



Reconfiguring energy, community and the region through the Copenhagen Climate Plan

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Imagining the carbon neutral city

- *“If everyone did as Copenhagen, the climate problem would be solved”*

(City of Copenhagen Climate Plan 2009:30)

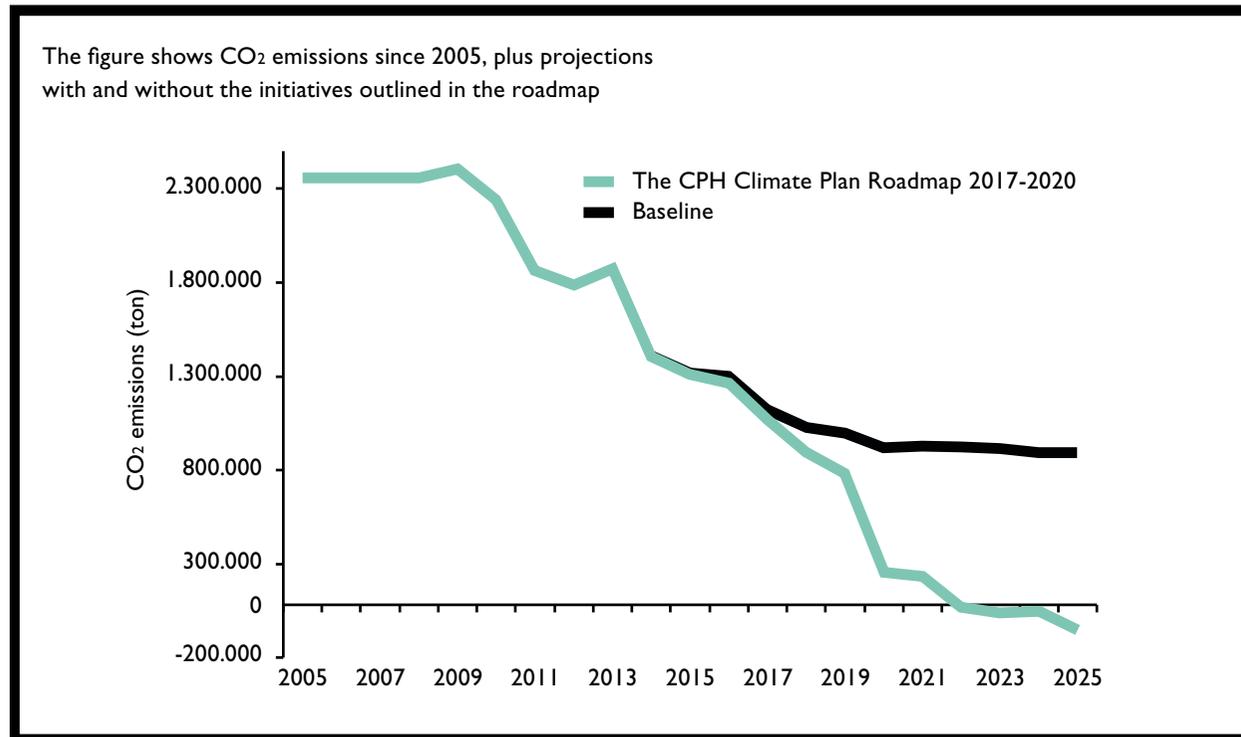


Figure: **CO₂ emissions in City of Copenhagen 2005-2025**

City of Copenhagen (2017) *CPH Climate Plan 2025 Roadmap 2017—2020*, p20

Sociotechnical imaginaries

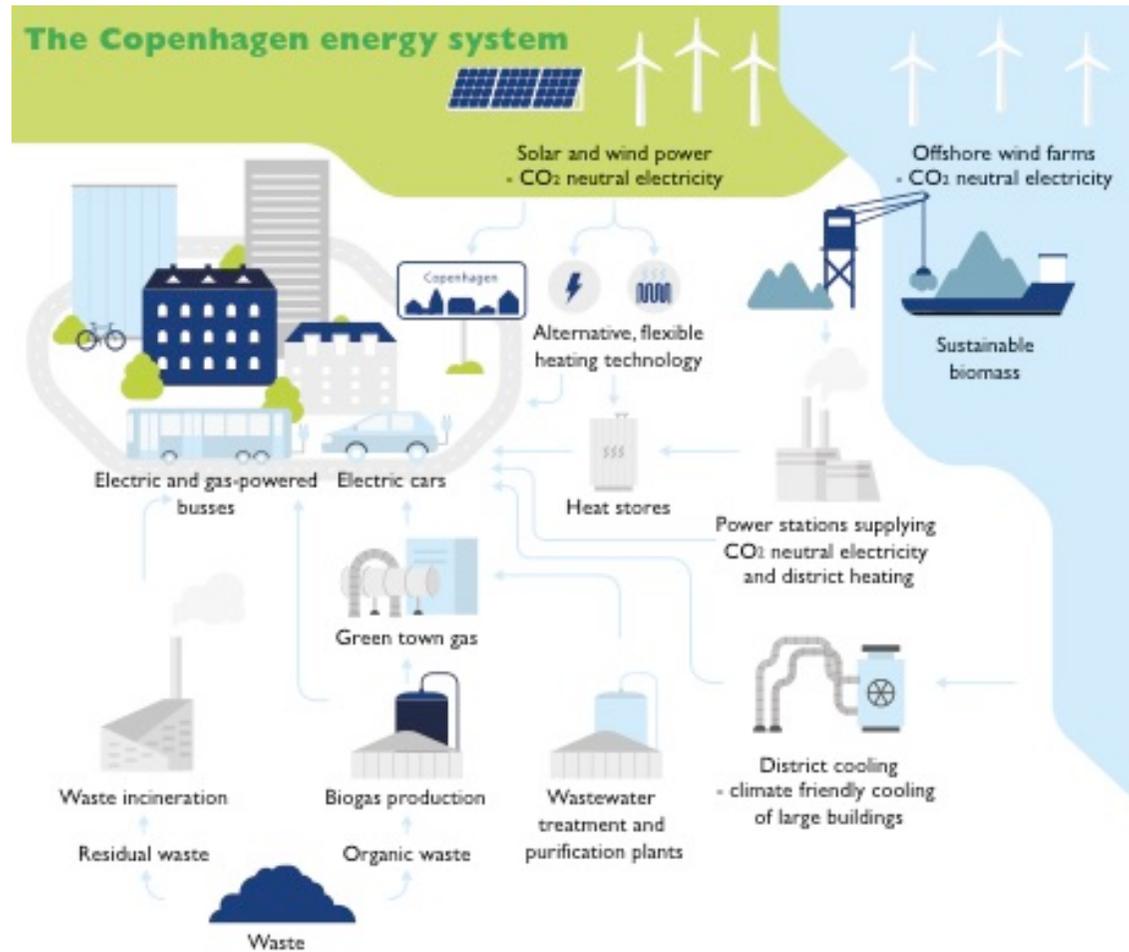


Image: **The Copenhagen Energy System**, City of Copenhagen (2017) *CPH Climate Plan 2025 Roadmap 2017—2020*, p20

Reconfiguring energy

- *“Carbon neutral means that on balance we don’t contribute CO₂”*

(City of Copenhagen Climate Plan 2009:30)

- The conceptual boundaries around the carbon neutral city are shaped and stabilized through practices of knowledge making and technology production

CPH 2025 TOTAL (TONNES OF CO₂)	928,000
Energy Consumption (7%)	66,000
Energy Production (80%)	741,000
Mobility (8%)	78,000
City Administration Initiatives (5%)	43,000

Biomass

- The Copenhagen Climate Plan considers imported wood pellets for biomass as carbon neutral.
- Without EU standards for sustainable biomass, the city-owned utility HOFOR and other heat suppliers have developed voluntary industry standards.
- The City is starting to reframe biomass as a transition fuel, and to steer towards more flexible renewable energy systems beyond 2025.



Image: **Amagerværket Power Station**, HOFOR (2015) *About HOFOR Greater Copenhagen Utility*, p17

Reshaping the region

- Surplus wind energy is used to offset emissions from other sectors.
- The City is struggling to substantially reduce transport emissions.
