

Sustainable Energy Technology at Work - SETatWork

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ENERGY CONSULTING NETWORK

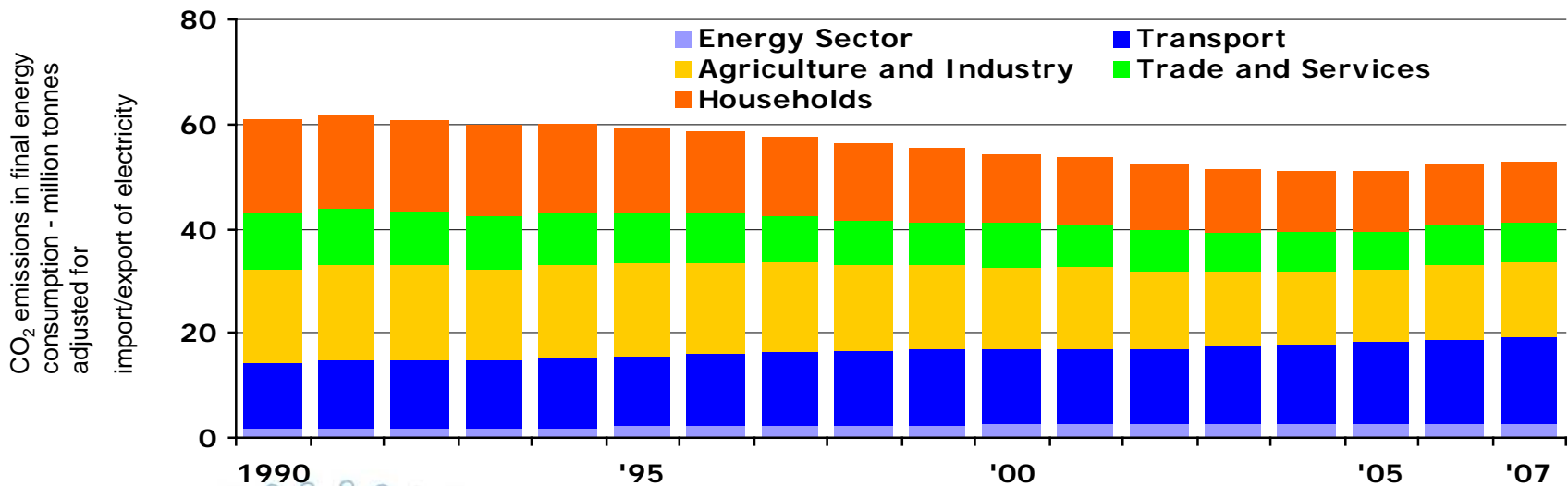
EXIMA



DENMARK

- ETS Country Overview

- -21% reduction target (2008-2012) compared to 1990 levels
- Denmark managed to keep CO₂ emissions stable despite economic growth
- Still a long way to go to fulfill the CO₂ reduction target



