

Mobilizing Actors for the Local Energy Transition


World Future Council
VOICE OF FUTURE GENERATIONS

ProjectZero makes it
happen

World Future Council
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Peter Rathje,
managing director



Transitioning Sønderborg (Denmark)

from farming, industry, knowledge to Bright Green Business

- fresh seawater
- great nature
- tourism
- **experience economy**



- farming
- industry
- knowledge
- **Bright Green Business**
- **Danfoss HQ**



- 75,000 citizens
- 440,000 pigs, 250,000 hens
- 500 km² area
- District heating networks
- Natural Gas pipeline



**722,000 ton
of emissions
(baseline 2007)**

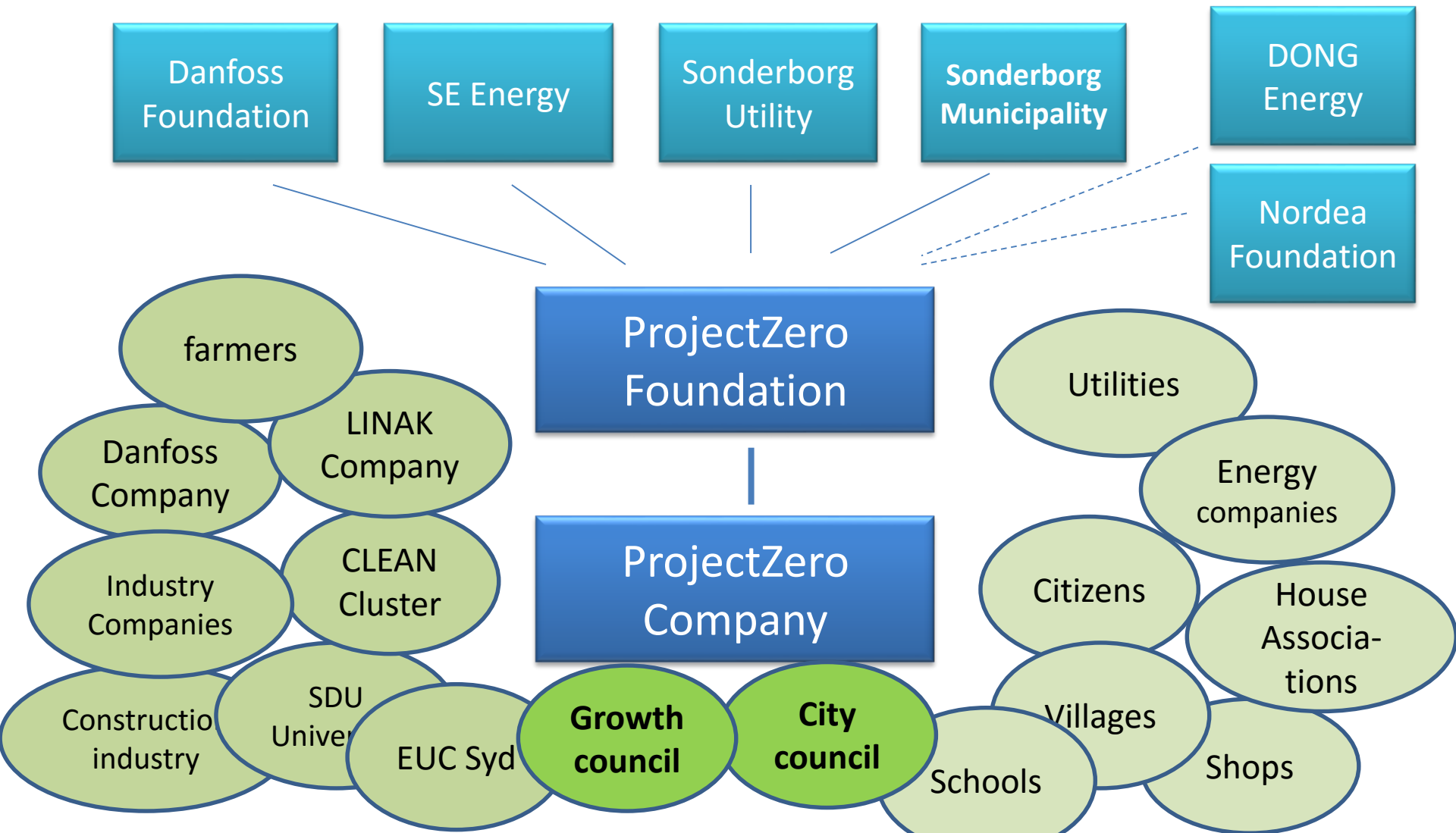
ProjectZero is an enabler
for Sonderborg to become a
ZEROcarbon community by 2029,
based on sustainable growth
and creating new **Green jobs**

