# Welcome

## Denmark's Green Transition

### By State of Green – a public private partnership

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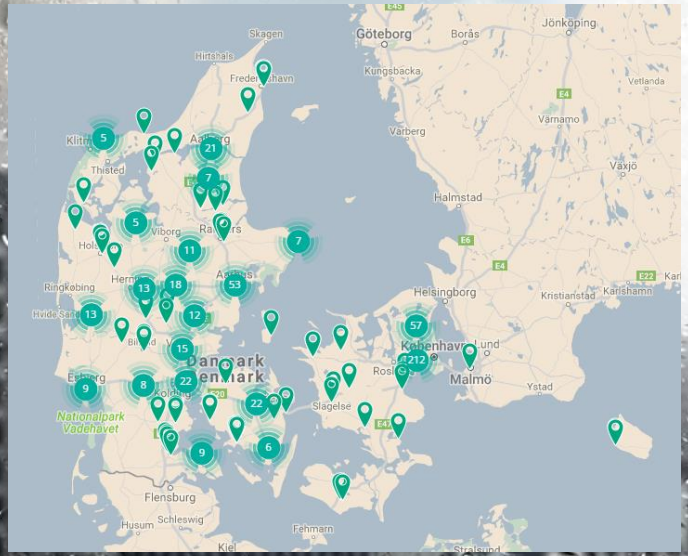
# State of Green - the green Denmark




**Not for profit - Public-Private Partnership**

## Danish actors

- 600 companies, organisations, municipalities and institutions working with renewable energy, clean air, city solutions, water and environmental technologies

## Green Solutions

- The Danish actors contribute with innovative technologies and solutions to the green transition in Denmark and in the rest og the world.
- Cases and projects are implemented all over the world.

State of Green is founded by:

