaneutralitet senest i 2030. Desuden beskrives de væsentligste risici og barrierer.

Klimakontrakten baserer sig på KBH 2025 Klimaplanen såvel som elementer fra den kommende Energistrategi og Klimaplan 2035, som vurderes afgørende for at nå klimaneutralitetsmålet i 2030. Der tages afsæt i allerede politisk besluttet indhold, og der tages forbehold for, at Energistrategien og Klimaplan 2035 er under udarbejdelse.

Investeringsplanen bygger på Københavns Kommunes budgetvedtagelser, men også offentligt tilgængelig information fra HOFOR, ARC og By & Havn samt private aktører.

Det er alene *Commitments* og *Action Plan* komponenterne, der skal offentliggøres efter EU Kommissionen har godkendt kontrakten.

## Climate City Contract

# 2030 Climate Neutrality Commitments

City of Copenhagen



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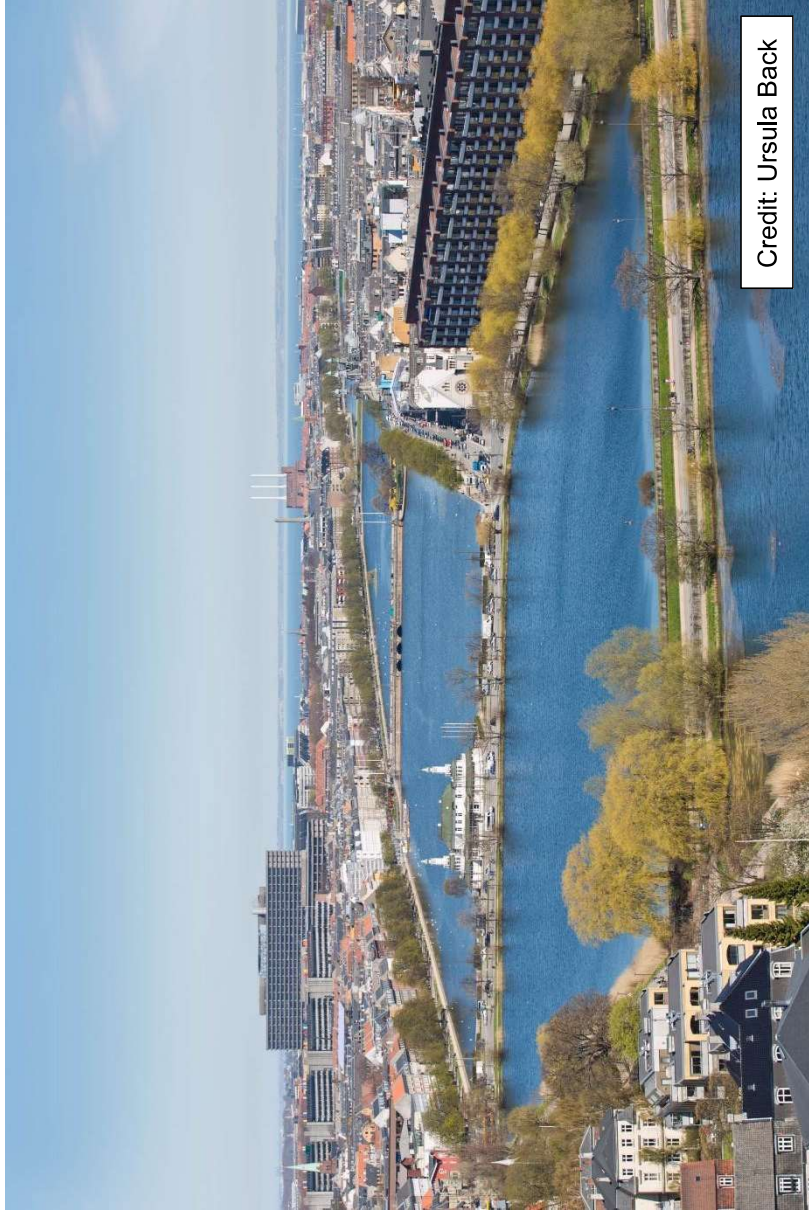
## 1 Introduction

Copenhagen aims to be among the first carbon neutral capitals in 2030. This is an ambitious goal requiring long-term and sustained action, but it is realistic, and Copenhagen is already well underway.

The CPH 2025 Climate Action plan was adopted by the City Council in 2012 and has been certified by C40 as being compatible with the Paris Agreement. The overarching goal was to achieve carbon neutrality by 2025, and the plan is divided into four different pillars: Energy consumption, Energy production, Mobility, and initiatives directly affecting the City of Copenhagen.

Three detailed and consecutive roadmaps facilitate efficient stocktaking and uptake of new knowledge and technologies and guarantee an efficient and targeted implementation of the CPH 2025 Climate Action plan.

The third and final roadmap covering 2021-2025 was adopted by the City Council in 2020. This final roadmap includes more than sixty initiatives that inter alia focus on green mobility, efficient use of district heating, energy efficiency initiatives, and installation of solar photovoltaic systems.



The implementation of the CPH 2025 Climate Action plan has led to a significant decrease of Copenhagen's emissions, e.g., CO<sub>2</sub> emissions per capita went from 4,7 tCO<sub>2</sub>e in 2010 to 1,3 tCO<sub>2</sub>e in 2022 and is expected to get below 1,0 tCO<sub>2</sub>e by 2025. In addition, the CPH 2025 Climate Action plan considers the contribution from the city's renewable energy production taking place on facilities situated within or outside the city limits. Thus, Copenhagen's CO<sub>2</sub> emission can be reduced even further. In 2022, this reduction amounted to approximately 250,000 tons CO<sub>2</sub> leading to a CO<sub>2</sub> emission per capita of 0,8 tCO<sub>2</sub>e. Thus, Copenhagen is clearly on a good trajectory towards climate neutrality.





However, although the goal was to achieve climate neutrality by 2025, it became obvious in 2022 that this objective will not be met mainly because mobility related initiatives resulted in less reductions than expected and due to the postponed installation of a planned Carbon Capture and Storage facility.

Nonetheless, the City of Copenhagen maintains a dedicated and long-term climate ambition and in 2021 the City Council endorsed a set of high-level targets for the city's next climate action plan. The plan will cover the period from 2026 till 2035 and is currently being prepared in line with the City Council's guidance.

The forthcoming Climate Action 2035 plan is being prepared by the Technical and Environmental Administration and the Climate Secretariat in cooperation with several internal and external stakeholders. The plan will be approved by the City Council summer 2025 after a public consultation phase.

Copenhagen participates in the Cities Mission '100 Climate-Neutral and Smart Cities in 2030' to reach the targets of the European Green Deal, to foster a green and climate neutral Europe, to contribute significantly to the Mission with knowledge and experience, and to learn from fellow cities. The Mission's aim to bring together cities well on their way to carbon neutrality, like Copenhagen, and cities just starting on the journey, aligns well with Copenhagen's vision for international cooperation.

As stated in Copenhagen's letter of interest, considering the current CPH 2025 Climate Action plan, and looking to the future, the City of Copenhagen hopes to address and further develop two key challenges with support from the Cities Mission:

1. Involvement of the citizens in Copenhagen's next climate plan, both regarding the development of the plan, and its implementation,
2. Addressing and reducing Scope 3 emissions requires changing both the city administration's procurement practices and the citizens' consumption.