20 years ahead of a fossil free Denmark

Our approach is holistic
and include Public Private Partnership,
technology, solutions, business, participation ...
and a new thinking!

ProjectZero

a Public Private Partnership

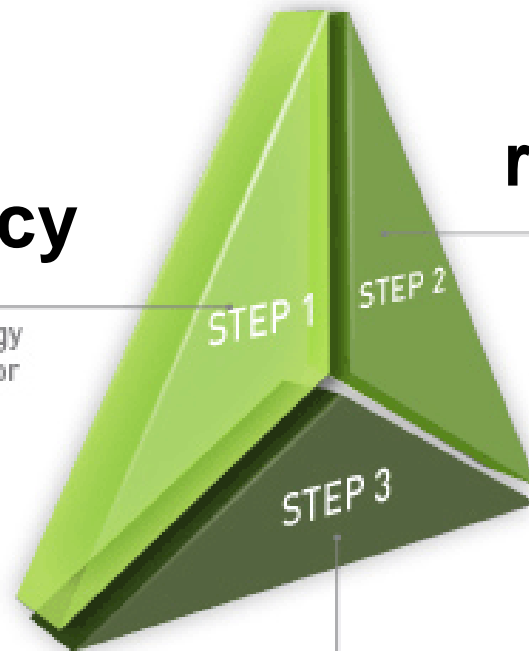


Energy efficiency being our #1 priority

Transitioning the energy-system using only step 1 + 2

#1: Energy efficiency

Limit demand for energy through rational use for energy



#2: Energy from renewable sources

use renewable energy to full remaining demand

use fossil fuels, if necessary, as efficiently and cleanly as possible.

A holistic approach

Policy

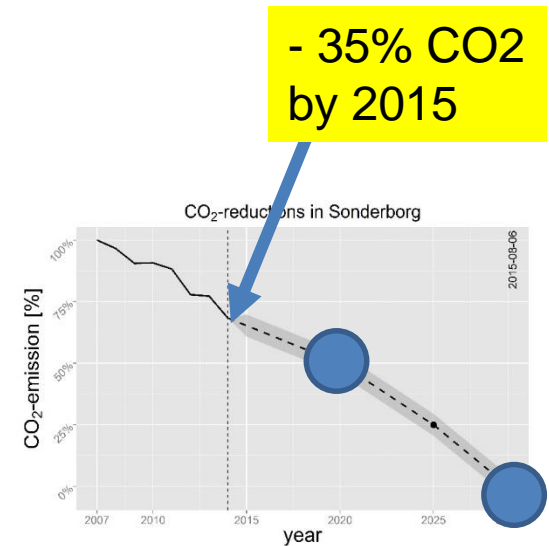
Solutions

**Society
Participation**



Major achievements

- **35% CO₂-reduction during 2007 – 2015**
 - Overachieved our 2015 milestone (25%)
 - Now targeting a 50% reduction by 2020
- **800+ Green Jobs Created**
 - In the construction industry
 - Green district heating
 - Energy consulting
- **A lighthouse beacon for Sonderborg**
 - Setting a new direction with future common goals
 - Strong community participation
 - Enterprises and educations alignment
 - Best practice national and international cooperation



Our ZEROcarbon masterplan outline directions and how to achieve 50% carbon reduction by 2020

Energy Efficiency Improvement (43%)