Ministry of Environment and Food of Denmark

Ministry of Industry, Business and Financial Affairs

Danish Ministry of Energy, Utilities and Climate

Ministry of Foreign Affairs of Denmark

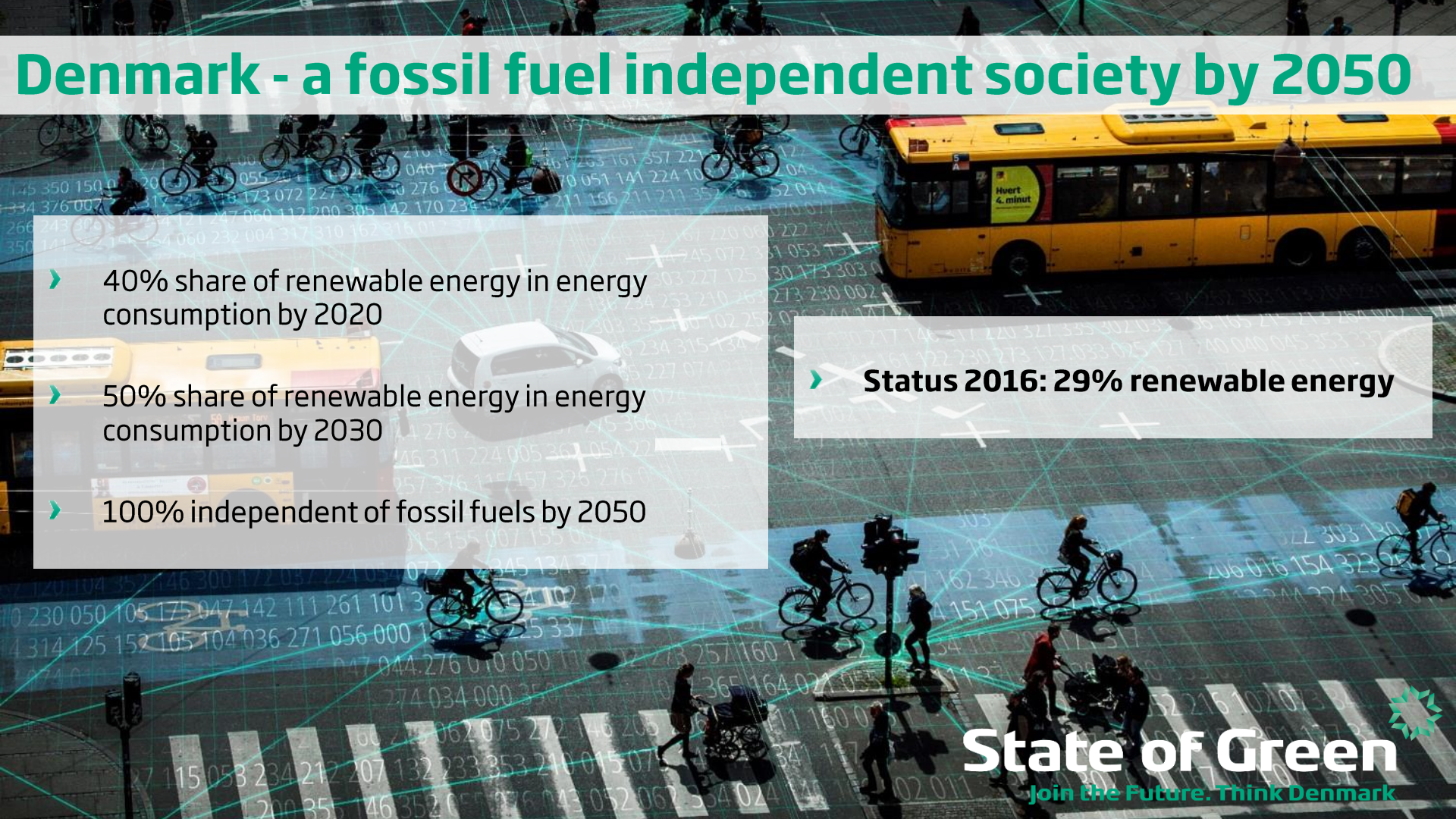
Danish Agriculture & Food Council

Danish Wind Industry Association

Danish Energy Association

Confederation of Danish Industry

