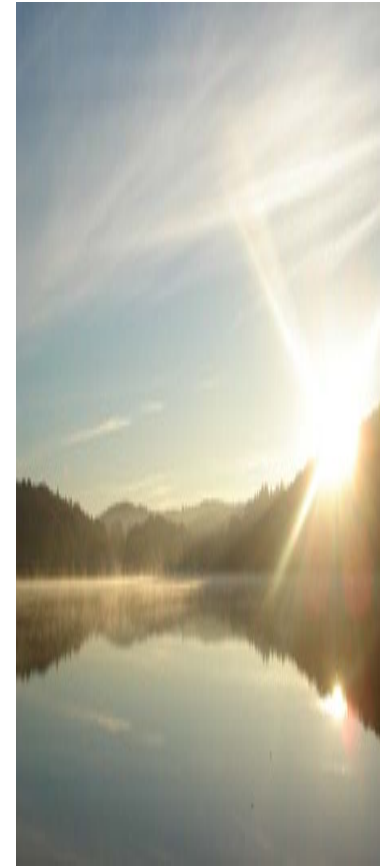


Impact of the EU energy and climate package on the Nordic energy systems

Thomas Unger



The energy and climate package in short

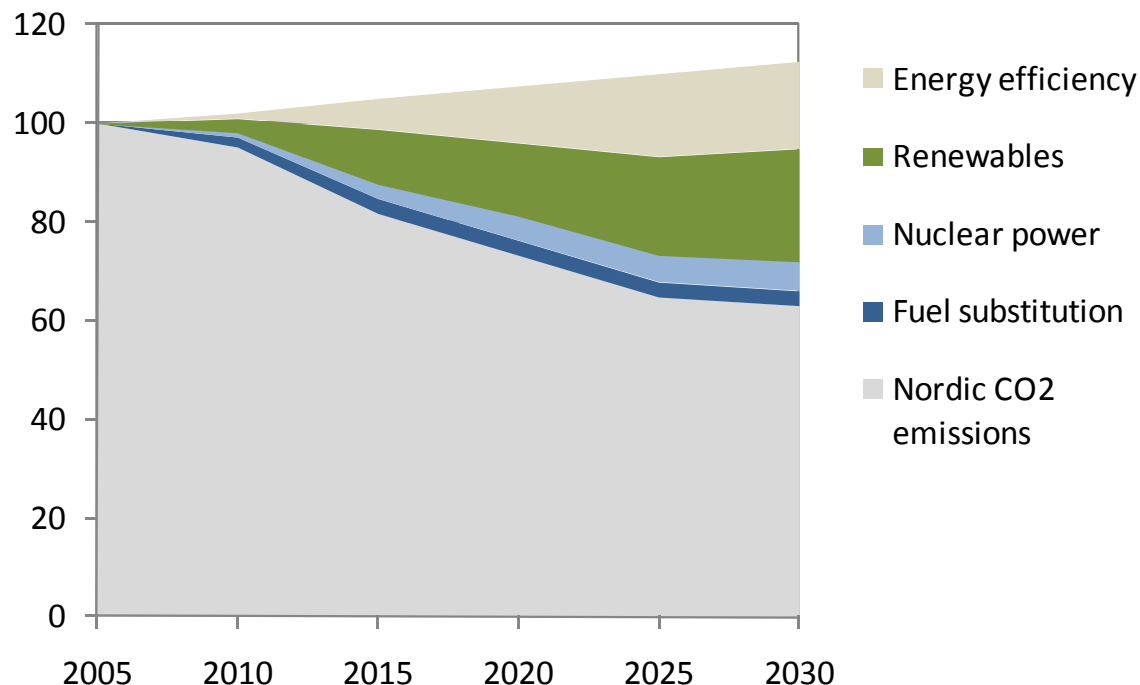
- ✓ Reduce **GHG emissions** by 20% until 2020 compared to 1990
 - ⇒ CO₂ in ETS-sector 21% by 2020 rel. 2005,
 - ⇒ GHG in non-ETS-sector: binding national targets by 2020

- ✓ Increase the share of **renewables** from 8,5% to 20% of total final energy use in 2020. *Binding national targets!*

- ✓ Reduce **total energy use** by 20% until 2020 compared to a baseline projection for 2020. *Indicative target*
(Energy Service Directive by 2016 already in force)

Significant impact on the Nordic energy systems that will affect most of the energy markets and sectors !

