

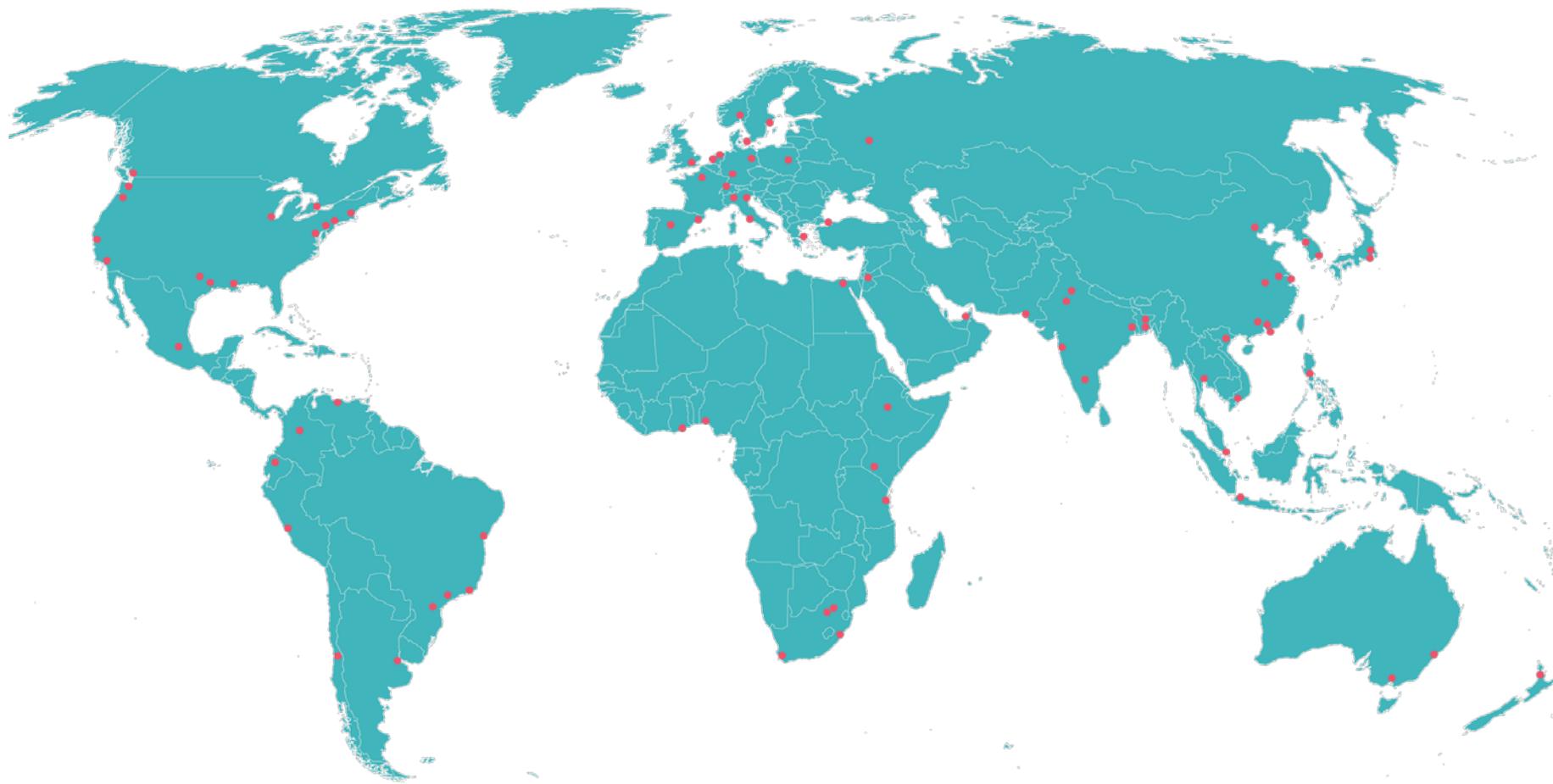
C40

# CITIES AS CHAMPIONS FOR COLLABORATIVE CHANGE



THIS IS C40

# 83 members – megacities & innovators



Accra Addis Ababa Amman Amsterdam Athens Auckland Austin Bangkok Barcelona Basel Beijing Bengaluru Berlin Bogotá Boston Buenos Aires Cairo Cape Town Caracas Changwon Chicago Copenhagen Curitiba Dar es Salaam Delhi NCT Dhaka Dubai Durban Guangzhou Hanoi Heidelberg Ho Chi Minh City Hong Kong Houston Istanbul Jaipur Jakarta Johannesburg Karachi Kolkata Lagos Lima London Los Angeles Madrid Melbourne Mexico City Milan Moscow Mumbai Nairobi Nanjing New Orleans New York City Oslo Paris Philadelphia Portland Quezon City Quito Rio de Janeiro Rome Rotterdam Salvador San Francisco Santiago Sao Paulo Seattle Seoul Shanghai Shenzhen Singapore Stockholm Sydney Tokyo Toronto Tshwane Vancouver Venice Warsaw Washington DC Wuhan Yokohoma