The City of Copenhagen is actively working together and exchanging information and ideas with other Danish mission cities, the Øresund Region, and other Nordic Mission cities. During the development of the Climate City Contract, Copenhagen greatly benefited from expertise made available through the NetZeroCities project. This is also expected to be the case during the implementation phase towards 2030. Furthermore, in May 2024 the City of Copenhagen, together with HOFOR (Greater Copenhagen Utility) started the Flexumers4Future Pilot City project that focuses on how flexible use of district heating will decrease CO<sub>2</sub> emissions and provides essential knowledge and systemic tools that can be replicated across other energy sectors and electricity systems.

Copenhagen wishes to leverage the Cities Mission to further strengthen its work towards even more ambitious goals after 2030. The city is already on a strong trajectory to become climate neutral in 2030 regarding scope 1 and 2 emissions due to the ongoing implementation of the current CPH 2025 Climate Action Plan and current plans for future work. Cross-sectoral work and integration of new technologies such as large-scale heat pumps, Carbon Capture & Storage, and new smart technologies will be central elements in Copenhagen's next climate action plan to further reduce residual scope 1 and 2 emissions.

Copenhagen is in a transition phase, implementing the last part of the current CPH 2025 Climate Action plan while in parallel preparing for a new and ambitious ten-year climate action plan with an extended scope including consumer-based emissions. It is therefore important to underline that, due to the outstanding formal decision-making process of the Climate Action 2035 plan, the final state of the plan and the first implementing roadmap is not yet settled. The exact nature of the governance framework and future climate actions is consequently not known and information regarding the Climate Action 2035 plan should consequently be regarded as provisional. This holds also true as regards the purpose and type of new stakeholder initiatives and to which extent current initiatives will be continued.



## 1.1 Status

Copenhagen's Technical and Environmental Administration regularly monitors and evaluates the status of all the initiatives included in the CPH 2025 Climate Action plan, produces a CPH 2025 Climate Action progress report every six months, and issues an annual CO<sub>2</sub> inventory including a status report based on 18 indicators.

The progress report issued December 2023, details the status of the more than sixty ongoing initiatives and concludes that CO<sub>2</sub> emissions have been reduced by 74.4% compared to the 2010 baseline where emissions in total amounted to approximately 2.2 M tons CO<sub>2e</sub>.

However, even though the target was climate neutrality, the initiatives included in 2021–2025 roadmap are currently expected to result in residual carbon emissions in 2025 amounting to approximately 600.000 tons CO<sub>2e</sub>, close to 25% of the 2010 baseline, of which nearly 320.000 tons CO<sub>2e</sub> stem from the transport sector and approximately 215.000 tons CO<sub>2e</sub> can be related to energy production. When including the contribution from Copenhagen's renewable energy production, CO<sub>2</sub> emissions in 2025 are expected to reach approximately 20% of the 2010 baseline. The progress report dated December 2023 is available [here](#) (in Danish). A detailed presentation of Copenhagen's CO<sub>2</sub> inventory is given in module A-1 in the CCC Action Plan.

The primary reasons for not reaching climate neutrality are the slow transition to fossil-free mobility and lack of sufficient funding for the planned Carbon Capture and Storage facility. To the extent possible and necessary, the implementation of these key initiatives will be transferred to the upcoming Climate Action 2035 plan.

However, the implementation of the CPH 2025 Climate Action plan has led to a significant decrease of Copenhagen's emissions, e.g., CO<sub>2</sub> emissions per capita went from 4,7 tCO<sub>2e</sub> in 2010 to 1,3 tCO<sub>2e</sub> in 2022 and is expected to get below 1,0 tCO<sub>2e</sub> by 2025 (or 0,8 tCO<sub>2e</sub> when including the contribution from renewable energy production). Furthermore, according to a rather conservative projection, the emissions per capita will be approximately 0,6 tons CO<sub>2e</sub> by 2030. It is assumed that this residual can be fully compensated by the planned CCS facility. Thus, Copenhagen is on a good trajectory towards climate neutrality in 2030.

Please note that the results (e.g., Figure 2) presented below do not include the contribution from renewable energy production in alignment with the method of calculation adopted for Copenhagen's next climate plan.

A detailed status for the 18 indicators / targets used vis-à-vis the CPH 2025 Climate Action plan and listed below in chapter 3 is included in the CCC Action Plan module B-3. More information about the 2030 projection can be found in Part A of the CCC Action Plan.

## 2 Climate neutrality by 2030

The City of Copenhagen confirms its intention to reach climate neutrality by 2030 within its administrative boundary and to address all greenhouse gases and sectors of emissions defined by the Cities Mission. This goal is supported by the implementation of the current CPH 2025 Climate Action plan, the forthcoming Climate Action 2035 plan, and is fully aligned with Copenhagen's overall vision for a smart, green, and climate-neutral city.

Copenhagen is one of the world's most ecological and climate-friendly cities and wants to be sustainable and adapt the city to efficiently cope with climate change. Copenhagen will continue to work hard to ensure that the increasing number of people who live in the city can use it with a clear conscience knowing that future generations will also be able to enjoy a liveable, green, and climate friendly city.

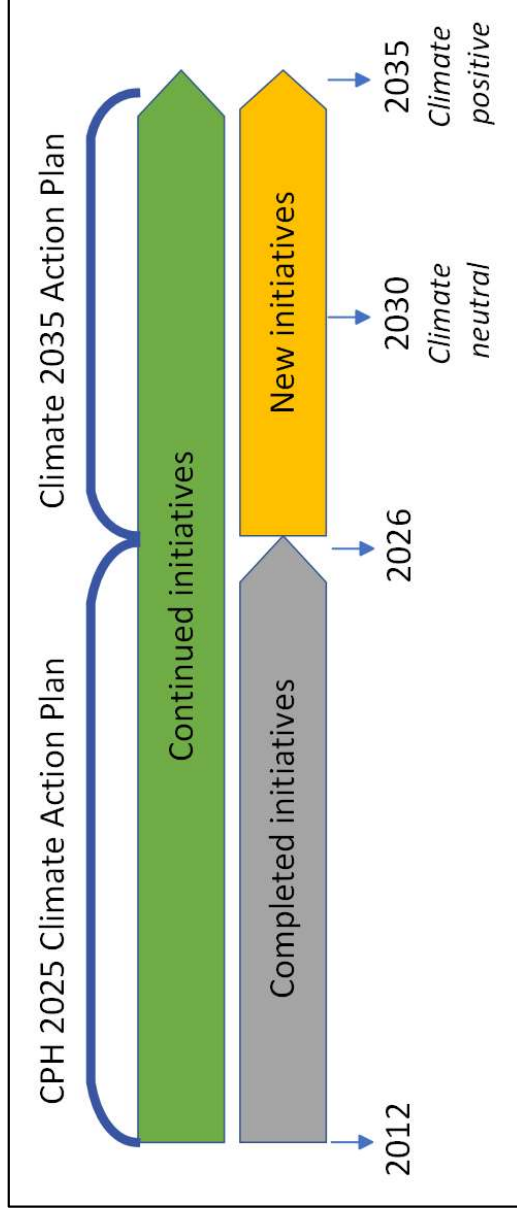




In 2030, Copenhagen will be among the world’s first carbon neutral capital cities. As well as being an important milestone in the fight against climate change, this ambition will have other positive effects, e.g., cost savings re power and heating, and in the form of less noise, cleaner air, less waste, healthier citizens, and more green jobs. In 2030, Copenhagen will strive to be a leader as regards circular economy and make less impact on the Earth’s resources, via sharing schemes, reuse, and even better frameworks for involving inhabitants in the green transition.