Key measures for reducing CO₂: energy efficiency and renewables

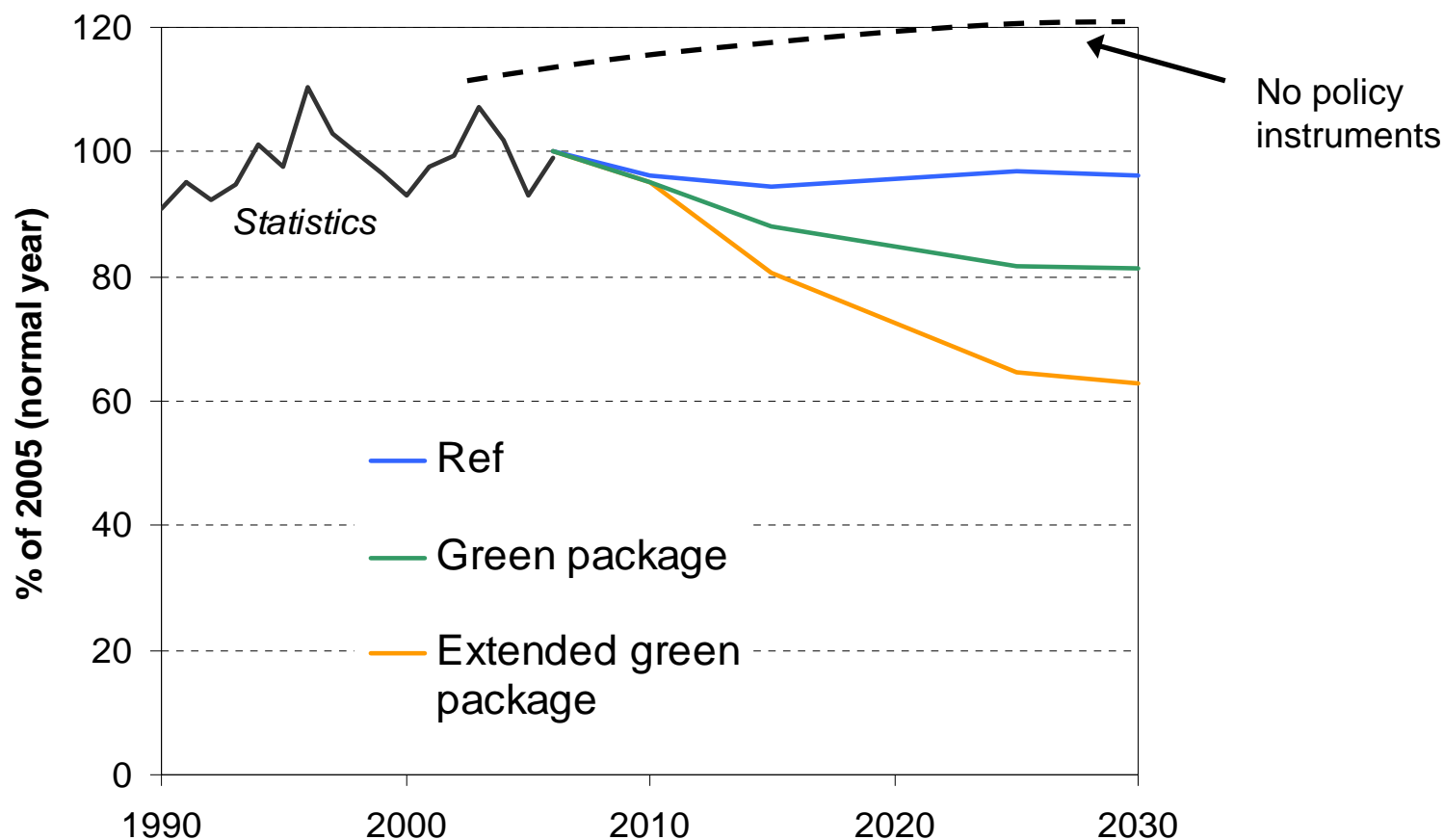


Identify cost-efficient synergies:

