



Copenhagen as Sustainable and Liveable City

Smart urban municipalities/cities and energy efficient industries

Podgorica-Tirana-Pristina

6-8 June 2018

SECTOR COUNSELLOR PER BOESGAARD
– SUSTAINABLE CITY DEVELOPMENT
COPENHAGEN – BEIJING
哥本哈根市与北京市可持续城镇发展战略领域合作

JUNE 2018



CPH 2025 CLIMATE PLAN 2025 哥本哈根气候计划

Climate and Green Growth 气候与绿色增长

- **Putting Visions into Practice** 想象付诸实践

Copenhagen as driver for sustainable innovation

哥本哈根作为可持续创新的驱动者





COPENHAGEN

CAPITAL OF DENMARK

哥本哈根
丹麦首都

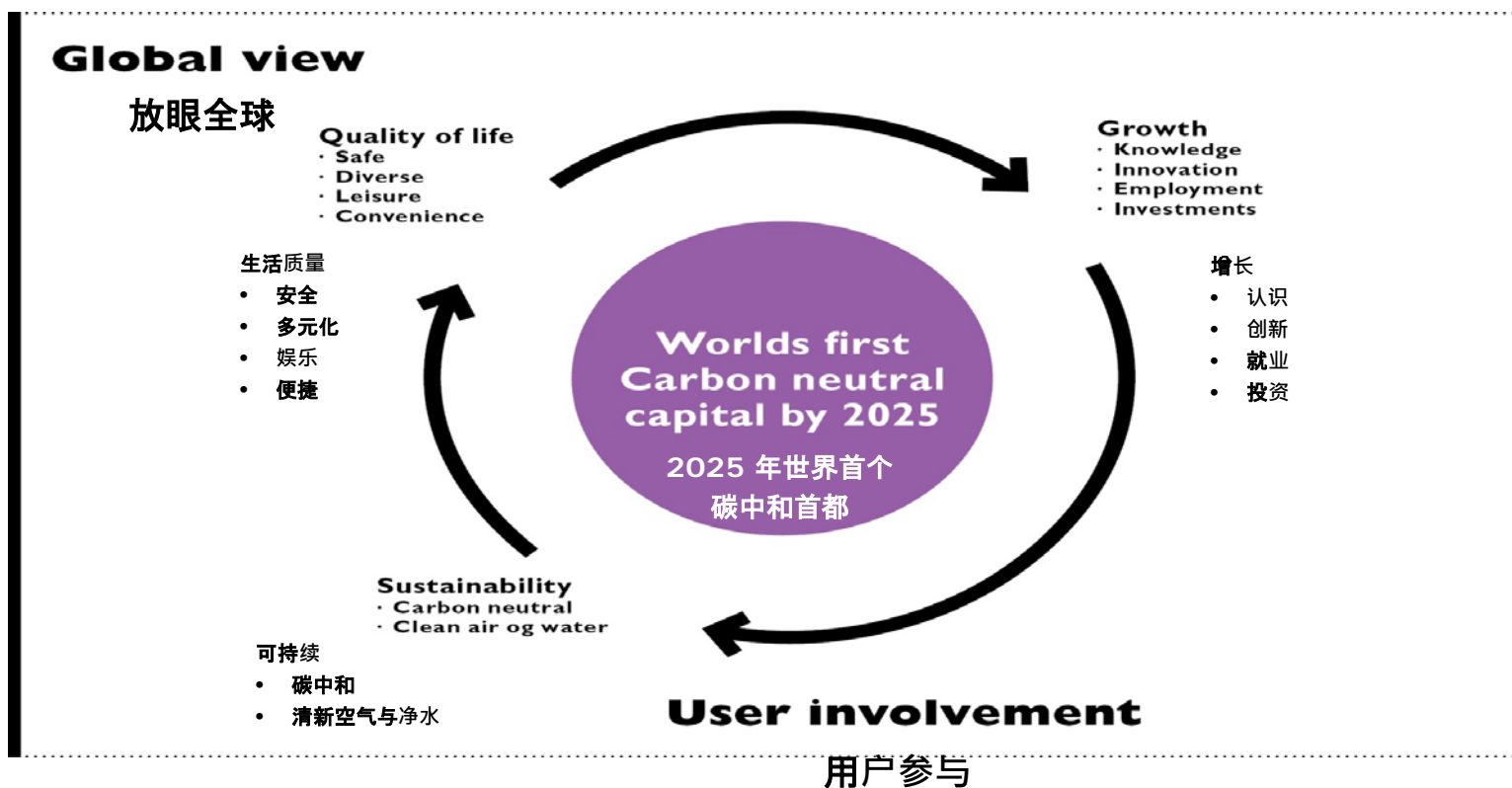
INHABITANTS:	居民 :
Municipality 570.000	市区 570 000
Region 1.000.000	地区 1 000 000
TOTAL AREA:	总面积 :
74 km²	74 平方公里
7,432 inhabitants/km²	7 432 居民/km ²
1000 new inhabitants per month	每月 1 000 新居民