DENMARK

- ETS Country Overview

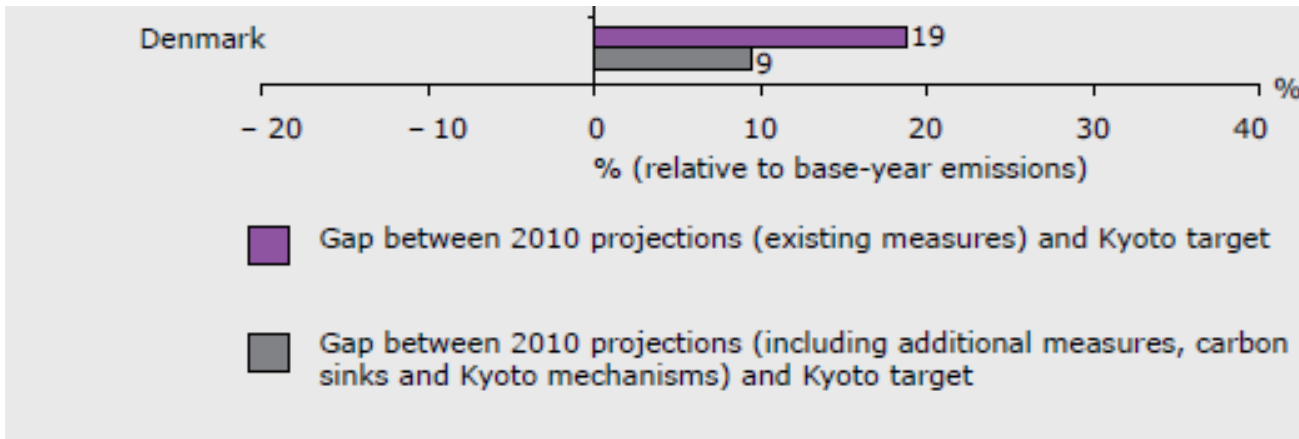
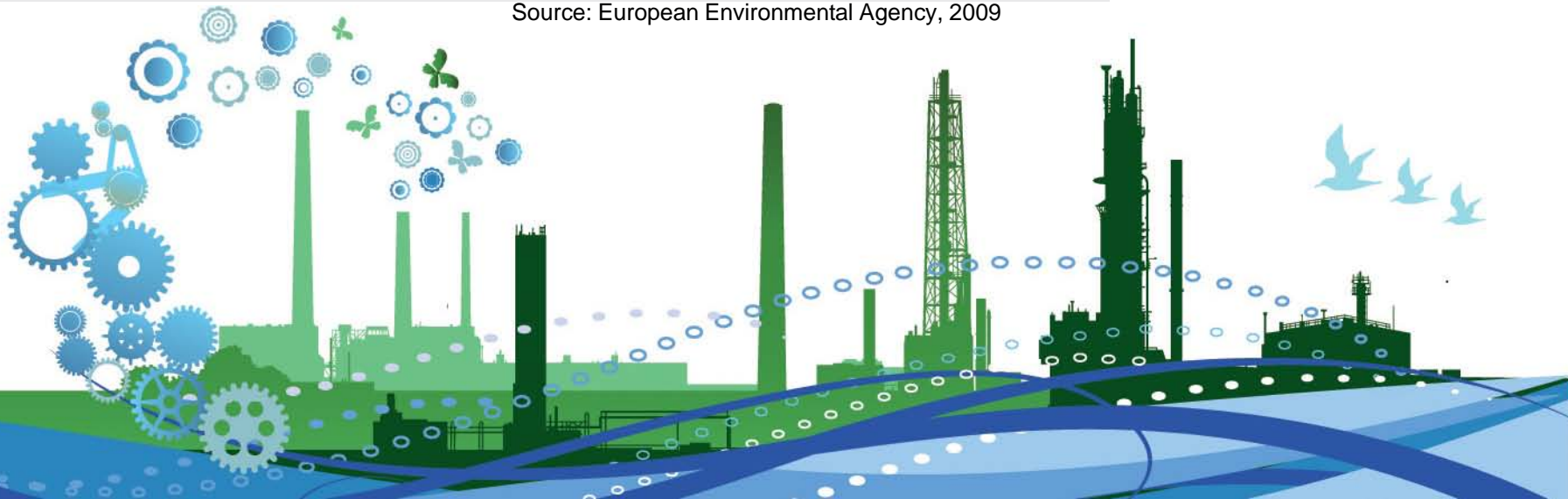


Fig. 1 / Gaps between EU Kyoto and burden-sharing targets and projections for 2010 for the EU-15 ⁽⁵⁾. Source: Trends and projections report, EEA, 2007.

