

Transition to Renewable Energy until 2030 – 2050 in the EU and Denmark, INFORSE Vision

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Scenarios for a Fast Transition to Sustainable Energy
10th December, 2009, 10.00-12.00

**Brown Room, DGI-Byen, Klimaforum'09, Copenhagen NGO Side Event to
UNFCCC COP15**

http://www.inforse.org/europe/conf09_COP15.htm

<http://www.lowcarbon-societies.eu/>



The INFORSE Vision

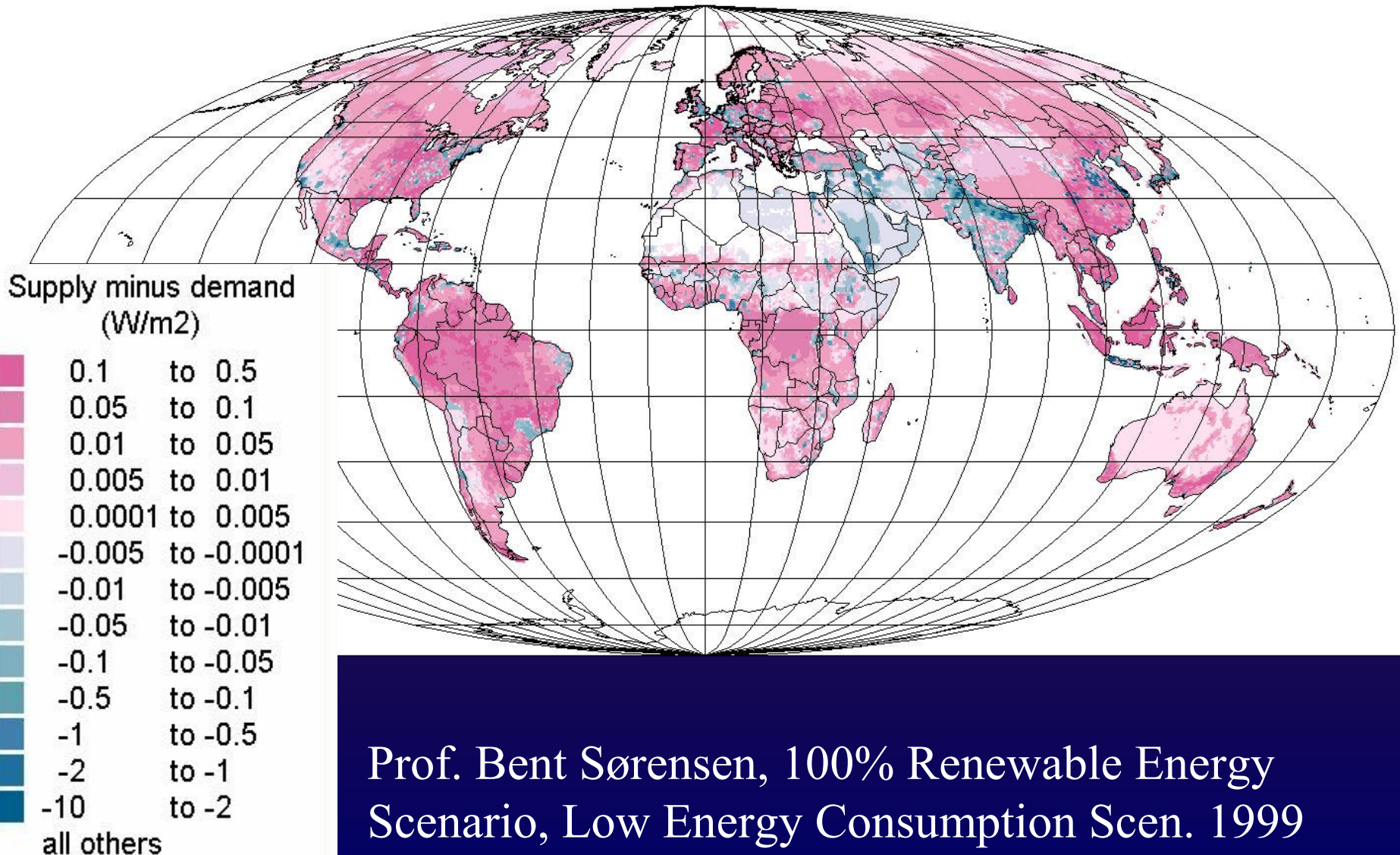
- Phase out fossil fuel and nuclear power
- Provide everybody with basic energy needs



INFORSE Sustainable Energy Visions

- Global Vision
- **Vision for EU-27**
 - Bulgaria
 - Denmark
 - Latvia
 - Lithuania
 - Romania
 - Slovakia
- UK Zero Carbon Britain
 - Belarus
 - Russia
 - Ukraine

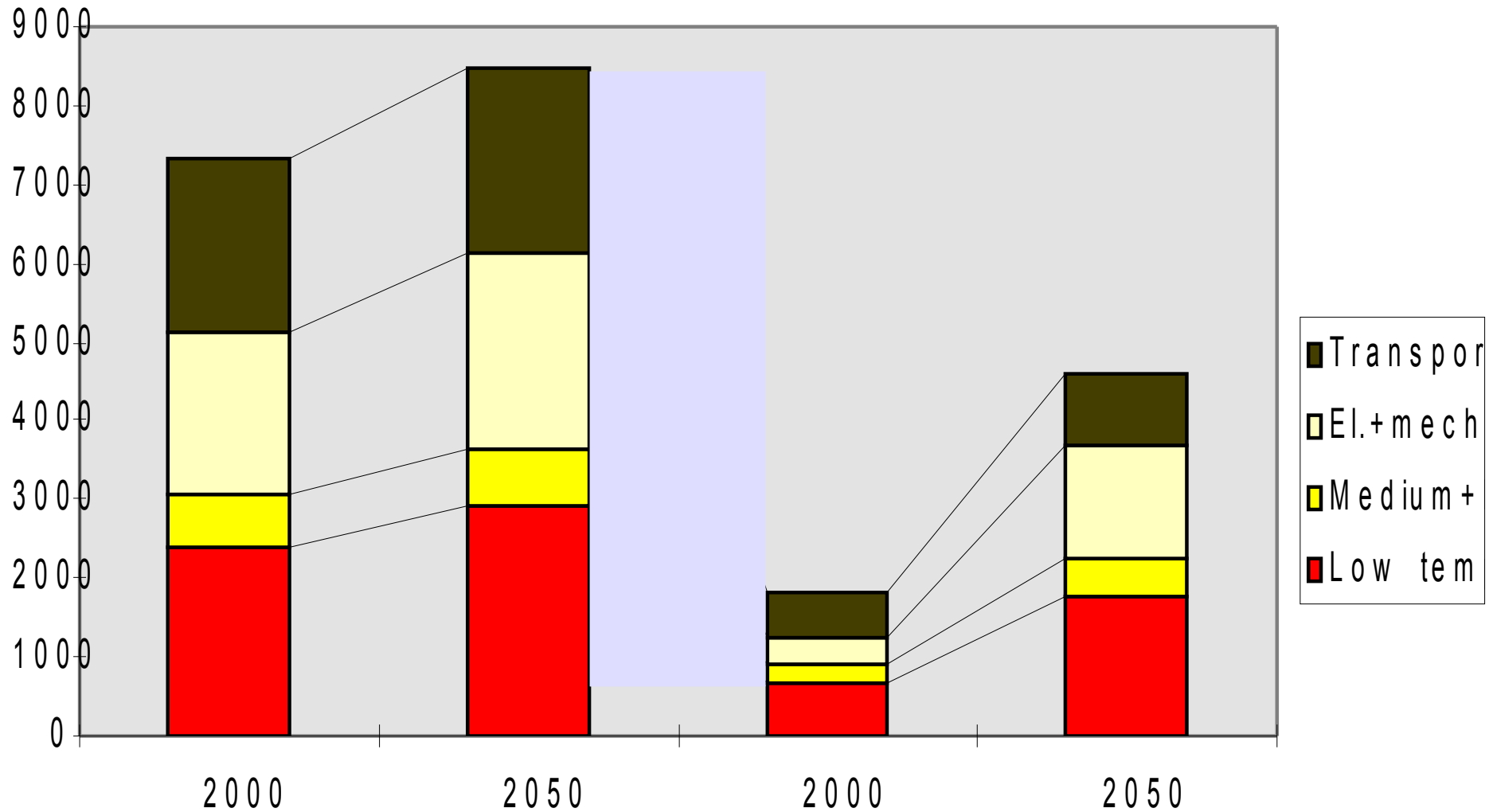
The Global Vision



Prof. Bent Sørensen, 100% Renewable Energy
Scenario, Low Energy Consumption Scen. 1999