To succeed, the Copenhagens’ support to the climate action initiatives is essential. Without the engagement and understanding of the citizens, it is not possible to reach the ambitious targets that will affect the citizen’s daily life in many respects.

The Climate City Contract is first and foremost based on those elements of the current CPH 2025 Climate Action plan that are expected to be continued towards 2030, lessons learnt during the implementation of the current plan, and main new initiatives assumed to be included in the Climate Action 2035 plan. The present version of Copenhagen’s Climate City Contract will focus on the mandatory scope 1,2, and 3 emissions. Thus, leaving the life cycle assessment approach and related consumption-based emissions, that will be part of Copenhagen’s Climate Action 2035 plan, for inclusion in a potential next version of the Climate City Contract.



**Figure 1. A sketch of Copenhagen’s climate action plans, duration, and key targets. The CPH 2025 Climate Action plan will be followed by a new plan currently being developed.**

The CPH 2025 Climate Action plan and the upcoming plan operate within the legislative framework composed of the European Climate Law, the EU Green Deal, the fit for 55-package, the Danish Climate Law, and associated implementing legislation adopted by the Danish Parliament.

Similarly, the climate action plans cannot be implemented in isolation and depends strongly on supporting plans and activities. Consequently, the City of Copenhagen has put several other plans and strategies in place in support of the CPH 2025 Climate Action plan such as (a more complete list can be found in module A-2 in the CCC Action Plan):

A new vision for ‘Our Copenhagen’ was endorsed by the City Council January 2024. It serves as a strong foundation for the Technical and Environmental Administration’s future work and formulates high-level objectives that will guide Copenhagen’s climate actions during the next ten years. It put emphasis on co-creation, cooperation, and engagement; and includes a bold vision for a green and climate friendly city and emphasises inter alia that urban development in Copenhagen shall always take the impact on climate and biodiversity into account – regarding new buildings and when rethinking existing buildings and urban spaces”; and that in 2035, “Copenhagens’ high quality of life and minimal CO<sub>2</sub> emissions will be an inspiration for the world”. The adoption of this new vision by the



City Council was also the starting point for a thorough review and analysis of the City of Copenhagen's existing climate related policies, strategies, and action plans with a view to adapting them to the vision's objectives.

*Copenhagen's tree planting policy 2018-2025*. The policy's overall goals for 2025: 75% of Copenhageners experience Copenhagen as a green city; the total number of trees in Copenhagen shall increase; good growth conditions for both existing and new trees in the city shall be ensured; and 20% of Copenhagen's total area is covered by tree crowns. In addition, the CHP 2025 Climate Action plan stipulates that 100.000 new trees should be planted before the end of 2025.

*Circular Copenhagen*. 'Circular Copenhagen' is the City's 'Resource and Waste Management Plan 2019-2024'. The plan was adopted in 2019 and contains three specific targets: 70% of household waste and light commercial waste is recycled in 2024; carbon emission from waste is reduced by 59,000 tonnes; and recycling is tripled. The plan contributes to the climate target by separating waste and by making better use of plastic and biological waste. This plan is currently under revision, for information about specific current activities, see [Circular Copenhagen](#). The new plan will take effect from January 2025 and underpins the implementation of new Climate Action 2035 plan.

*Copenhagen's Planning Strategy*. This strategy contains an overall vision for Copenhagen's development, "The climate-friendly capital of the future". The vision is translated into concrete proposals for the City of Copenhagen's urban planning over the coming years. Copenhagen must continue to be a green and climate-friendly capital that takes the lead in the green transition and sets ambitious goals for the future that can inspire other cities. This must be accompanied by investments that promote sustainable mobility and more new green spaces and parks that contribute to the health and leisure of Copenhageners. Copenhagen must be a green city and work to increase biodiversity in the city for the benefit of Copenhageners.

*Underlying planning basis for Mobility actions*. In addition to the above, the underlying planning basis for the mobility sector comprises a wide variety of plans and programmes. Copenhagen's Cycling Strategy 2011-2025, the Cycling Track Prioritisation Plan 2017–2025 and the Prioritisation Plan for Bicycle Parking 2018–2025 stipulate targets and a planning basis for cycling-related actions, while the Green Mobility Action Plan stipulates actions to promote green mobility in general. Going forward, this planning basis is supplemented by new action plans for an electric vehicle charging infrastructure, traffic safety and car-sharing and a new parking strategy.

Copenhagen is a metropolis large enough for its climate solutions to be interesting in an international context, but also small and manageable enough to test out new and smart solutions. The city is growing and consequently there are new urban development areas where trials and demonstrations of innovative solutions and new thinking can take place on a large scale. New solutions being developed and tested in Copenhagen present a unique export potential to cities all over the world which also require solutions to reduce energy consumption and CO<sub>2</sub> emissions and improving the environment.

Copenhagen's green and blue areas endow the city with an air of calm and balance. In a growing city, it is increasingly difficult to find space for big new green areas. Thus, green spaces must be considered when designing new or changed urban spaces. Nature will have to thrive in unexpected places, resulting in a multitude of smaller patches of green and blue.

### 3 Strategic priorities

Strategic priorities described in section 3.1 to 3.4 refer to the CPH 2025 Climate Action plan, whereas section 3.5 outlines initiatives in preparation for the Climate Action 2035 plan including the subset of current initiatives that are expected to be continued.



### 3.1 Reducing energy consumption

Targets for the energy consumption sector in Copenhagen by 2025 compared to the 2010 baseline:

- 20% reduction in heat consumption,
- 20% reduction of electricity consumption in commercial and service companies,
- 10% reduction of electricity consumption in households,
- Installation of solar panels corresponding to 3% of electricity consumption in 2025,
- Reduce energy consumption in municipal buildings by 40%.
- Municipal new build up to 2015 meets the requirements of the 2015 classification and up to 2020 meets the requirements of 2020 classification,
- The energy consumption for street lighting in Copenhagen is halved,
- An installed total of 60,000 m<sup>2</sup> of solar panels on existing and new buildings owned by the municipality.

Energy savings constitute an important part of the CPH 2025 Climate Plan. Energy consumption accounts for a minor part of the total reduction of CO<sub>2</sub> emissions but, from an overall economic perspective, energy savings are the cheapest way to cut emissions.

The City of Copenhagen aims at realising the potential for energy savings and develop new, innovative mechanisms to reduce energy consumption in buildings, particularly changing buildings' role in the energy system from passive consumers to active partners which can add flexibility to the energy system and facilitate generation of energy locally. Going forward, buildings and technical facilities must increasingly interact with the overall energy system to adapt energy consumption and renewable energy production. This can for example be achieved by staggering consumption and storing heat in the building stock, particularly buildings made of dense and heavy materials.

The ongoing refurbishment of the city's buildings will gradually save energy. Once a building has undergone a major refurbishment, many years will usually pass before it needs to be refurbished again. Consequently, it is crucial to ensure sufficient focus on energy efficiency as part of the general refurbishment of existing buildings and whenever new buildings are constructed. An added advantage is that energy efficiency measures can contribute to better housing quality and indoor climate.