Source: European Environmental Agency, 2009

Still a way to go to fulfill the CO₂ reduction target

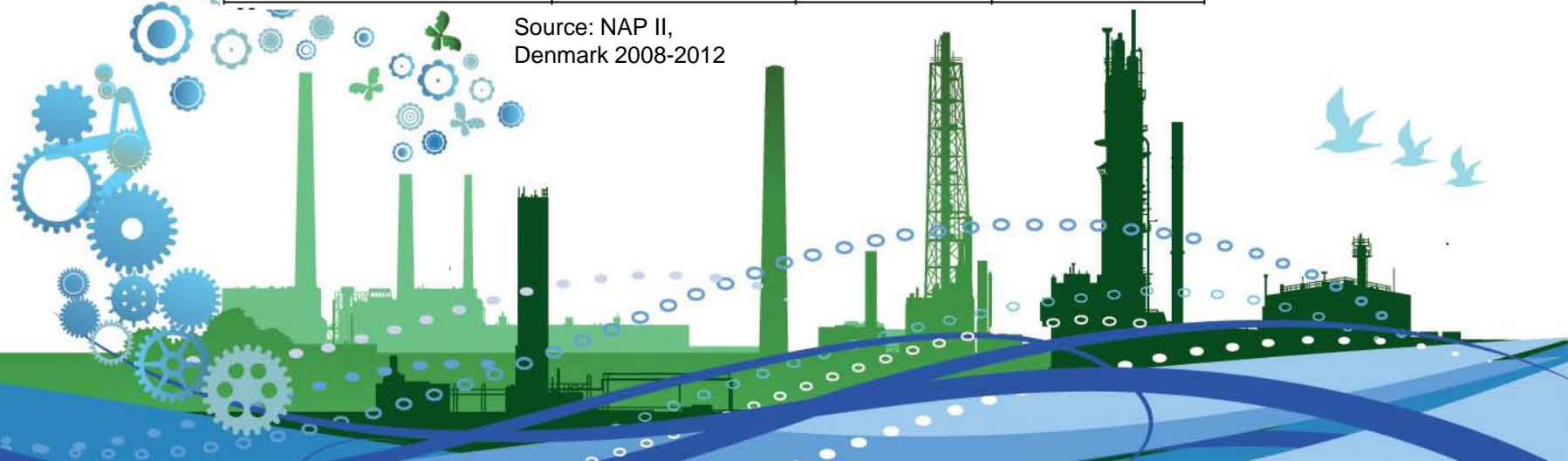


DENMARK

ETS Industry Overview

	Expected annual CO ₂ emissions 2008-12 (mill. tonnes)	Annual allowance allocation 2008-12 (mill. tonnes)	Annual allowance allocation 2005-07 (mill. tonnes) ⁴
Electricity and heat production	20.5	15.8	21.7
Other industries, including offshore	9.2	8.2	9.2
New enterprises		0.5	1
Auctioning		0	1.7
Total CO ₂ emissions/allowances in ETS sectors	29.7	24.5	33.5
Non-ETS sectors and gases in total ¹	38.1		
Total greenhouse gas emissions ²	67.8		
Emission target ³	54.8		
Deficit	13.0		

