

# Integrated Urban Energy Planning Success stories throughout Europe

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## Session F – Urban Planning

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EHP CONFERENCE 2012- SESSION F



**EUROHEAT  
& POWER**

**IRHC** Renewable  
Heating & Cooling  
European Technology Platform

2012 ANNUAL CONFERENCE  
TEAMING UP FOR  
RENEWABLE  
HEATING  
AND COOLING  
26-27 APRIL 2012 @ COPENHAGEN

**COWI**

# Focus on climate and energy in Europe

*Many initiatives, programmes, commitments and declared goals*



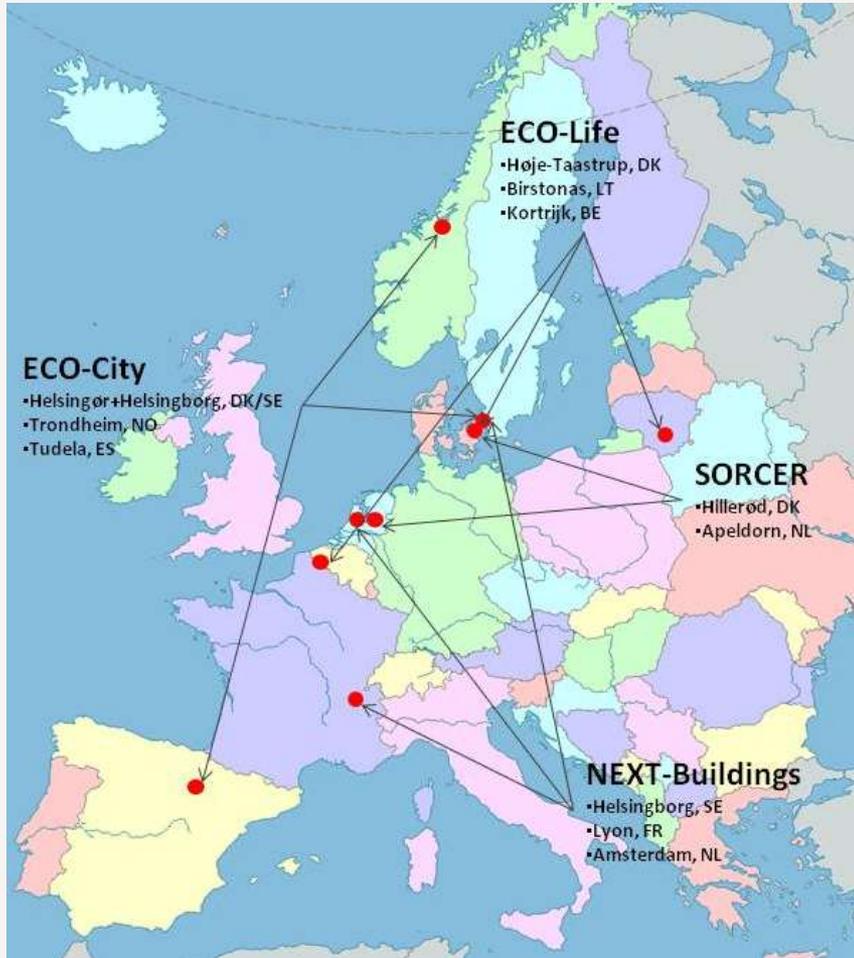
***Cooperation across Europe***

***Integration at national and local level?***

**COWI**

# CONCERTO

a European Commission initiative within the European Research Framework Programme (FP6 and FP7) which aims ***to demonstrate that the optimisation of the building sector of whole communities is more efficient and cheaper than optimisation of each building individually.***



- > ECO-City (2005-2012)
  - > Demonstration of 200,000 m<sup>2</sup> buildings, refurbishment and individual renewable solutions
  - > District heating and cooling systems
  - > Intelligent metering
- > SORCER (2007-2012)
  - > Low energy buildings
  - > Biomass boiler, heat pumps, biogasification
- > ECO-Life(2010-2016)
  - > Low energy buildings
  - > Renewable individual energy solutions
  - > Combined solutions and seasonal storage
- > NEXT-Buildings (2012-2018)
  - > Low energy buildings
  - > Waste water heatpumps
  - > Waste and biomass based district heating