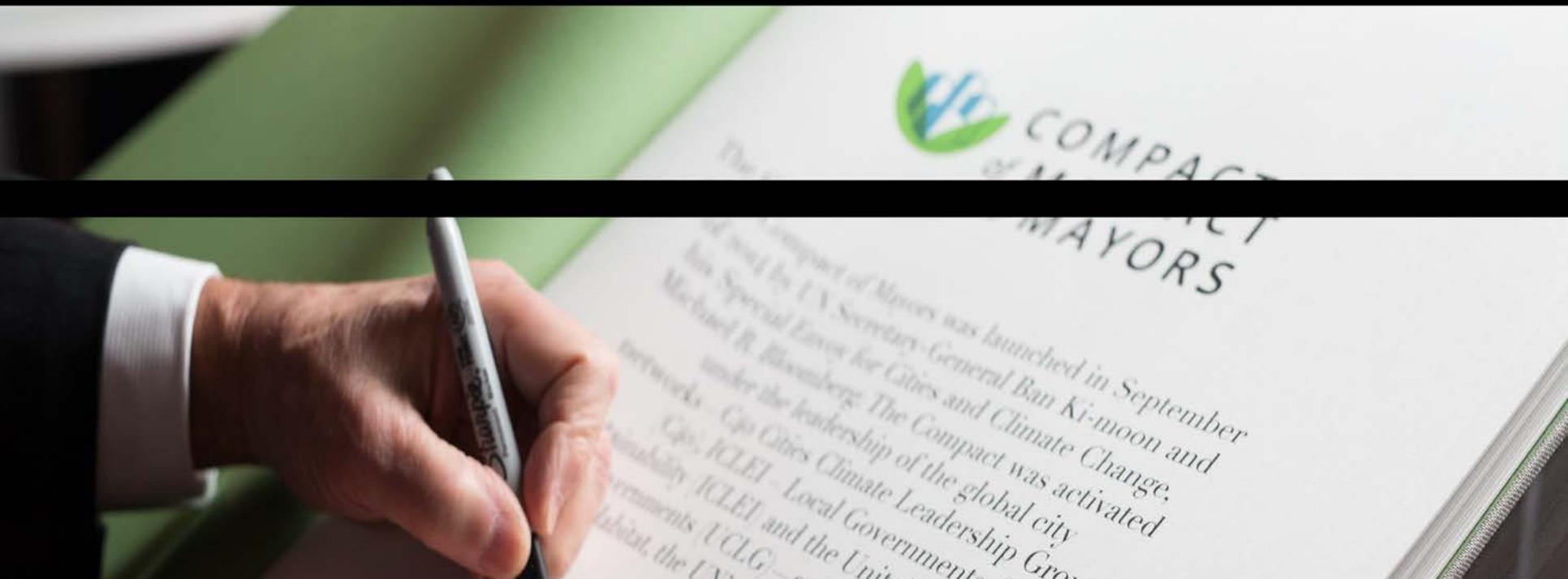
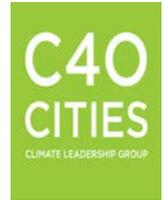
THIS IS C40

A city leadership club, led by Mayors and based on data-driven participation standards



