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PHOTOGRAPHS BY CHARLOTTE DE LA FUENTE FOR THE NEW YORK TIMES

Copenhagen's trash incinerator comes with a ski slope to attract visitors and recoup some of the project's $660 million cost. Burning trash provides heat for Copenhagen homes.

A city's green experiment

COPENHAGEN

Copenhagen is facing huge doubts in bid to be carbon neutral by 2025

BY SOMINI SENGUPTA
AND CHARLOTTE DE LA FUENTE

Can a city cancel out its greenhouse gas emissions?

Copenhagen intends to, and fast. By 2025, this once-grimy industrial city aims to be net carbon neutral, meaning it plans to generate more renewable energy than the dirty energy it consumes.

Here's why that matters to the rest of the world: Half of humanity now lives in cities, and the vast share of planet-warming gases come from cities. The big fixes for climate change need to come from cities, too. They are both a problem and a potential source of solutions.

The experience of Copenhagen, home to 624,000 people, can show what's possible, and what's tough, for other urban governments on a warming planet.

The mayor, Frank Jensen, said cities "can change the way we behave, the way we are living, and go more green."

His city has some advantages. It is small, it is rich and its people care a lot about climate change. Mr. Jensen said mayors, more than national politicians, felt the pressure to take action. "We are directly responsible for our cities and our citizens, and they expect us to act," he said.

The morning commute. A new Metro line, scheduled to open this year, will put the majority of Copenhagen's residents less than half a mile from a station.

In the case of Copenhagen, that means changing how people get around, how they heat their homes, and what they do with their trash. The city has already cut its emissions by 42 percent from 2005 levels, mainly by moving away from fossil fuels to generate heat and electricity.

Politics, though, is making it hard to go further. A municipal government can only do so much when it doesn't have the full support of those who run the country. Mr. Jensen, 57, a left-of-center Social Democrat, has failed to persuade the national government, led by a center-right party, to impose restrictions on diesel-guzzling vehicles in the capital. Transportation accounts for a third of the city's carbon footprint; it is the largest single sector and it is growing.

By contrast, the national government, in a move that its critics say encouraged private car use, has lowered car-registration taxes. The transportation minister, Ole Birk Olesen, said the government wanted to reduce what he called "the over-taxation of cars," though he added that ideally, Danes would buy only zero-emissions cars in the coming decades.

And so, Copenhagen's goal to be carbon neutral faces a hurdle that is common around the world: a divide between the interests of people who live in cities and those who live outside.

Many opposition politicians and independent analysts say they doubt Copenhagen can meet its 2025 target, and some critics say the plan focuses too much on trying to balance the city's carbon books rather than change the way people actually live.

"We run around in fossil-fuel-burning cars, we eat a lot of meat, we buy a hell of a lot of clothes," said Fanny Broholm, a spokeswoman for Alternativet, a left-of-center green party. "The goal is not ambitious enough as it is, and we can't even reach this goal."

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Copenhagen tries proving a city can be carbon neutral

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Mr. Jensen, for his part, is bullish on what he calls the capital's "green transformation." City officials say this is only the start.

A new Metro line, scheduled to open this year, will put the vast majority of the city's residents within 650 meters, a bit less than half a mile, of a station. Bicycle paths are already three lanes wide on busy routes for the whopping 43 percent of Copenhageners who commute to work and school by bike — even on wet, windy days, which are plentiful.

All that wind helps generate the city's electricity. Buildings are heated, in part, by burning garbage in a new high-tech incinerator — what garbage there is to burn, that is, considering that every apartment building now has eight separate recycling bins. For every unit of fossil fuels it consumes, Copenhagen intends to sell units of renewable energy. The city has invested in wind turbines.

In big cities, you have the money and the scale to change things, Mr. Jensen said as he led a bike tour from City Hall, where excavations for a new Metro station recently turned up the remains of two Vikings. He crossed a bicycle bridge that led to a once-industrial district, now home to trendy restaurants.

Mr. Jensen talked about a parliamentary election set for this spring. "Elections will come up in the next few months, and a lot of people living in the suburbs still have diesel cars," he said. "It's a political challenge. It's not a technological challenge."