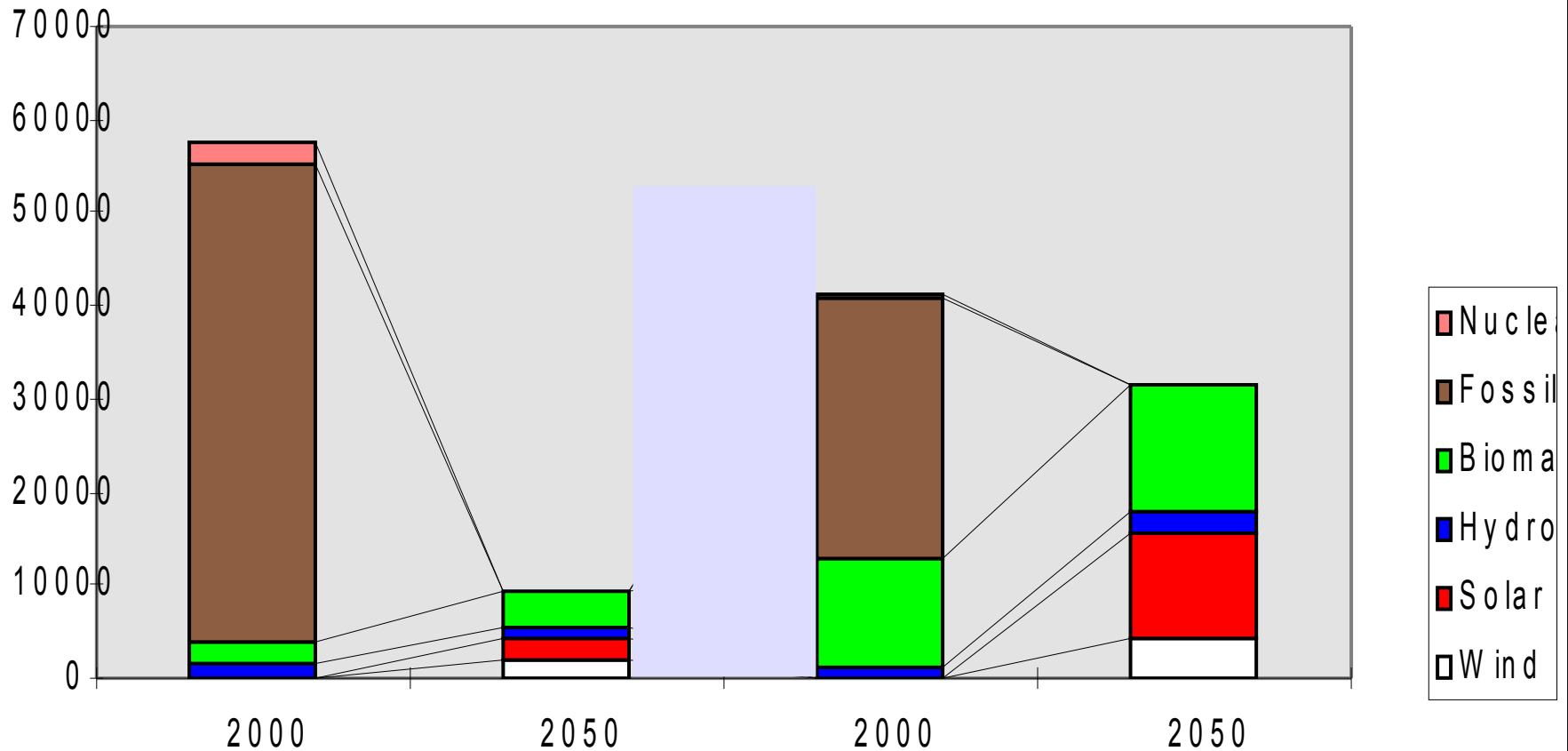
Energy Services per capita

Industrialised countries

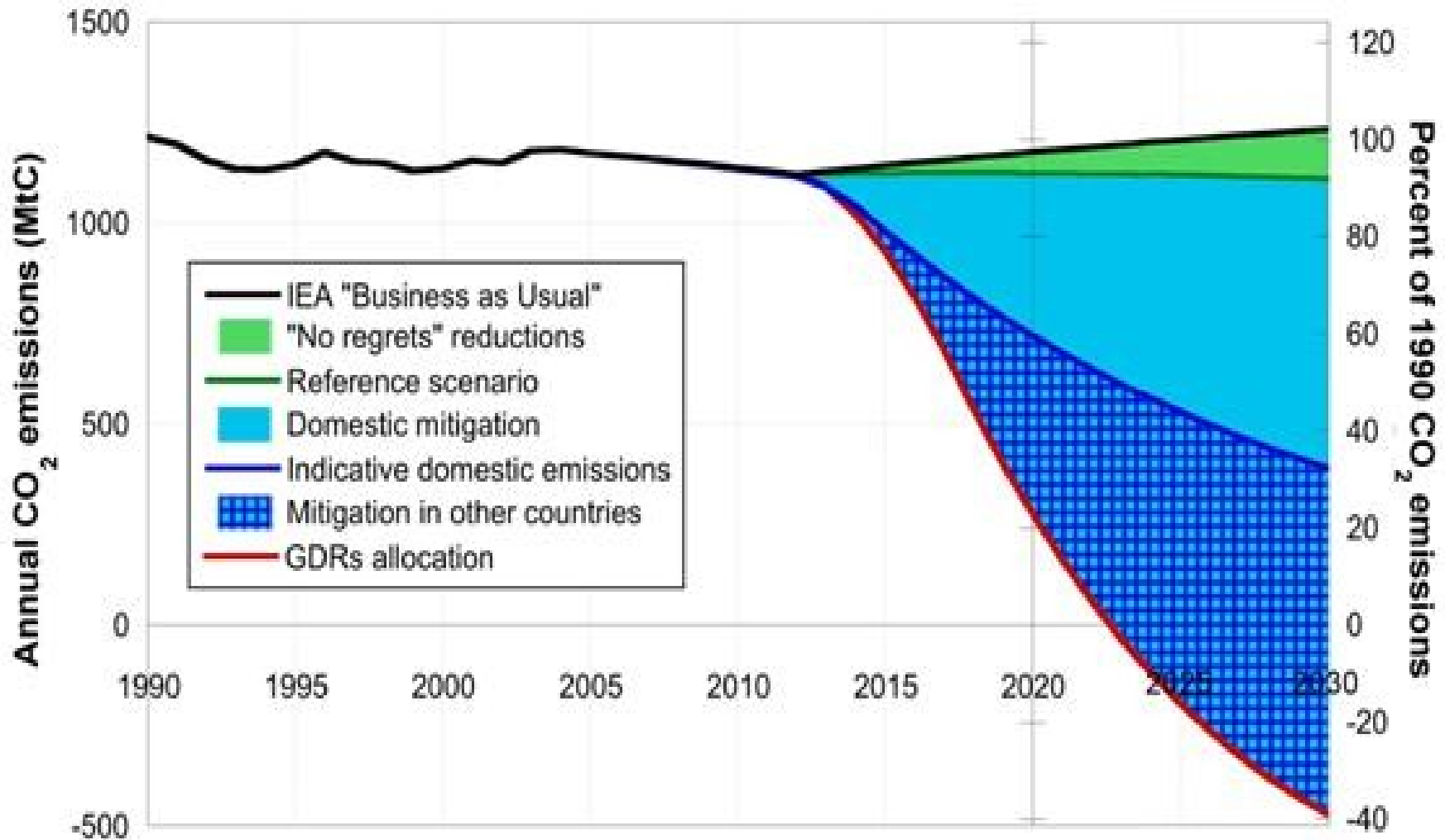


Primary Energy (TWh/y)