CITY OF COPENHAGEN

哥本哈根市

THE COPENHAGEN STORY 哥本哈根的故事



CO-CREATE COPENHAGEN

A city with
an edge
城市优势



A liveable
city
宜居城市

A responsible
city
有责任感的城市

CO-CREATE COPENHAGEN A LIVEABLE CITY

共同打造哥本哈根
宜居城市



自行车使用者的世界最佳城市



日常生活更加美好



城市中更多自然元素

CITY OF COPENHAGEN

哥本哈根市

CPH CLIMATE
PARTNERS

JOIN US FOR THE SUSTAINABLE CITY



CO-CREATE COPENHAGEN A RESPONSIBLE CITY

共同打造哥本哈根
有责任感的城市



2025年碳中和



气候试验



无资源浪费

CITY OF COPENHAGEN

哥本哈根市

CPH CLIMATE
PARTNERS

JOIN US FOR THE SUSTAINABLE CITY





SUSTAINABLE AND LIVEABLE CITIES

可持续宜居城市

Healthy 健康

Safety 安全

Stability 稳定



宜居城市 Nice place to live –

幸福与满足 feeling happy and
satisfied

Good investment for city governments –
stability and development !!



市政府的优良投资

稳定与发展



London School of Economics: COPENHAGEN IS A LEADER

伦敦政治经济学院：哥本哈根作为引领者

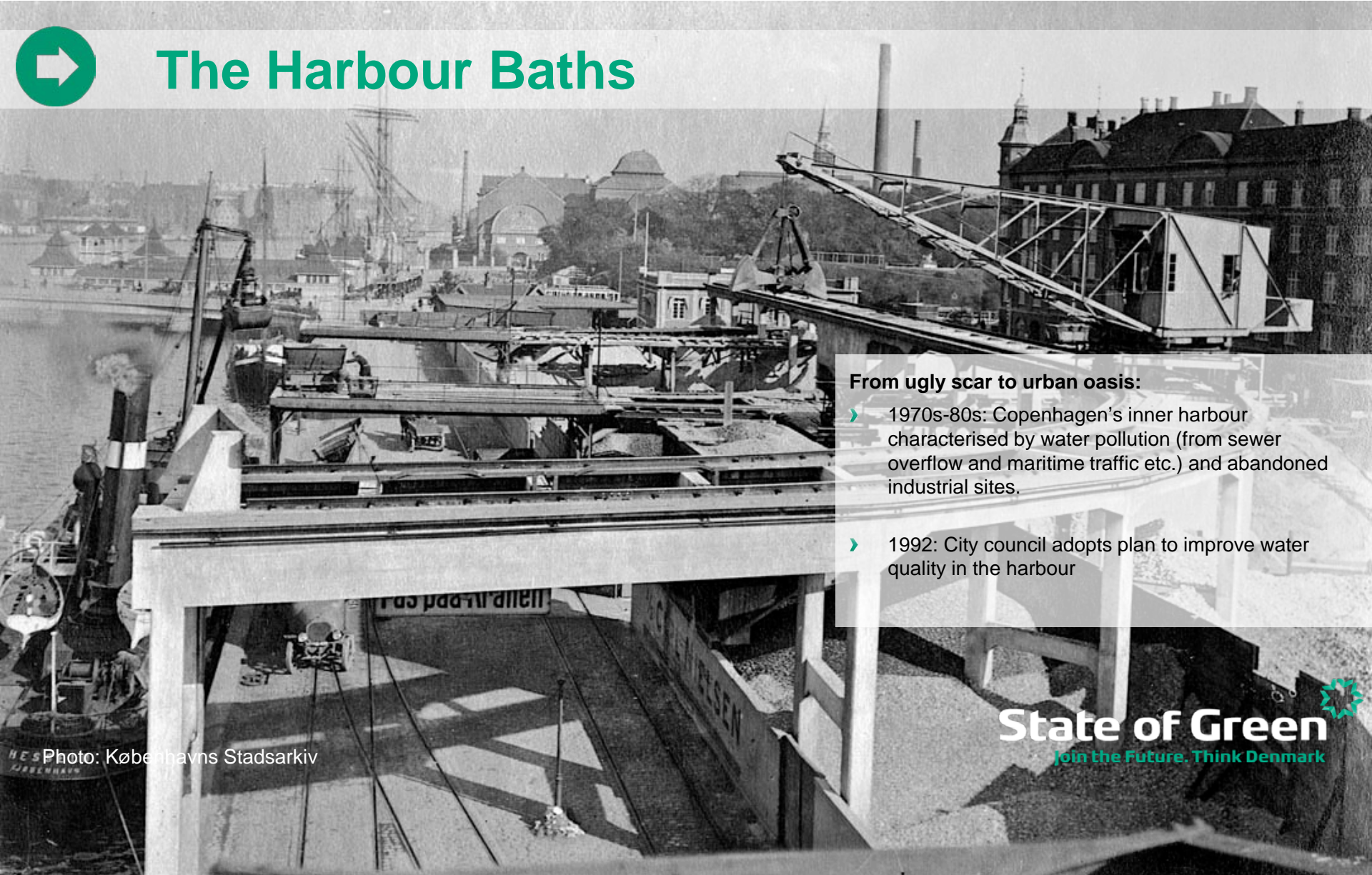
LSE: Copenhagen is a leader in green economy – and it is good business

伦敦政治经济学院：哥本哈根是绿色经济的引领者
——良好商业往来





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



The Harbour Baths



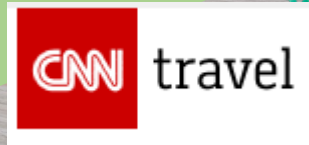
Measures taken:

- › 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

Best city for swimming!





Waste as a Resource

- Waste-to-energy is an integral source to heat and power production in Copenhagen.
- 332,000 tonnes of waste is every year converted to power and heating to 150,000 households.
- Recreational area



