

HOFOR

Greater Copenhagen Utility

THE COMPANY TODAY



AMAGERVÆRKET



DISTRICT HEATING



WATER



RENEWABLE ENERGY



TOWN GAS



DISTRICT COOLING



WASTEWATER

- ▶ Denmark's largest utility company within our core areas
- ▶ More than 1200 employees
- ▶ More than a million customers in Greater Copenhagen
- ▶ More than EUR 700 million in net turnover
- ▶ More than EUR 250 million invested annually in pipelines, cables and wind turbines
- ▶ Total fixed assets: EUR 3,2 billion



ABOUT US IN BRIEF



- ▶ We are municipally owned
- ▶ Water + wastewater: shared ownership
- ▶ Heating, town gas, district cooling + energy production: owned by Cph.
- ▶ Our utilities are regulated by law
- ▶ Our revenue and expenditure must balance out over time
- ▶ We focus on a sustainable supply and renewable energy
- ▶ We support community development

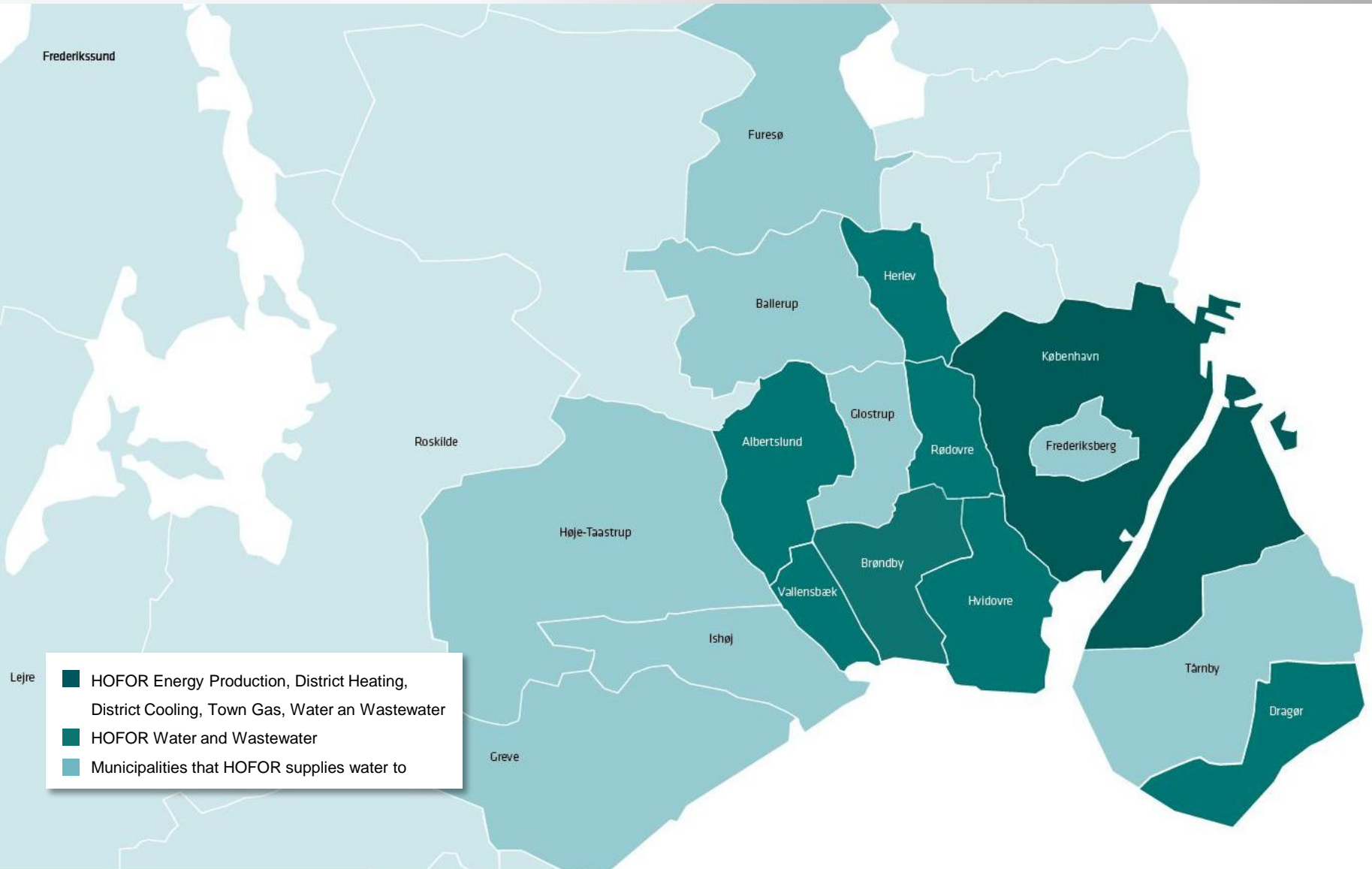
- ▶ Albertslund
- ▶ Brøndby
- ▶ Dragør
- ▶ Herlev
- ▶ Hvidovre
- ▶ Copenhagen
- ▶ Rødovre
- ▶ Vallensbæk

STRONG, PROFESSIONAL COMMUNITY

- ▶ High security of supply and quality
- ▶ Reasonable prices
- ▶ Environmentally friendly district heating, district cooling and town gas
- ▶ CO₂ neutral capital by 2025
- ▶ Acquisition of the Amagerværket power plant
- ▶ New supply solutions
- ▶ Merger
 - ▶ Better protection of the groundwater
 - ▶ Shared water extraction and production
 - ▶ Water sales and backup agreements
 - ▶ Coordinated wastewater treatment
 - ▶ Better management of extreme rainfall
 - ▶ Efficient planning and operation as well as exploitation of economies of scale