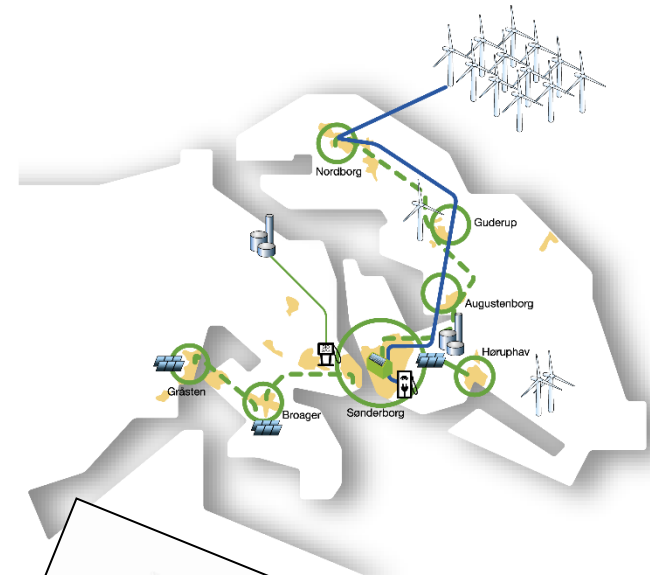
- **Energy retrofit of houses & buildings** including PV cell-production
- **Intelligent Heat pumps** in rural areas
- **Energy retrofit of companies, shops, offices**
- **Green transportation** including electrical cars

A New Green Energy Infrastructure (57%)

- **Green District heating** in the urban areas
- **Wind turbines** onshore & coastal near
- **Biogas plants** processing manure

A Dynamic Energy system

Changing the mindset and thinking



Business
ProjectZero

Lead by examples

Our participation started with the ZERO+ house
but now the ZEROmindset have taken over!



- new homes
- new municipal buildings
- new schools
- companies going ZERO+
- shops going ZERO+
- schools going ZERO+
- families going ZERO+
- sports going ZERO+
- urban development going ZERO+

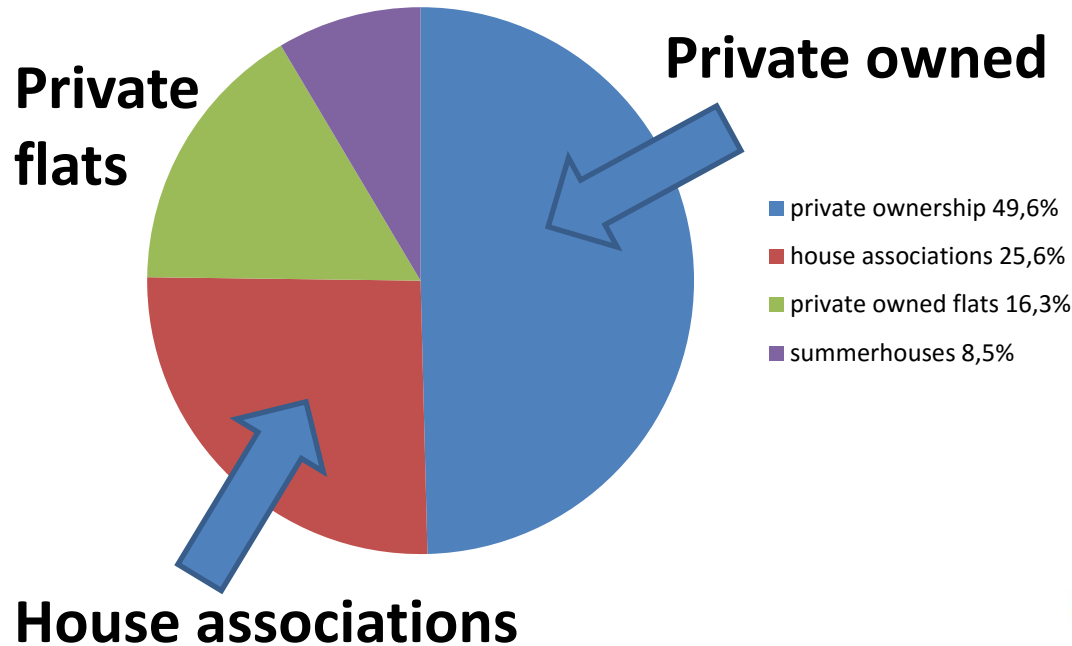
Frank Gehry



Energy
efficiency
improvement
- require
participation
from all
society
stakeholders