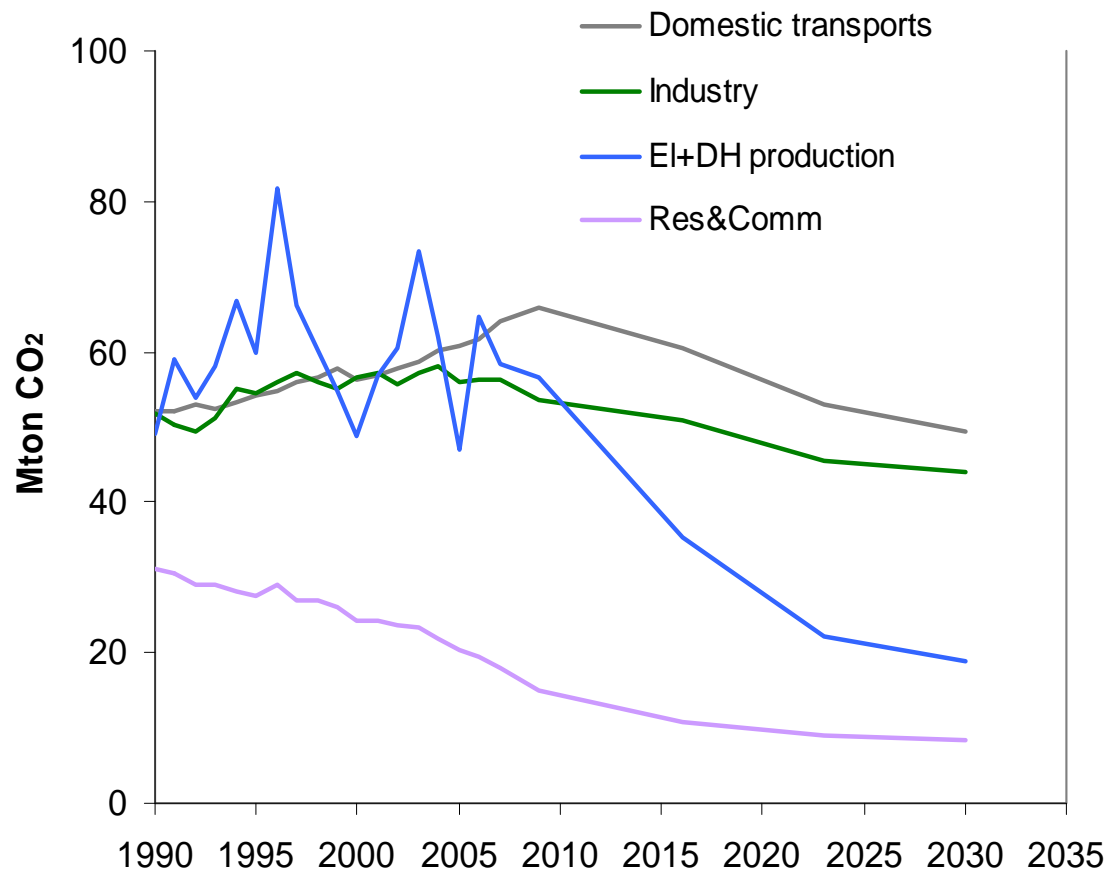
- ✓ Meeting more than one target simultaneously
- ✓ Reducing more than one GHG
- ✓ Transfer of "responsibility"
- ✓ ...