Industrialised countries



EU's Challenges in a Global Development Rights Framework



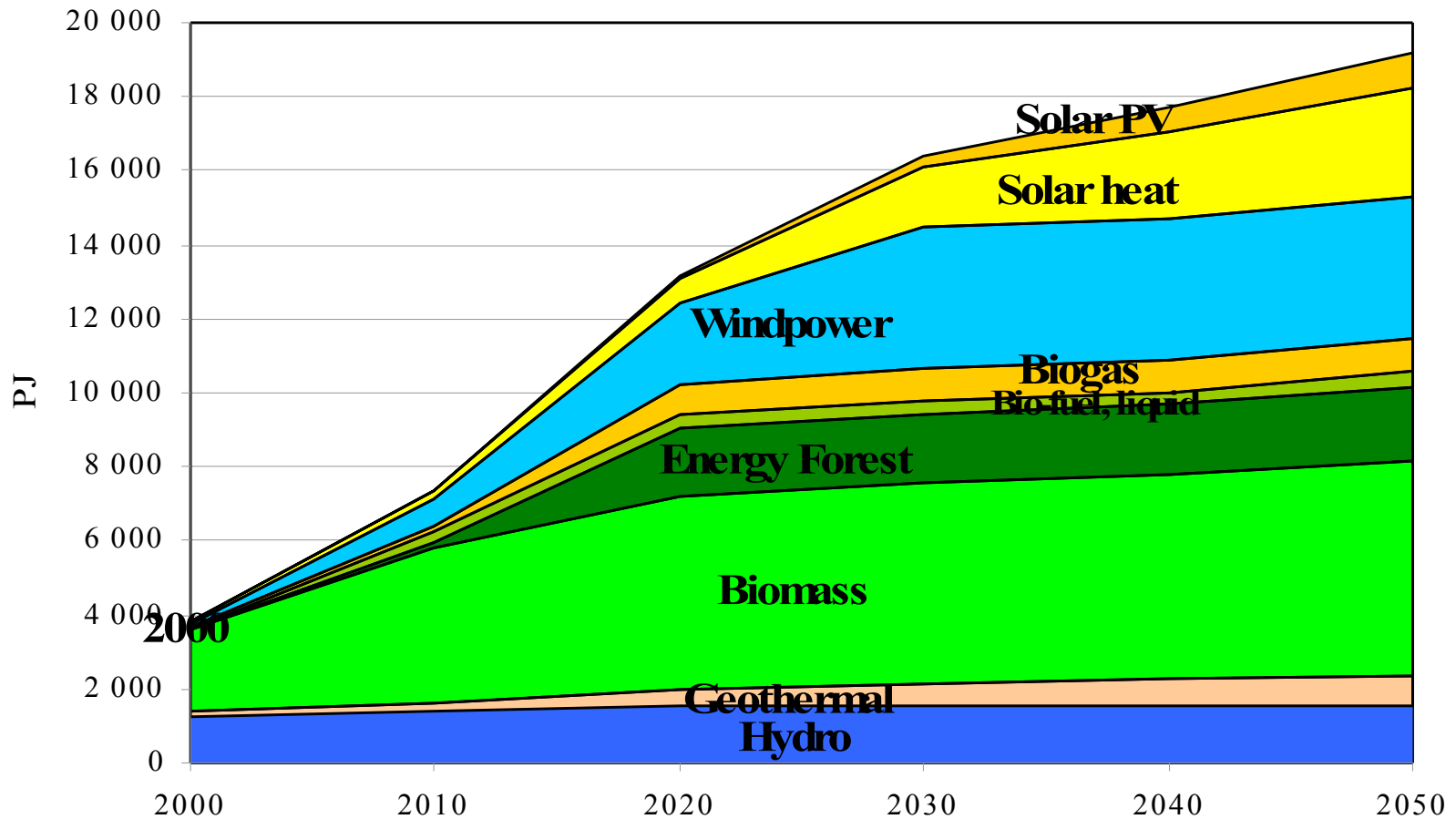
EU-27 Sustainable Energy Vision

Input:

- **Modest increase in energy services, less road transport**
- **Large increase in energy efficiency, factor 4 in end-use sectors when possible**
- **Efficient energy supply with combined heat and power, smarter and more efficient grids**
- **Rapid development of renewable energy**
- **Phase out of nuclear until 2025**