The day-to-day operation of thousands of district heating substations installed in Copenhagen's buildings significantly impacts energy efficiency. HOFOR (Greater Copenhagen Utility) estimates that it is technically possible, through optimisations, to reduce the city's heat consumption by close to 10% without major investments provided building owners are engaged and act.

Energy Leap is a partnership between housing associations and organizations in Copenhagen that collaborate to reduce energy consumption in buildings. The Energy Leap partnership is a major initiative currently representing 39% of the building stock in Copenhagen, distributed across 56 partners, including HOFOR (Greater Copenhagen Utility), private-sector and public-sector building owners (such as the city's Copenhagen Properties Administration) as well as property sector interest groups. The Energy Leap partnership has collectively achieved a 9 % reduction in heat consumption from 2021 to 2023, amounting to savings of approximately 2 M€, and demonstrating that cross-cutting knowledge and data sharing and promotion of best practices yield positive results.

### 3.2 Fostering green mobility.

Targets for the Mobility sector in Copenhagen by 2025 compared to the 2010 baseline:

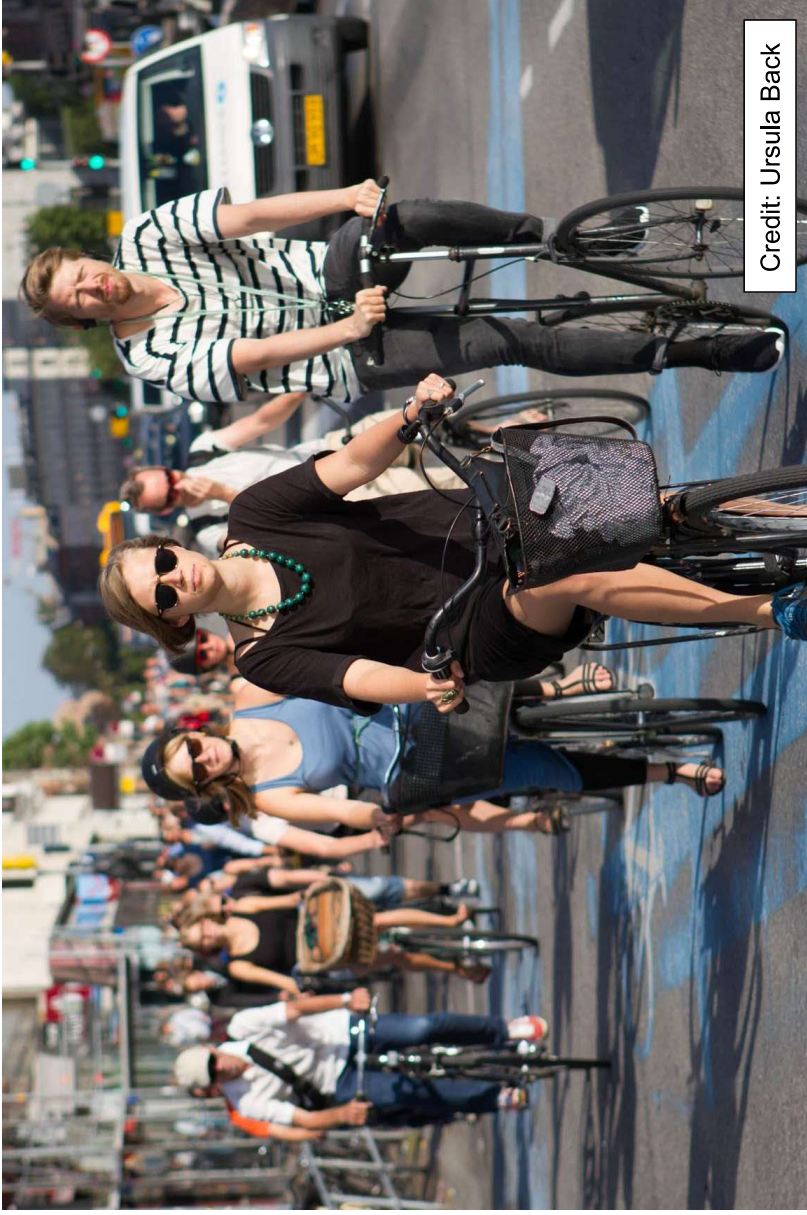
- 75% of all trips in Copenhagen are on foot, by bike or public transport,
- 50% of all trips to work or school in Copenhagen are by bike,
- 20% more passengers use public transport compared to 2009,





- Public transport is carbon neutral,
- 20-30% of all light vehicles run on new fuels,
- 30-40% of all heavy vehicles run on new fuels,
- The City of Copenhagen's vehicles run on electricity, hydrogen, or biofuels.

The City of Copenhagen aims at developing future mobility and transport solutions that are more efficient and space-saving and have a much lower negative impact on the climate, the environment, and human health. This is done in close cooperation with neighbouring municipalities and national authorities.



Credit: Ursula Bach

The transport sector accounted for roughly 340,000 tons of carbon emissions in 2022 and it is expected to be the biggest source of carbon emissions in Copenhagen onwards. Road traffic accounts for approximately 90% of these emissions.

Several initiatives are being pursued to reduce carbon emissions from road traffic including:

- Conversion of parking lots to spaces for electric vehicles (EVs) and shared EVs, are expected to cut carbon emissions by up to 28,000 tons CO<sub>2</sub>e by converting half of the current spaces allotted for fossil-fuelled vehicles to EVs,
- Initiatives fostering a shift away from fossil-fuelled vehicles, e.g. generally reducing the speed limit throughout the road network and introduction of superblocks, is estimated to reduce carbon emissions by 46,000 tons CO<sub>2</sub>e, or by 2,000 tons CO<sub>2</sub>e for just a single speed zone in an urban district,
- Initiatives improving conditions for green and space saving modes of transport, e.g. cycling, bus, walking, shared cars, and car-pooling. As mentioned, these initiatives have a lesser impact in isolation, but substantially impact overall mobility.



The way in which the initiatives are combined will impact the overall effect on traffic and, thus, on carbon emissions. This is because several initiatives affect the same users and trips. At the same time, some initiatives lay the foundation for other initiatives. Similarly, some initiatives in isolation have only a small impact on carbon emissions, but support changes throughout the transport system and are essential for ensuring a satisfactory level of general mobility.

It is an overarching goal for the City of Copenhagen that cycling, public transport and walking should each make up at least 25% of all trips. For the past fifteen years, the bicycle share has been between 25% and 31%; and cycling should amount to 50% of all trips to work and educational institutions by the end of 2025 - in 2023, the share was 45%, compared to 42% in 2020.

Biking is an essential mode of transportation and good for the citizens' health and the environment. Copenhagen, therefore, still aims at being the world's best city for cyclists – also in the future. With more cyclists in the streets, it is required to work hard to make room for everybody, including less experienced cyclists, and provide more bicycle parking and charging options. Biking and should be a source of pleasure and well-being. Copenhagen invests every year in bicycle paths and bridges. Over the past ten years, the City of Copenhagen has invested a total of 113 M€ thereby improving cycling conditions. Today, 75% of Copenhageners experience that the culture of cycling contributes positively to urban life in Copenhagen.