- More new wind turbines are planned to counteract these emissions.



Wind energy

- HOFOR has built around 23 of 100 new turbines, with 3 located in the municipality.
- Wind farms have been transformed from cooperative assets to urban infrastructures.
- Locals in other districts are concerned about appropriation of their energy and climate 'goods' by the city.
- City planners are looking to other municipalities, offshore, and other countries to meet targets.



Performing community



- Disparities between municipal carbon accounts and other modes of knowledge-making about ecological impacts.
- Copenhagen's territorial emissions are falling, but on other measures Denmark's ecological footprint remains high.
- Frictions between local government role in climate governance, with other domains such as national jurisdiction and individual choice.

Fossil Free Copenhagen

- Wind energy offsets, biomass and waste-to-energy throw up transitional issues for Copenhagen's climate and environment goals.
- Longer term objectives include a more flexible energy system to make use of surplus wind energy within the city.
- Waste-to-energy intersects with a wide array of other sociotechnical systems.
- The City administration has started to frame a 'Fossil Free Copenhagen by 2050'.



Conclusions

- Copenhagen's energy transitions cross ecological, social and technical domains, within and beyond the boundaries of the city.
- Boundaries around the carbon neutral city imaginary are partial uneven and easily destabilized.
- Changes to socio-technical systems are contingent and relational, so doing "*as Copenhagen*" will emerge differently in other contexts.



Image: **City of Copenhagen** (2009) *Copenhagen Climate Plan 2009: The Short Version*, Cover