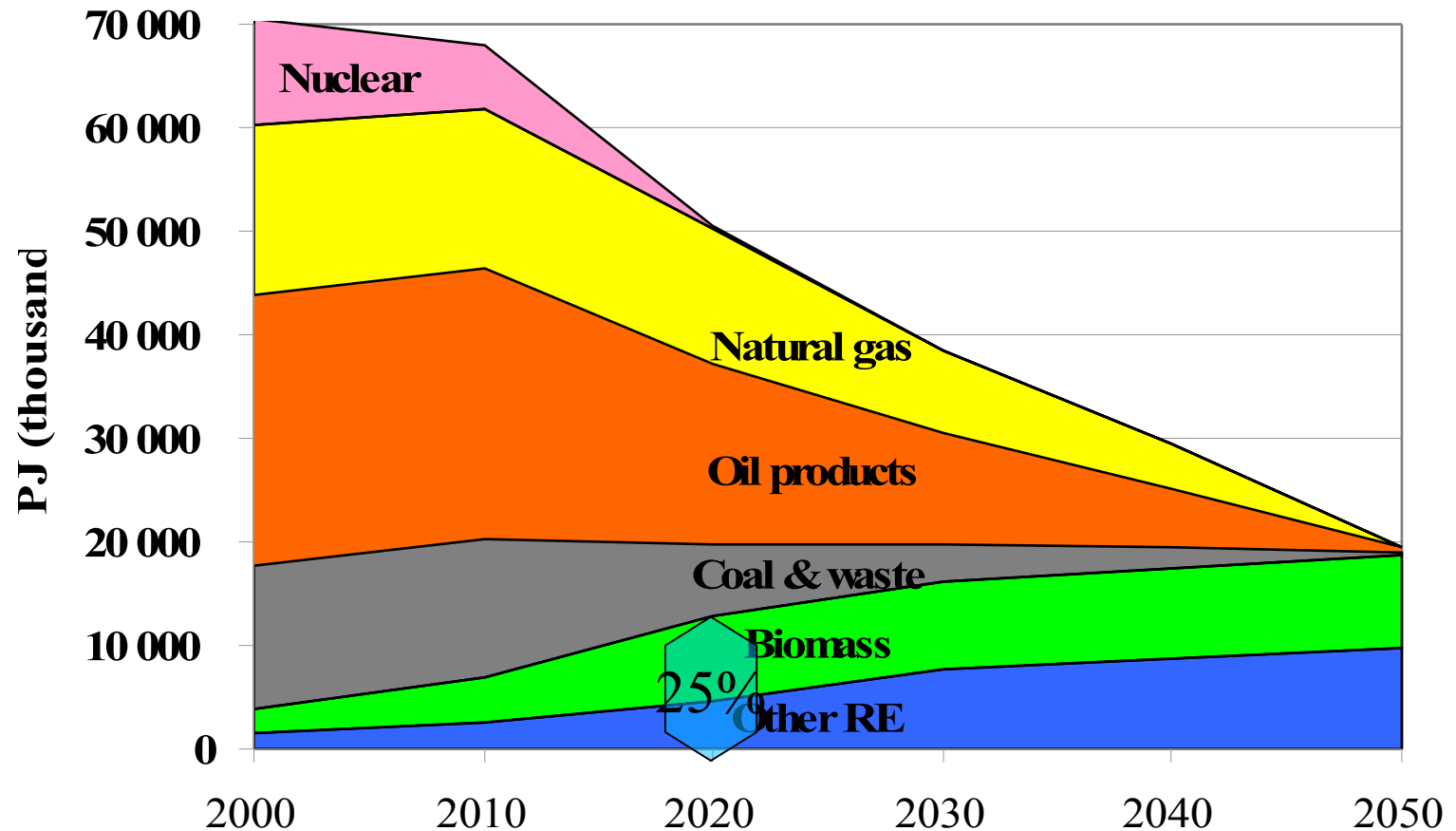
Renewable Energy Supply - EU27

Renewable Energy Supply, EU27



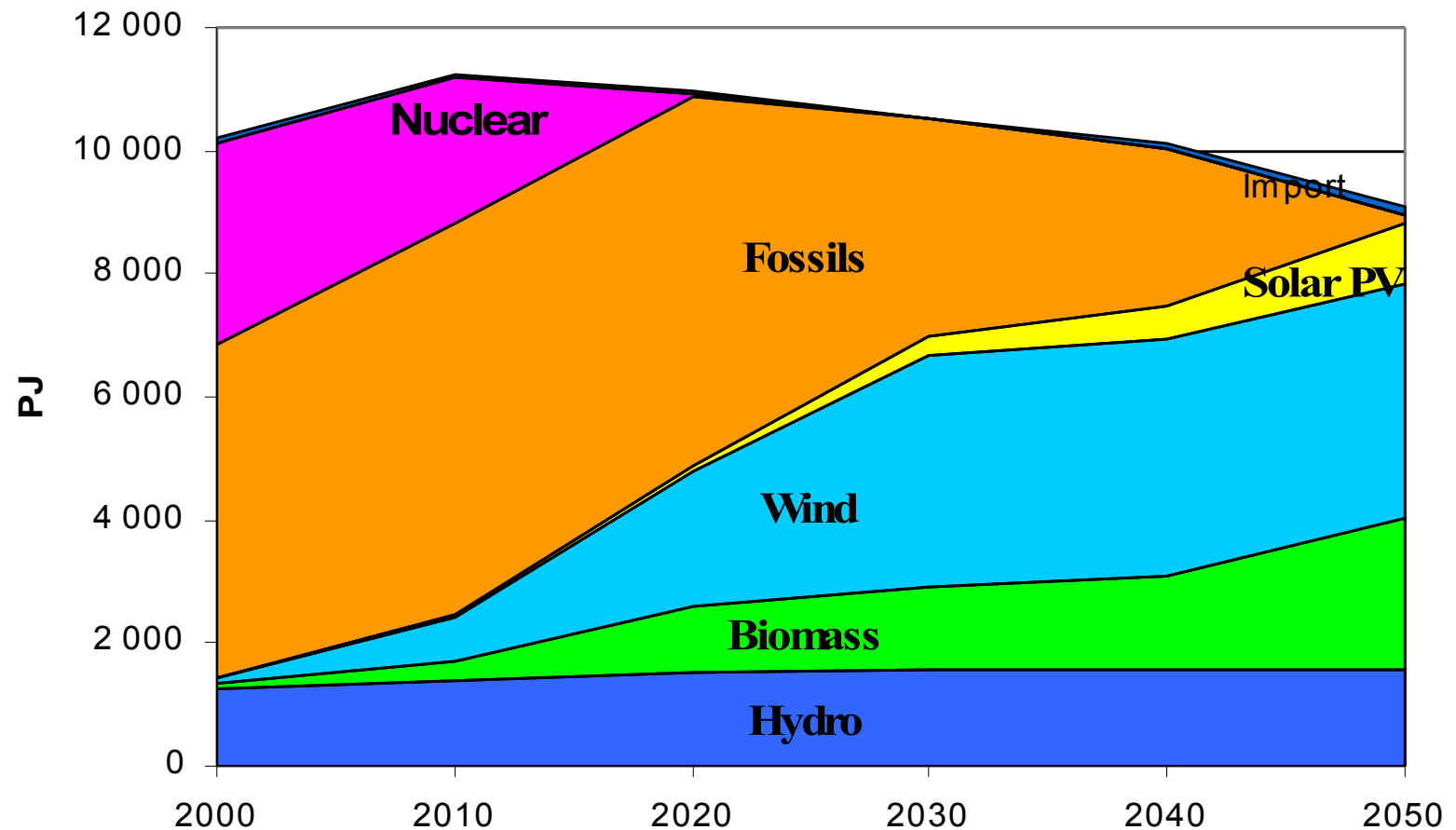
Primary Energy

Total Primary Energy Supply, EU-27



INFORSE's EU-27 Vision

Electricity Divided in Supply, EU-27



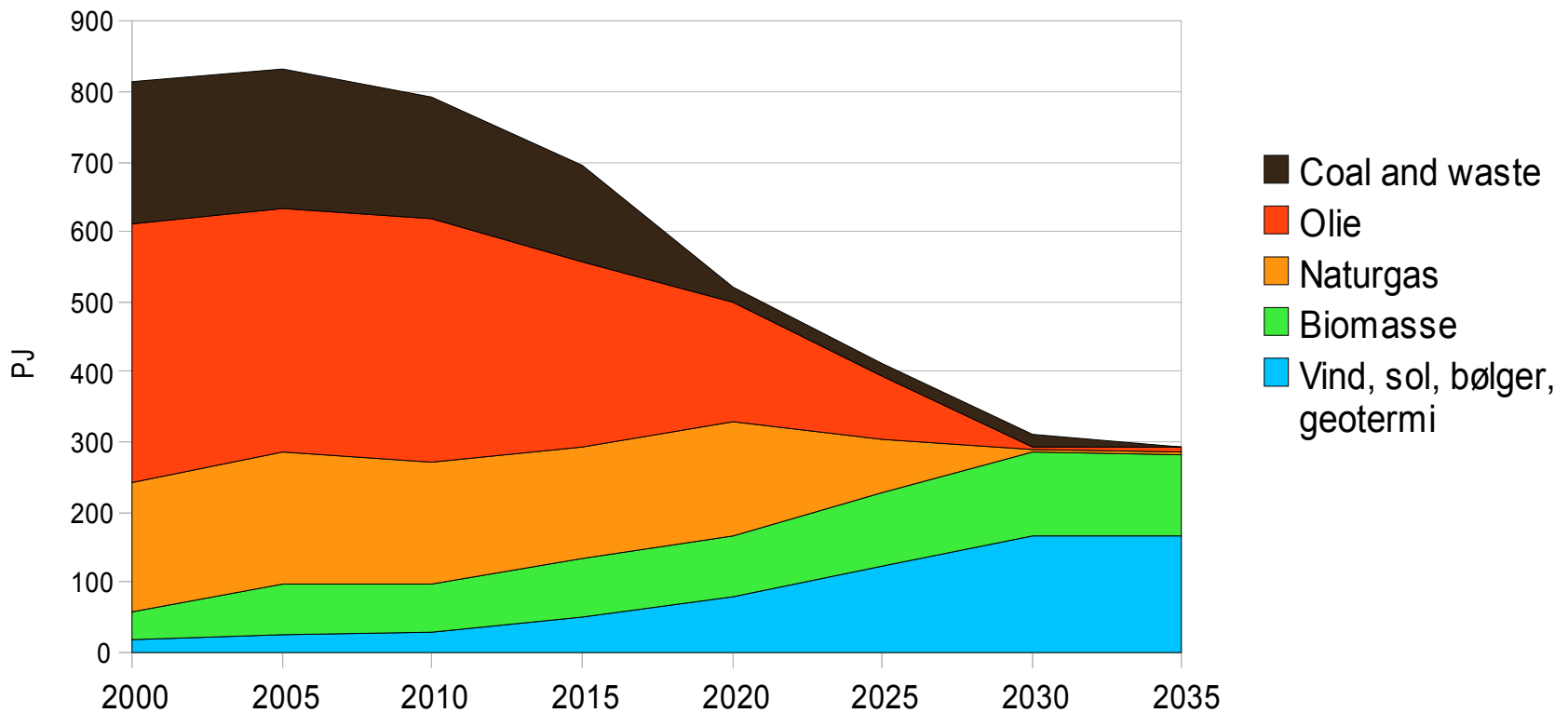
Vision for Denmark (OVE) 2030

- ❖ Strong growth in windpower, sust. biomass
- ❖ Reduce specific building consumption 39% to '30
- ❖ Reduce specific electricity use, industry 42% to '30
- ❖ Flexible energy: district heating, heat pumps, electric cars and hydrogen
- ❖ Sustainable transport system, 80% more efficient
- ❖ No new international power lines