Source: NAP II,
Denmark 2008-2012



DENMARK

ETS Industry Overview

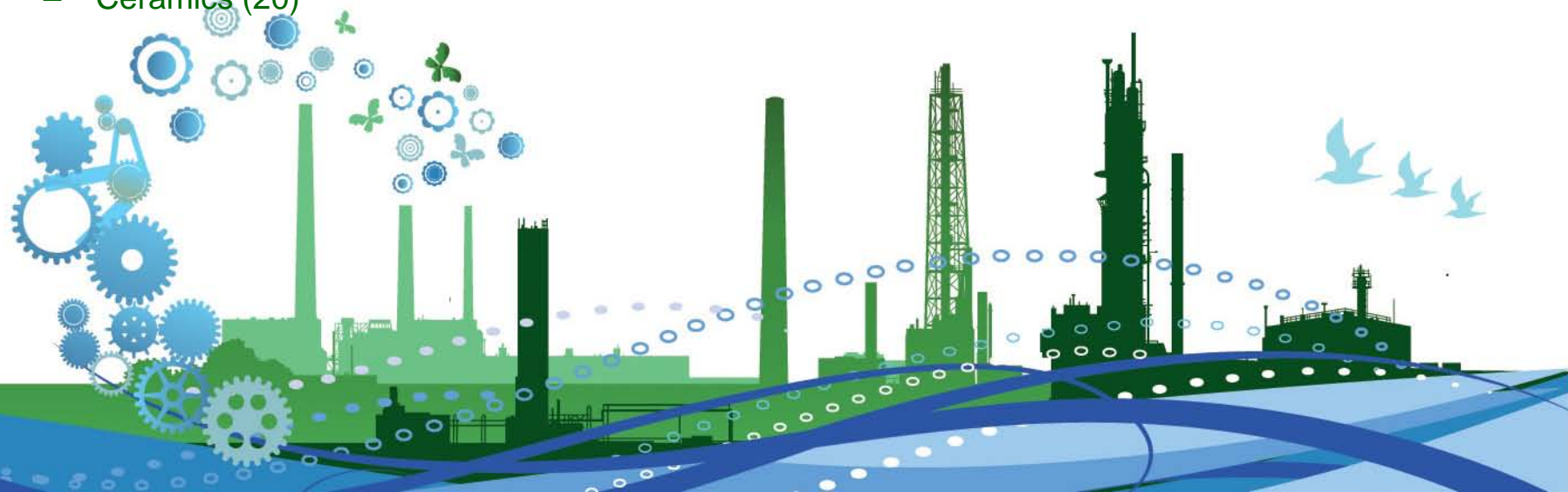
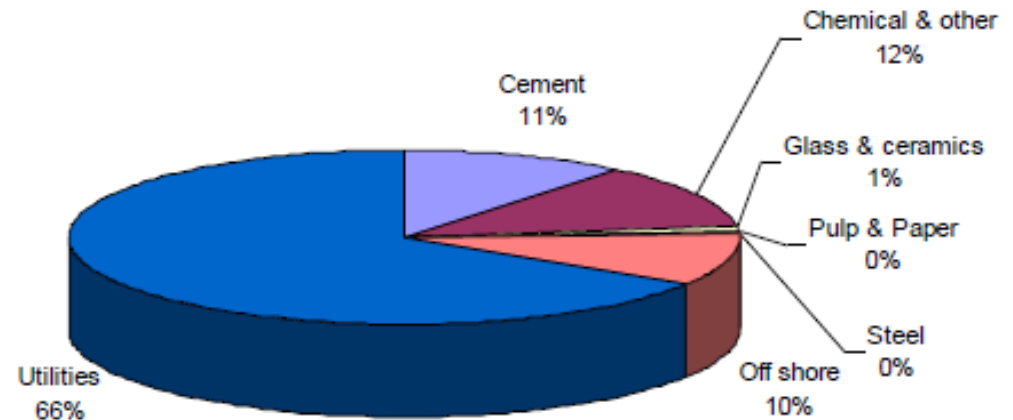
National Allocation Plan II comprises 105 organisations & 380 installations

- Utilities

- Combined Heat & Power
- District Heating
- Power Plants

- Industry

- Cement (1)
- Pulp & Paper (4)
- Ceramics (20)



Good Practice - Novo Nordisk Sustainable Design

Novo Nordisk is a world leading pharmaceutical company for Diabetes care

A new manufacturing facility in China for finished goods is under construction.

