

Joint Annual Conference: Teaming up for Energy Renewal

Conrad Hotel, Brussels June 2, 2010

Cogeneration / CHP and DHC: Yes in my front yard

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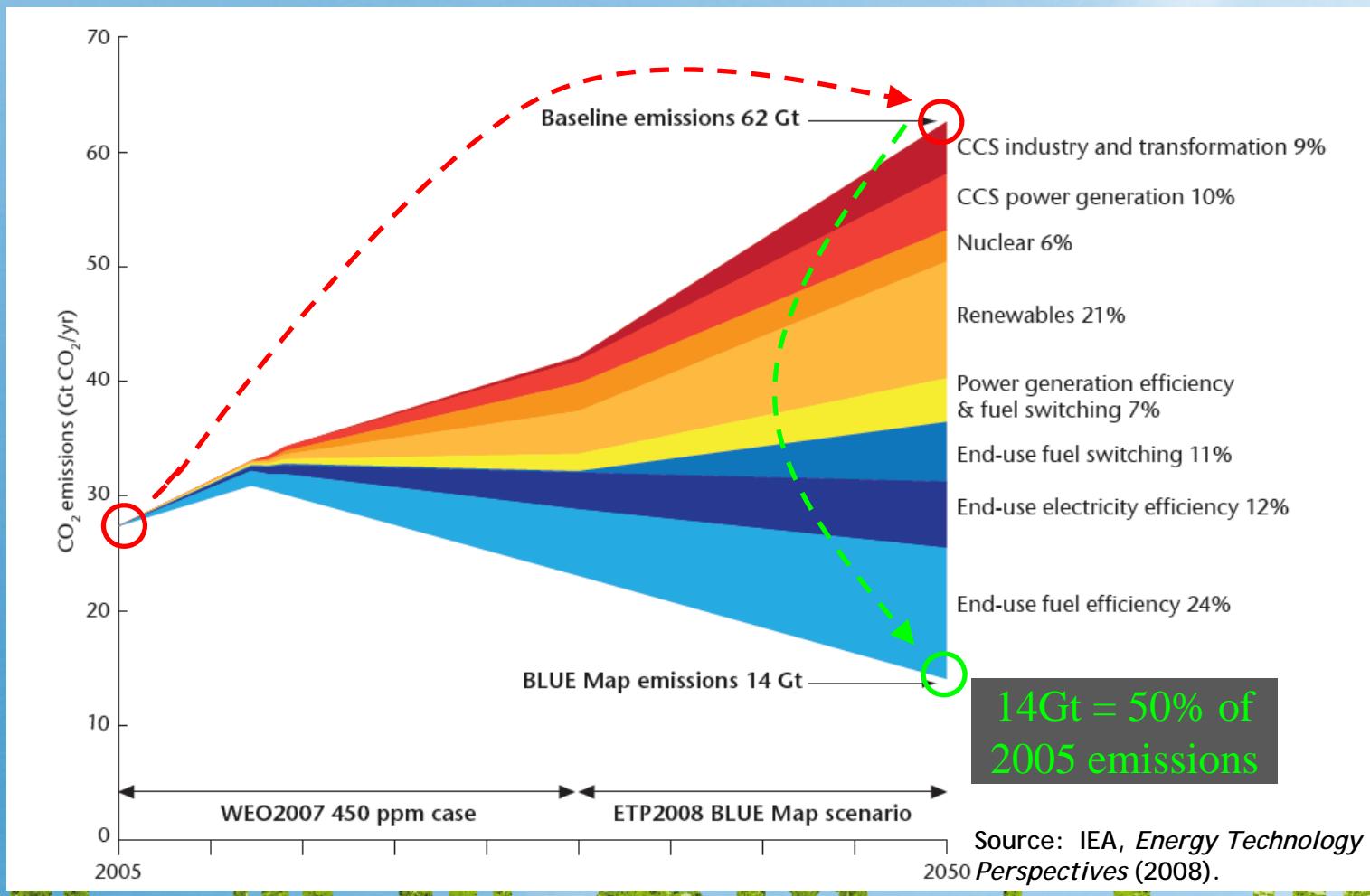
Overview

- Our global climate change challenges
- Heat produced in the power sector
- CHP/DHC: a winning formula
- Renewable heat
- Conclusion