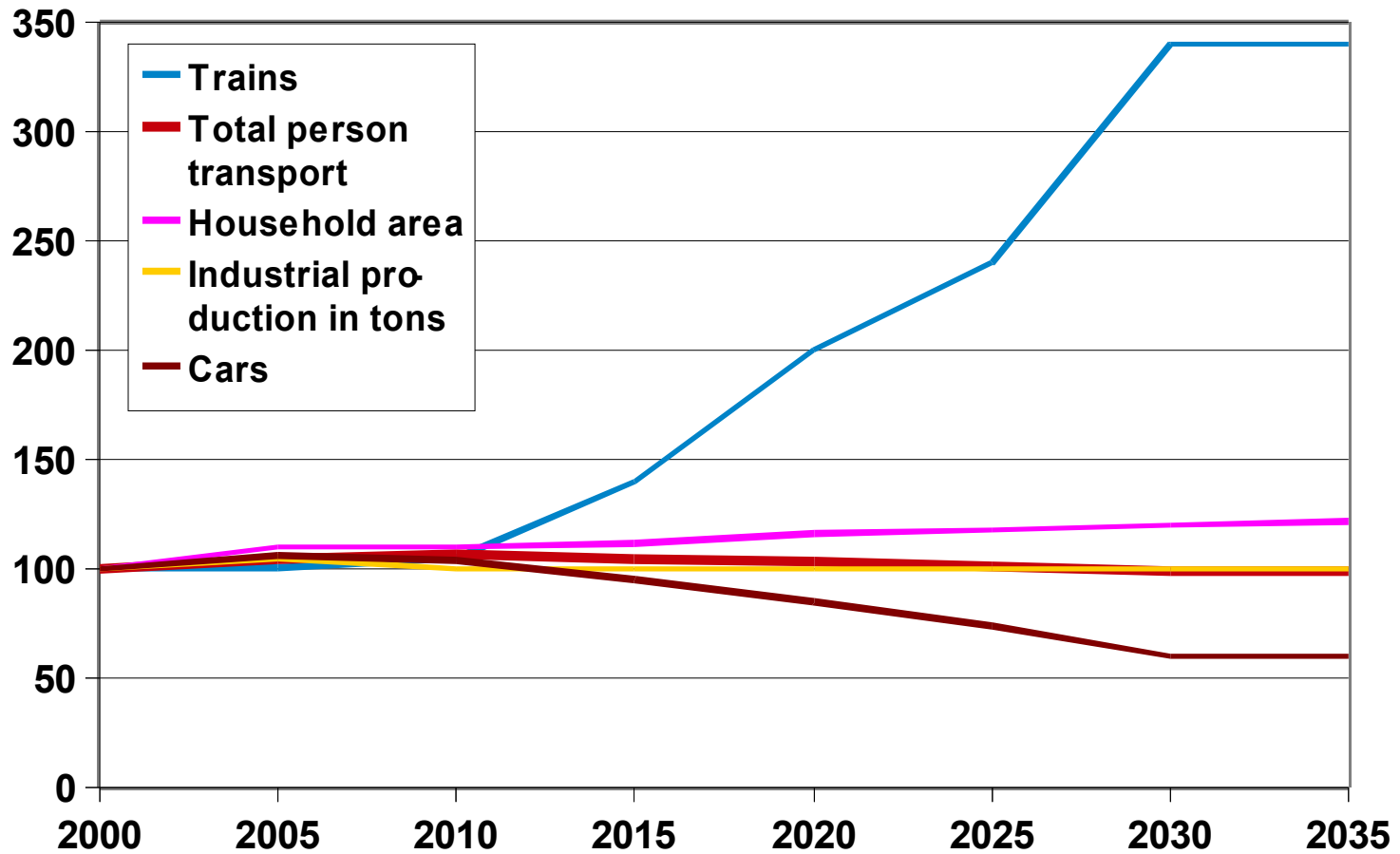
Danish Primary Energy Demand

Danish Primary Energy Supply



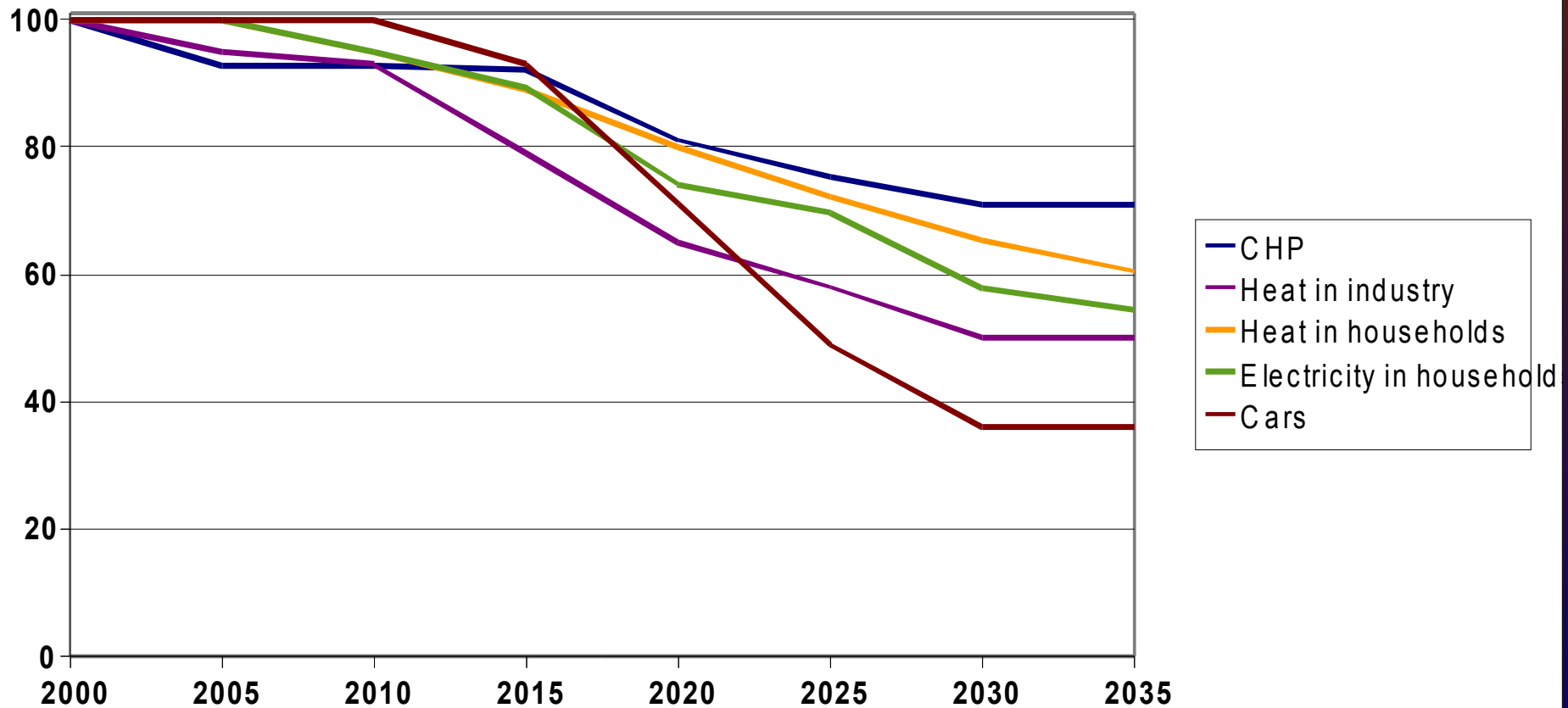
Development of Activities, DK

Activity compared with 2000, selected sectors

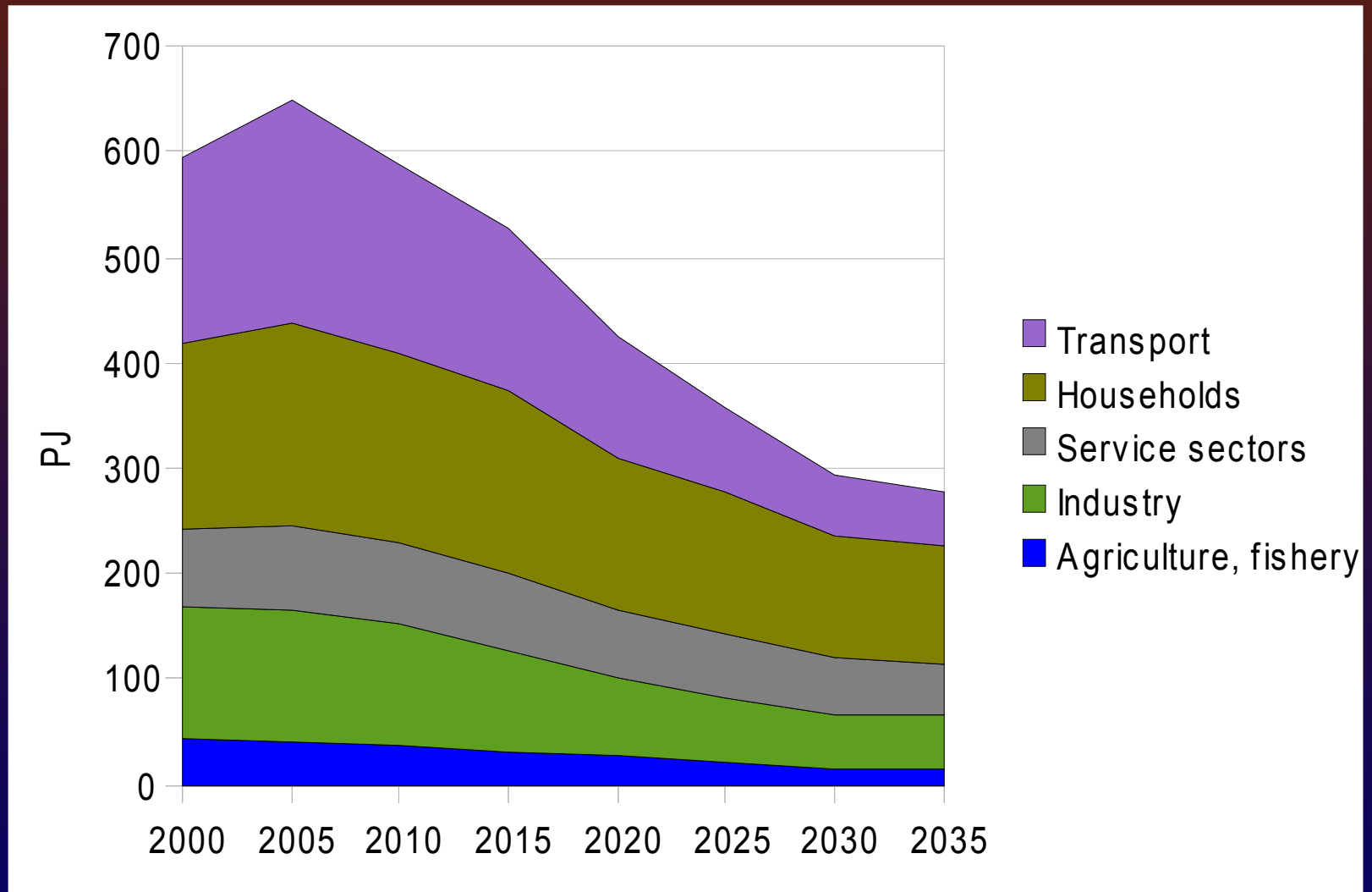