ProjectZero challenges the energy consumption in Sonderborg's homes



- 37.500 dwellings**
- average is 65 years old
 - with a poor EPC
 - but most with smart meters



The ZEROfamily

115 participating families (2009)

I'm a big
ZERO
ProjectZero.dk

I'm a big
ZERO
ProjectZero.dk

I'm a big
ZERO
ProjectZero.dk

Impact

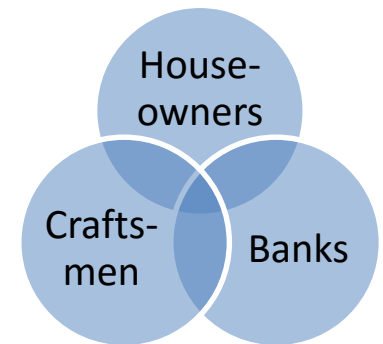
- 25% energy savings
- 45% water savings

The ZEROhome program

engaging 18,600 owners of private homes



- House construction, thermostats, insulation, installations, green district heating, heat pumps, appliances, mindset, ..
- Average house in Sonderborg is 65 years old
- Concept
 - easy, safe and economic viable for owners
 - strengthen craftsmanship competencies
 - secure financial support
 - lean processing across sectors
- Impact
 - 1,200 homes visited by Charlie
 - 65% have initiated retrofit with average €21,000 generating €14 mio in craftsmen sales
 - Energy savings up to 45% per household



Changing society thinking and mindset

creating 16.000 young smart ambassadors

University College
& University

High Schools

Elementary &
Mid school

Kindergarten



Next learning step is 4 – 17 – 42

UNESCO learning City

The 4 Sonderborg building blocks:

- Environmental sustainability
- Economic sustainability
- Social sustainability
- Cultural sustainability



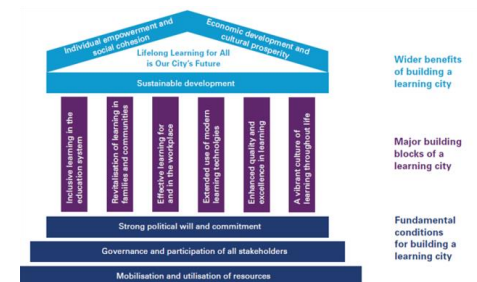
Where relevant, link to the 17 UN SDG's, ex:

- No. 4. – Quality in education – for all
- No. 7 – Affordable and clean energy
- No. 17 – Partnerships for the goals