The City of Copenhagen strives to ensure efficient, green, and CO<sub>2</sub>-neutral public transportation by creating new green transport solutions that can help reduce air pollution and CO<sub>2</sub> emissions in Copenhagen. From 2008 to 2021, air pollution from Copenhagen's busses has been reduced by more than 85%. At the same time, CO<sub>2</sub> emissions have been reduced by 60%.

The City of Copenhagen is continuously working to improve public transportation ensuring passengers a fast and efficient journey by busses, S-train, and the metro. Copenhagen is growing, by 2050, around 100,000 more Copenhageners are expected compared to 2019. This increases the risk of traffic congestion and puts pressure on public transport capacity. Consequently, it is important to improve public transportation and make it attractive to more people. This may be done by expanding the capacity and raising the level of service, reducing travel time, introducing attractive price models, and ensuring better accessibility and good connections between the different modes of transportation both to, from, and in Copenhagen.

The challenge of imposing restrictions on fossil-fuelled vehicles using the main road network in Copenhagen is that the segment of traffic that does not convert to electric vehicles and does not switch to other modes of transport will presumably take different routes and thereby shift carbon emissions to neighbouring districts or municipalities. Further, national legislation or lack thereof may inhibit or delay relevant initiatives such as the introduction of road pricing nationwide or in Greater Copenhagen that would underpin efforts to reduce carbon emissions from road traffic and significantly reduce the danger of migrating emissions to neighbouring municipalities.

### 3.3 Building a flexible energy system.

Targets for the Energy Production sector by 2025 compared to the 2010 baseline:

- District heating in Copenhagen is carbon neutral,
- Electricity production is based on wind and biomass and exceeds total electricity consumption in Copenhagen,
- Plastic waste from households and businesses is separated,
- Bio gasification of organic waste.

Copenhagen strives to develop a future energy production system based solely on renewable energy including the possible partial phasing out of biomass, phasing in of new green technologies, developing integrated circular resource systems, and rising the share locally produced energy from



sources such as photovoltaic systems, heat pumps, and geothermal plants. In 2022, around 85% of the heat produced in Copenhagen was CO<sub>2</sub> neutral.

Efforts to ensure a sustainable, carbon-neutral district heating are focused on reducing, and ultimately phasing out, the use of fossil fuels. New initiatives will focus on developing and deploying system components such as heat pumps, electric boilers, geothermal solutions, low-temperature district heating, heat storage and flexible consumption.

Denmark has adopted a national Climate Agreement for energy and industry which changes several framework conditions for these efforts and enables, among other things, a wider deployment of heat pumps and conversion of peak-load production of district heating.

Considering the terms and conditions of this new national framework, existing efforts have been re-evaluated and supplemented by new projects aimed at accelerating the sustainable transition of the district heating system. In relation to the implementation of these efforts, it is crucial that physical urban planning designates appropriate areas for decentralised technical facilities in the city.

### 3.4 Carbon capture activities.

The City of Copenhagen is cooperating with HOFOR (Greater Copenhagen Utility) and ARC (Amager Resource Centre) to establish a Carbon Capture and Storage (CCS) facility in Copenhagen. The overall effect of this project could make the incineration plant carbon negative and contribute a net absorption of atmospheric carbon. In the short term, the most realistic solution is to store the carbon underground. In the long term, once technologies have matured further, it may be possible to use CO<sub>2</sub> in the production of for instance synthetic fuels.

There remain several uncertainties relating to plant design and waste composition but particularly the plant's financing, as well as how it integrates into the energy system.

The City Council has consequently asked HOFOR and ARC to analyse and possibly put in a bid for the government's CCS (Carbon Capture and Storage) tender in 2025 with the aim to be operational by 2029. This will help to achieve the 2030 climate neutrality target and the 2035 target vis-a-vis climate positivity.

HOFOR is currently investigating the possibilities of capturing and using or storing CO<sub>2</sub> emitted from Amager Power Station which is Denmark's largest and newest point source for biogenic CO<sub>2</sub>. The plant may be able to remove up to 900,000 tons of CO<sub>2</sub> per year.

ARC will also work in the coming years to remove CO<sub>2</sub> from the waste-to-energy plant and funds have been allocated for analyses, feasibility studies, and operation of demonstration plants. ARC is working towards making the waste-to-energy plant Amager Bakke CO<sub>2</sub> neutral. With a full-scale plant for carbon capture, Amager Bakke will be capable of capturing 500,000 tons of CO<sub>2</sub> annually, helping Copenhagen take a big step towards becoming CO<sub>2</sub>-neutral.

### 3.5 Climate actions after 2025

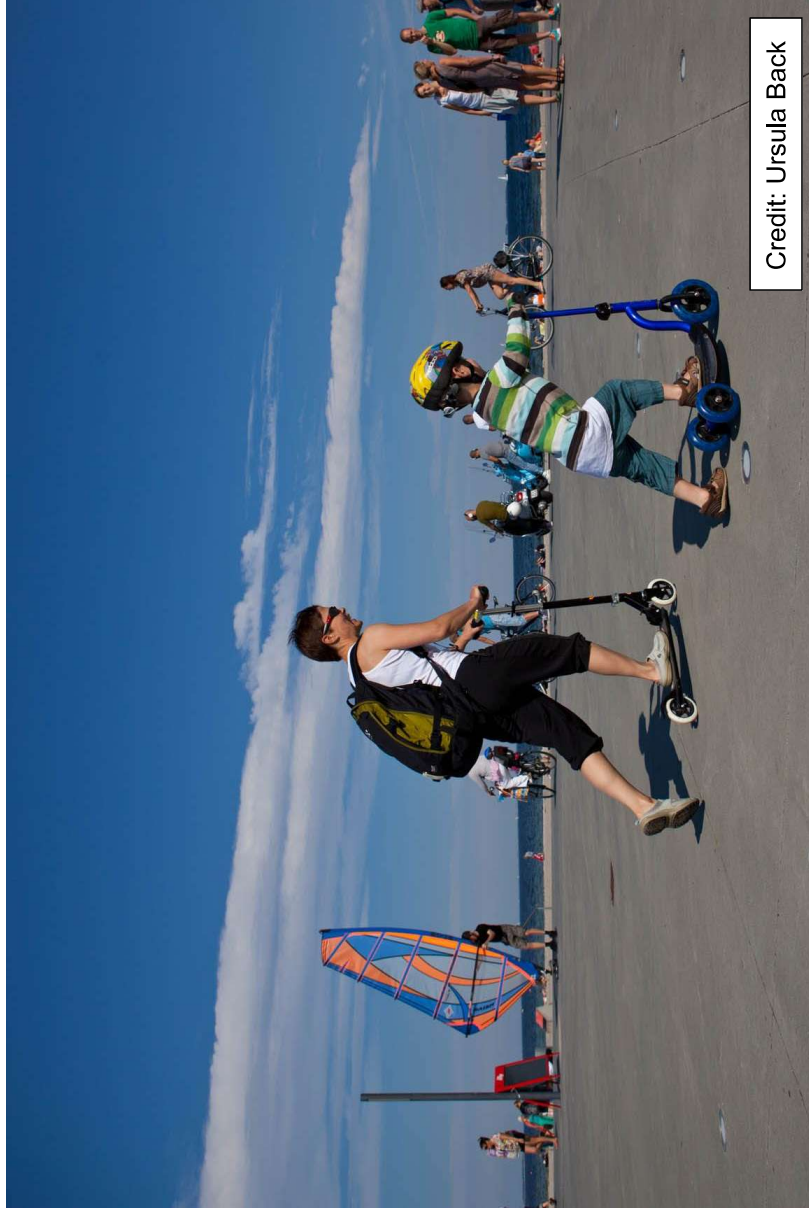
The climate battle in front of us will predominantly be won in cities. By 2050, 2/3 of the world's population is expected to be living in cities. Most of the growth will be in the developing countries, especially South-east Asia, Africa, and South America. The global middle class is also expected to grow from 1.8 billion people in 2010 to 4.9 billion in 2030. This will put greater pressure on resources, so it is imperative that the expected growth and development of infrastructure is based on sustainable principles. Otherwise, the Paris Agreement targets will be unrealistic.