# Denmark - a fossil fuel independent society by 2050



- 40% share of renewable energy in energy consumption by 2020
- 50% share of renewable energy in energy consumption by 2030
- 100% independent of fossil fuels by 2050

- **Status 2016: 29% renewable energy**

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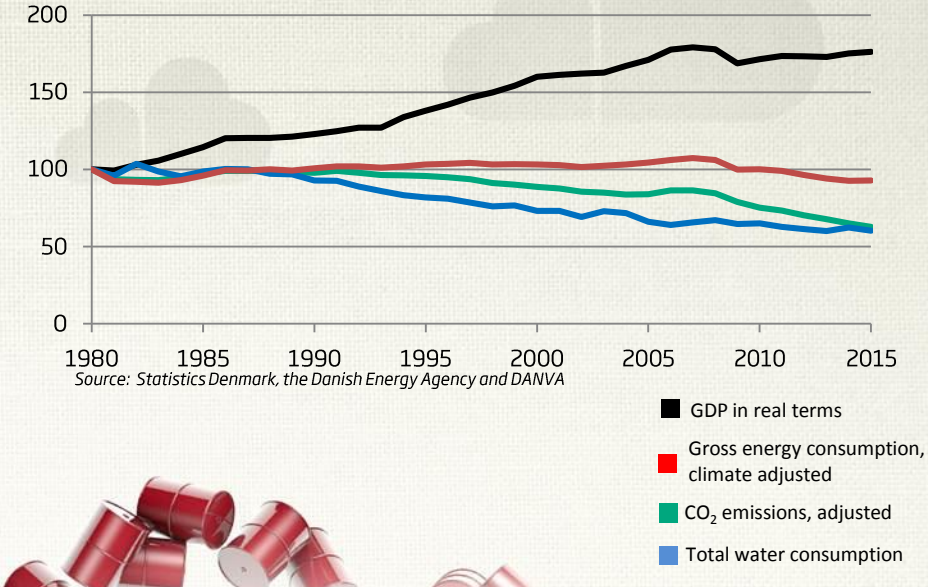
# The Danish example (1980 = index 100)