Photo: ARC and BIG

State of Green
Join the Future. Think Denmark



ROADMAP 2017-2020

FOUR PILLARS

路线图

四项支柱



CLIMATE PLAN

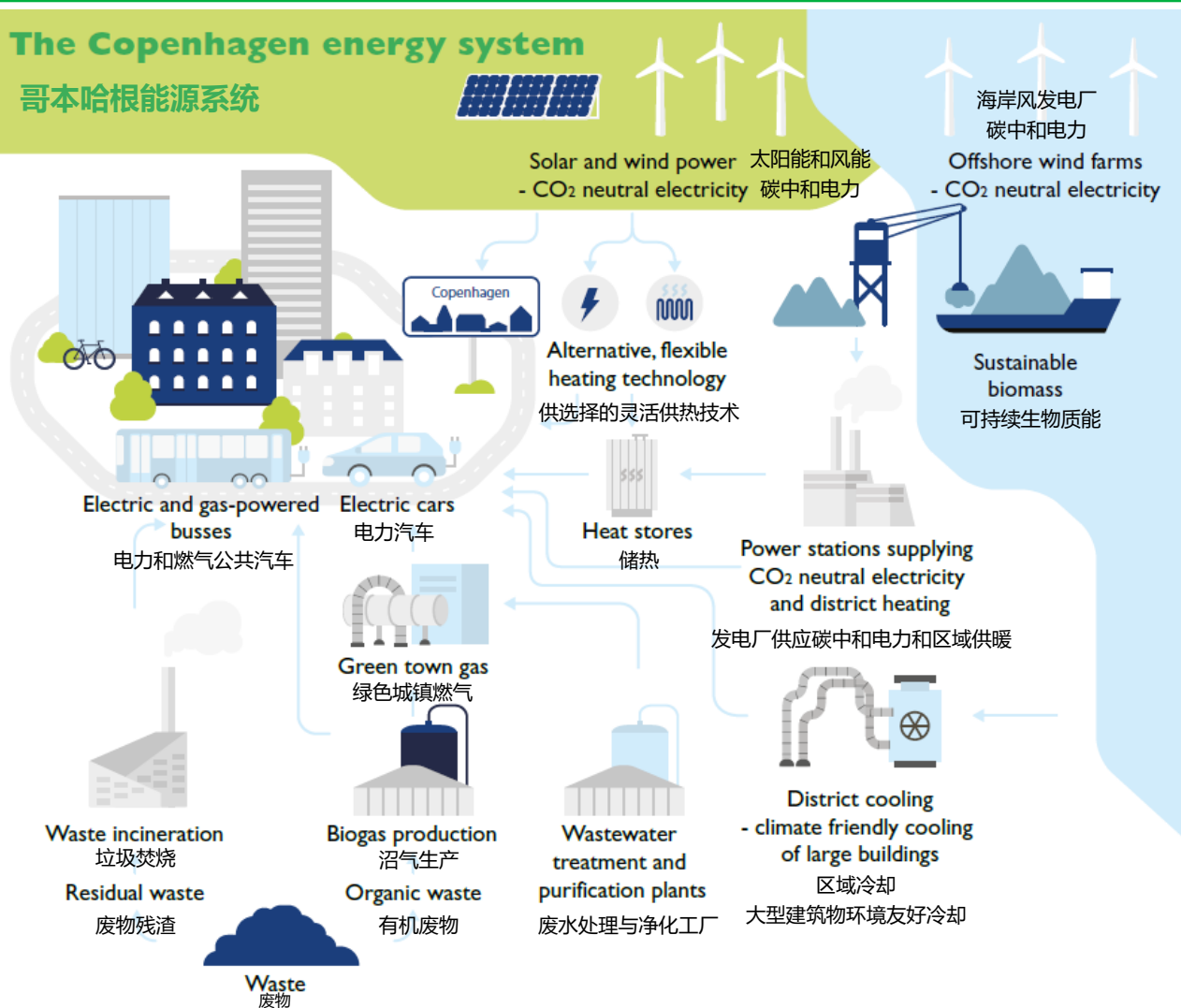
气候计划

THE ENERGY SYSTEM 能源系统

AN OVERVIEW 概览

The Copenhagen energy system

哥本哈根能源系统



MAIN FOCUS 核心关注

- Wind turbines
风力涡轮机
- Solar panels
太阳能电池板
- District heating
区域供暖
- Sustainable biomass
可持续生物质能
- Cooling with seawater
海水冷却
- Town gas
城镇燃气
- Biogas
沼气
- Electric cars
电动汽车
- Electric and gas-powered busses
电动和燃气公交车
- Collecting plastic
塑料收集