Realising this, Copenhagen wants to continue being an international pioneer in terms of climate action and urban development.





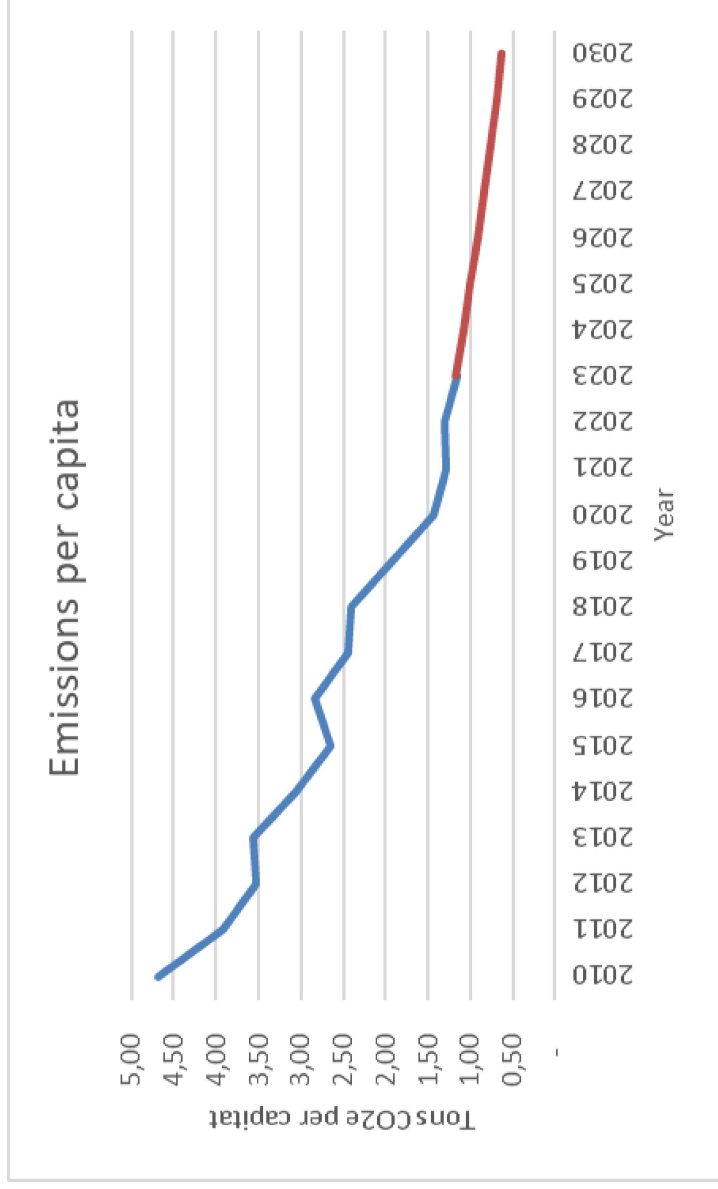
The City of Copenhagen will follow up on its actions with ambitious new climate targets both for the emission sources covered by the existing CPH 2025 Climate Action plan, and for consumption-based emissions beyond the current scope of the Climate City Contract.



The City Council has endorsed a set of high-level guiding principles for the city's next climate action plan. The plan will cover the period from 2026 till 2035 and is currently being developed in line with the City Council's guidelines, i.e., Copenhagen aims at being net-positive by 2035, emissions from Copenhagen's procurement activities should be reduced by 50 % by 2035, and emissions stemming from citizens' consumption should be reduced from approximately 10 tons CO<sub>2e</sub> to 5 tons CO<sub>2e</sub> per citizen by 2035. These goals are ambitious, require sustained, innovative, and targeted actions, and demonstrate Copenhagen's genuine wish to become even greener and more sustainable in the years to come for the benefit of its citizens and the climate.

The concrete initiatives, detailed goals, and indicators are being developed and will be presented to the City Council before the end of 2024 and will, after a public consultation phase, be approved by the City Council towards the end of the second quarter of 2025. Hence, the new Climate Action 2035 plan will be ready to take over from the current plan by January 2026.

Historical and projected emissions per capita in Copenhagen shown in Figure 2 clearly demonstrates that Copenhagen is on a solid trajectory towards climate neutrality in 2030.



**Figure 2. Emissions per capita and projected emissions until 2030 (in red) based on the ‘Frozen Policy’ scenario presented in module A-2 in the AP.**

The new or expanded high-level initiatives that will underpin Copenhagen’s 2030 climate-neutrality ambition are briefly presented below and further detailed in Part B of the CCC Action Plan. These activities will build on experiences and results obtained during the implementation of the CHP 2025 Climate Action plan.

*Reducing energy consumption.* Focus will be put on reducing energy consumption in both buildings owned by the City of Copenhagen (5% of the building stock), buildings owned and managed by the private sector, and on new or retrofitted buildings. The targets will be achieved by involving multiple stakeholders such as residents, building owners, utility companies, building contractors, and private industry.

Innovative initiatives such as Copenhagen’s NZC pilot city project, Flexumers4Future, that focuses on how flexible district heating can decrease CO<sub>2</sub> emissions may foster city wide mobilisation of citizens in support of low carbon transitions pathways and provide essential knowledge and systemic tools. Specific activities will be allocated to energy renovation; introduction and optimal use of intelligent building energy management systems; targeted educational and awareness raising activities; and activities facilitating buildings’ ability to flexibly interact with the energy system by locally generating, storing, and releasing energy when it is needed.

The introduction of low-temperature district heating will provide significant savings re heat production costs. Converting the existing district heating network to a lower heating temperature will not only increase efficiency and reduce resource consumption but will also enable the creation of a future decentralised multi-source energy system.

*Fostering green mobility.* The fossil-free electrification of the transport sector will gradually lead to reduced CO<sub>2</sub> emissions. The successful implementation of this initiative is a prerequisite for reaching climate neutrality by 2030. In parallel, the City of Copenhagen will work to reduce the number of passenger car trips inside the Copenhagen area by fostering alternative transportation options such as



walking and biking, e.g., by prioritising biking in urban planning, promote car sharing, building additional biking lanes, and improving public transportation.

Spatial planning includes both municipal and local planning and is a key tool for creating a framework for a more sustainable urban life. There is a need to investigate how targeted planning of urban areas can promote CO<sub>2</sub>-light buildings or create urban spaces that support the green transition. The question is how green, non-commercial urban spaces can influence behaviour and consumption in a climate-friendly direction or how to implement a "15-minute city", where Copenhageners should be able to go to school, get to leisure activities, work and shop within walking or cycling distance from home?