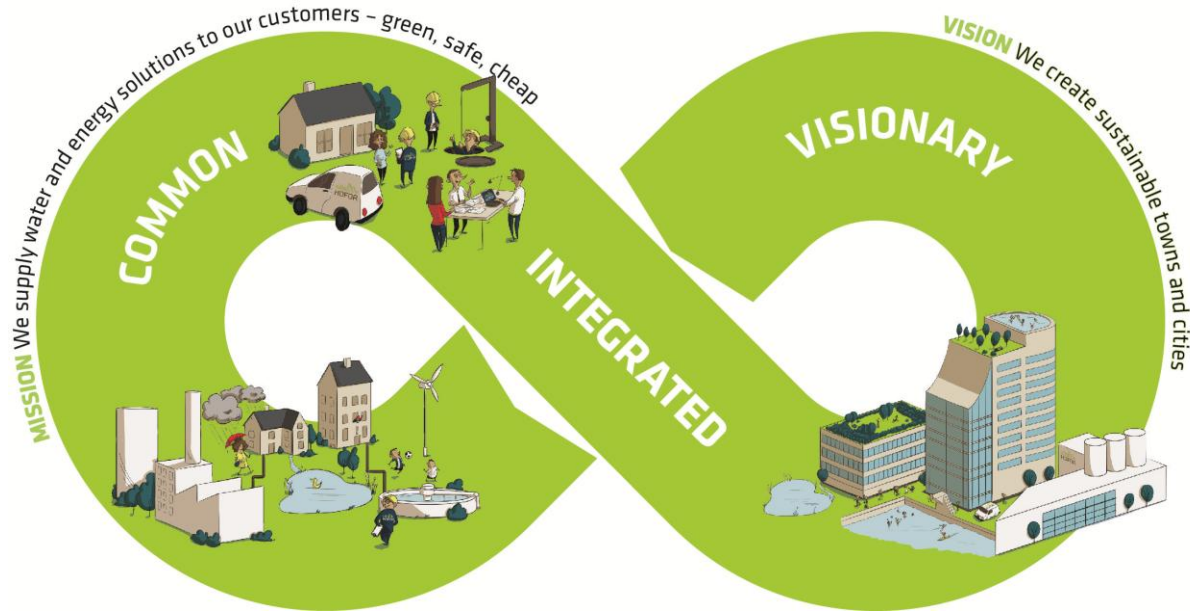


HOFOR – YOUR UTILITY COMPANY



STRATEGIC STEPS FOR HOFOR





	COMMON	INTEGRATED	VISIONARY
AMBITION	We undertake climate change adaptation projects and strive to be CO2 neutral	We increase resource efficiency and ensure reasonable prices	We use innovative solutions
GROUP TARGETS	<ul style="list-style-type: none"> • 80% CO2 neutral supply • 325 MW wind turbines in operation or under construction • 25% reduced flood probability in Copenhagen and 10% in the surrounding municipalities • Driving joint municipal climate adaptation projects 	<ul style="list-style-type: none"> • Reduction in reinvestment costs • Operating and administrative expenses are kept constant 2016-2020 • High ROI in District cooling and Wind 	<ul style="list-style-type: none"> • New technologies and sustainable solutions are evaluated • New investments have corporate-economic and socio-economic value • High satisfaction among retail customers and corporate customers
CORE	Horizontal activities		
	Safe operation, high security, optimal customer service, maintenance of assets, efficiency, development of employees.		

HOW WE WORK

- ▶ We are here for our customers
- ▶ We understand business
- ▶ We improve
- ▶ We join
- ▶ We have an open approach

HOW WE WANT TO RUN OUR BUSINESS

- ▶ One corporate and management culture
 - ▶ synergies from exploiting common functions across business areas
- ▶ Efficient and safe operation in all areas of supply
 - ▶ synergies across the supply areas
- ▶ Healthy business in commercial areas (electricity production, cooling and wind)
- ▶ Separation of responsibility for competitively sensitive information (sale of electricity and the purchase of heat)
- ▶ Focus on innovative, attractive and sustainable solutions for the city and its residents



WE GENERATE RESULTS



For example

- ▶ **Havnebadet (harbour baths):**
We ensure clean water through underground basins
- ▶ **Vigerslevparken:**
We cooperate on environmental issues and cloudburst protection
- ▶ **EnergyLab Nordhavn:**
We develop the supply solutions of the future
- ▶ **We dig:**
For environmentally friendly district heating, district cooling, town gas and improved wastewater systems
- ▶ **We encourage good behaviour:**
Saving water, energy management and turning off heating in the summer

ENERGYLAB NORDHAVN

- We develop the supply solutions of the future

- We create sustainable towns and cities
- In cooperation with customers, the industry, municipalities and other utility companies
- We create supply solutions to benefit our society



OUR CUSTOMERS



We have a strong customer focus

- Good, standardised service tailored to the needs of the various customer groups
- Understanding of the different expectations of our customer groups
- Cooperation with our customers on the delivery and development of our services in a sustainable manner – so that we can still live in the city in 100 years time
- We listen to our customers and meet their needs, so that we can improve and develop our service
- Customer ambassadors and methodical work with customer satisfaction

We have five customer groups

- Large customers
- Small and medium-sized corporate customers
- Blocks of flats
- Detached houses
- Apartments

OUR CUSTOMER CENTRE

- ▶ Answers customer questions by telephone and e-mail
- ▶ Focuses on a high level of availability – auto-dial service, service telephone and on duty station
- ▶ Allows customers to evaluate the service level
- ▶ Collects payment for customer consumption – more than DKK four billion a year
- ▶ Makes sustained efforts to minimise bad debts expense
- ▶ Works systematically with customer feedback
- ▶ Uses lean processes to continuously improve



