



CLEAN

Innovating Green Solutions

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AGENDA

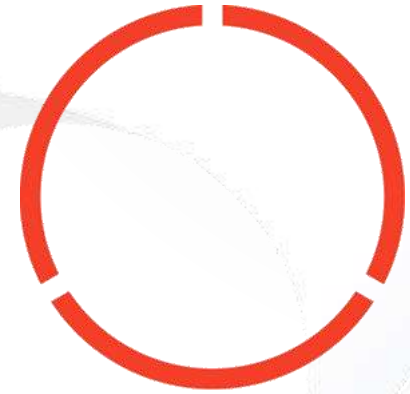
1. About CLEAN

2. CLEAN's approach

3. Projects

STRONGEST CLEANTECH CLUSTER IN DENMARK

- CLEAN is the result of a merger between Lean Energy Cluster and Copenhagen Cleantech Cluster (9 May 2014)
- CLEAN is a platform for development of new cleantech solutions in Denmark
- CLEAN is a politically and technologically neutral platform, where Danish and foreign companies, knowledge institutions, organisations and public authorities enter into new innovative partnerships

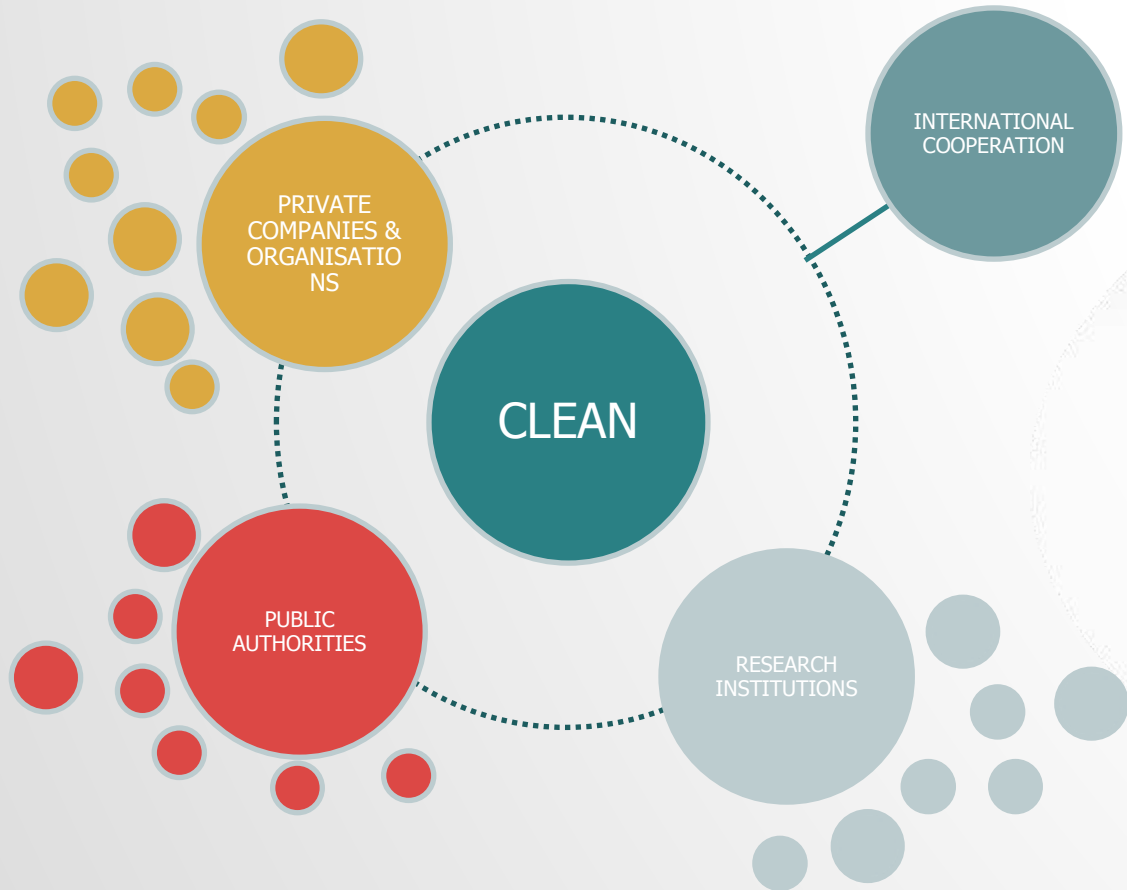


COPENHAGEN
CLEANTECH CLUSTER

STARTING POINT = SOCIETAL CHALLENGES

- Financial instability + environmental strain + resource scarcity
 - There is a need for new solutions that can address the grand societal challenges of today and tomorrow
- These challenges are too complex to be solved by a single company or the public authorities alone