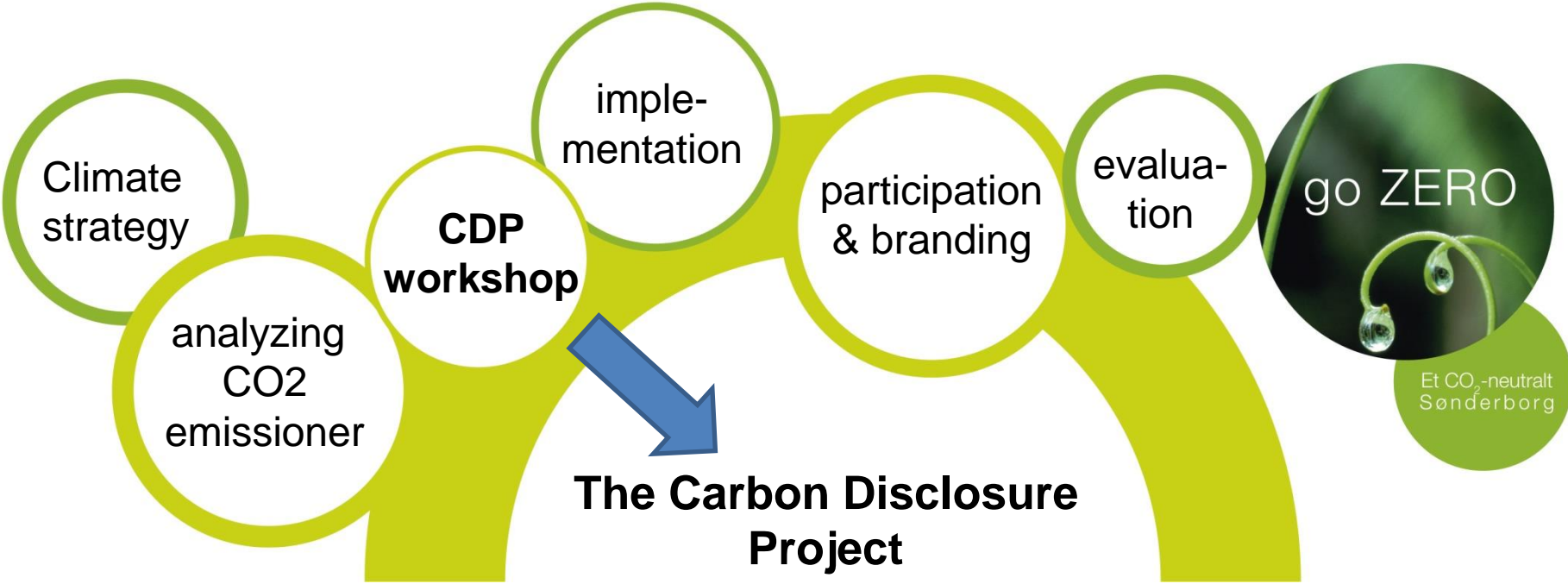
Compiled in the UNESCO SLC 42 KF context

- 42 Sustainable Learning City - Key Features to be addressed in a step-by-step approach
- Monitoring the outcome



45 participating companies

The ZEROcompany program creates a new business mindset





The ZEROcompany program

Transforming Linak a €350 mio company to a 100% green company

Based on:

- energy efficiency
- green district heating
- own wind turbine
- Denmark's largest intelligent PV-park
- partnership with bioplant