OUR CUSTOMERS

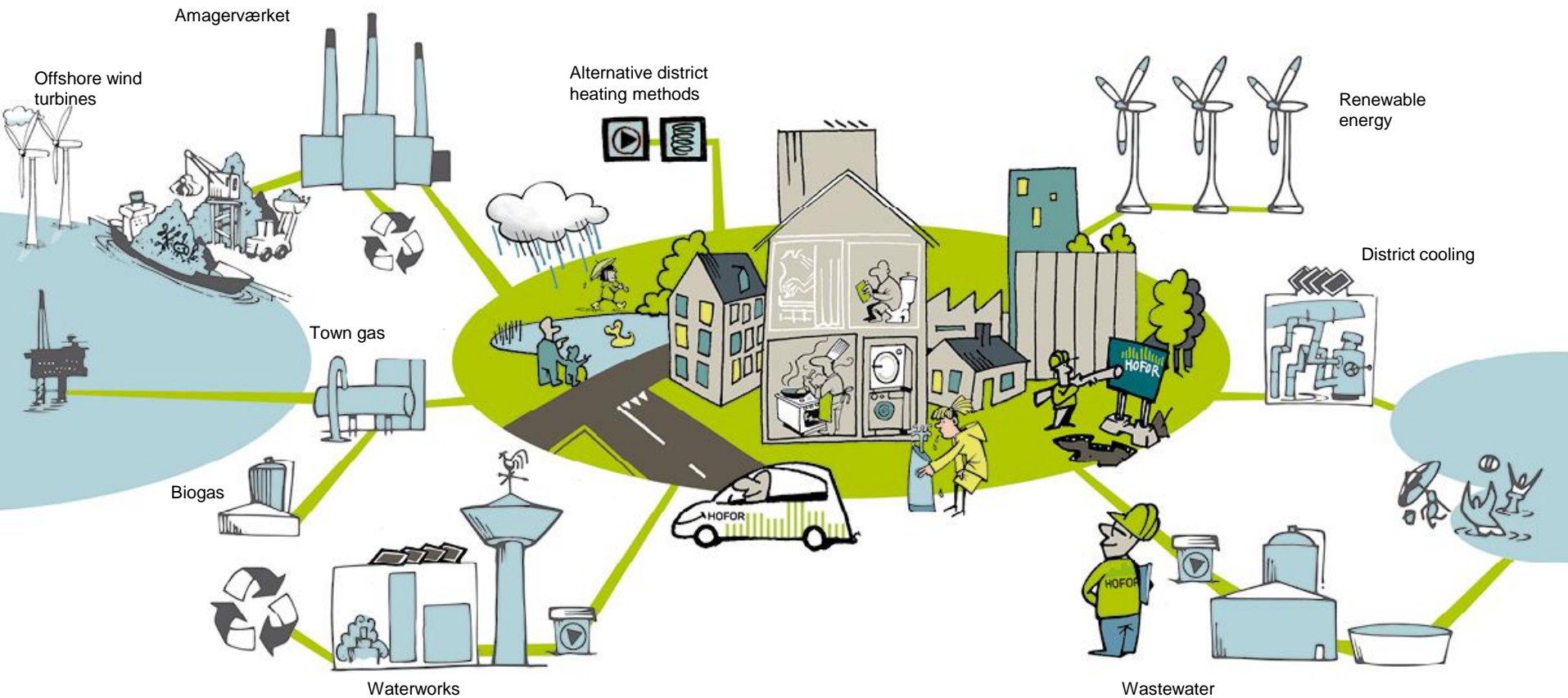


- ▶ 1,000,000 water customers
- ▶ 800,000 wastewater customers
- ▶ 600,000 heating customers
- ▶ 300,000 town gas customers
- ▶ 54 district cooling customers, 50 MW cooling

AS A BUSINESS PARTNER YOU GET

- ▶ Projects intended to be sustainable from idea to end product
- ▶ Access to the multidisciplinary skills of our more than 1200 employees
- ▶ Innovative solutions and documentation of efforts

OUR UTILITIES





THE AMAGERVÆRKET POWER STATION



District heating to app. 600,000 Copenhageners – supplied greenly, securely and cheaply

GREEN

- The City of Copenhagen aims to be the world's first CO₂ neutral capital by 2025. Green district heating is an important prerequisite for achieving this goal

SECURE

- The greatest possible security of supply. With decreasing capacity from SMV and HCV, there is a need for new capacity. We assure this with the Amagerværket power station

CHEAP

- Heating prices to customers are higher than most other major cities in Denmark. We want to change that



THE AMAGERVÆRKET POWER STATION



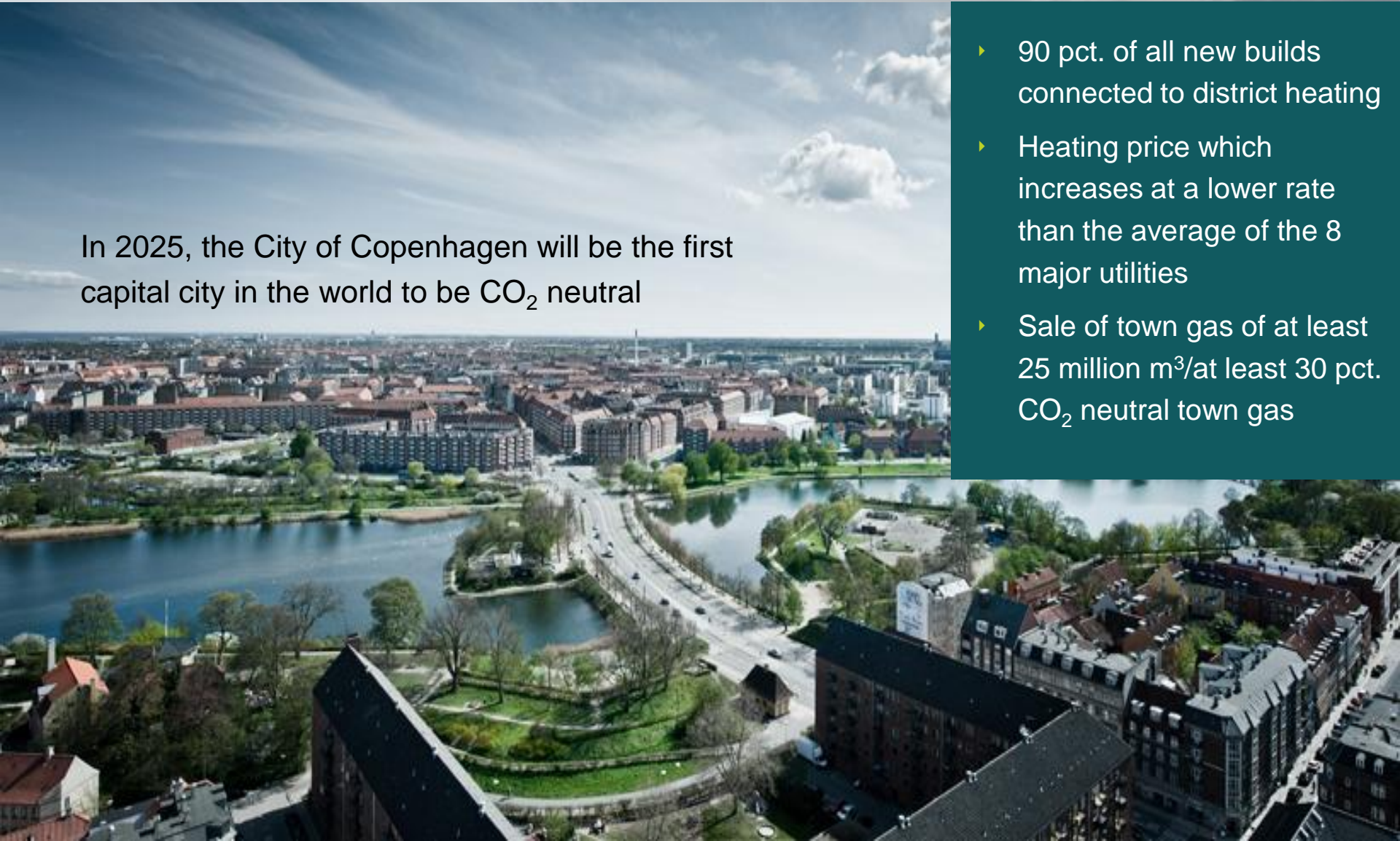
- ▶ Biomass and coal-fired power station
- ▶ First block in operation 1971, biomass in 2009
- ▶ Total capacity of 300 MW electricity and 580 MW heating
- ▶ Approximately 30 percent of base load capacity in the capital
- ▶ Burns around 300,000 tonnes of wood pellets a year
- ▶ The biomass warehouse holds approximately 32,000 tonnes of wood pellets
- ▶ Burns around 380,000 tonnes of coal a year (2015)
- ▶ The coal section holds approximately 400,000 tonnes of coal