Our economy has grown by more than 70% since 1980

Our energy consumption has remained the same

While $CO_2$ emissions have been reduced

And total water consumption has been reduced by 40%

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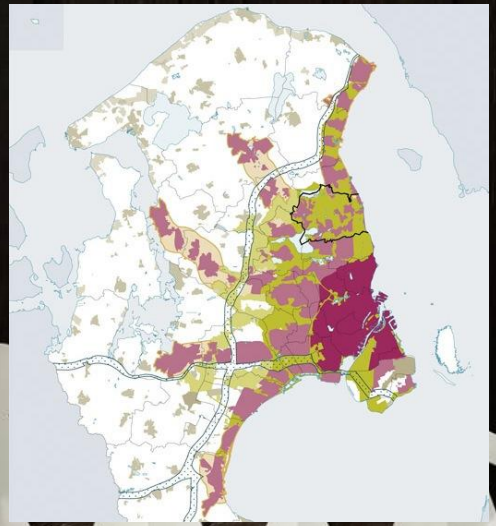
# Holistic long term planning

The Finger Plan

- A strategy for the development of the Greater Copenhagen area (two million inhabitants)
- Urban development is concentrated along city fingers linked to the railway system and radial road networks
- The city fingers are separated by green wedges which are kept exempt from development.

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# Copenhagen – One of the World's Most Liveable Cities

## Challenges:

- Increased urbanisation: 80,000 more inhabitants in Copenhagen by 2025 compared to 2016 – a 14% increase.
- Increase in congestion: 27% more bicycle trips and 20% more cars.
- Building area expected to increase by 12%.

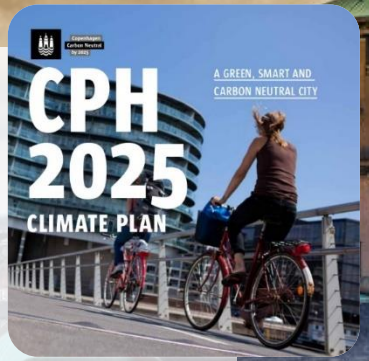
## Solutions:

CPH 2025 Climate Plan with four focus areas:

- Energy Consumption
- Energy Production
- Green Mobility
- City Administration Initiatives

Three implementation periods, the first finished end of 2016.

Next: Roadmap 2017-2020 – contains 62 new initiatives.

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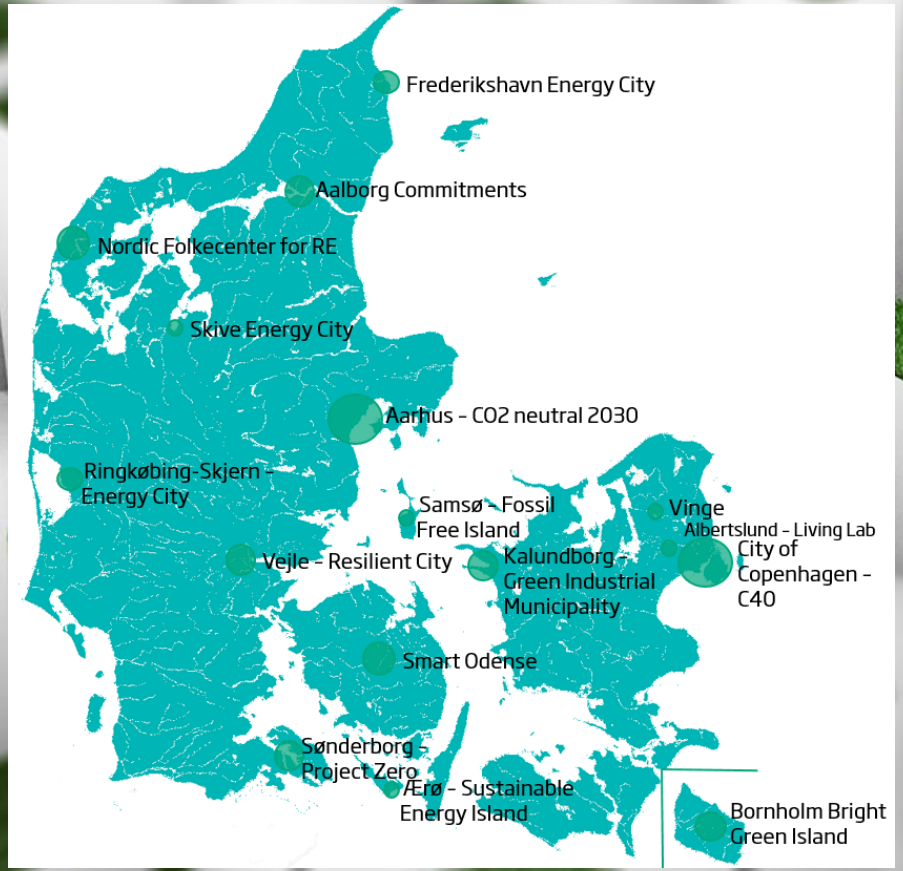
# Danish Sustainable Cities