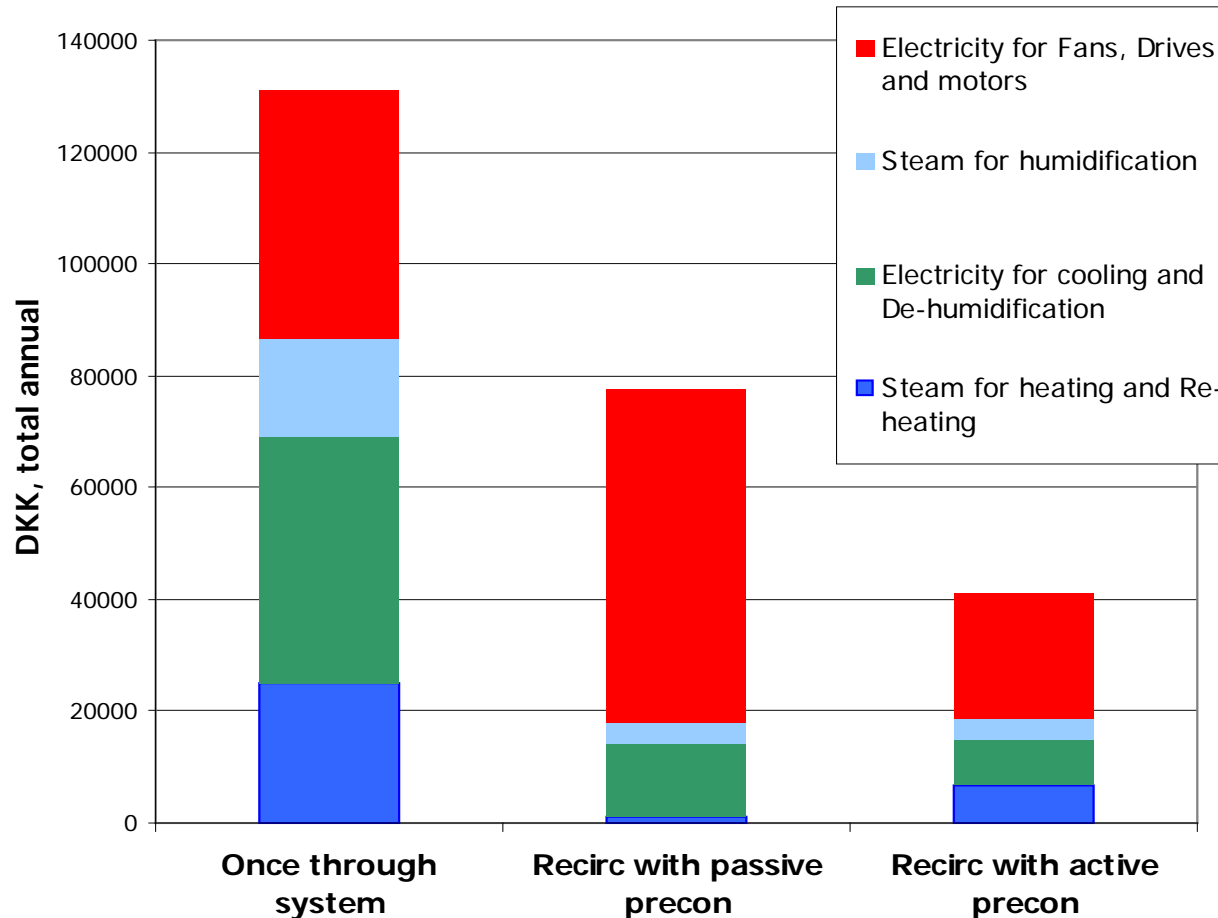
*By applying **Sustainable Design** during design and engineering, Novo Nordisk achieved:*

- *Reduced operating costs by €600,000 per annum*
- *Reduced GHG emissions by 6,500 tonnes per annum*
- *Reduced investments in utility systems*
- *Overall increase of facility energy performance by 25%*
- *Substantial reductions achieved in HVAC*