DISTRICT HEATING AND TOWN GAS TARGETS 2015

In 2025, the City of Copenhagen will be the first capital city in the world to be CO₂ neutral

- ▶ 90 pct. of all new builds connected to district heating
- ▶ Heating price which increases at a lower rate than the average of the 8 major utilities
- ▶ Sale of town gas of at least 25 million m³/at least 30 pct. CO₂ neutral town gas





DISTRICT HEATING



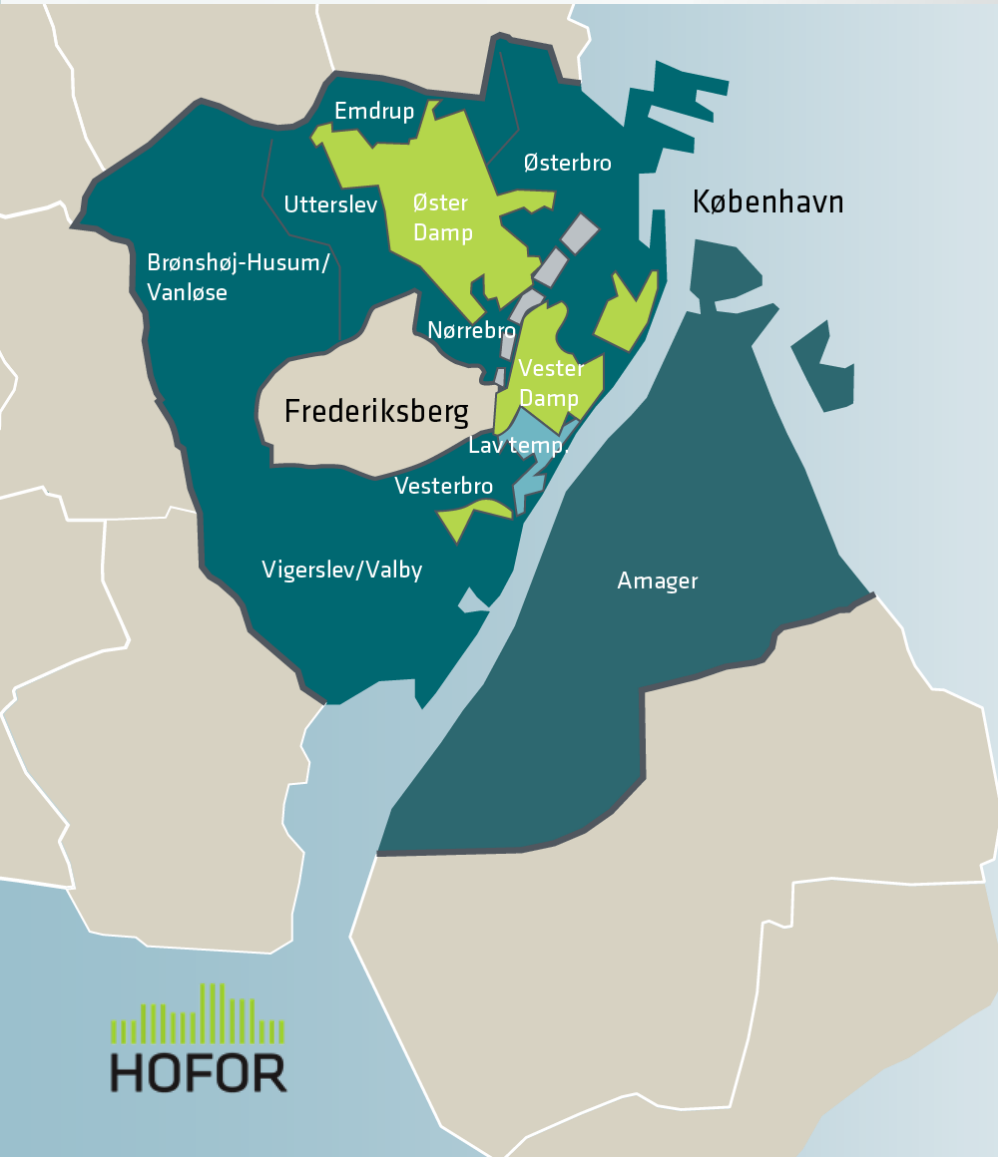
Further CO₂ reductions on the way

- ▶ Conversion to biomass at existing power stations
- ▶ Possibility of geothermal power plants and large heat pumps being looked into
- ▶ Advice on energy savings
- ▶ 53 percent of district heating was CO₂ neutral in 2015
- ▶ Reduction in loss in the grid
- ▶ Conversion of steam-based district heating by the end of 2021