CO-ORDINATED CITIES

# The Compact of Mayors – global emission inventory standard, target and plan



# The best inspiration for one city leader is another mayor who has already solved the problem



Sustainable Solid Waste Systems

Waste to Resources

Waste

Climate Change Risk Assessment

Connecting Delta Cities

Cool Cities

Adaptation & Water

Sustainable Infrastructure Finance

Green Growth

Finance & Development

Mobility Management

Bus Rapid Transit

Low Emission Vehicles

Transportation

Private Building Efficiency

Municipal Building Efficiency

District Energy

Energy

Land Use Planning

Transit Oriented Development

Low Carbon Districts

Urban Planning & Development

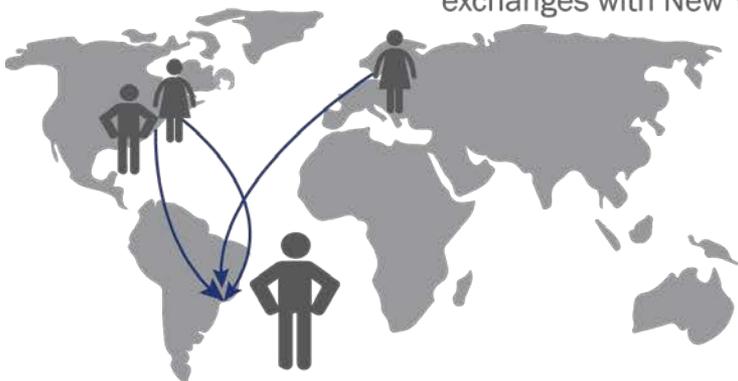
# Spreading Solutions: how it works



Mayor of Rio attends C40 Mayoral Summit and learns the high recycling rates of other cities compared to Rio's 1%

Mayor asks the waste management authority, COMLURB, to increase rates of recycling to match those of other C40 cities

Rio joins CCAC and C40 Integrated Waste Management Network and organizes exchanges with New York and Stockholm and technical support from USEPA



Using information from exchanges, Rio evaluates two strategies for waste reduction:

1. install various bins for multiple sources



2. maintain single source and build a Material Recovery Factory (MRF)



Rio gets feedback on solutions after presenting on a C40 webinar



San Francisco

Bogota

New York

Rio implements new MRF/manual sorting model that increases diversion and generates jobs, increasing rate of recycling



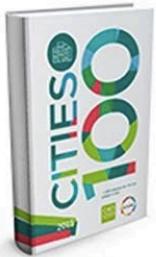
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# Direct support: 11 City Advisers



THIS IS C40

# Celebrate success



#CITIES100

100 CITY  
SOLUTIONS FOR  
CLIMATE ACTION



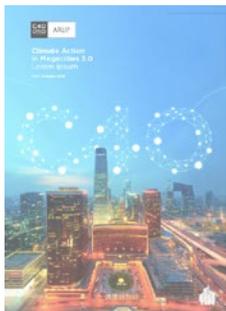
## THE IMPORTANCE OF PARIS

Paris created the momentum to avoid catastrophic climate change



- An Agreement creates global certainty for the first time
  - Aspirational target – 1.5 degrees
  - But doesn't come into force until 2020

# Cities are critical to delivering the Paris Agreement



## Cities are already collaborating and cutting emissions

10,000 C40 climate actions since 2009. 30+ C40 cities have gone past peak emissions. Collaboration is working.



## The potential for C40 action is greater than anything yet delivered

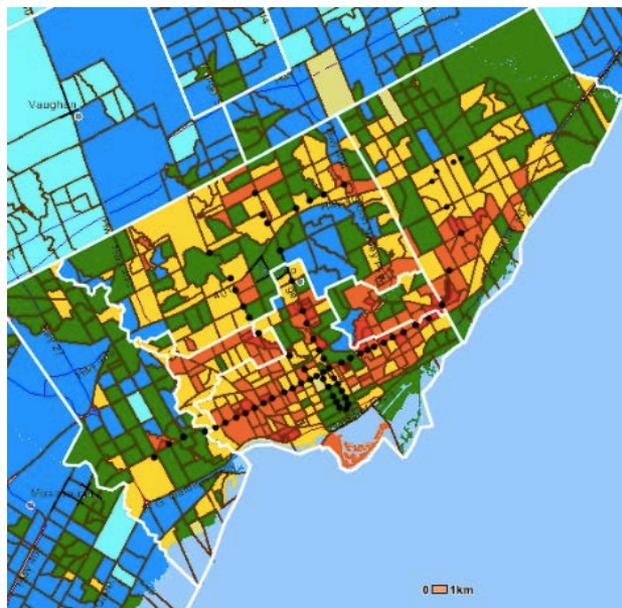
There is vast potential for more city action on climate change; two-thirds (27,000) actions in the CAM database have yet to be attempted. 2,300 priority actions for cities that would save 450 MtCO<sub>2</sub>e



## Urban policy decisions determine a third of the global carbon budget

Cities can avoid locking in 45 Gt CO<sub>2</sub> by 2030, this is 8 times the current annual emissions of the US