Meeting all three EU targets may imply a CO₂ reduction of 30 percent

Total CO₂ emissions in the Nordic countries

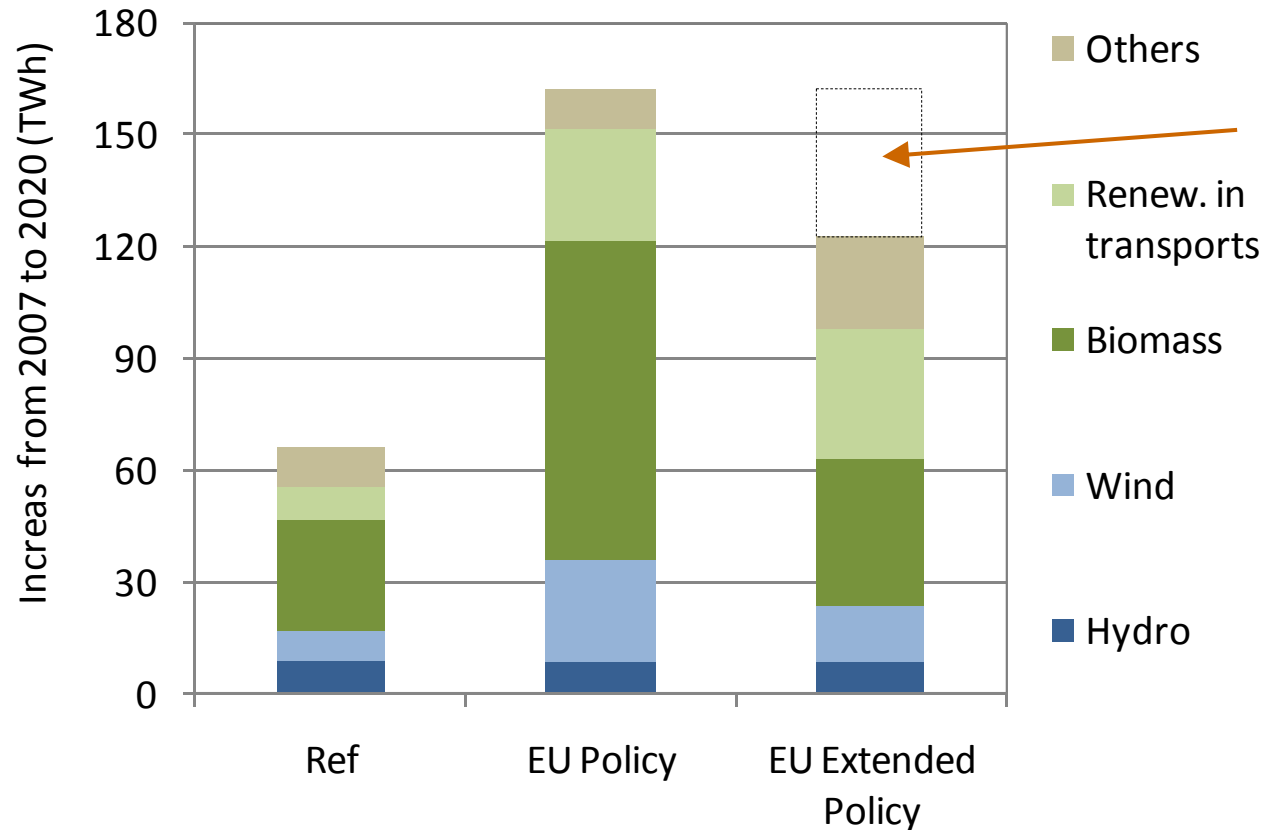


All sectors are involved in reducing CO₂ emissions...