We cover 99 percent of heating requirements in Copenhagen and we are investing in excess of DKK 500 million in new pipelines and plants



THIS IS WHERE WE SUPPLY DISTRICT HEATING



- District heating - standard
- District heating - steam network
- District heating - low temp. network



TOWN GAS



- ▶ Production and distribution
- ▶ Sales to half of all Copenhagen residents and people living in Hvidovre, Rødovre and Tårnby municipalities
- ▶ Corporate customers such as Lundbeck, Novozymes and Carlsberg
- ▶ Supply to Frederiksberg Municipality
- ▶ Customers reduce CO₂ emissions by more than half by using town gas instead of electricity
- ▶ Increase the share of CO₂ neutral biogas in town gas



THIS IS WHERE WE SUPPLY TOWN GAS



- Regulating station
- Gasworks
- Gas pipeline
- ⋯ Biogas pipeline



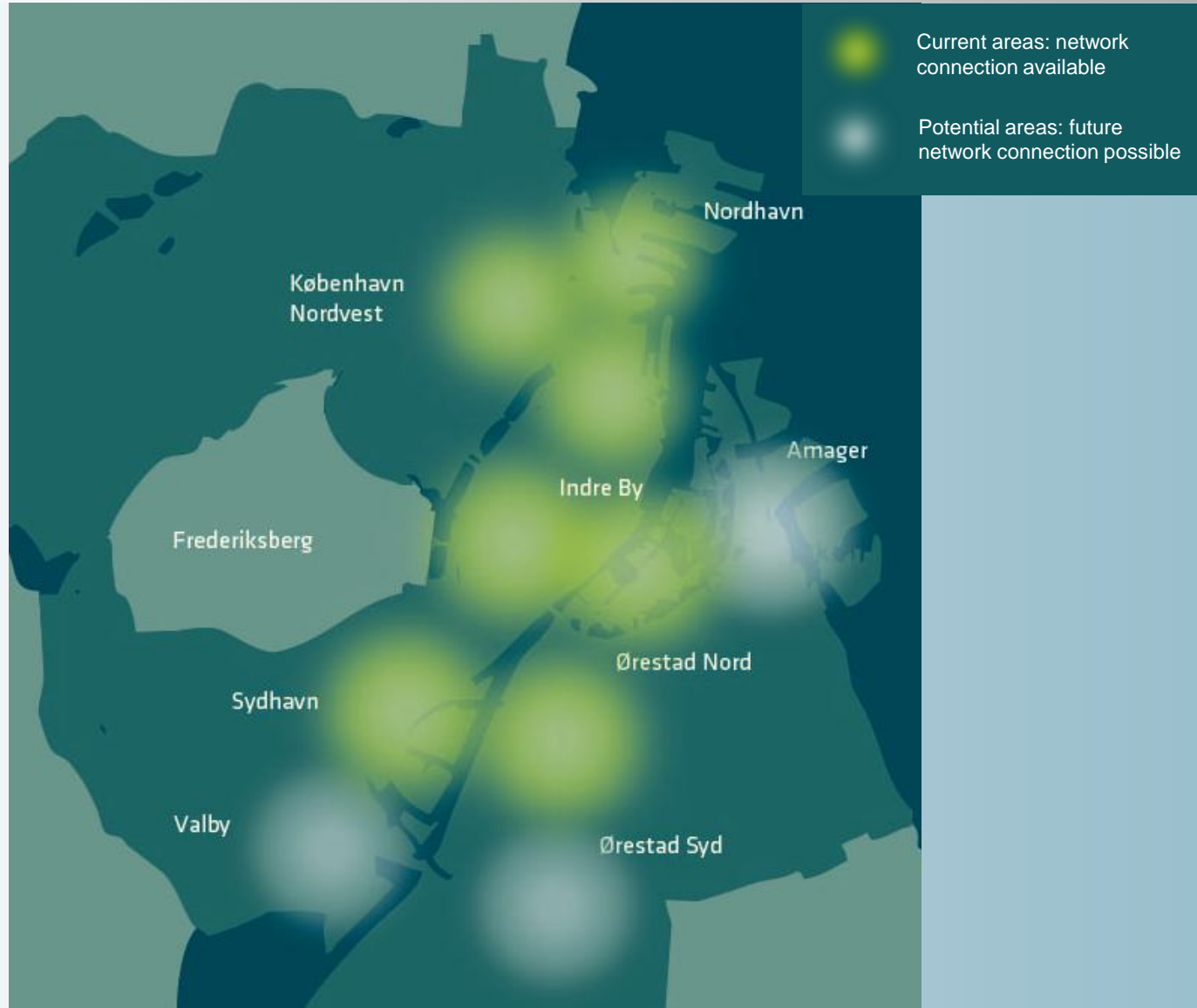
DISTRICT COOLING

- ▶ More climate-friendly air conditioning – for comfort, processing and cooling of server rooms
- ▶ District cooling centres:
 - ▶ Adelgade/Kgs. Nytorv
 - ▶ Tietgensgade near Rådhuspladsen square
- ▶ Companies can achieve financial savings of up to 40 pct. and reduce CO₂ emissions by up to 70 pct.
- ▶ Customers: Tivoli Hotel and Congress Center, Jeudan, Magasin, Egmont, the Confederation of Danish Industry, the National Museum of Denmark to name but a few
- ▶ Target 2020: Agreements for 85 MW district cooling + 60 MW district cooling connected