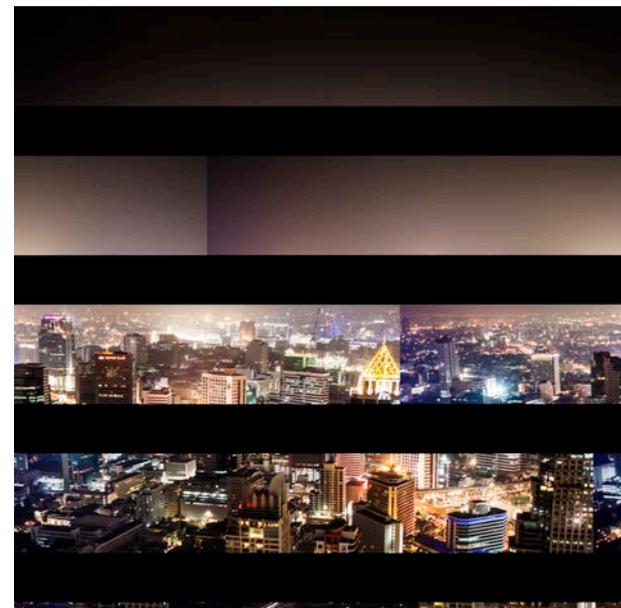
# Achieving a 1.5 degree target means focusing on cities



Land-use planning



Transport



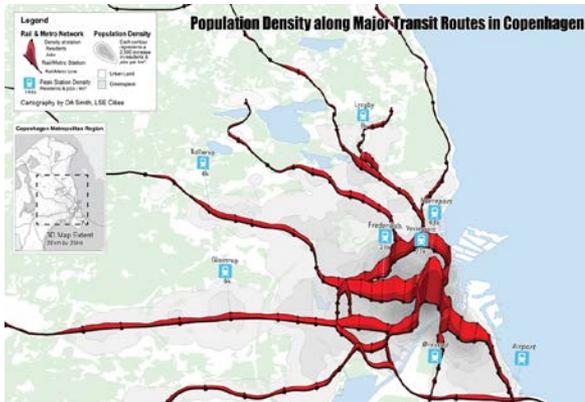
Buildings

# What we are aiming for - every city needs to get to 2tpp/yr



# We broadly know what it will take to create low-carbon, healthy, prosperous cities

C40 is not prescriptive, but there is clear theme to what most member mayors see as the characteristics of a successful future city



Compact

Connected

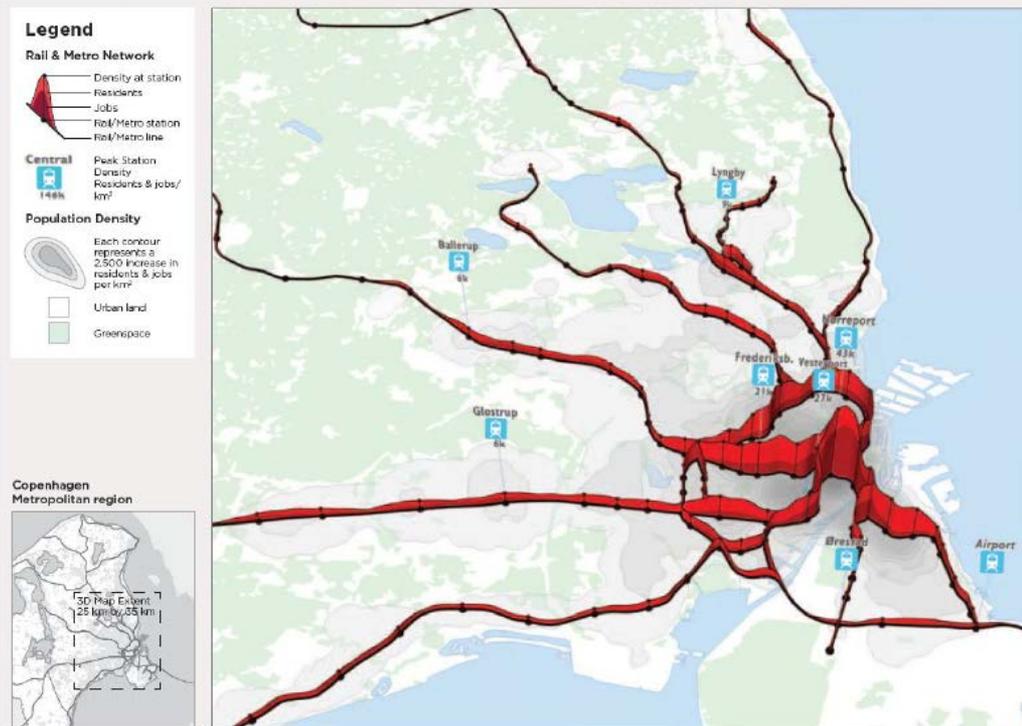
Co-ordinated

# Sprawl is the enemy, density the friend

- 60% of growth in energy consumption is due to urban sprawl
- Compact Copenhagen 4% GDP on transport vs sprawling Houston's 15%
- Copenhagen's success is based on long-term planning & rigorous enforcement