*Building a green energy system.* The energy system will gradually be transformed from consisting of few large installations to an eco-system of several components, i.e., a move from a centralised to a decentralised multi-source approach. Primarily, the electrification of the transport sector and district heating will guide the design and capacity of the future energy system. Hence, the installation of large-scale heat pumps, electric boilers, energy storage facilities, addition of more renewable energy production capacity (wind and solar), and expansion of the electrical grid capacity will be main components of the Climate Action 2035 plan. These new installations will require significant investments as documented in the CCC Investment Plan.

As an integrated part of the Climate Action 2035 plan the Technical and Environmental Administration is developing an Energy Strategy together with the Finance Administration and several municipally utility companies and the private sector. This process is steered and guided by the Energy Strategic Forum chaired by the Technical and Environmental Administration. The rationale for developing an Energy Strategy is the expected increase in demand and the complexity and changing nature of the future energy system. The aim is to develop a visionary and shared strategy supporting biomass reduction, a climate-friendly transition, and ensuring security of supply. The strategy will serve as a common guideline for the short- and long-term co-development of the energy system; and will allow the City of Copenhagen to influence energy planning in a proactive and agile way; and to take responsibility for the overall development of the energy system.

*Carbon capture activities.* Compensating residual emissions by establishing a Carbon Capture and Storage (CCS) facility in Copenhagen is a prerequisite for reaching climate neutrality by 2030 and the climate positive target by 2035. A test installation is already up and running, but the aim is to have a large-scale operational facility ready by 2029. However, a CCS facility will require substantial investments which is documented in the CCC Investment Plan.

*Cross-cutting activities.* Several initiatives aimed at engaging citizens and other stakeholders in the formulation of the upcoming Climate Action 2035 plan have been initiated and will form the basis for stakeholder involvement activities to be put in place during the implementation of the Climate Action 2035 plan to facilitate continued guidance and sustained local action. These activities are presented in more detail in module C of the Climate City Contract Action Plan.

### 3.6 Involvement and engagement of stakeholders

Involvement of Copenhageners is a core task for the City of Copenhagen and essential to make Copenhagen climate neutral by 2030. An engaging and transparent dialogue across different areas of interests, city districts, and citizens with different demographic, social, and cultural background creates a firm foundation for developing, implementing, and sustaining climate friendly solutions in Copenhagen.

The CPH 2025 Climate Action plan is being co-created and implemented in cooperation with key partners and stakeholders. The Climate Action 2035 plan will further engage and involve partners and stakeholders with a view to achieve Copenhagen's ambition to be climate-neutral by 2030. Both during the development and implementation of Copenhagen's climate action plans, co-creation and multi-





level stakeholder involvement have been key factors to success ensuring climate justice and a just transition, sustained local action, and facilitate timely uptake of innovative ideas and new technology.

The City of Copenhagen is therefore reaching out to citizens, associations, public entities, and the private sector among others through well-established mechanisms and partnerships<sup>1</sup> such as the Citizens' Climate Assembly, District Committees, the Climate Task Force, District Climate Summits, the Energy Strategic Forum, and the Energy Leap partnership.

This active co-creation environment constitutes a driving force that will underpin Copenhagen's ability to achieve climate neutrality by 2030. Many of these enablers have been created and applied in connection with the implementation of the CPH 2025 Climate Action plan and the development of the Climate Action 2035 plan. These will be further improved and adapted to the Climate Action 2035 plan and additional new tools will be developed.

The new Climate Action Plan 2035 will expand the scope of the current plan to include new areas such as emissions related to construction work and the Copenhageners' consumption of clothes and products, food, and modes of transport in and outside Copenhagen. These are areas that are close to the citizens, and it is therefore obvious to involve the experts in the field, i.e., the Copenhageners themselves.



Credit: Abdellah Ihadian

**Lively exchange of ideas between Copenhageners and the City of Copenhagen is an essential part of Climate Summits.**

The City of Copenhagen strives to become even better at involving Copenhageners to ensure that the municipality is constantly improving the dialogue and the basis for informed decision making to

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<sup>11</sup> Detailed information on these initiatives is available in the Action Plan module C.



strengthen democracy, foster cooperation, information exchange, and create targeted solutions of high quality for Copenhagen and Copenhagens. This is taking place through several lines of action such as:

- *District Climate Summits*. Copenhagen's districts and neighbourhoods want to take responsibility and bring together local actors to jointly plan climate action. District climate summits aim at creating local action, reduce CO<sub>2</sub> emissions in Copenhagen, and create even better communities.
- The *Citizens' Climate Assembly* consists of 36 representatively selected Copenhagens who, based on expert guidance and debates, make recommendations to the City Council re a future Copenhagen with far less CO<sub>2</sub> emissions from the consumption of food, housing, and transport. The Citizen's Climate Assembly's recommendations will serve as input to the Climate Action 2035 plan.
- *Climate Task Force and Urban Area Renewal*. Energy saving is also about behavioural change. In 2022, the municipality has therefore launched the project 'Climate Task Force', which aims to help four vulnerable urban areas get started with the green transition through dialogue and networking, with everything from new financing models for solar cells to how residents adjust their radiators. The City of Copenhagen offers financial support for renovation and energy efficiency activities and advice if a public or private residential property has a high energy consumption, is worn, or poorly insulated.
- *Renewable Energy Communities*. The City of Copenhagen promotes the establishment of renewable energy communities. Empowering citizens to drive the energy transition locally and directly can lead to better energy efficiency, cost savings, reduced energy poverty, and more local green job opportunities. The installation of solar panels on buildings, energy retrofitting, urban renewal and new means of transport are just some areas which involve Copenhagens. The City of Copenhagen actively motivate Copenhagens to opt for green solutions in development of urban properties and spaces, transport, consumption, and education.
- *District Committees* representing multiple communities including those that are at greatest risk of disproportionately poor social outcomes are involved both during the development and implementation of new climate actions.
- *Circular Copenhagen*. Proper resource and waste management is important and need the active participation of Copenhagens. '*Circular Copenhagen*' – Copenhagen's resource and waste plan 2024 focuses on circular economy and contains ambitious goals to reduce the amount of incinerated waste. The plan has two overall goals for increasing the amount of recycling and reuse.
- *Sharing Copenhagen*. In 2014, Copenhagen was named European Green Capital, and *Sharing Copenhagen* was formed to develop and share the City of Copenhagen's experience in creating a green and CO<sub>2</sub>-neutral city with a high quality of life. Sharing Copenhagen supports 20-25 partnerships annually. Sharing Copenhagen is about creating a capital city in line with the vision "Our Copenhagen", i.e., climate-friendly daily life goes hand in hand with innovative urban development towards a green and inclusive city.
- *Climate Ambassadors*<sup>2</sup>. The Climate Ambassador programme is an offer to Copenhagen public school students and is organised as a tailored citizen involvement programme allowing students to acquire competences and academic skills in line with the goals of the primary and lower secondary school. The ambassadors gain scientific and social knowledge about climate challenges and sustainable solutions.
- The *Energy Leap partnership* is a major initiative currently representing 39% of the building stock in Copenhagen, distributed across 56 partners, including HOFOR (Greater Copenhagen Utility), private-sector and public-sector building owners (such as the city's Copenhagen Properties Administration) as well as property sector interest groups. The partnership that has

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<sup>2</sup> [Afdelingen for Bæredygtig Udvikling \(kk.dk\)](https://www.kk.dk/da/afdelingen-for-baeredygtig-udvikling)





existed since 2016 is being expanded by inviting public housing associations and additional property administrators, both of whom represent the numerous cooperative housing associations and homeowner associations in the city. The expansion of the Energy Leap partnership is aimed at supporting current efforts to optimise almost half of the city's heated floor space by increasing the proliferation of intelligent energy control systems to reduce heat consumption and improving conditions for large-scale heat pumps in Copenhagen going forward.