- ZEROmindset – at all levels



ZEROsport (a WE-community platform) for Sonderborg`s 25.000 sports facility users

- **An energy efficient facility**
 - The building envelope
 - Technical installations
- **With Green energy supply**
 - PV, wind, heat pumps ...
 - Green district heating
- **Engaging the facility users**
 - Attitude & behavior
 - Meters and visualization
 - Transport
 - Biking
- **Closing the loop**
 - at home or at work

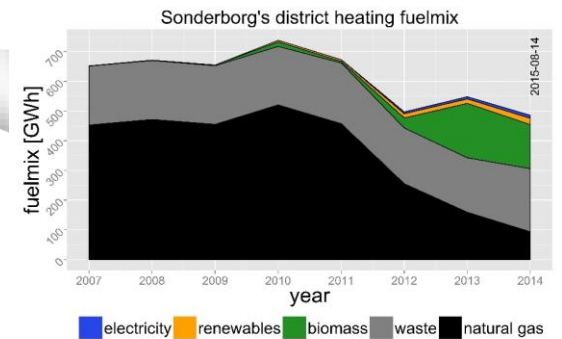
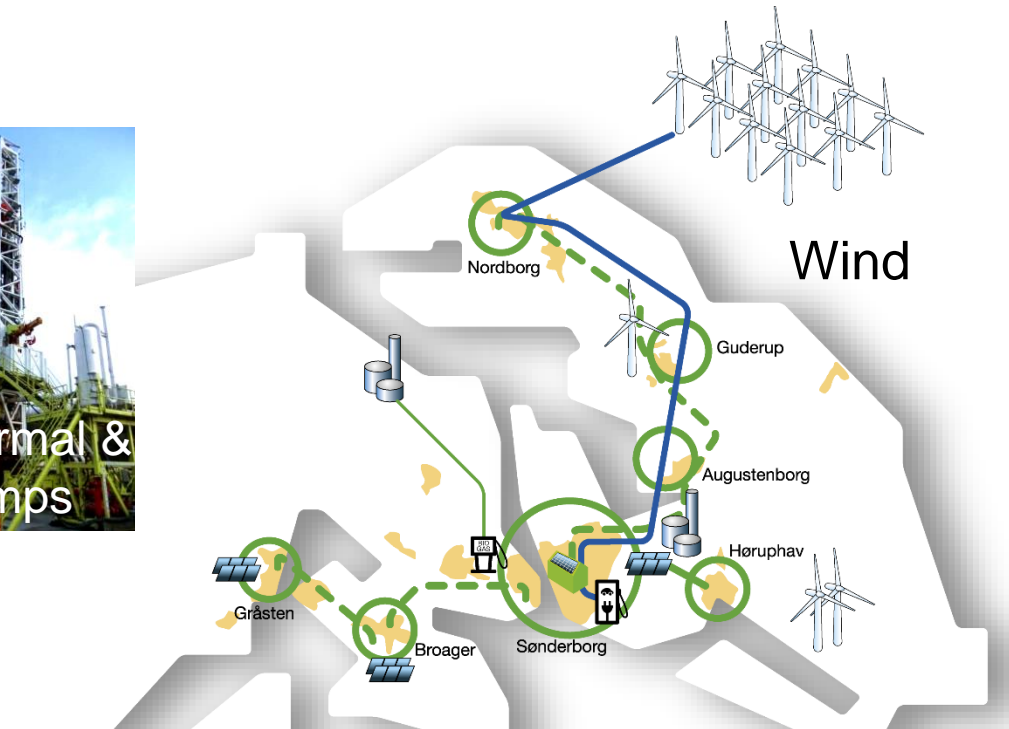