THIS IS WHERE WE SUPPLY DISTRICT COOLING





WATER AND WASTEWATER TARGETS 2020:



- ▶ Send more than 50 million m³ of water out to customers per year
- ▶ We will improve faster than the average of the 'big 8'
- ▶ Contribute to interconnected water supply on Zealand
- ▶ Area of development: soft water (decalcification)

We supply customers with cold, healthy, high quality drinking water, in the right quantity and at a reasonable price



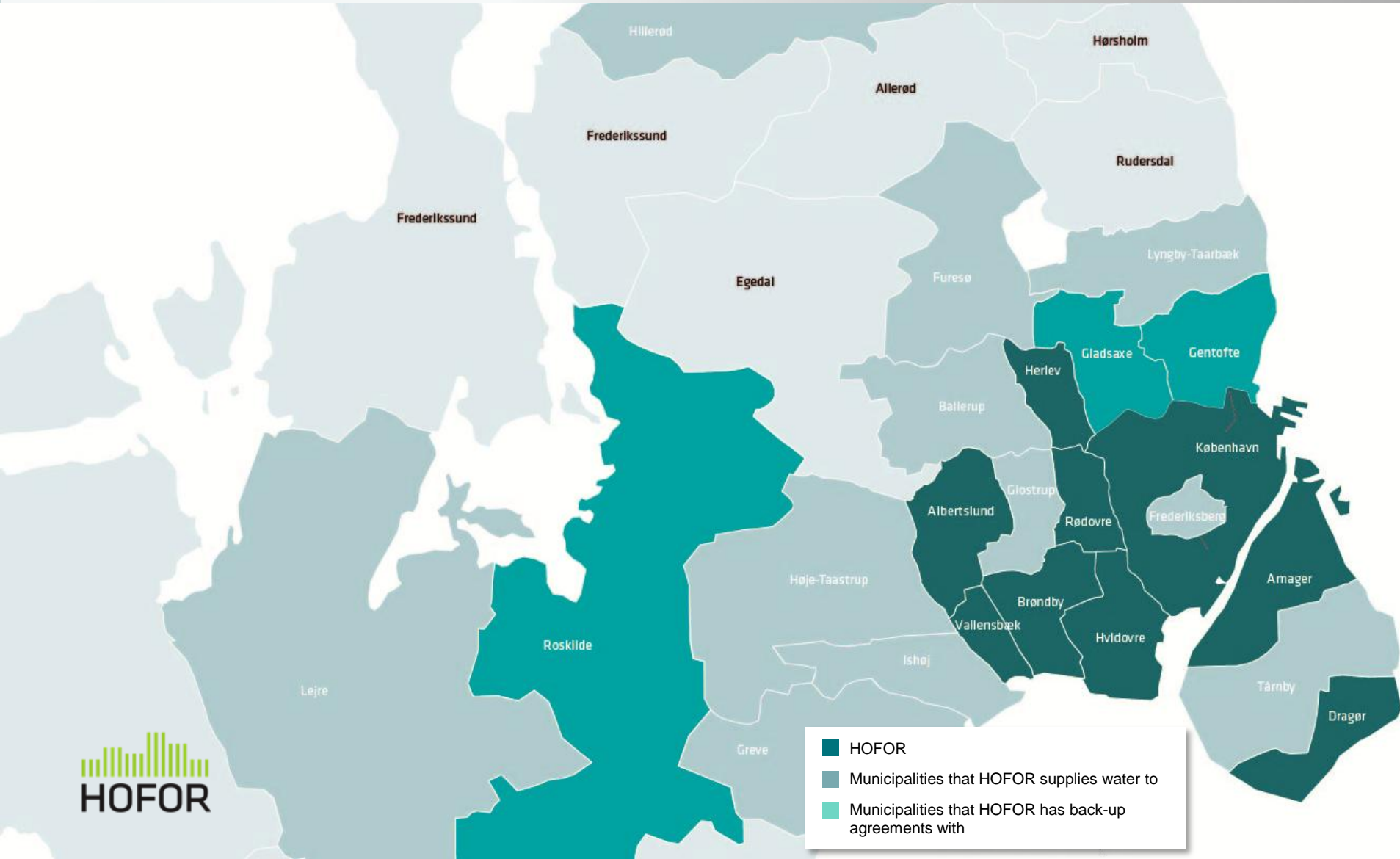
WATER

- ▶ Our water is subject to constant control
- ▶ We are certified according to DDS and ISO 22000
- ▶ We cooperate with local authorities, waterworks, agriculture and residents in our extraction area
- ▶ Groundwater protection, including planting 3,500 hectares of woodland
- ▶ We reduce water wastage in production
- ▶ We help customers reduce water wastage through water saving campaigns, etc.
- ▶ We look into the possibilities of using water resources other than groundwater





THIS IS WHERE WE SUPPLY WATER



- HOFOR
- Municipalities that HOFOR supplies water to
- Municipalities that HOFOR has back-up agreements with