CLIMATE PLAN

气候计划

CPH CLIMATE PROJECTS

ENERGYLAB NORDHAVN

哥本哈根气候计划
北港能源实验室

Purpose 目标

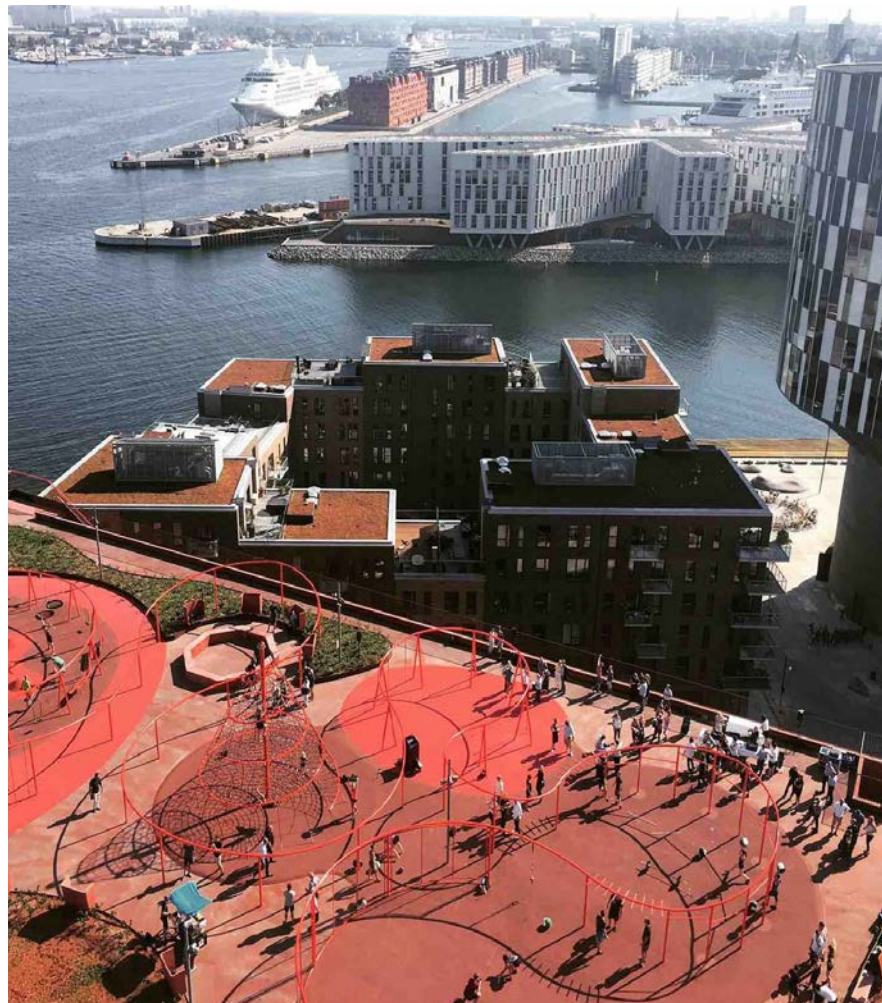
- Test the future flexible and efficient energy system
检测未来灵活高效能源系统
- Integrate energy consumption, production and transport 整合能源消耗、生产及交通

Actions 行动

- Researchers, utilities, urban developers and private companies 研究员、公共设施、城市开发商及私营公司
- 13 partners and 25 mio. Euro 13个合作伙伴、0.25亿欧元
- Collect consumer, production and storage data
收集消费者、生产和储存数据
- Employ technologies in new buildings
新建筑中采用多项技术
- Integrated markets and control centers
整合市场并控制中心

Results 成果

- 50-100 projects will be executed
50 至 100 项项目将被执行
- Quantitative data on concrete solutions
具体解决方案的定量数据



CLIMATE PLAN

气候计划

LARGE HEAT PUMPS FOR DISTRICT HEATING



Purpose 目标

- Heat pump connected to the district heating system in the Copenhagen
在哥本哈根将热泵连接至区域供暖系统
- Utilize electricity for heat production 电力产热
- Annual head demand on 35 PJ 年需热量 35 PJ

Actions 行动

- Establish a seawater/sewage water heat pump at Sjællandsbroens pump station
在 Sjællandsbroens 泵站建立海水或污水热泵
- Collaboration between HOFOR, CTR and VEKS
HOFOR、CTR 和 VEKS 间合作

Results 成果

- The estimates for the heat pump is to produce between 0,02 and 0,05 PJ heat each year (approx. 0,1 % of the total demand).
热泵预估每年生产 0.02 至 0.05 PJ 热量 (约为总需求的 0.1%)

WORLD'S BEST CITY FOR CYCLISTS

自行车使用者的世界最佳城市



Accessibility for all 所有人皆可使用

- The capacity on the bicycle network is to be expanded – in the crossroads too
即将扩张自行车线路网络容量，包括十字路口
- Establish bicycle corridors 建立自行车通路
- Super bicycle paths 超级自行车道

Safety and security for cyclists

自行车使用者的安全性保障

- Safety in the traffic is always important
交通安全时刻重要
- Security, so that everyone "dare" to choose the bicycle 安全，因此人人“敢于”选择自行车