Energy Efficiency in Denmark

Energy efficiency: energy consumption per per produced unit, relative to 2000

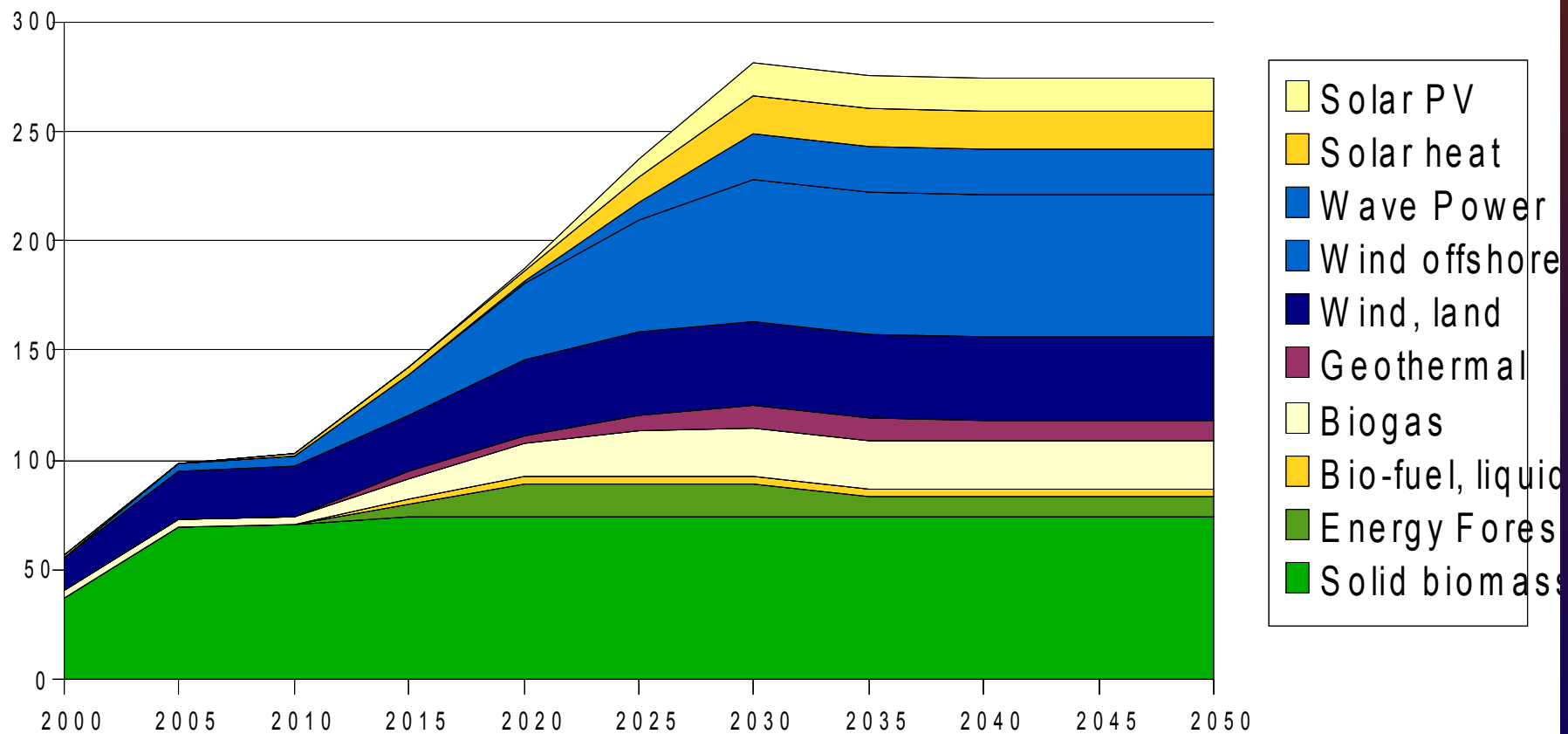


Final Energy Demand, all Energies

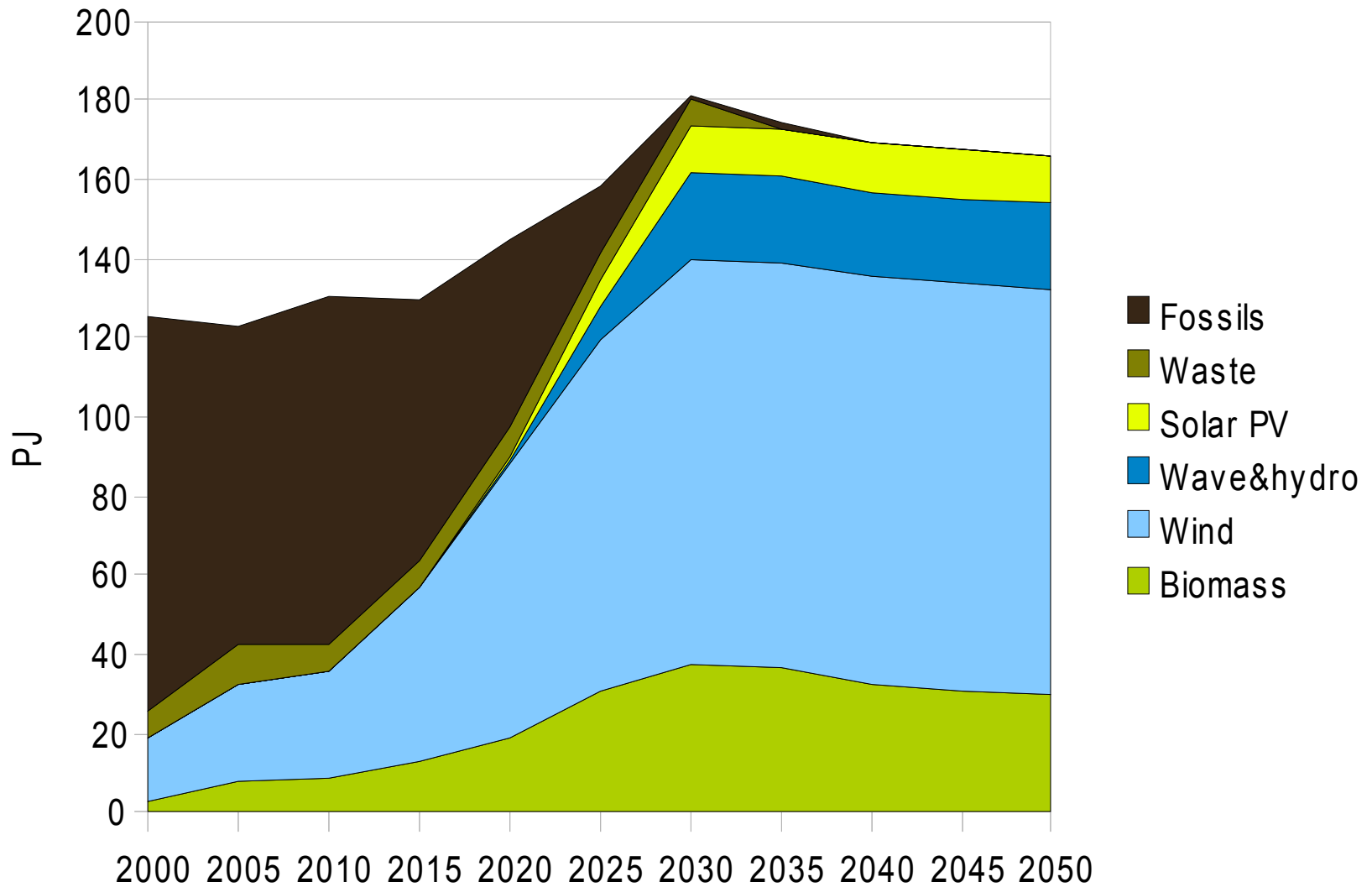


Danish Renewable Energy

Renewable Energy Supply (PJ)