An energy revolution is needed

Cutting Energy-Related CO₂ Emissions

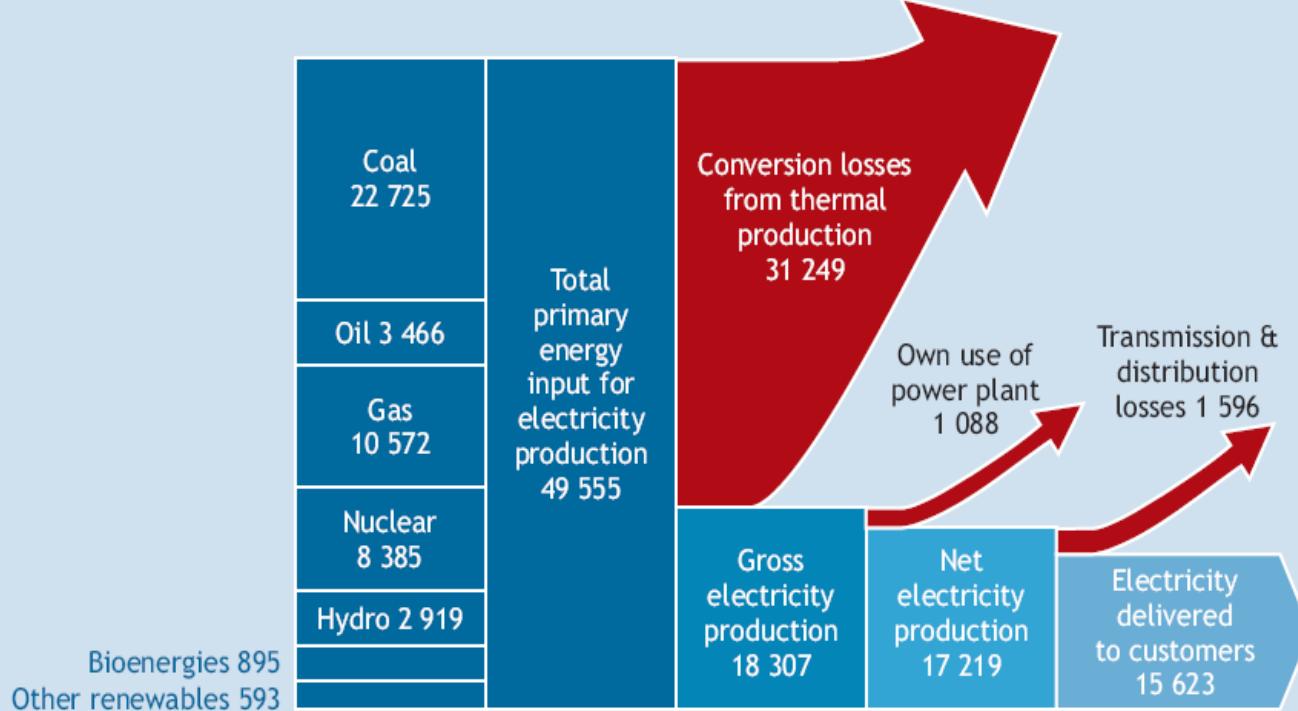


Updates in ETP 2010

- Baseline scenario updated to WEO2009 Reference
- Revised industry, buildings and transport models
- Better models for key regions
 - China, OECD Europe, India, United States
- New cross-cutting themes
 - Roadmaps and technology policy
 - Financing
 - Technology diffusion and transfer
 - Consumer behaviour
 - Co-benefits of low carbon technologies