Society still need Energy

Green &
from renewable sources

Green District Heating as the heating backbone

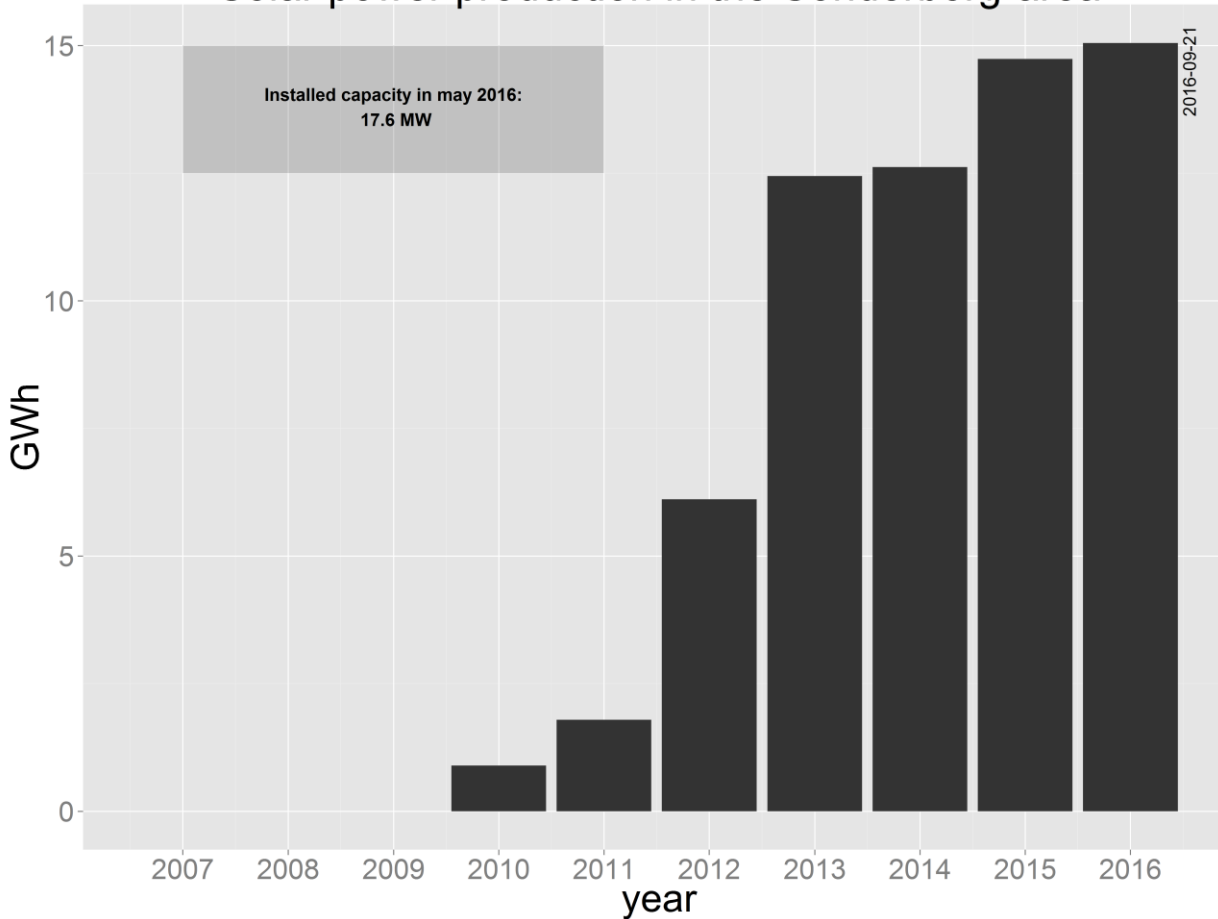
With multiple GREENfuel sources



Increasing power from PV

Achieving 50% of our 2029 goal by 2015

Solar power production in the Sonderborg-area



Local turbines power the Grid



Mission possible



- **To get started, requires**
 - Public Private Participation
 - Mayor and City Council commitment
 - Local business community interest
 - Ambitious goals and a masterplan
- **To stay successful, requires**
 - Lead by examples
 - Business as a driver
 - A green learning city approach
 - Make it the new community DNA & thinking
 - Progress monitoring and reporting



Scaling up & Replication

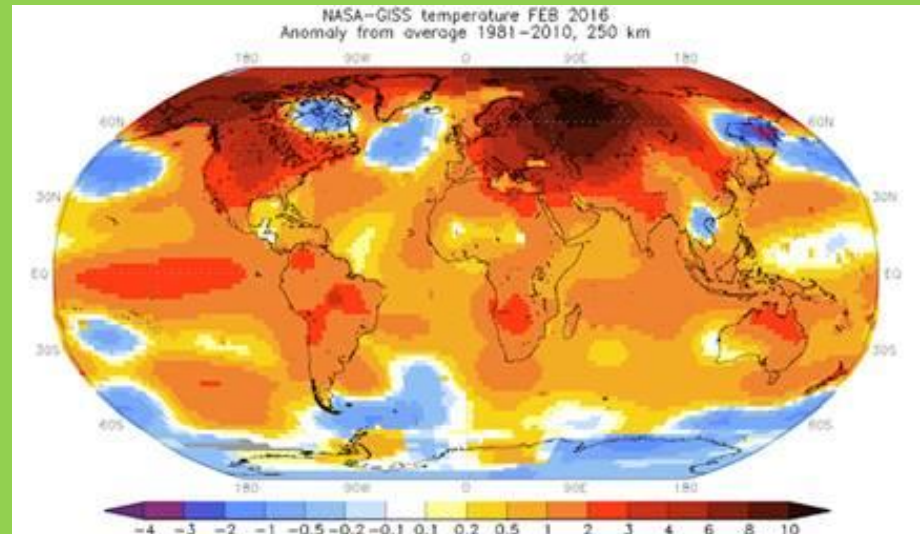
Subregional

Regional

Country

EU

Global





Working with China

- Friendship City with Baoding in 2011, on request by WWF
- ProjectZero as a role model for chinese Low Carbon Eco Cities
 - **Seeing is believing**
 - Eco Forum Global 2012, 2015 in Guiyang
 - Urban planners Conference 2008, Hongkong
 - EU-China Urbanization project
 - C40 Wuhan workshop 2015
- The EU China Urbanization project
 - Haiyan & Sonderborg partnership
 - A ZERO+ house is built in Haiyan
 - Craftsmen educations
 - A Danmark Low Carbon Street is in development
 - Futher discussions regarding technology