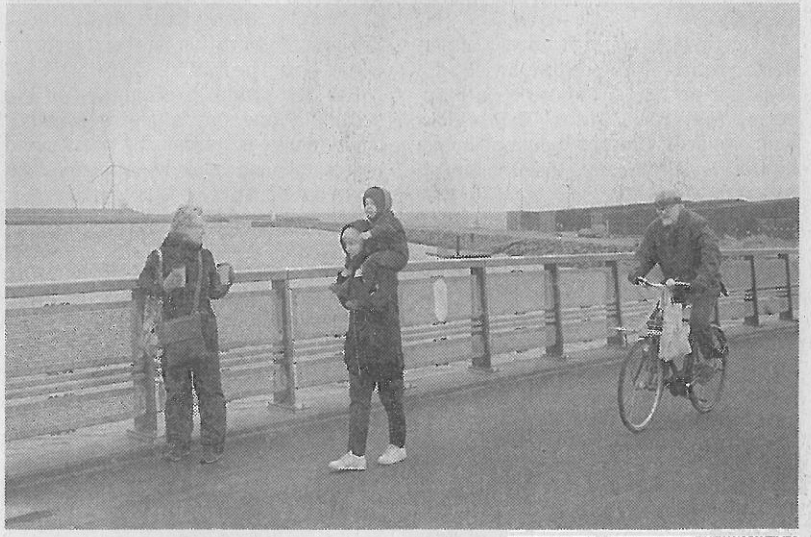
For Copenhagen, the path to carbon neutrality is paved with imperfect solutions.

Some of the city's power plants have switched from coal to wood pellets shipped in from the Baltics. That's carbon neutral, in principle, if more trees can be planted in place of those that are cut down, and that has helped the city bring down its emissions significantly. But burning wood produces emissions: A lawsuit filed in the European Court of Justice argued that wood pellets should not count as renewable energy. Critics contend that big public investments in biomass only compel the city to use it for years to come.

Then there is garbage. The city recently opened a $660 million incinerator that is 85 meters tall, or about 280 feet, resembling a shiny half-built pyramid, with an even taller stack. It's just a short walk from one of the city's most popular restaurants, Noma. Designed by one of the country's best-known architects, Bjarke Ingels, it comes with a year-round ski slope to attract visitors (and recoup some of the expenses). The mayor was one of the first to take a test run.

Every day, 300 trucks bring garbage to be fed into its enormous furnace, including trash imported from Britain. That has a carbon footprint, too. But the chief engineer, Peter Blinksbjerg, pointed out that instead of going into a landfill, the rubbish of modern life is transformed into something useful: heat for the city's long, cold winters.

Scrubbers remove most chemical pollutants before releasing steam into the air. By summer, a cafe is set to open in the shadow of the stack.



CHARLOTTE DE LA FUENTE FOR THE NEW YORK TIMES

Copenhagen has invested in wind power as part of its plan to be carbon neutral. A recent survey found that addressing climate change was a top issue for Danish voters.

Pedaling through the city these days, it is difficult to imagine what Copenhagen once looked like. There were factories in the narrow streets and ships in the oil-stained harbor. Coal-fired power plants brought electricity. The air was smoggy. A generation of city dwellers moved out to the clean-air suburbs.

Today, even on wintry, wet days, commuters move along a busy bike highway that connects the warrens of the oldest part of the city, where some buildings date to the 1400s, to the northern neighborhoods, whizzing past the stately apartment blocks that overlook the lake. The bike lane is slightly elevated above the car lane, which feels safer than just a white line that demarcates bike lanes in many other cities.

Inside a cozy neighborhood cafe, a medical student named Mariam Hleihel said she welcomed Mr. Jensen's efforts to reduce the number of polluting cars in the city. "If we don't do anything about it now, the consequences could be irreversible," she said.

She echoed a widespread sentiment among Danes. A 2018 survey by Concito, a think tank, found that addressing climate change was a top issue for voters. Slightly more than half of those polled said they would need to change their way of life to tackle global warming.

Simone Nordfalk, a cashier at a bountiful outdoor vegetable market, considered the prospect of changing eating habits for the sake of climate change. Figs had been shipped in from Brazil and strawberries from Spain. It would be tough to return to the way Danes ate a generation ago. "I don't think that's going to happen," she said. "It sells."

Copenhagen is girding itself for the impact of climate change. The rains are more intense, and the sea is rising. In the most vulnerable neighborhoods, the city is creating new parks and ponds for water to collect before it can drain out. There are new dikes by the harbor, and there is a proposal to build a new island in the northeast to block storm surges.

Politically speaking, public apprehension about climate change may be the strongest wind in the mayor's sails.

"People are honestly concerned about it," said Klaus Bondam, a former politician and now head of a bicyclists' lobby. "You are an extremely tone deaf politician if you don't hear that."

Martin Selsoe Sorensen contributed reporting.