As an integrated part of the preparations for the Climate Action 2035 plan various companies, knowledge institutions, associations, including members of Danish Intelligent Energy Alliance and Green Power Denmark were invited to a series of workshops during 2023 and 2024 to better understand the different challenges and identify potential short- and long-term solutions. The workshops also identified efficient and meaningful ways of involving the private sector and create relevant partnerships during the implementation phase of the climate action plan.

Things like furniture, electronics, clothes, and shoes constitute a large part the Copenhagener's climate footprint. The same is true for the municipality's procurement of, for example, furniture, and workwear. The goal is to extend the life of consumer goods by creating a city where it is easy to share, recycle and repair consumer goods.

The City of Copenhagen is in dialogue with shops, manufacturers, educational institutions, interest groups, and others who want to contribute to this transition and support and establish a circular business model in Copenhagen. It is important to clarify how to create a good framework for business in Copenhagen while focusing on less consumption; how to promote eco-design and get Copenhagener to prioritise durable products that can be repaired; and to learn Copenhagener to borrow, share, exchange, and recycle more.



**Copenhagener discussing climate actions during a Climate Assembly open session.**





As full or part-owner of several municipally companies, the City of Copenhagen safeguards that their ambitious objectives are aligned with Copenhagen's climate targets. HOFOR (Greater Copenhagen Utility), ARC (Waste management), CTR (Metropolitan Copenhagen Heating Transmission company), BIOFOS (wastewater utility), Metroselskabet (public transportation - metro), and Movia (public transportation - busses) are all actively involved in the operation and development of the public transportation system and the energy and waste systems that Copenhagen depends on.

These companies and Energinet (Independent public enterprise that owns, operates, and develops the transmission systems for electricity and gas in Denmark), and private companies such as Radius (Electrical grid operator) and Ørsted (Sustainable energy company) are members of the Energy Strategic Forum, headed by the City of Copenhagen's Technical and Environmental Administration, and mandated to provide guidance vis-à-vis Copenhagen's energy strategy, the future energy system in Copenhagen, and the Climate Action 2035 plan.

Private consumption of food makes up a significant part of Copenhageners' climate footprint. There are therefore great perspectives in looking at how domestic food consumption and meals in canteens and restaurants become less climate-impacting. The goal is to reduce the climate impact of the Copenhageners' consumption by facilitating a transition towards food shopping, cooking, and eating habits in a much more plant-rich direction; and to work hard to reduce food waste. Consequently, the City of Copenhagen is in dialogue with the food industry including manufacturers, workplace canteens, retailers, and restaurateurs to identify ways to shape a more climate-friendly food scene in Copenhagen.

The climate impact from the construction of new buildings and facilities in Copenhagen is large. The impact comes first and foremost from the production of building materials. The city is growing, and it is important to ensure that future homes and facilities are created with a much lower CO<sub>2</sub> footprint. Fortunately, there are many opportunities to create this transition and the City of Copenhagen needs to explore the potentials together with the construction industry, e.g., the existing building stock should be transformed instead of being demolishing, alternative building materials with a low CO<sub>2</sub> footprint should be applied, and a more circular building practice should be adopted by the construction industry.

The green transition of Copenhagen will lead to a different labour market, where the availability of competencies that can develop and operate a sustainable society and business community will be paramount. Across sectors, day-to-day operations must be converted to new and greener solutions, and companies must find new business models that support sustainable consumption. It is important that the development of the labour market takes place in close interaction with citizens and Copenhagen's business community. In support of the city's climate ambitions the business community can develop concrete solutions for the benefit of Copenhageners, and with the possibility of exporting these to the rest of the world. It is essential to explore opportunities to contribute to and support the development of competencies that can foster the green transition and find ways to motivate citizens to improve their competence in the areas where green skills are in demand.

## 4 Process and principles

To reach the climate neutrality goal by 2030, it is essential for the City of Copenhagen to develop and nurse a strong eco-system of political support, internal expertise and resources, and an engaged and dedicated network of citizens, partners, and stakeholders.

The current CPH 2025 Climate Action plan is approved and owned by the City Council and is implemented through a series of multi-annual roadmaps by the Climate Secretariat and the Technical and Environmental Administration in cooperation with the Financial Administration. During the implementation phase the political level, the Technical and Environmental Committee, is informed every six months about status and progress concerning initiatives and indicators. Detailed CO<sub>2</sub> inventories are produced annually and reported internationally in accordance with the CDP and C40



provisions. The Mayor's Forum including the Mayor of Technical and Environmental Affairs, ensures high-level cross-cutting coordination and exchange of ideas and knowledge regarding current and planned climate actions.

The Climate Secretariat embedded within the Technical and Environmental Administration plays a key role concerning the overall coordination of initiatives and schedules, preparation of progress reports, development of multi-annual roadmaps and initiatives, and preparation of additional analyses in support of initiatives as required. Importantly in this context, the Climate Secretariat also follows, supports, and evaluate the impact of the many initiatives that are put in place to engage and involve stakeholders. This ensures that the initiatives are linked to the climate action plans and underpin Copenhagen's overarching and specific goals.

The City of Copenhagen seeks to make sure that the implementation of Copenhagen's climate action plans is carried out in a just and equitable manner. Climate justice plays an important role. Thus, the City of Copenhagen is working in accordance with C40 recommendations on just climate transition, when developing and implementing new climate action initiatives.

Copenhagen cannot act and implement climate solutions in isolation from the surrounding municipalities and developments taking place in Europe and internationally. Copenhagen is therefore actively involved in several national and international cooperation and coordination initiatives, e.g.,

- Copenhagen is actively engaged in the *Climate Alliance* to foster synergy effects, allow that common (cross-border) solutions are identified and efficiently implemented, and to ensure that proper coordination and knowledge exchange with other municipalities in Denmark.
- Since April 2022 Copenhagen has been part of the EU Mission "100 Climate-Neutral and Smart Cities in 2030".
- Copenhagen<sup>3</sup> is a member of the *C40 city network*, which works to ensure that the world's big cities meet the climate requirements of the Paris Agreement.
- Copenhagen<sup>4</sup> is member of the *Carbon Neutral Cities Alliance (CNCA)*.

In pace with the development and approval of the Climate Action 2035 plan, the Climate City Contract will be amended and updated, i.e., an updated and elaborated version of the Climate City Contract is expected to be available during the second half of 2026.

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<sup>3</sup> [Lord Mayor of Copenhagen elected to C40 Cities Steering Committee - C40 Cities](#)

<sup>4</sup> [Copenhagen – CNCA \(carbonneutralcities.org\)](#)