Sonderborg & Haiyan partnership
signing in VIP presence



2013年中欧城镇化伙伴关系论坛 2013 EU-China Urbanisation Partnership Forum

2013年11月21日

November 21, 2013

主办单位：中华人民共和国国家发展和改革委员会 欧盟能源总局
Hosts: National Development and Reform Commission, P.R.China
Directorate-General for Energy, European Commission

承办单位：
Organizers:
欧盟通信网络、内容和技术总局
Directorate-General for Communications Networks,
Content and Technology, European Commission
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European Commission
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中华人民共和国工业和信息化部
Ministry of Industry and Information Technology,
P.R.China
中华人民共和国环境保护部
Ministry of Environmental Protection, P.R.China
中华人民共和国住房和城乡建设部
Ministry of Housing and Urban-Rural Development,
P.R.China
中华人民共和国交通运输部
Ministry of Transport, P.R.China
中华人民共和国商务部
Ministry of Commerce, P.R.China
国家开发银行
China Development Bank



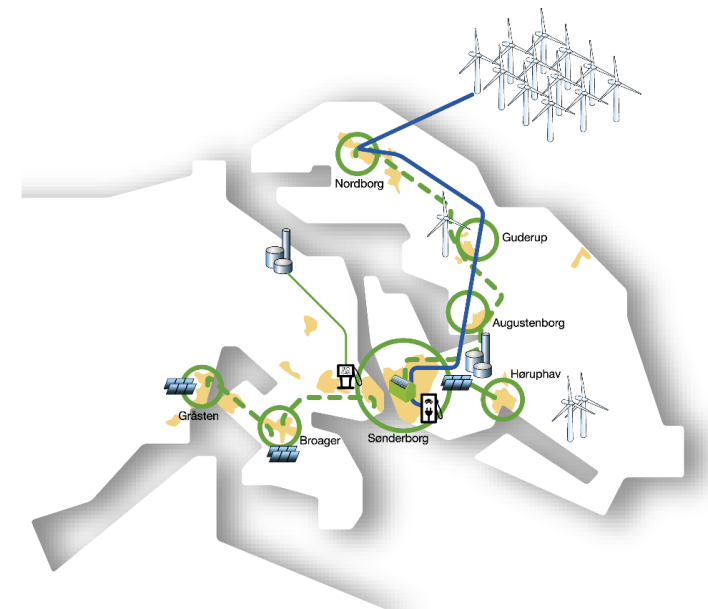
H2020 SmartEnCity project

€ 35 mio to create new solutions

- Sonderborg, Denmark
- Vitoria-Gasteiz, Spain
- Tartu, Estonia

Demonstrating SmartCity solutions

- Energy from wind
- Energy efficiency in house associations
- Electricity driven heat pump for district heating
- Smart charging of electrical cars
- **Smart people!**



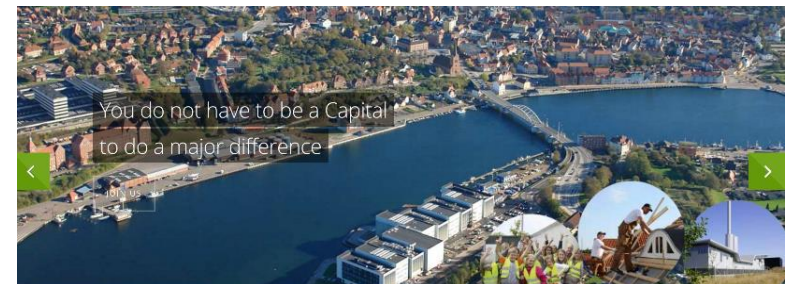
We invite all cities to join The SmartEnCity Network

We share:

- ✓ ZEROcarbon ambitions
- ✓ Citizen engagement
- ✓ Integrated Planning and Action approaches and initiatives
 - ✓ Buildings, transportation, green energy
- ✓ Action orientation
- ✓ Growth focused
 - creating a better city for its people
- ✓ Knowledge and commitment to replicate all over!

**You don't need to be a
Capital City to do a
major difference**

Join the SEC/N



SmartEnCity

Vitoria-Gasteiz - Tartu - Sonderborg

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