Good Practice -

Novo Nordisk Sustainable Design HVAC

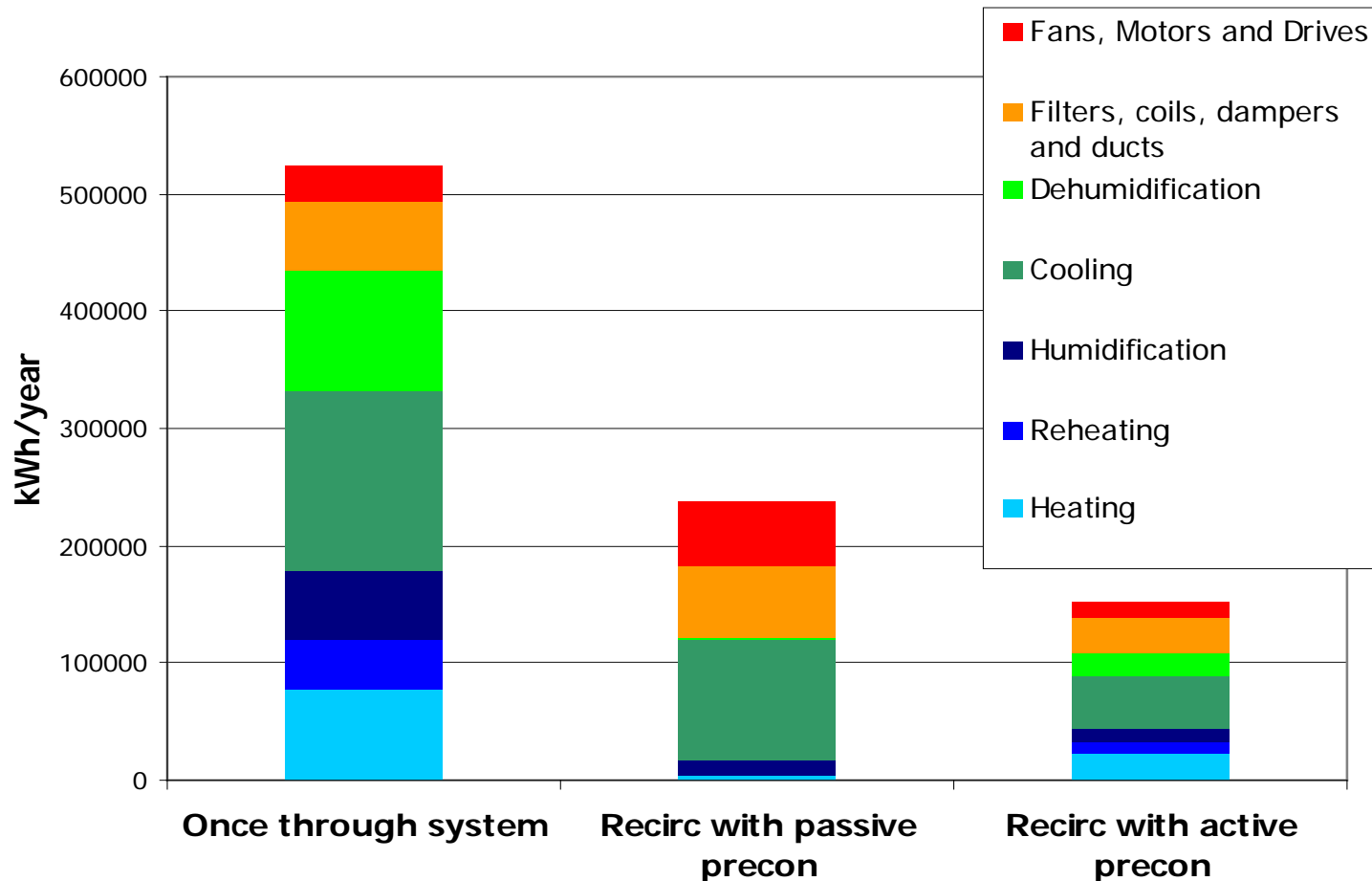
Yearly cost of 10.000m³/h air for classified area in Tianjin China