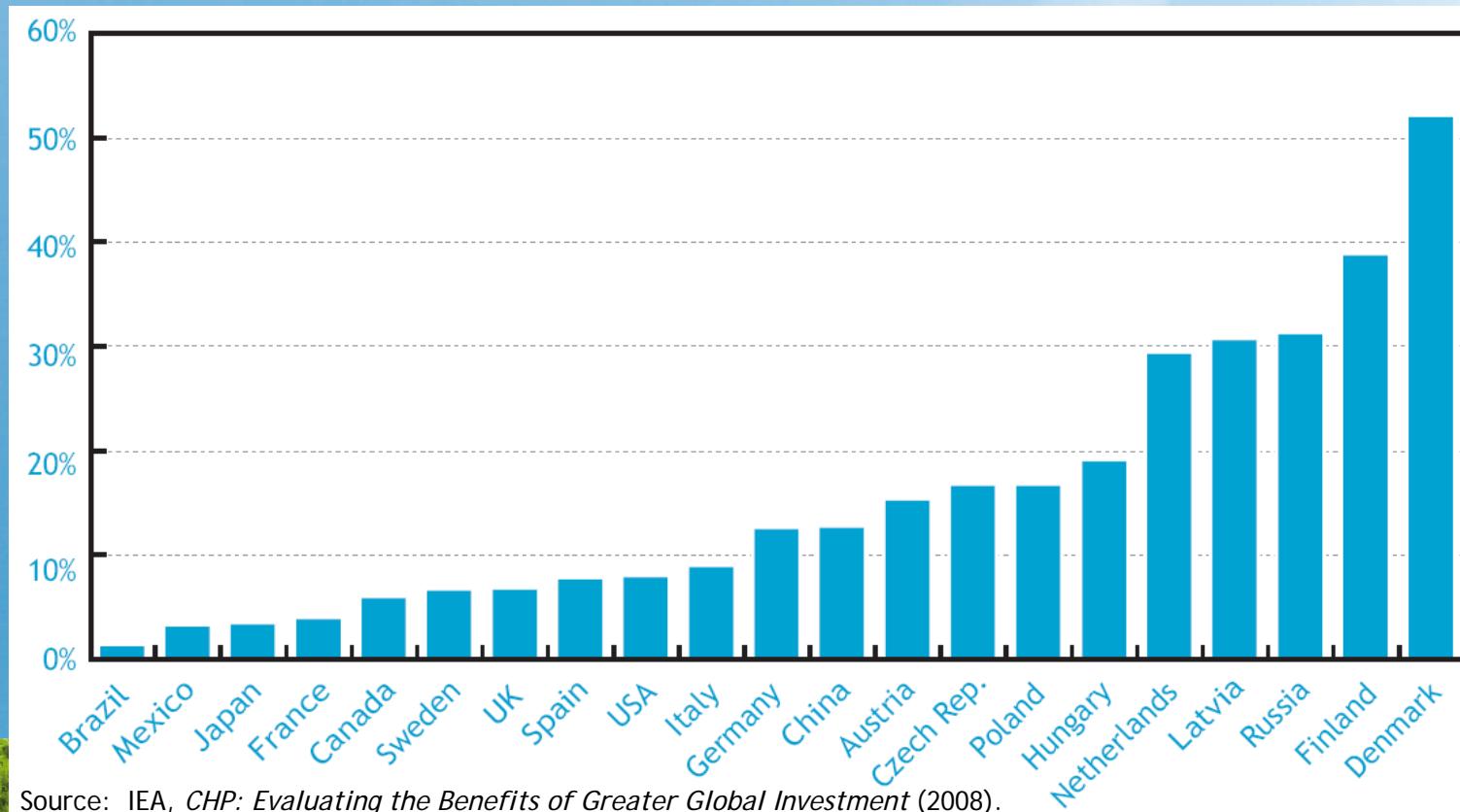
Energy supply inefficiency is a huge opportunity

Energy Flows in the Global Electricity System (TWh)