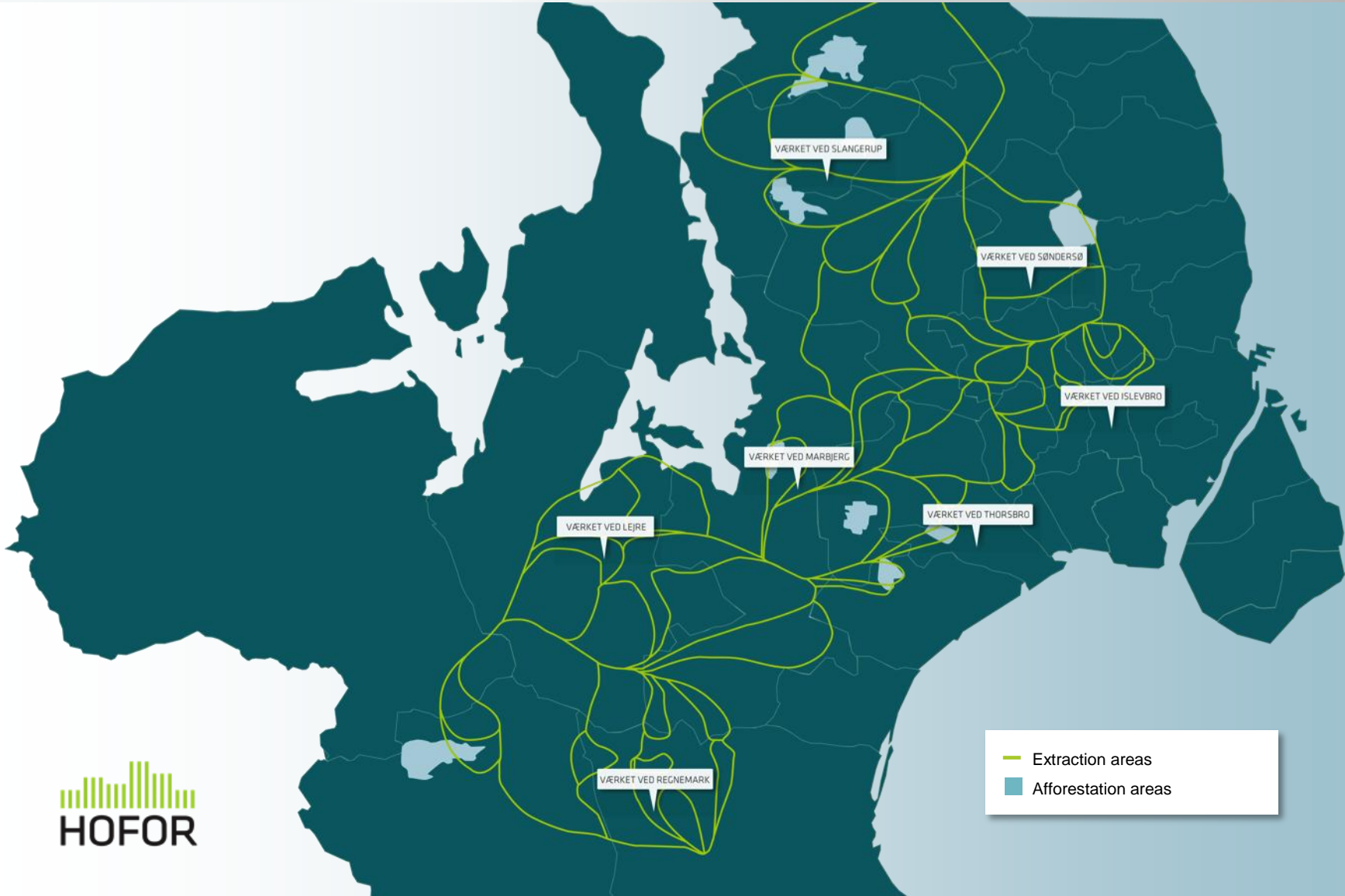
OUR WATERWORKS



- Waterworks
- Catchment areas



OUR EXTRACTION AND AFFORESTATION AREAS



- Extraction areas
- Afforestation areas

THE RIVER HARRESTRUP Å – DRAINAGE SYSTEM





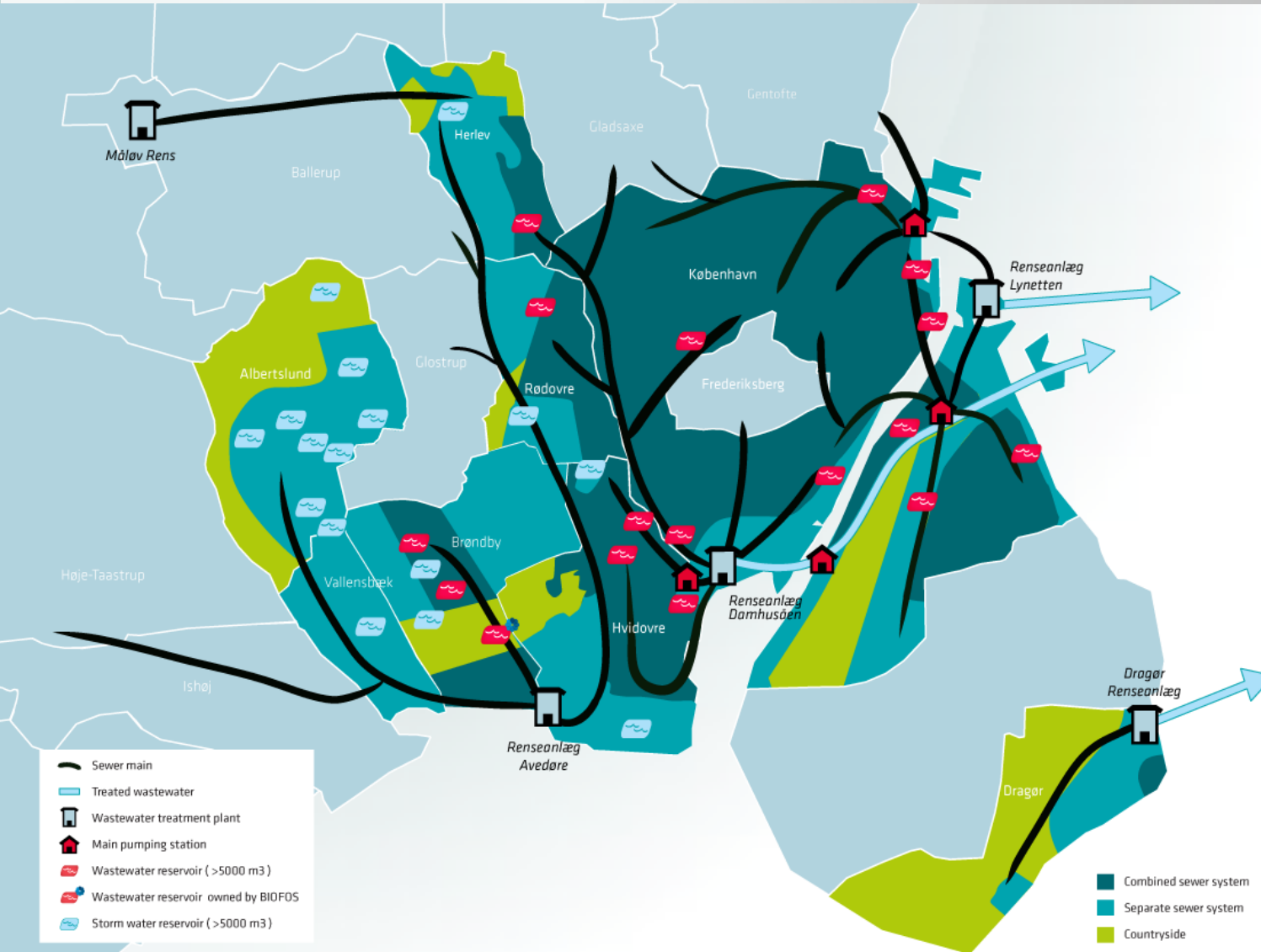
WASTEWATER



- ▶ We are responsible for the operation of the wastewater utility in eight municipalities
- ▶ We provide well-functioning, modern and inexpensive wastewater treatment
- ▶ More than 2,300 km sewers
- ▶ More than 250 pumping stations
- ▶ Electronic monitoring of sewers
- ▶ The climate challenges our sewer systems:
 - ▶ Cloudburst initiatives
 - ▶ Climate action plans



THIS IS WHERE WE TREAT WASTEWATER