Good Practice -

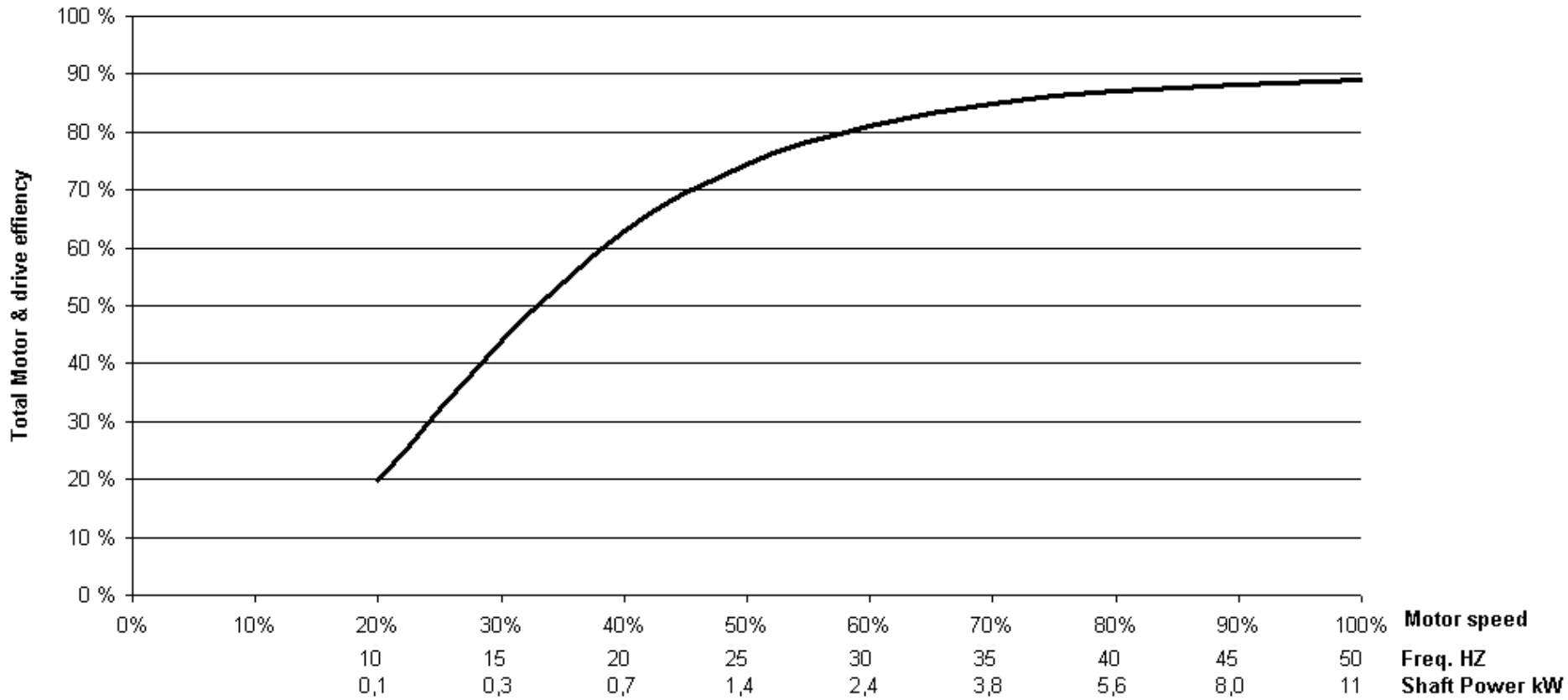
Novo Nordisk Sustainable Design HVAC

Yearly power consumption for 10.000m³/h to classified area in Northern China wheather



Good Practice -

Novo Nordisk Sustainable Design VSD



DENMARK

Good Practice - AGA Waste Heat Recovery

AGA is a leading supplier in industrial gases (e.g. N₂, CO₂, O₂)

The nature of the gas manufacturing process result in a waste heat which could be recovered

Industrial Waste Heat recovery has a significant potential for recuding GHG emissions and operation costs for Danish Industries. By introducing waste

Introducing waste heat recovery for district heating is a win-win initiative for AGA and Denmark:

Business opportunity

- *Saving potential 226,000€/year*
- *Investment 1 mill €*
- *Simple payback for AGA of 4 years*



Technical

- *Feasibility study for energy recovery of low temperature waste heat for district heating system in Copenhagen*
- *Recovery potential of 44 GWh per annum*
- *NH₃ heat pump technology ensures correct temperature level supplied to heating network*
- ***Reduced operation and maintenance costs for cooling towers***

Good Practice -

In coordination with Green Network

Produced by
Green Network

with support from



DENMARK

- SETatWork intervention

Training activities

Training workshop together with the industry initiative Green Network on Energy Management Systems EN16001 & ISO5001 and Good Practices on December 15th 2009. In 2010 further training will be organised in coordination with alliance partners

Matchmaking event

Under development with the national partners. Intention to target one event for Danish ETS companies and one for Danish SET suppliers. Interaction will be sought with the project's other matchmaking events (both ETS and CDM).

Dissemination activities

So far with partners' network, direct contacts and the network of Danish Confederation of Industry. The dissemination will be expanded in the upcoming project activities

Contact with relevant stakeholders

Contact and co-operation with stakeholders such as branch organisations, industry networks, public actors etc. (see more on next slides)

Main objectives and achievements so far.....

- Training & Match-Making

**Joint training event with Green Network, Hedensted,
December 15th 2009:**

Energy Management systems
(EN16001, ISO5001 and Energy management – Light)

Good Practices

**Further training and matchmaking events currently being
scheduled in coordination with relevant parties**



DENMARK

- Stakeholders & Initiative

Industrial Branch Associations

Individual Companies

Industry Network Initiatives

Financiers

Public institutions

Others (NGOs etc.) What are the key local stakeholders and initiatives for SETatWork to interact with....



Find out more about the activities of SETatWork
and access the SETatWork Database at:

www.SETatWork.eu

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