- Copenhagen
- Aarhus
- Odense
- Aalborg
- Vejle
- Vinge
- Kalundborg
- Samsø
- Bornholm
- Ringkøbing Skjern
- Skive
- Frederikshavn

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# Nordhavn (North Harbour)

**Northern Europe's largest new urban development area.**
**A new liveable and smart district in Copenhagen.**

- 40,000 inhabitants
- 40,000 work places
- CO2 neutral by 2025
- Smart City solutions
- Low temperature district heating
- Large energy storage
- Intelligent waste handling
- Public transport prioritisation
- Parking strategy
- Super bicycle paths
- Solar systems
- EnergyLab Nordhavn

Photo: By og Havn/Ole Malling

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# Copenhagen Solutions Lab

## City of Copenhagen's laboratory for smart urban solutions

Three roles:

- Single entry point for smart city solutions
- Coordination of internal cooperation
- Foster growth and export in the Danish smart city sector


Photo: Copenhagen Solution Lab

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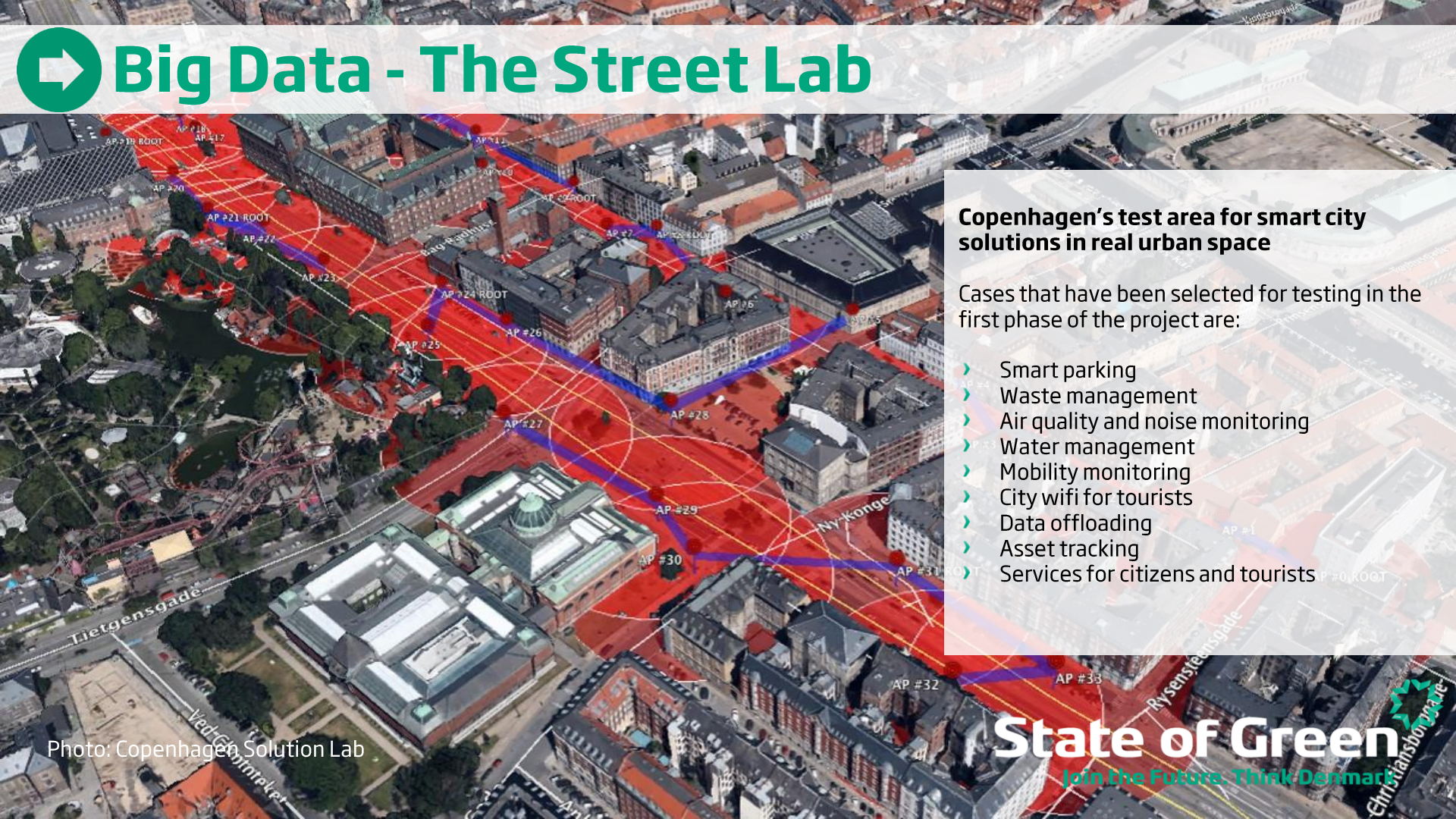
# Big Data - The Street Lab