NEW SOLUTIONS IN A TRIPLE HELIX CLUSTER



- Public authorities = “problem owner”, purchasing power, demand
- Research institutions = cutting edge knowledge, innovation, and new ideas
- Private companies = ability to commercialize and scale new solutions

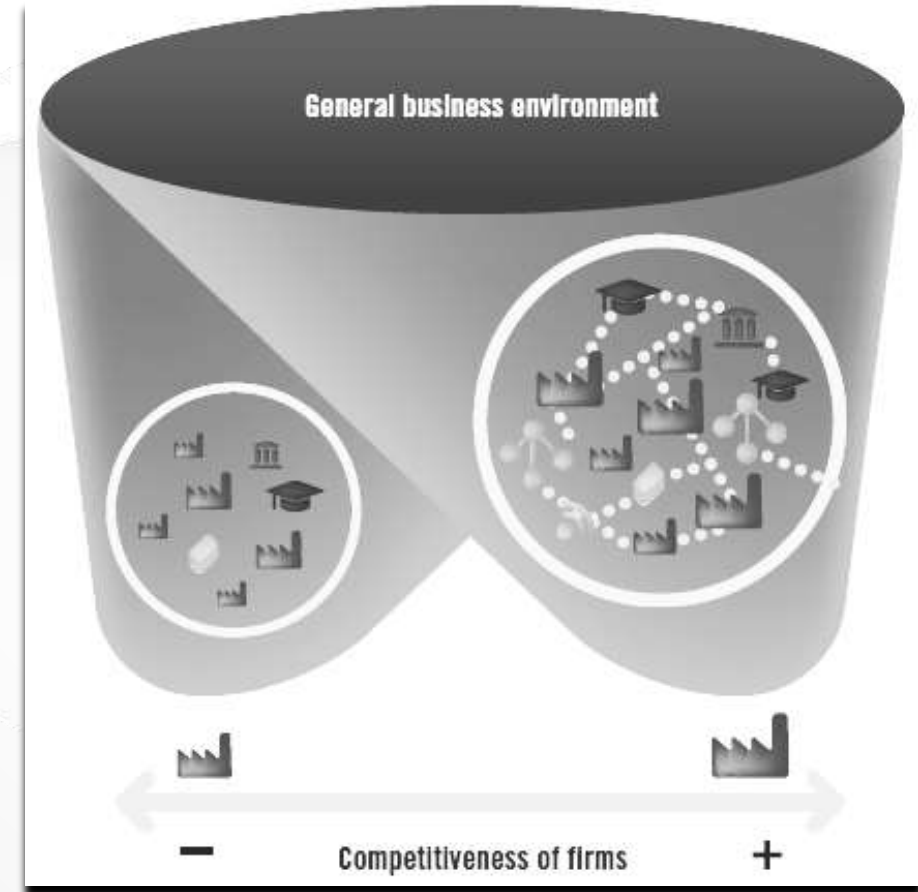
CLEAN:

- brings these players together on concrete projects
- grants them access to global markets through international cooperation
- acts as a point of entry for foreign companies

CLUSTER DYNAMICS INCREASE COMPETITIVENESS

By strengthening cross-sector collaboration, CLEAN aims to enhance the competitiveness of the cluster companies for the mutual benefit of all cluster stakeholders

- 85% believe that cluster initiatives have strengthened their competitiveness
- Cluster companies work closer together
- Only 10% of cluster initiatives have a strategy for internationalization



WE WORK WITH ALL CLEANTECH-RELATED TECHNOLOGIES AND SERVICES

Cleantech is a common name for all products, technologies and services that contribute to reduce the use of energy and resources. At the same time, the product or service should have commercial potential

In other words, **cleantech describes the market for more sustainable solutions.**