- Produce of 5-Finger urban plan (diagram)
- New development only permitted near public transport nodes
- Low congestion and pollution, but a thriving economy
- In one of the richest cities 40% of people cycle to work

**Fig. 2: Population and employment density along major transit routes in Copenhagen.**



## COMPACT CITIES

# Portland – “complete neighbourhoods” to counter suburban sprawl

Schools, parks and grocery stores to be in easy walking or cycling distance in 80% of neighbourhoods by 2035



- Population grown 200,00 to 600,000
- Old city = dense & has streetcars
- Newer areas grew up with the car
- 70% mode split for public transit, walking and cycling by 2035.
- 33% of city covered by tree canopy by 2035
- Reducing carbon emissions to 50% below 1990 levels by 2035

## CONNECTED CITIES

An advanced city is not where the poor drive cars, but where the rich use the bus

*Enrique Penalosa, Mayor of Bogota*



- 3.7 million premature deaths from air pollution each year
- Road traffic collisions kill 1.25m
- Congestion consumes 15% of Beijing's GDP
- Transit-oriented development in the USA could cut car use 50% & reduce household expenditure 20%
- Globally TOD could save 1.5 billions tons GHG per year

## 3-fold increase in Bus Rapid Transport in C4O

- Half the cost of light rail & one tenth of metros
- Joburg Corridors of Freedom

*C4O Bus Rapid Transit Network*



## **Nanjing – 4,000 electric public vehicles already**

- **Shenzhen** – 1,000 electric buses
- **Beijing** – ordered 9,000
- China has started an electric bus revolution

*2015 C40 Award Winner*

## Catalyzing markets: The C40 Clean Bus Declaration

- 24 cities sending a message to manufacturers
- Want to buy electric or clean vehicles
- **10% cut in price** of hybrid buses in London as a result