CHP generates just 9% of global electricity

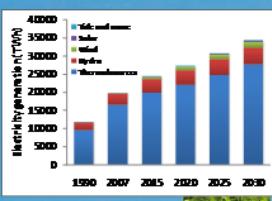
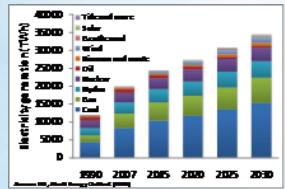
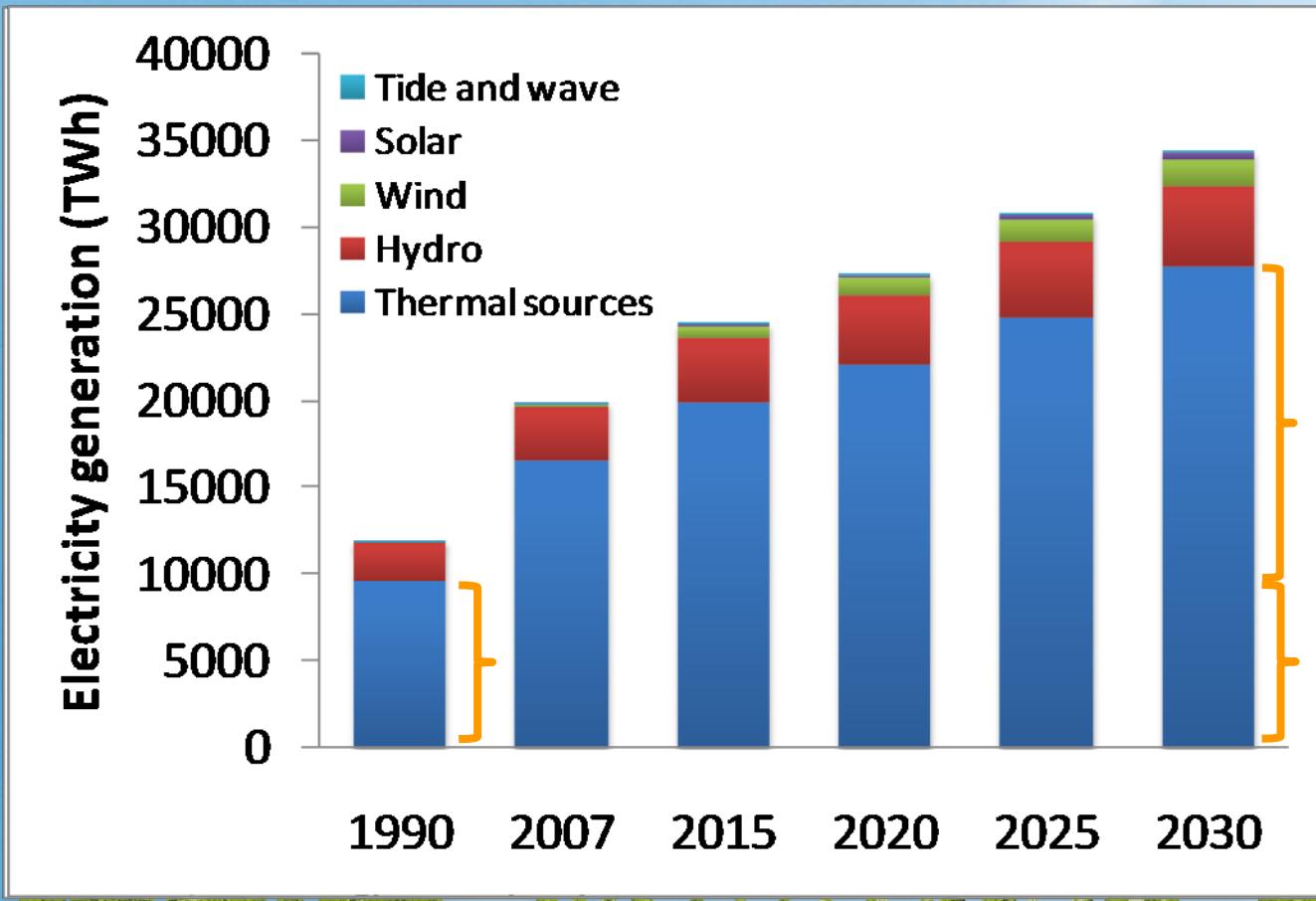
CHP share of national power production



...So why are we at 9%?

- Lack of information about cost savings, environmental benefits
- Difficulties connecting to the electricity grid
- CHP/DE benefits difficult to recognize in GHG regulation
- Lack of strategic heat resource planning

But ... power generation from thermal sources expected to grow



Heating applications

- Wide variety of potential applications
 - Process heat demand
 - Desalination, so-called Combined Water and Power plant
 - Greenhouses next to power stations
 - District heating and cooling

CHP and DH: a winning team

- Annually, about 11-12 EJ heat delivered to DH systems worldwide
- 5% of total final energy demand in industrial, residential, public and commercial sectors
- CHP/DH: avoided emissions of 670-890 Mton CO2 compared to 22700 Mton global emissions in 1998

1st District Energy Climate Awards

- IEA partnered with Euroheat & Power
- Designed to raise the profile of DE as a local energy/climate solution
- 27 applicants
- Awards & certificates handed at District Energy Climate Summit, Copenhagen, November 2009

21 Certificates of recognition

- Certificate officially recognises an organisation for its superior achievement in demonstrating local district energy leadership, providing clean, sustainable energy solutions that protect against the risk of climate change.



Helsingin Energia



6 Award winners

■ Austin, USA

- Large university campus serving 70,000 students; 200 buildings of campus connected by a district energy system; several energy efficiency features (e.g. CHP, VFDs, etc.); carbon emissions held steady despite constantly increasing campus demands.