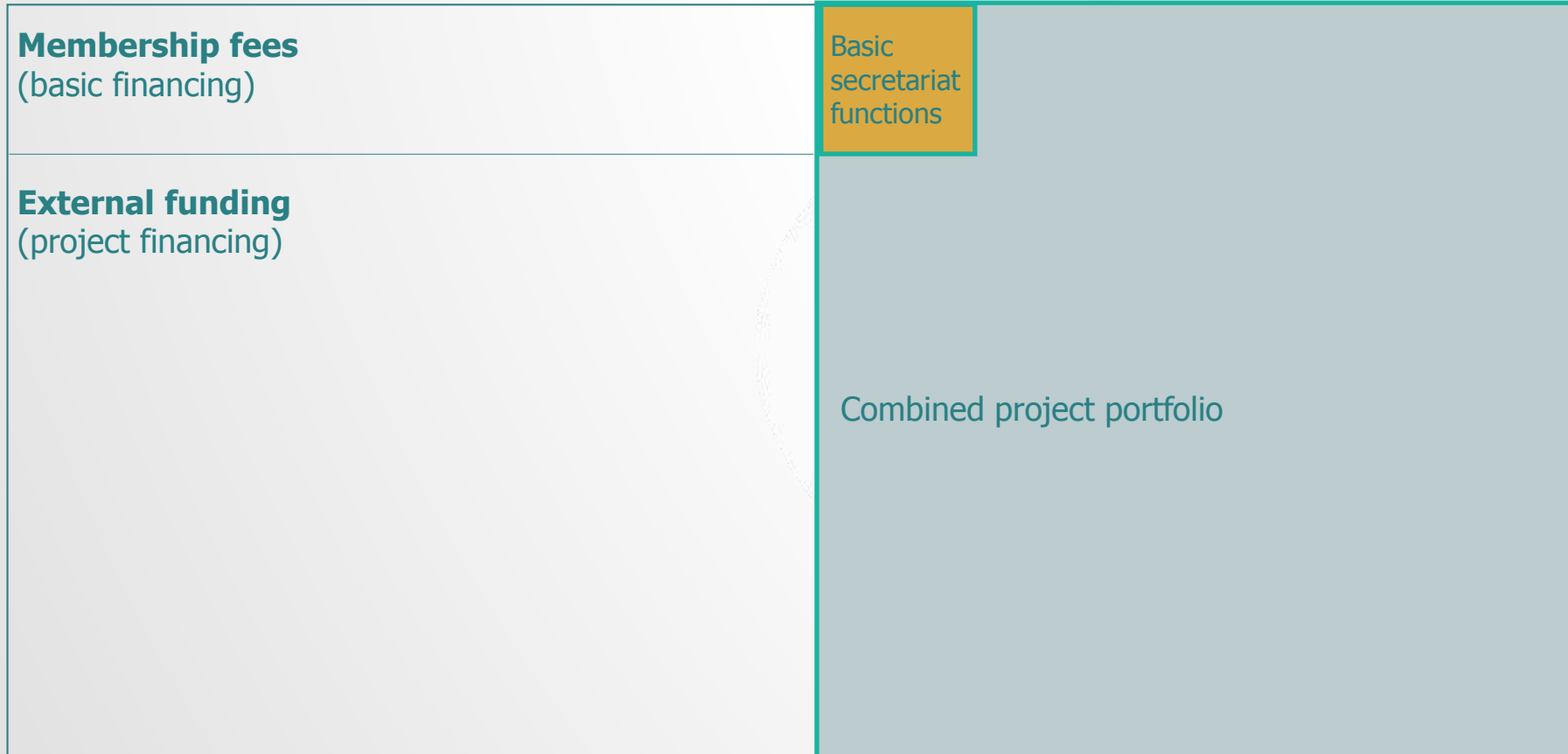


CORE MEMBERS

CLEAN has over 175 members from the entire cleantech sector



CLEAN FINANCING MODEL



A NATIONAL ORGANISATION

CLEAN has four offices, located in:

- Copenhagen
- Sønderborg
- Aarhus
- Middelfart



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2. CLEAN's approach
3. Projects

WE PROMOTE GREEN GROWTH AND EMPLOYMENT IN DENMARK

Our objective is to:

- Strengthen **innovation and technology development** in both large and small cleantech companies
- Support research, development and implementation of new **solutions to environmental challenges** and climate change
- Increase international focus on Danish cleantech and promote **export of integrated solutions**

OUR ROLE - INTERNATIONALLY

We are dedicated to ensuring a broad international outreach as well as strengthening the international focus on Danish cleantech solutions

- CLEAN assists local institutions in **development and management of 3-Helix clusters** to support growth and innovation of cleantech industries
- CLEAN develops projects revolving around **innovative, integrated solutions** through **attractive partnerships** across national borders
 - Identify and initiate projects and partnerships
 - Develop projects together with committed companies, partners and clients
 - Coordinate the internal work between partners and keep contact to the client in connection to projects and financial solutions
 - Negotiate concrete financial solutions and agreements with financial institutions and clients