...especially electricity and district-heating supply

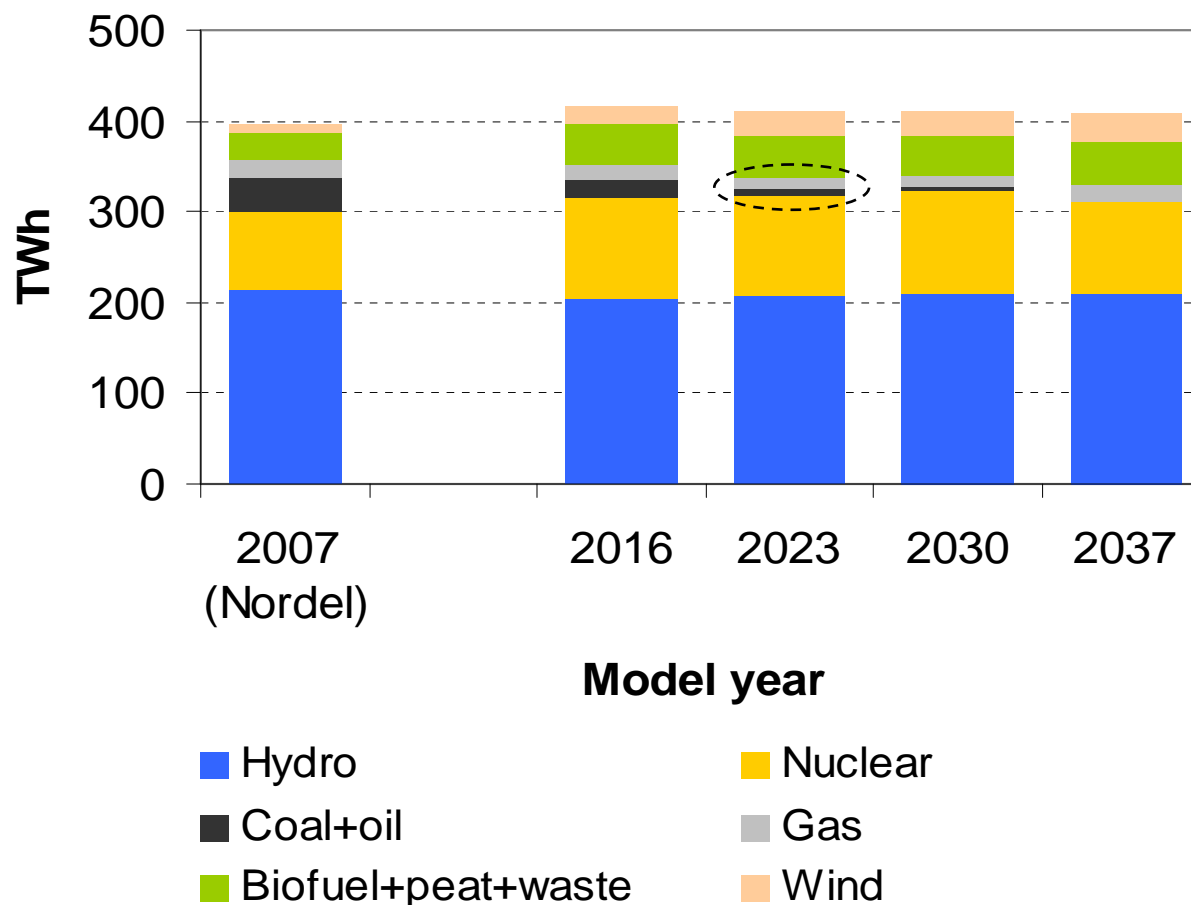
The renewable target: ~120-160 TWh by 2020