*C40 Low Emission Vehicles (LEV)  
Network*

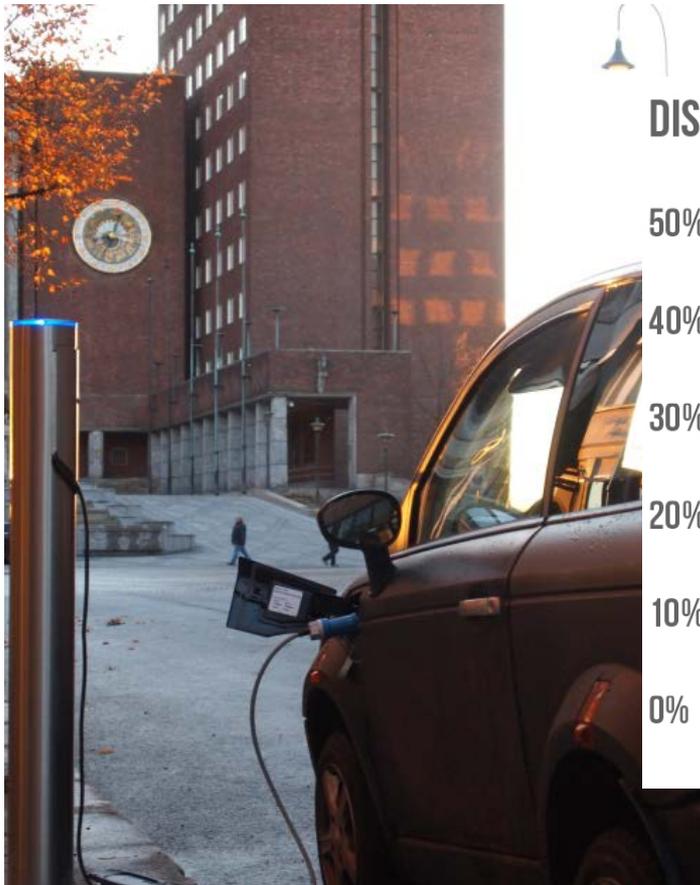


# Transport in Oslo will be zero emission by 2020

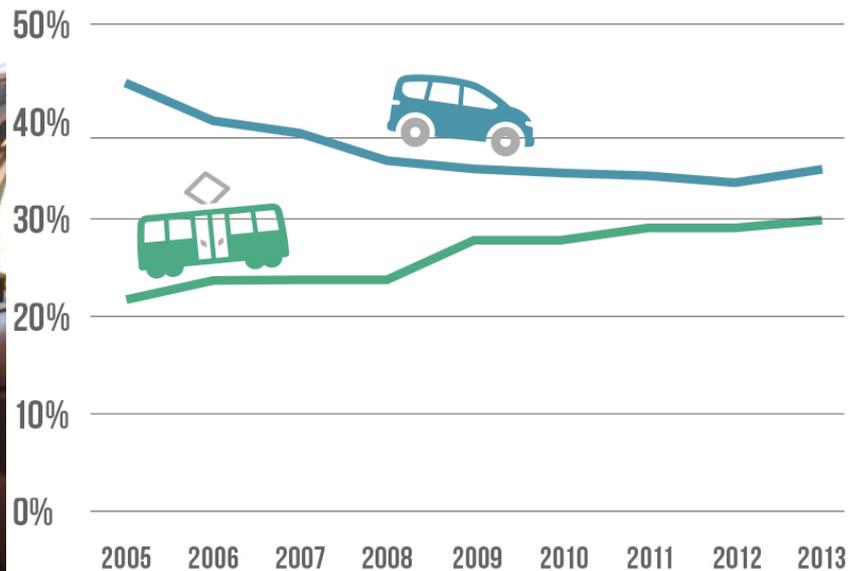
Oslo plans to be the first fully zero-carbon transport city. It is investing heavily in electric & hydrogen vehicles.



- 30% of cars sold in Oslo in 2015 were electric or hybrid
- 24% of transport emissions are from construction vehicles
- More than 15 000 EVs in Oslo-region
- 650 public charging stations with free parking reserved for EVs
- 1,000 municipal zero emission vehicles



### DISTRIBUTION OF MODES OF TRANSPORT IN OSLO



## We'll need electric cars too

- **Paris:** Autolib', the full electric car-sharing
- Just **10 euros** per day
- **250km** range on a single charge
  
- **BMW** move to “sell mobility, not cars”

*C4O Low Carbon Vehicle Network*



C4O Cities @c4ocities · Mar 9

PHOTO: C4O's @MarkWatts40 trying out the #City of @Paris's public electric cars this afternoon #Autolib



## Return of the Bike

- **Rio:** 450km cycle lanes = the longest in S. America, with 80km added for the Olympics
- Over 700 cities have **bike share**, up from just 5 in 2000
- \$1 per trip health care savings in **Copenhagen**
- **China** – protecting remaining cycling



# Road pricing is inevitable in most big cities

London – 1<sup>st</sup> major city to achieve a shift from cars to public transport

Stockholm – 35% fall in transport emissions while economy grew 40%

# 350 more buses to atch

The Charge is helping it happen

MAYOR OF LONDON

Planning publications by Spring 2007 compared with Spring 2003 in Greater London

Transport  
for London



# Successful future cities will run on data



Rio Operations Centre: "I sleep better thanks to it. The worst thing is not having the information, to not have the tools to act. But we do now." (Mayor Paes)



- Prompted by fatal landslides
- Decreased emergency response times 30%
- Co-ordinates all service, including transport and waste

## Benchmarking to catalyse change

- **New York: One City Built to Last**
- 30% GHG reduction from buildings 2005-2017
- **Benchmarking** required for all buildings over 25,000sqft

*2015 C4O Awards Winner*

## Tokyo: City Cap-and-Trade Program

- **25% reduction** in commercial building GHG in 5 years
- 1,400 buildings
- Inspired **6 Chinese cities**

