Why Move Beyond Fossil Fuel?

- Combustion of fossil fuels for any purpose have an adverse effect on the climate is today accepted knowledge – Global problem
- However not to use fossil fuel can have an adverse effect on the economy – Local problem

- In broad outline that is the complex of problem for policy makers

In April 2014 CO2 level in the atmosphere on the northern hemisphere for the first time ever exceed 400 ppm

A wake up call
Actors involved in the process

- Policy makers, state and local level
- NGO
- Government official
- Project developers
- Building owners
- Contractors
- End users

- Focus of interest is not the same
The Basic Dilemma of any policy maker, company or private person

- Can we reduce the use of fossil fuel without spoiling the economy?
- How much can we afford to spend on behalf of the environment – future generations?

- In Denmark and in particular in the Greater Copenhagen Region we say **YES** to both questions

Being a small country gives you a good opportunity to export new technology
Recommendations for CO2 reduction

- **UN**
- **EU**
  - 40% reduction before 2030 (base 1990)

- **Denmark**
  - CO2 neutral by 2050

- **Copenhagen**
  - CO2 neutral by 2035
  - Heating and electricity CO2 neutral by 2025

- **In 2013 46% of energy consumption CO2 neutral**
  - 98% of all buildings in city area connected to DH
  - CHP production form the basis
  - Primary tool is waste and biomass

Green Economy Leader Report
*Copenhagen leading, role model*
Change to Renewable Energy in Denmark in 2050

- Four different scenarios for the change
  - Wind
  - Biomass
  - Bio+
  - Hydrogen

Extra cost for Denmark in total 1 to 5 billion $ every year – little less than 6 million inhabitants – about 200 $ per person

That is political acceptable for Denmark
Why is large scale district thermal energy the solution in Denmark/Copenhagen?

- DH is monopoly business, no competition
- Consumers has to pay the cost and can be forced to connect to DH

**BUT BUT BUT BUT**
It has to be a better and cheaper solution

- Responsibility of policy makers
- Heavy tax on fossil fuel
- Subsidy on RE technology, energy savings
You can not have an energy policy, where you wish energy to be as cheap as possible on behalf of the economy and at the same time expect investments and initiatives in energy savings.
Where is the policy “Beauty” of CHP/DH

- **Investment in stead of running energy cost**
  - Bigger employment
  - Money stays in the local society
  - Stability in price

- **Energy saving production technology**
  - Better image

- **One big effective stacker in stead of many small**
  - Less pollution
  - Easy to make changes - higher flexibility

- **Community system**
  - Better equality in society
  - Better possibility for utilizing surplus heat
Many view of URBAN GREENING
Is it possible to maintain 98% DH connection ???

- New urban area are the problem
- Local development plan is the corner stone - is the solution DH or local RE?

- Many urban planners, building developers, private tenants and NGO prefer visible RE technologies
- In Denmark Building code rewards local building RE compared to DH based RE, despite much bigger investments
- Local municipal urban planners must be convinced
- Accept a share of visible RE together with DH