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1. About CLEAN
2. CLEAN's Approach?
- 3. Projects**

PROJECT EXAMPLE - INNOVATION & TECHNOLOGY DEVELOPMENT

OP VENT

- The project aims to develop a new, energy efficient principle for ventilation
- It is possible to obtain savings on the ventilation of operation theatres by 50-60% of the energy consumption from a ventilation installment used for electricity, cooling and heating
- It is estimated, that Denmark has 500 operations rooms. That equals potential savings of DKK 7.5 million a year



PROJECT EXAMPLES – SOCIETAL CHALLENGES

SMART CITY DIGITAL INFRASTRUCTURE

- Intelligent public demand focusing on smart city solutions
 - Big Data Infrastructure/market place
 - Öresund Smart City Hub
 - Establish national smart city network
- Export promotions
 - Responsible for Danish pavilion at Barcelona Smart City Expo
 - International delegations
- Internal smart city community



PROJECT EXAMPLE - SOCIETAL CHALLENGES

WASTE PLASTICS

- Explores new and better ways to collect, separate and sort plastics from household waste
- Today only 3% of waste plastics from household waste are sorted and recycled
- Recycling replaces virgin plastics
- Plastic-to-oil (P2O)



PROJECT EXAMPLES – SOCIETAL CHALLENGES

BUILDING AND CONSTRUCTION WASTE

- Explores new and better ways to reuse building and construction waste
 - Constitutes the lion's share of total waste
- Today, approx. 87% of this waste is recycled, but both quality and quantity must be improved
- The goal is,
 - Increased recycling that is not environmentally hazardous
 - Recycled materials and products must be reinstated in the resource cycle



PROJECT EXAMPLE - EDUCATION & ENTREPRENEURSHIP

ZEROBYG

- ZERObyg-energismart has the objective of development and sales of energy efficient whole system solutions
- The foundation of ZERObyg is ZERObyg Academy, which is a test- and competence development center
- CLEAN sets up and organizes courses, which further qualifies craftsmen in the entire region with special competences



PROJECT EXAMPLE - EDUCATION & ENTREPRENEURSHIP

E-DAYS

- E-days consist of two annual meetings
- Students and companies meet and utilise each others knowledge, resources and competences
- The objective is to strengthen the companies' long term competitiveness and provide increased growth by strengthening the collaboration between the business and knowledge environment



PROJECT EXAMPLES - INTERNATIONALISATION



Mithi River Depollution Project, Mumbai:

Initial project sum: DKK 400 mill.

Partnership: Consortium of 7 companies. IIT (B), MMRDA, MPCB, NEERI

Status: Pilot project established



Renewable and Energy Efficiency Project of Public buildings, Senegal:

Project sum: DKK 50 mill.

Partnership: 5 Danish Companies, ANER

Status: Feasibility Study being undertaken

PROJECT EXAMPLES - INTERNATIONALISATION



Flood forecasting and water resource management, Morocco:

Initial project sum: DKK 20 mill.

Partnership: Consortium of 5 companies, ABHS

Status: Defining scope of work



Smart City Infrastructure, Guangzhou, China:

Project sum: ??

Partnership: Expected 7 companies

Status: Defining scope of work

PROJECT EXAMPLES - INTERNATIONALISATION



Vietnam: NRW project in Hanoi

Project sum: DKK 35 mill. (Danida 18, MUDP 2, commercial 16)

Partnership: Envidan, VCS Denmark and local partners

Status: Waiting for a State guarantee



USA: Bridgeport waste heat from incineration plant to district heating

Initial project sum: DKK 5 mill. for consulting services

Total project sum DKK 180 mill.

Partnership: ABB, Logstor, Damgaard, Niras, Danfoss, DESMI, Oe3i, Kamstrup

Status: MoU proposed, (RFP) initial offer for consulting delivered

PROJECT EXAMPLES - INTERNATIONALISATION



Poland: Energy optimisation in pharma industry, Polfa Lublin
Project sum: DKK 1.6 mill.
Partnership: SE Big Blue, Solia, Danfoss, Green Light
Status: Waiting for Polfa Lublin to agree



Myanmar: Energy optimisation in the brewery sector
Initial project sum: DKK 1 mill. (Danida)
Partnership: Grundfos, Alektia, Danfoss, VCS Denmark
Status: Start October 1, 2014

THANK YOU FOR YOUR ATTENTION



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