Parking 停车

- Space for the parked bicycles
被停放的自行车拥有一定空间
- Focus on junctions and shopping areas
重点关注交通枢纽和购物区

CITY ADMINISTRATION INITIATIVES 城市管理倡议



A GOOD EXAMPLE
优秀案例



CLIMATE PLAN

气候计划

SHEDDING NEW LIGHT ON THE CAPITAL

Purpose 目标

- Cutting the electricity consumption on lighting
削减照明电消耗

Actions 行动

- Replace 20.000 street lighting fixtures with LED lights 将 20 000 个道路照明器材更换为 LED 灯
- Replace 8.000 poles 替换 8 000 个电线杆
- Replace 1.140 electrical cabinets
替换 1 140 电控箱

Results 成果

- 18.814 streetlights with LED
18 814 个安装 LED 的街灯
- 6.800 poles 6 800 个电线杆
- 57 pct. Energy reduction 减少 57% 能源使用





Purpose 目标

- 100 pct. use of electric or hydrogen cars in the City Administration by 2025
2025年城市管理 100% 使用电动或氢动力汽车

Actions 行动

- GPS-based fleet management
基于 GPS 的车队管理
- Buy new electric cars when old cars need to be replaced
当替换旧车时购买新电动汽车
- Regional procurement programme to ensure lower prices
地域采购项目以确保低价

Results 成果

- 85 pct. of the fleet is electric or hydrogen cars 85% 车队为电动或氢动力汽车
- Savings - up to 30 % of the full price trough buying with others
较其它类型汽车全价最多节省 30%

COPENHAGEN CLIMATE PROJECTS 哥本哈根气候计划 公共建筑能源监测

ENERGY SURVEILLANCE IN PUBLIC BUILDINGS

Purpose 目标

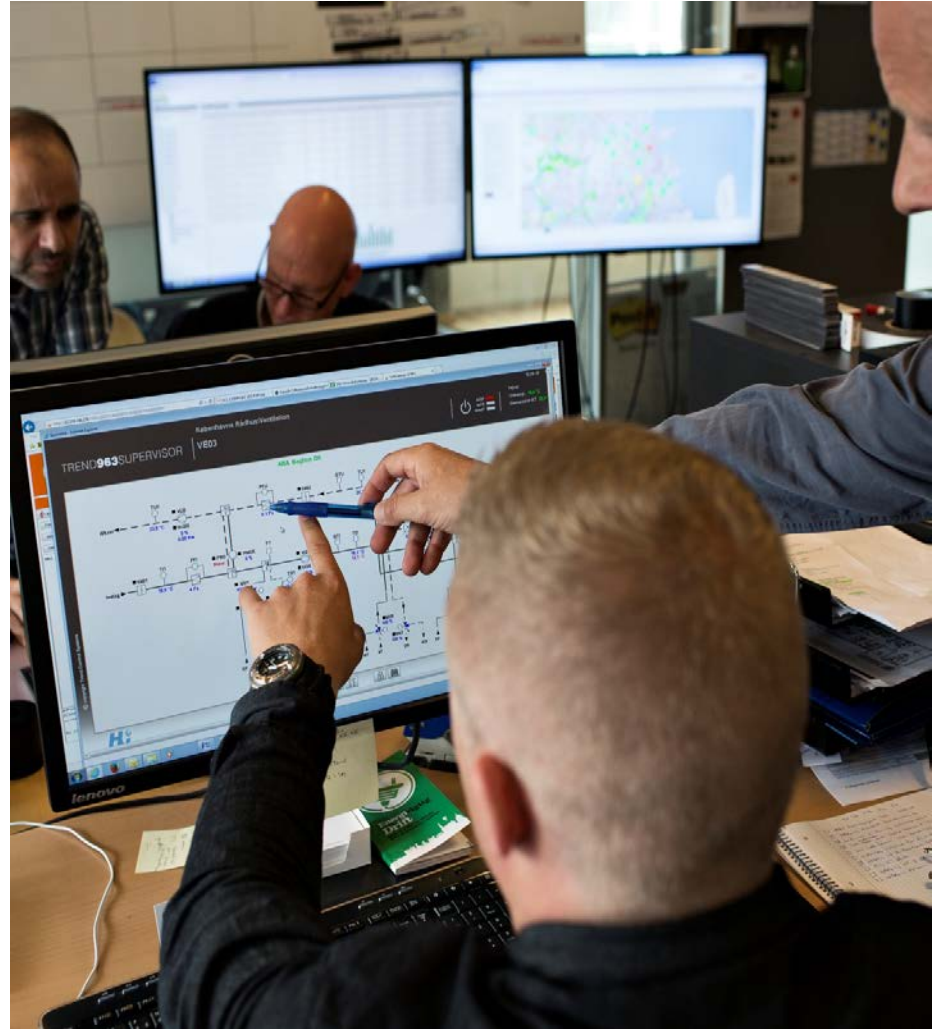
- Reduce the energy consumption within the public buildings 降低公共建筑能源消耗