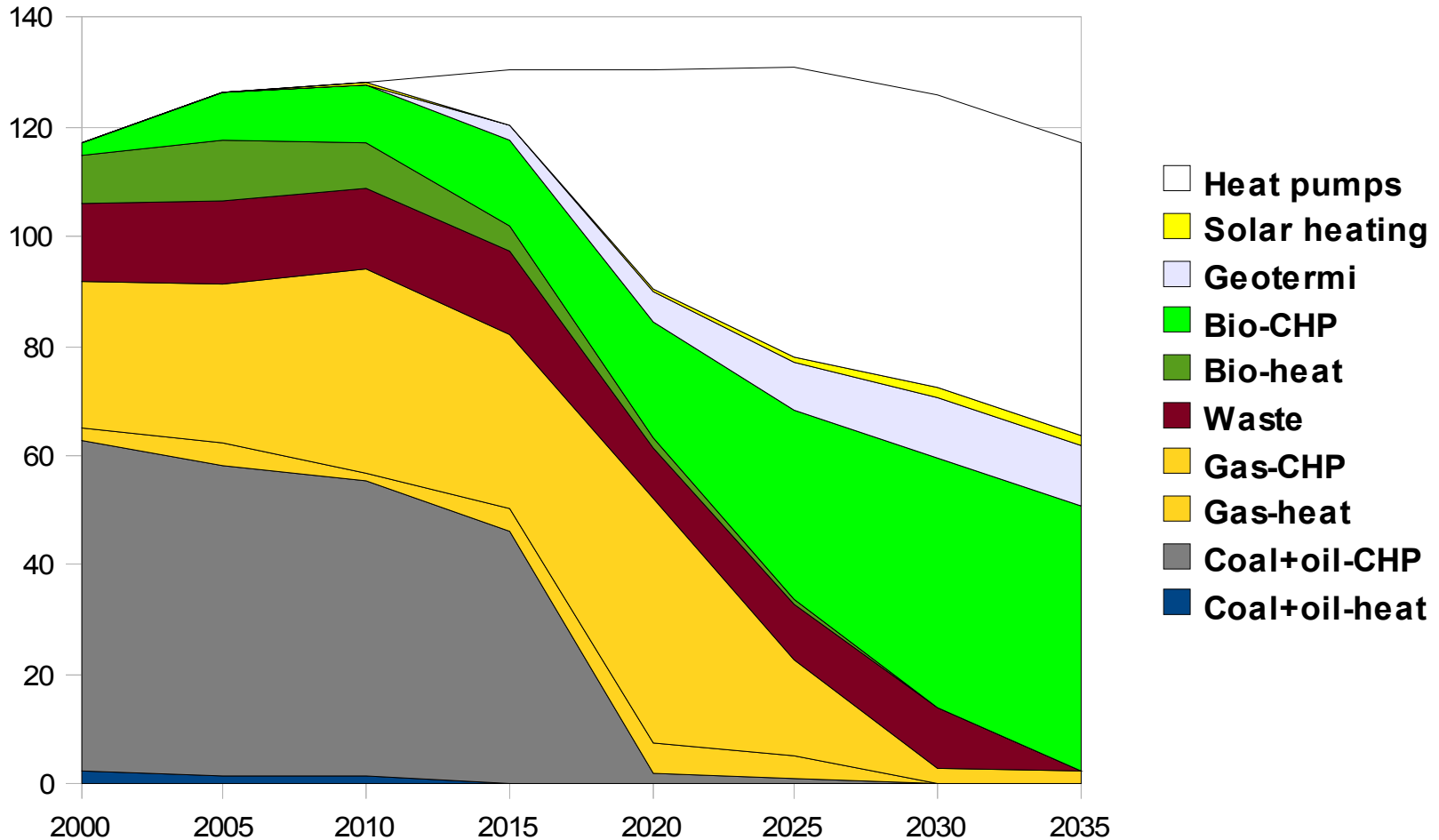


Danish Power Supply

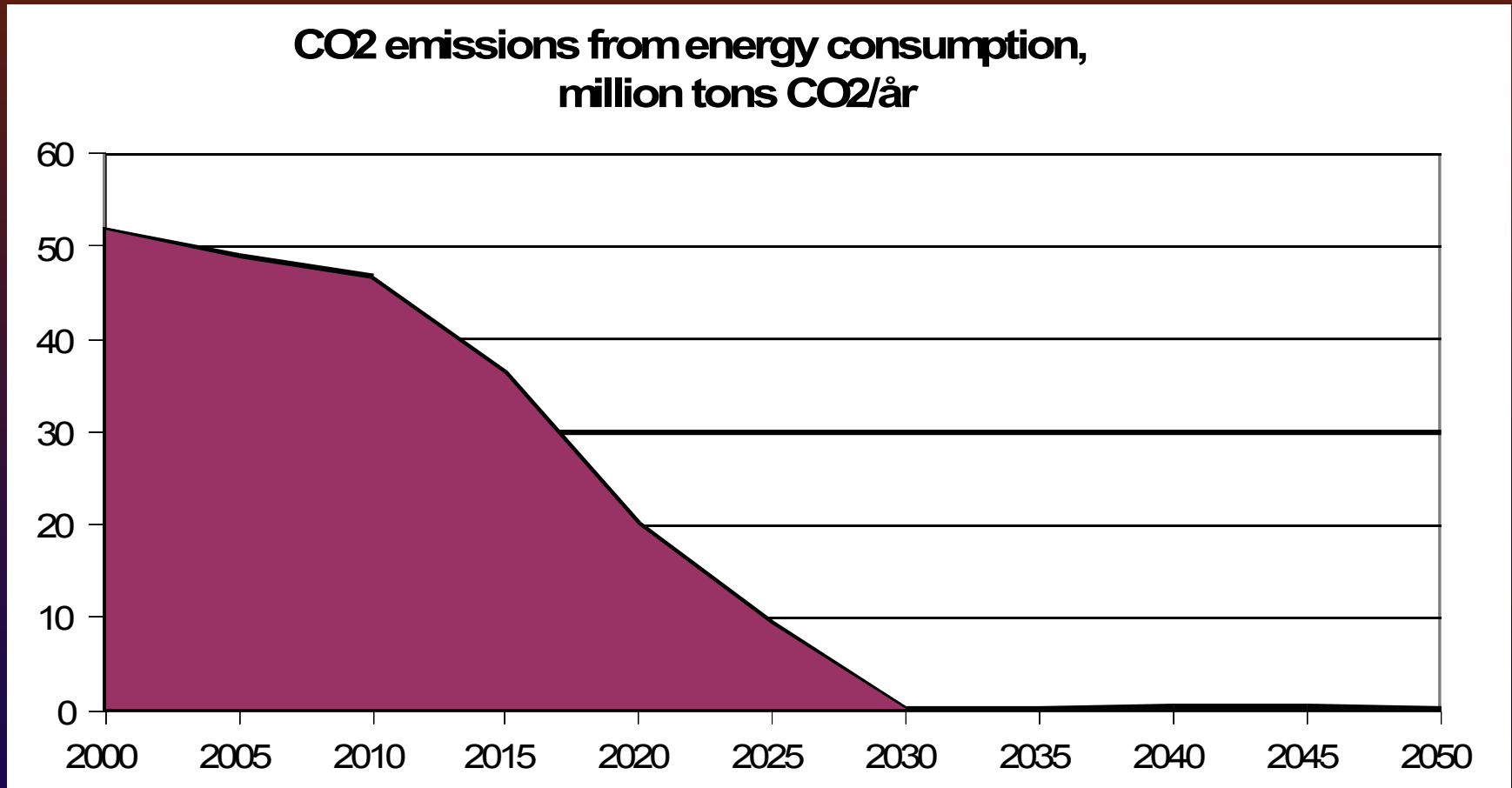


District Heating = 70% of Heat

District Heat Supply, Denmark (PJ)



CO₂ Emissions from Energy



- In total 2 t/capita per year in average 2010 – 2049
= sustainable level

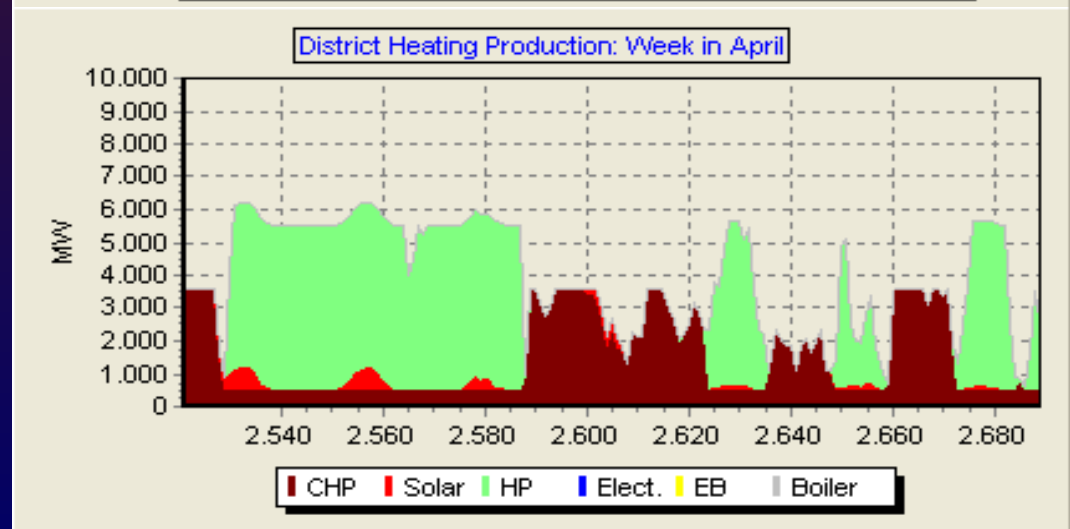