*2013 C4O Award Winner*



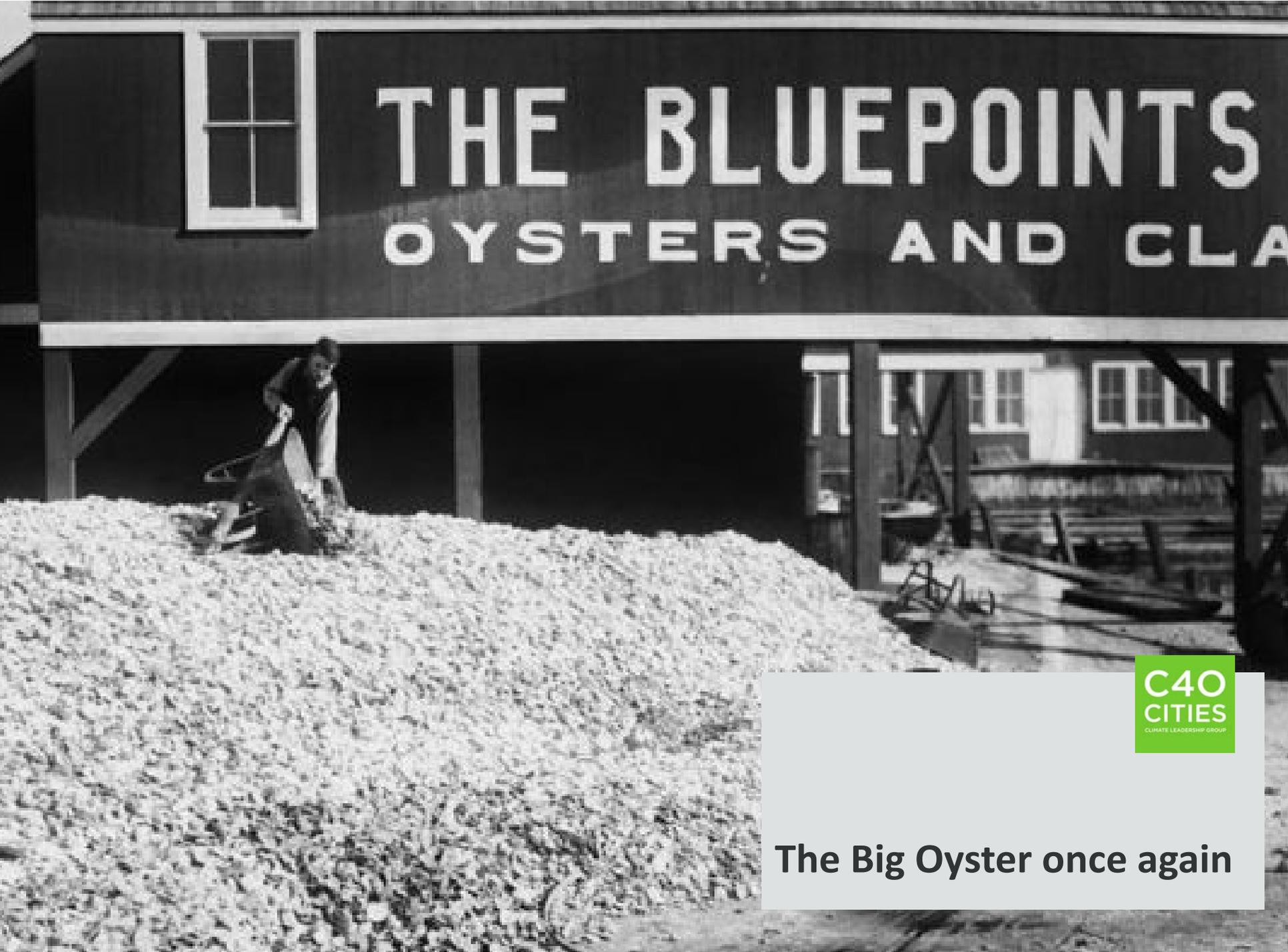
## Energy performance contracting

- London RE:FIT Program uses energy performance contracting to leverage private capital for **public building retrofit**
- 1,500 buildings
- Every £1 spent on reducing fuel poverty **cuts health bills £0.4**
- Tax returns £1.27 for every £1 invested, due to **job creation & lower bills**

## Making use of nature - the bioreactive façade

- Using simple photosynthesis
- **Hamburg:** world's first algae powered building
- **Paris** algae used as fertilizer for new urban gardens