Actions 行动

- Establish central energy surveillance of the entire municipal property portfolio 建立全行政区域资产中央能源监测
- Collect data from heat, water, and electricity meters on an hourly basis 每小时收集热量、水和电力仪表数据
- Implement energy efficient solutions with a short payback time 实施短回收期能源高效解决方案

Results 成果

- ~ 10 % reduction 约 10% 缩减
- Potential for more energy savings 更多能源节省潜能
- Average payback time on 6 years 平均回收期为 6 年



Danish Sustainable Cities



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

COPENHAGEN-BEIJING SUSTAINABLE CITY DEVELOPMENT

哥本哈根市与北京市可持续城镇发展战略领域合作



WHAT

- Administration to administration – together with private actors 政府对政府合作- 企业参与其中
- Knowledge sharing – working together – concrete cases 知识共享-共同合作-具体项目

Waste water – sludge – biogas



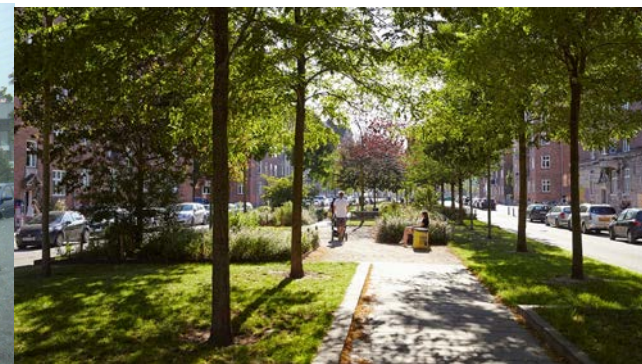
Sponge – Climate Adaption



15. august 2010
2. juli 2011
15. august 2011



City renewal





QINGLONG HUTONG, BEIJING

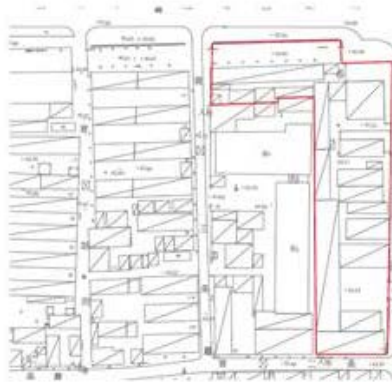
区位分析 SITE



DONGCHENG DISTRICT
东城区



QINGLONG HUTONG
青龙胡同



青龙胡同及钱粮馆胡同全线总长：480m

-  EXHIBITION: TECHNOLOGY DISPLAY - XX M²
环节能技术示范展示空间 - XX M²
-  COMMUNITY MSW COLLECTION ROOM - XX M²
街区固废资源回收间 - XX M²
-  PUBLIC TOILET - XX M²
街区公共洗手间 - XX M²
-  LIVABILITY PROJECT ACTIVITIES SPACE - XX M²
国际宜居项目活动空间 - XX M²
-  SINO-DENMARK INCUBATION CENTER - XX M²
中丹国际合作孵化空间 - XX M²
-  SMART UNDERGROUND PARKING XX M²
街区地下公共停车场 - XX M²



**THANK YOU FOR YOUR ATTENTION AND
CONTRIBUTION– AND LET'S MEET AGAIN !!**



PER BOESGAARD 石波

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**NATIONS TALKS
– CITIES ACT !!**