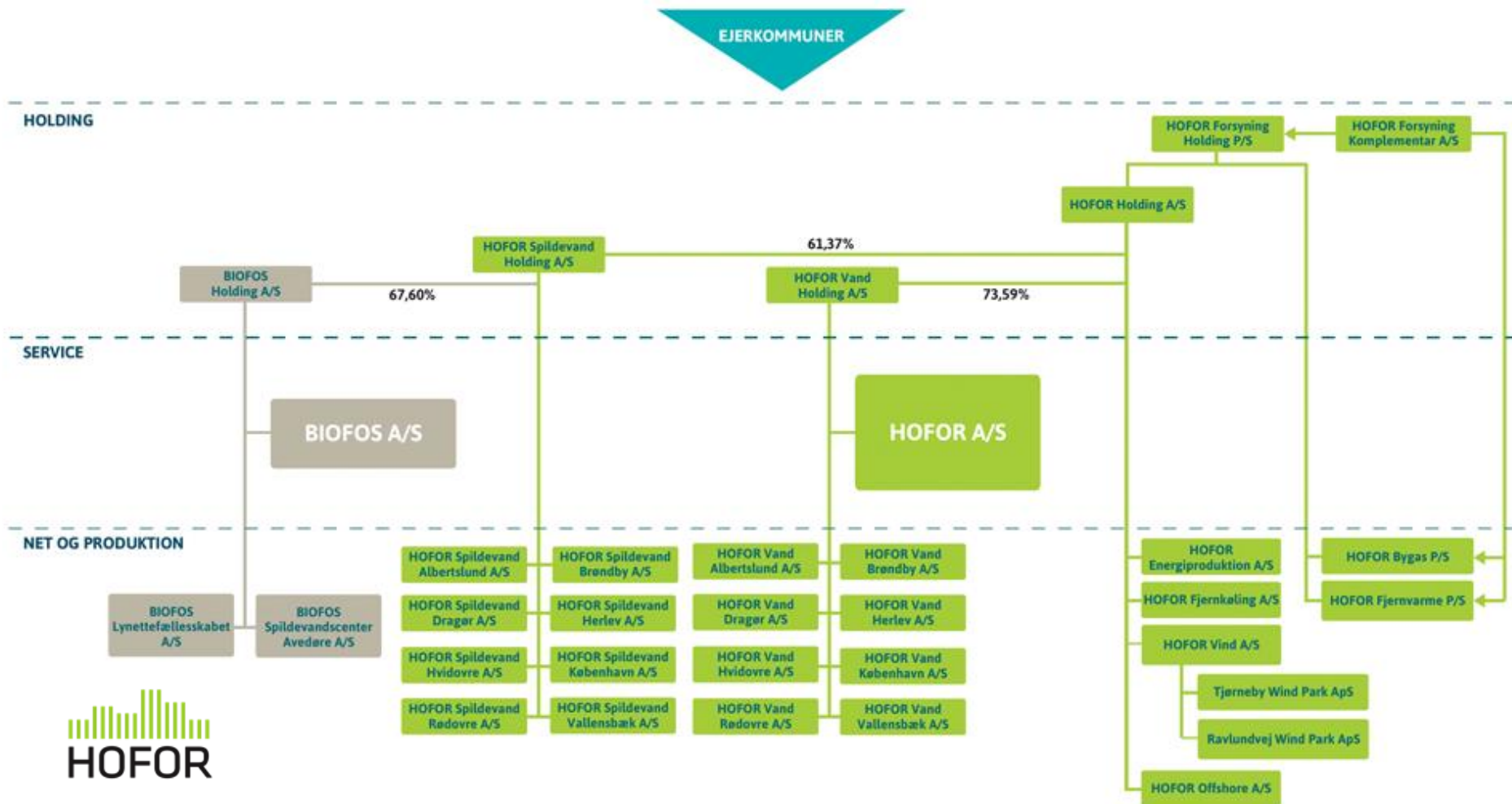
RENEWABLE ENERGY

- ▶ Wind turbines will help make the capital CO₂ neutral by 2025
- ▶ 72 MW in 2015 and 360 MW in 2025
- ▶ Approx. 100 turbines in and around Copenhagen
- ▶ Approx. EUR 730 billion

- ▶ Three turbines at Prøvestenen on Amager
- ▶ 11 turbines on Lolland and at Billund
 - ▶ Power equivalent to 24,000 households
 - ▶ Residents can buy shares



HOFOR GROUP OVERVIEW



HOFOR IN BRIEF



AMAGERVÆRKET



DISTRICT HEATING



TOWN GAS



DISTRICT COOLING



WATER



WASTEWATER



RENEWABLE ENERGY



More than
1200 employees



More than EUR
700 million in
annual net turnover



Over EUR 250
million in annual
investments