# THE BLUEPOINTS

## OYSTERS AND CLAMS

**C40**  
**CITIES**  
CLIMATE LEADERSHIP GROUP

**The Big Oyster once again**

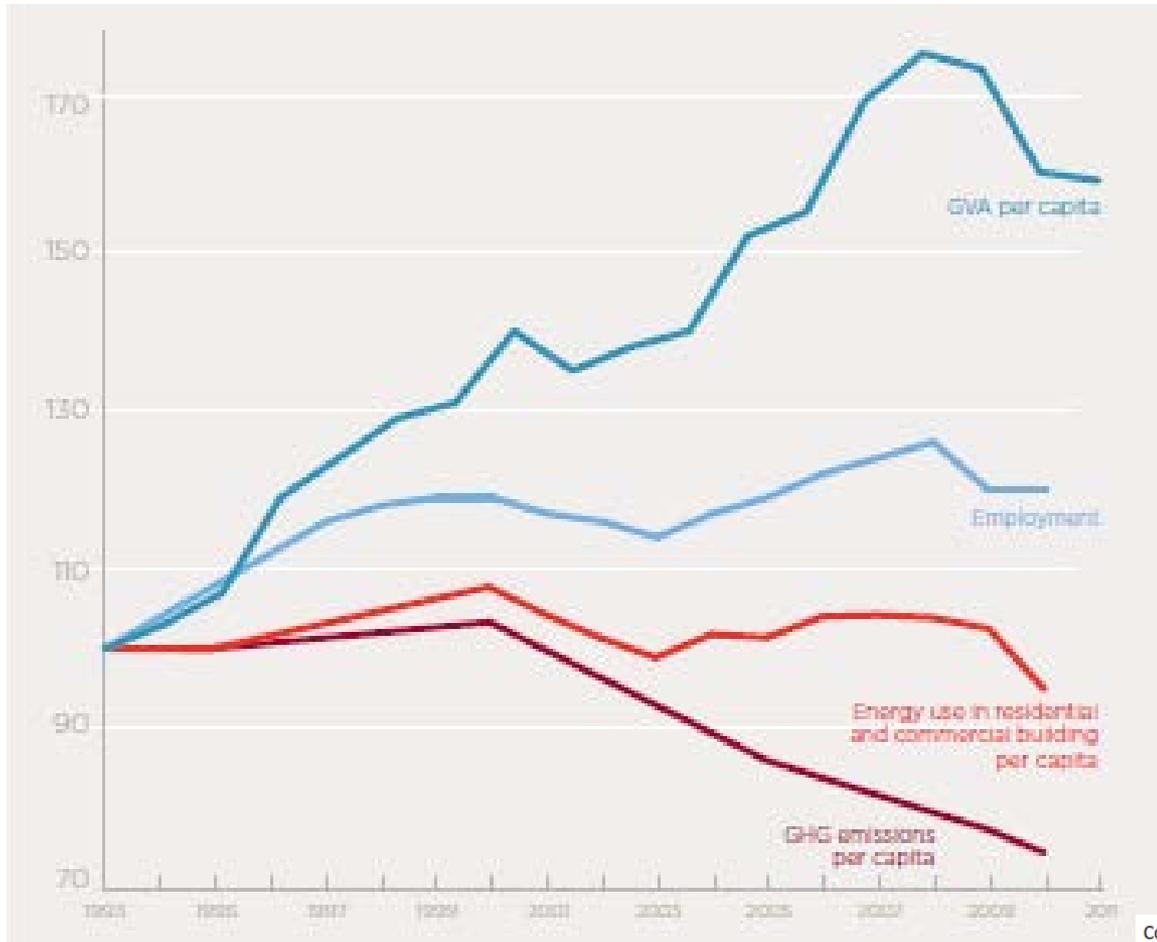
CO-ORDINATED CITIES

30% of C40 cities' climate action is delivered through collaboration



## CONCLUSIONS

# Decoupling emissions from economic growth is possible



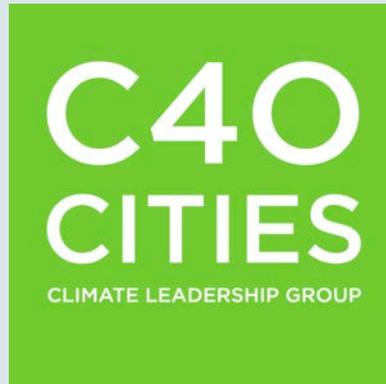
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Portland, Oregon

WHAT'S NEXT?

If Mayors ruled the world..





# Thank you

 @MarkWatts40

FOLLOW US

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C40.org

A large pile of sorted plastic waste, including green and clear bottles, with a man in a cap in the foreground.

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# Reducing waste's carbon footprint : Rio's Recycling and Waste Collection

*C40 Sustainable Solid  
Waste Systems Network*



Creating resilient cities:  
Ho Chi Minh City  
Adaptation Strategy  
*C40 Connecting Delta Cities  
Network*



**C4O**  
**CITIES**  
CLIMATE LEADERSHIP GROUP

Ensuring low-carbon  
development: Beijing  
Green Ecological  
Demonstration Zone  
Evaluation Standard  
*C4O Climate Positive  
Network*



An aerial photograph of a city street. The central focus is a large, modern building with a flat roof covered in a dense layer of green plants, likely a green roof. To the left, a tall, curved skyscraper with a glass facade is visible. The street below has several cars and a yellow double-line road marking. Other buildings with green roofs are visible in the foreground and background. The overall scene is urban and green.

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## Financing climate action: Portland Green Bond

*C40 Sustainable  
Infrastructure Finance  
Network*