# Development and optimisation of District Heating schemes

## TORINO

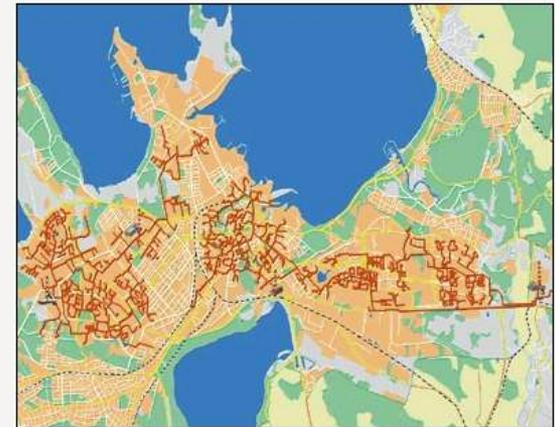


***IREN and AES have jointly realized a project of development of the district heating network supplying 410.000 inhabitants (45%) of Torino based on gas fired CHP.***

***Strategic plan for development of cogeneration and district heating in Torino 1980. Gradually extension throughout the Metropolitan area – 2020 80% of needed thermal heat  
SMART CITY candidate, DE Climate awards 2011***

## Tallin

***"We have calculated the payback time for our investments in TERMIS and GIS to 6 months. Our savings are mainly from heat production due to reduction of supply temperature and from identification from illegal customer via GIS. Our purchase of heat is approx. DKK 200.000 mill. yearly and our savings constitute about 2%, corresponding to DKK 4.0 mill per year."***



## Lerwick

***New waste to energy plant in 1997. District heating system expanded. More than 1000 customers and the waiting list for new consumers grow every day . Future wind turbines, large storage tank, new CHP plant, and heat pumps***



# Is Energy Planning important to achieve efficiency?

**Yes – if you want to be ready for the following questions**

**What do we need?** *Different buildings for different purposes used by different people in different places have different needs for comfort and activities*



**When?** *Now – tomorrow – in 50 years?*

**What can we get?** *Now – tomorrow – in 50 years?  
What we ask for?  
What we need?  
What suppliers offer?*



**In which way?** *Cheapest?  
Best quality?  
Most sustainable?  
Most efficiently?*



**Who decide?** *Politicians?  
Technologies?  
Resources?  
Our generation?  
Future generations?*

# *The Energy Efficiency Directive*

## *- a common EU platform*



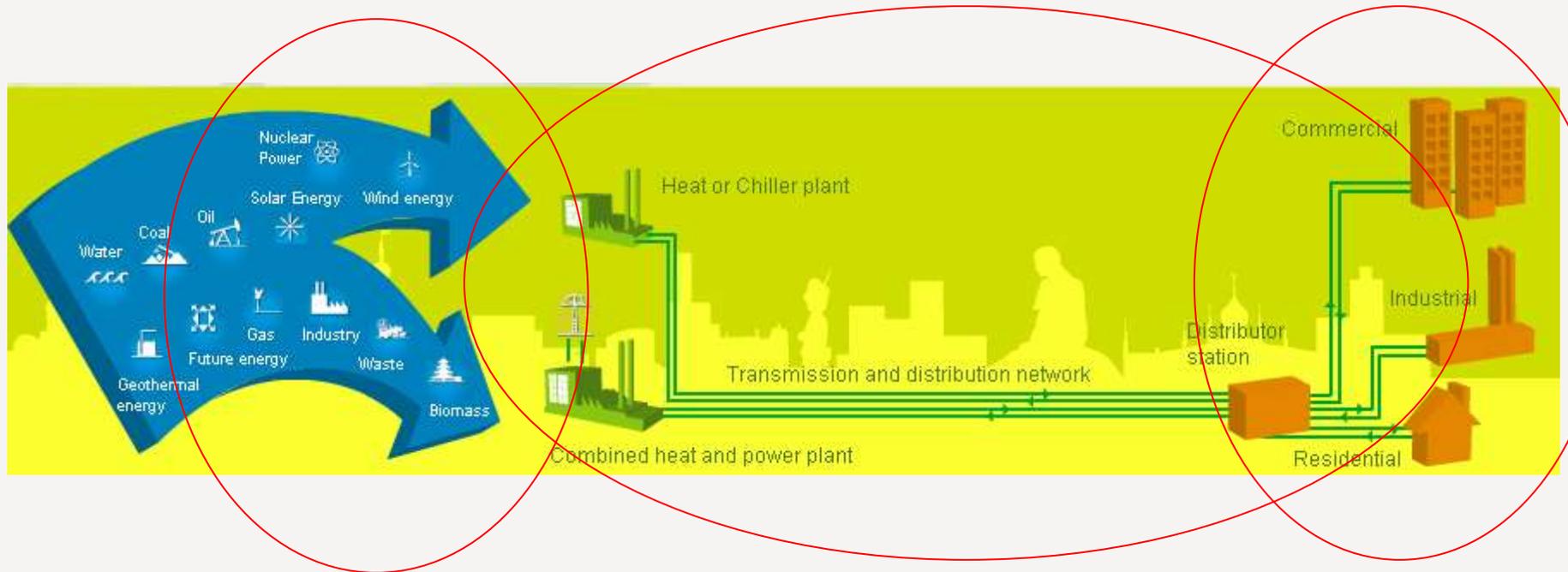
***By 1 January 2014, Member States shall establish and notify to the Commission a national heating and cooling plan for developing the potential for the application of high-efficiency cogeneration and efficient district heating and cooling***