*The policy goals affect each other!
Impact of the efficiency goal*

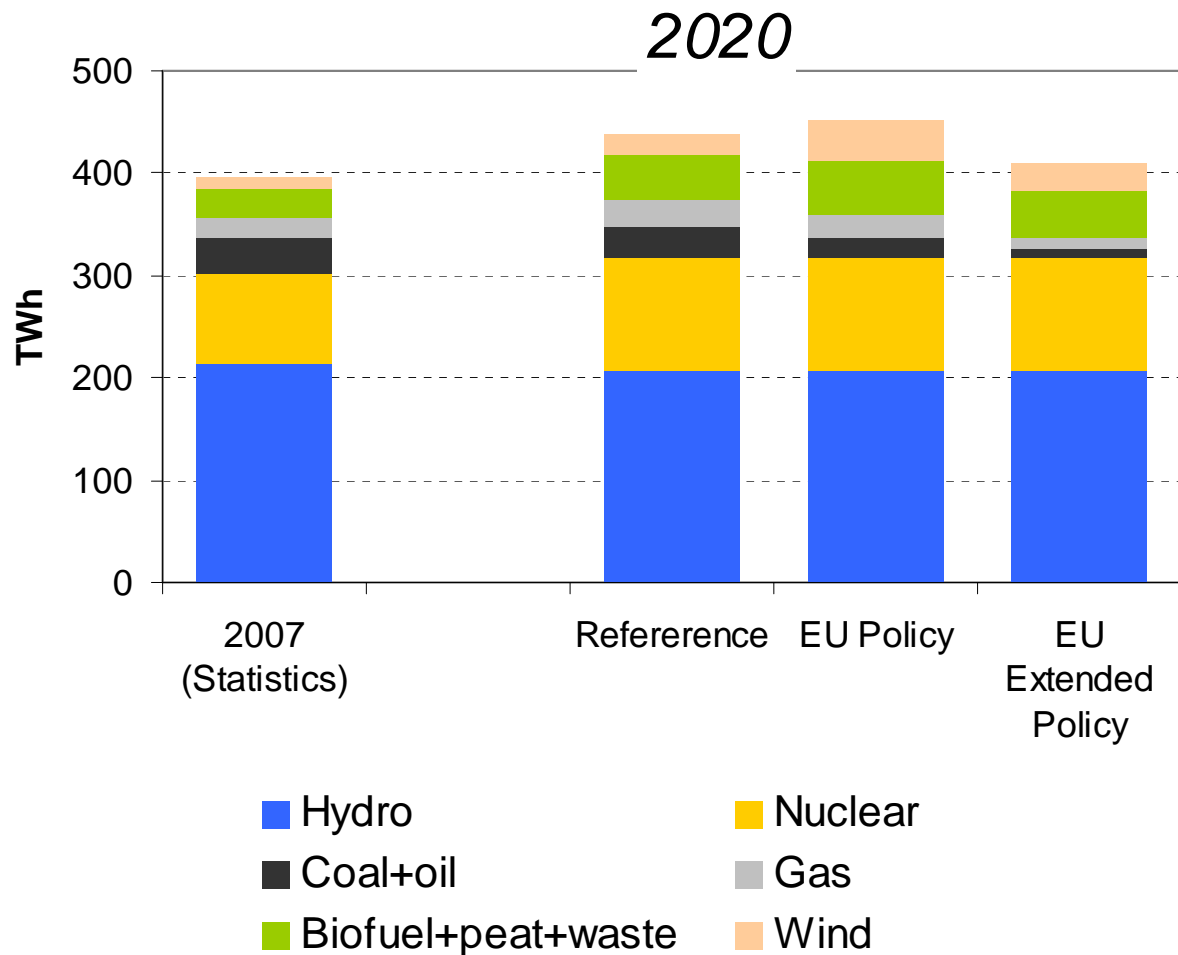
Include all sectors and enable flexibility between them!
Electricity and DH supply are likely to take the lion share,
>50% according to model runs

Nordic electricity supply: from 15% to <5% fossil by 2020?