**Copenhagen's test area for smart city solutions in real urban space**

Cases that have been selected for testing in the first phase of the project are:

- Smart parking
- Waste management
- Air quality and noise monitoring
- Water management
- Mobility monitoring
- City wifi for tourists
- Data offloading
- Asset tracking
- Services for citizens and tourists

Photo: Copenhagen Solution Lab

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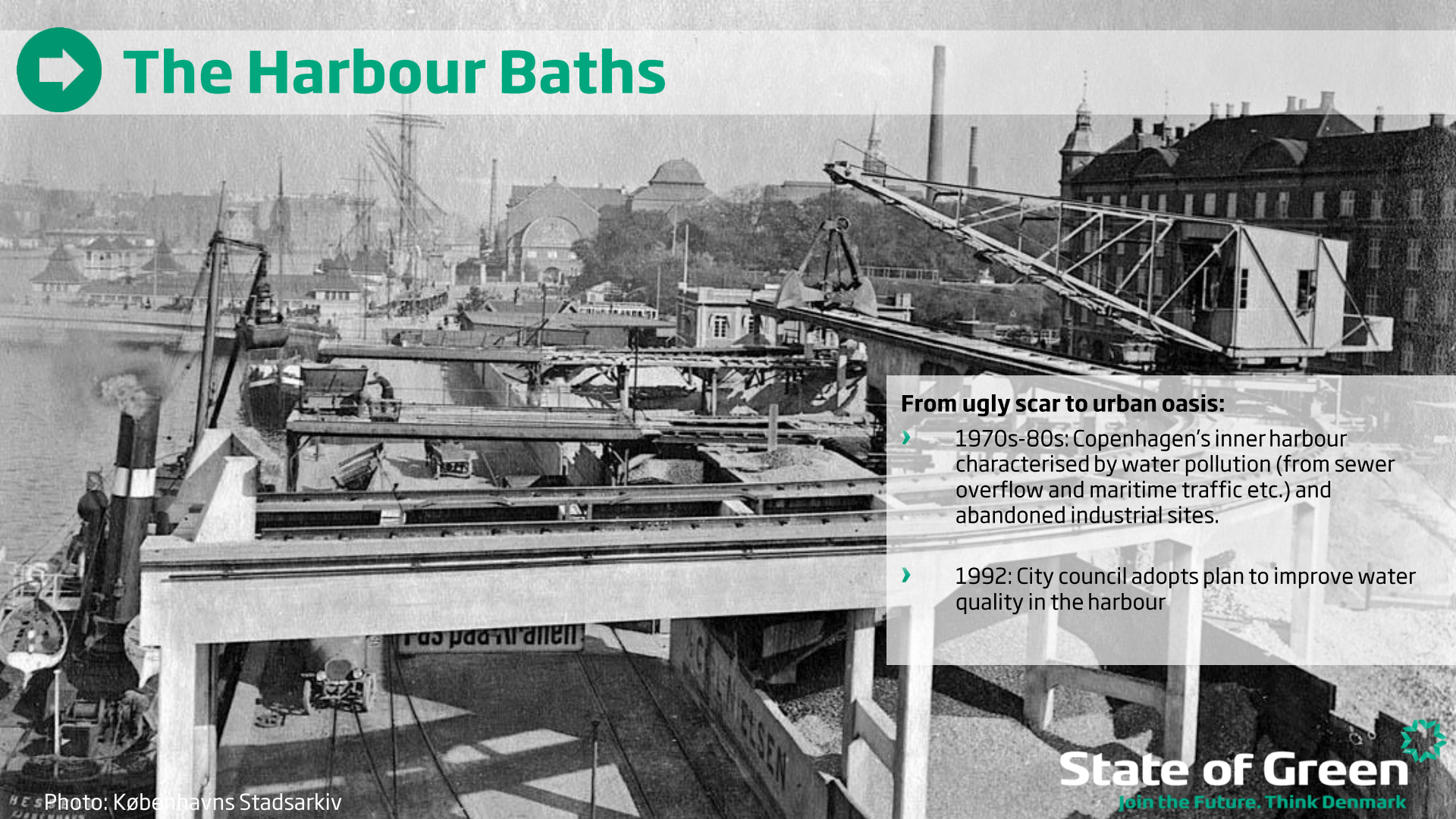
# The Harbour Baths



**From ugly scar to urban oasis:**

- 1970s-80s: Copenhagen's inner harbour characterised by water pollution (from sewer overflow and maritime traffic etc.) and abandoned industrial sites.
- 1992: City council adopts plan to improve water quality in the harbour

Photo: Københavns Stadsarkiv

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# The Harbour Baths

**Measures taken:**

- Integration of urban design and wastewater management
- Construction of 12 large retention basins
- Closing of sewer outlets
- Development of water quality warning system

**The result:**

- Harbour is now an urban oasis clean enough to swim in
- Real-estate values up by 50-100%
- Booming local service sectors

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# Flooding - A Challenge in Many Cities

- **A 100 year extreme rain event in Copenhagen**
  - 150 mm rain in 2 hours
  - Damages close to 1 billion Euros
  - Damages to critical infrastructure
  - Heavier and more frequent rainfalls
- **High political attention** (both locally and nationally)
- **Led to change in legislation**, incl. financing mechanisms to enable more surface solutions

Photo: Thomas Melbye

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# Opportunities of Climate Adaptation

- Rainwater can be used as a resource to create more liveable cities
- An integrated approach to urbanisation and climate change is **cost-efficient** and creates more **added value** to the city

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# Copenhill – An incineration plant and ski slope in one

- App. a million customers hand in garden waste, used construction materials, and other kinds of waste for recycling which **ARC treats in an eco-correct manner**
- 67% of waste is recycled, 27% is send for incinerations and less than 4% ends up in land fills.
- Waste to energy supply: relieve inhabitants of waste and supply heat and electricity to their households in return
- **332,000 tons** of waste which is converted into electricity and district heating supplying approximately **150,000 households**
- At the same time creating a recreational area for the citizens with a ski slope on the roof makes it welcoming to visitors

# Thank you

- Get inspiration and connect with a potential partner through **www.stateofgreen.com**
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