■ Boras, Sweden

- 55% of 64,000 inhabitants rely on district heating system, which receives its energy from a CHP plant using biomass, waste and landfill gas; scheme for district cooling in addition; city uses biodegradable household waste in production of biogas for transport (covering most of local bus transport) and production of fertilizer

■ Copenhagen, Denmark

- Syst. covers 98 % of heat demand for a large municipality; part of a coherent district heating system covering city center and 15 suburban municipalities; 2 heat transmission companies transport heat from 10 CHP plants to local dist. system; innovative: geothermal test plant and solar demonstration plant

6 Award winners (contd.)

■ Dunkerque, France

- District heating system recovers surplus energy from France's largest steel mill; adding three cogeneration units and a second surplus heat capture unit at the steel plant, increased the share of recovered energy in the network to 90%

■ Jiamusi, China

- Pipeline network to continue its growth until 2020, will supply total surface of 14.5 million m² representing 75% of current heating surface of the city, compared with current 40%; CO₂ emissions reduced considerably through removal of 64 independent coal-fired boiler houses in 2008, and another 12 in 2009.

■ Krakow, Poland

- Social and economic transformation strongly influenced local heat distributors; heat market grew in size and competitiveness, and concerns for the environment increased; heat distribution system has been modernised and inefficient heat sources eliminated

Follow-up?

■ Meeting to discuss

■ More info:

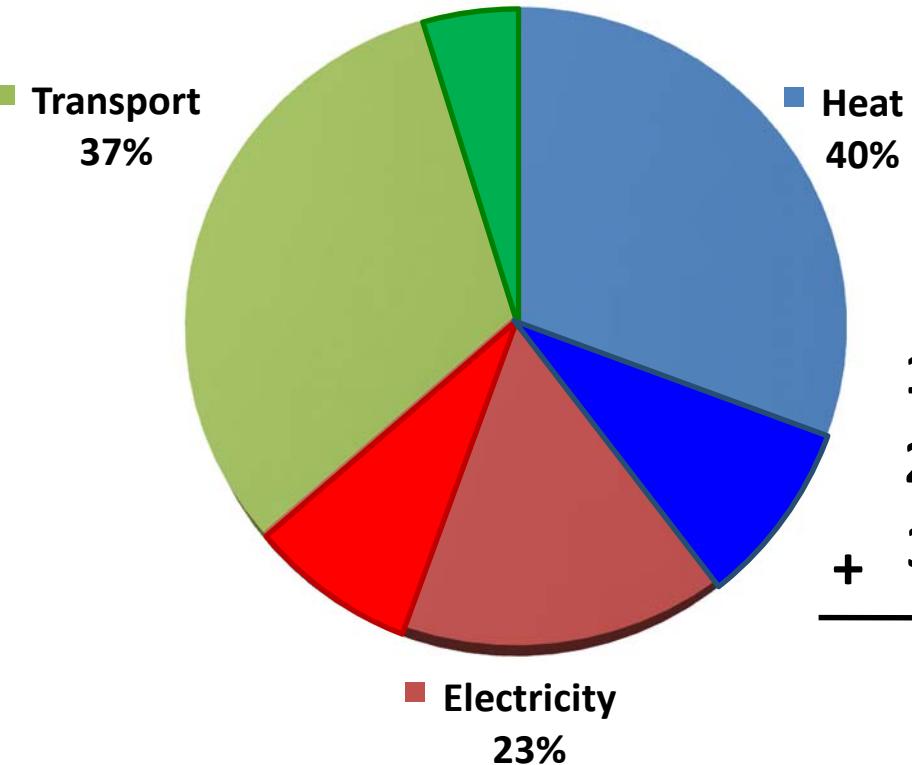
<http://www.copenhagenenergysummit.org/>



Renewable heat

- High share of heat in final energy consumption = renewable heat important for overall RES targets:

E.g. 20% renewables in 2020 (EU targets):



1. 2020: 30% of electricity = RES-E
2. 2020: 10% of transport = RES-T
3. 2020: 25% of heat = RES-H

20% RES in total final energy in 2020

Conclusions

- Meeting our climate change targets will require a mix of solutions
- CHP/DHC: a winning team
- IEA helped co-organise award to promote CHP/DHC
- Renewable heat will have a significant importance

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Thank you

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