***The plans shall be updated and notified to the Commission every five years.***

***Member States shall ensure by means of their regulatory framework that national heating and cooling plans are taken into account in local and regional development plans, including urban and rural spatial plans, and fulfil the design criteria in Annex VII.***

***Member States shall take the necessary measures to develop efficient district heating and cooling infrastructure to accommodate the development of high-efficiency cogeneration and the use of heating and cooling from waste heat and renewable energy sources.***

# Sustainable Energy Development



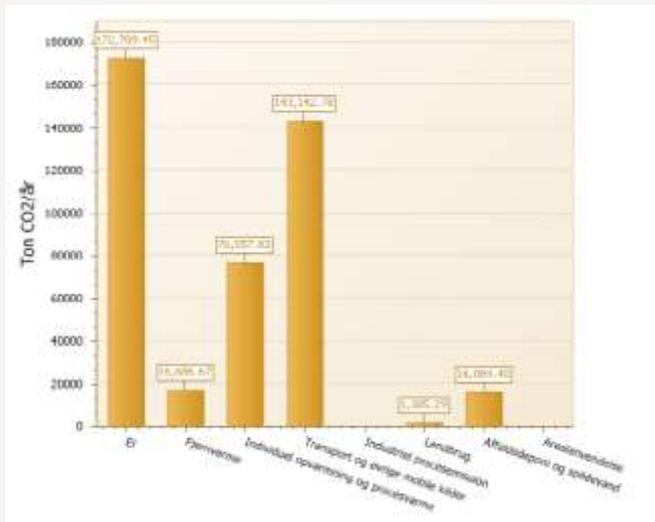
## Requires:

**Understanding of the total chain from resources to requirements  
and  
an integrated approach to the demand and supply options**

**The interfaces and the balancing  
over time in all dimensions  
are important to efficiency**

# Danish Climate and energy planning 2012

## CO2 mapping at sector level



**El, DH, Indv heat,  
Transport, Industry, Agriculture  
Waste, waste water, land use**

## Supply System development

- New local Heat Plans
- Strategic energy plans
- Climate Strategies
- Links between sector planning and climate strategies



***A new proces has started***

***in all larger cities – Aalborg, Aarhus, Odense, Esberg and Copenhagen  
in regions – Triangle area, North of Copenhagen...  
in many municipalities – ProjectZero Sønderborg...***

***A new national energy policy establishing clear goals  
and a consistent framework  
will enforce the development***

# Implementation of Sustainable Urban Development

## An integrated process in an interdisciplinary approach

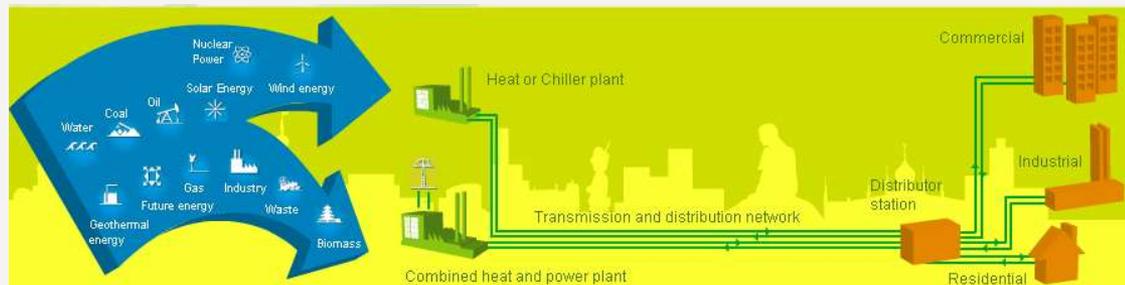


# Success stories where consistent planning form the basis for decision making

**Planning is basis for decision making and implementation**

**A Framework makes it possible to make good local energy plans and to monitor progress**

**Important to differentiate between national framework plans and local energy plans  
both are needed**



**Avoid  
Shift  
Improve**

***Planning, regulation, economic, information technological instruments are required***

**The secret is mastering top down and bottom-up**

***Although we do not know what happens  
we know how to act, when it happens – if we have a plan***