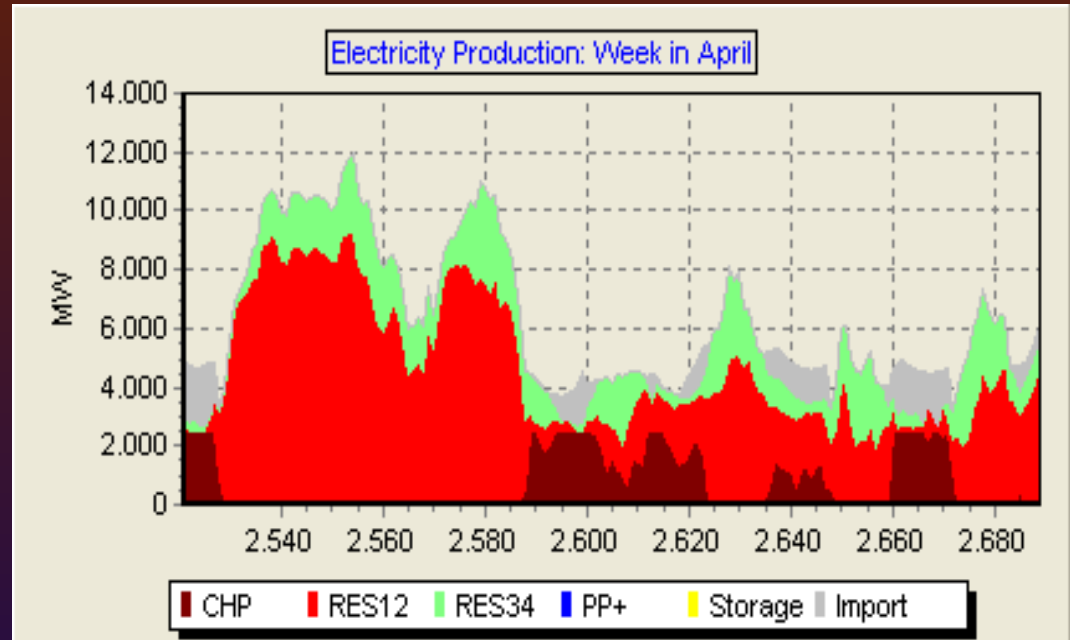
System in balance in 2030

- Hourly balances made with Energy Plan programme
- 1% unused windpower
- Existing import/export lines

RES12 = Wind

RE34 = wave+PV

CHP incl. geothermal



Thank you



See

<http://www.inforse.org/europe/Vision2050.htm>