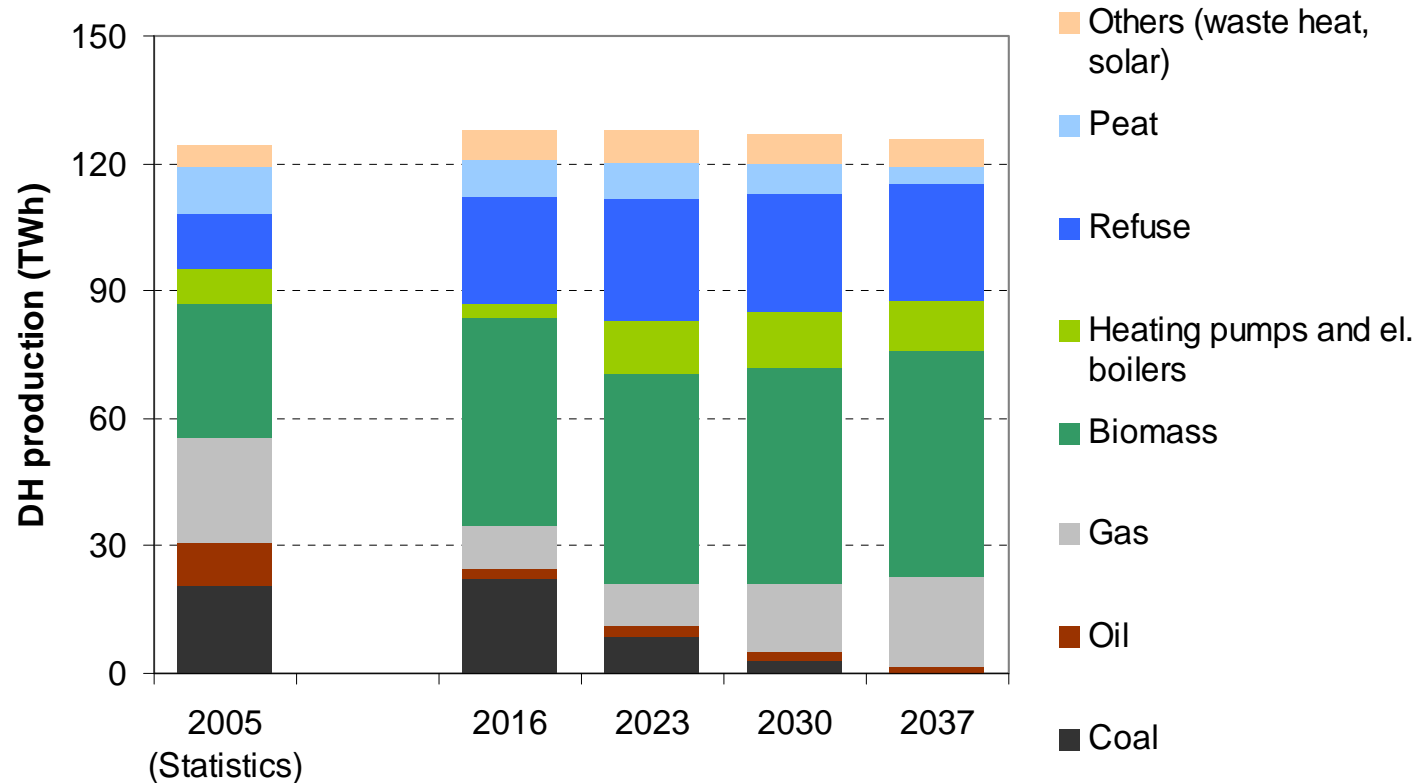


- 1) Make electricity supply climate neutral and
- 2) use it as a climate-change mitigation measure

Nordic electricity supply: different scenarios



Nordic district-heating supply: from ~50% to ~15 % fossil by 2020?



As for electricity: district heating in itself may be used as a "climate-neutral" measure (already a fact in many municipalities..)

Final remarks

Policies and policy instruments should reflect

- ✓ synergies between the goals
(avoid "one goal-one measure")
- ✓ all levels of the energy system to enable system effects
- ✓ flexibility between sectorial goals
- ✓ international cooperation and trade
(e.g. among the Nordic countries)

