



INFORSE

International Network for Sustainable Energy



UNFCCC COP19 Side Event:

*“New Solutions of Climate Mitigation in South & North;
NGOs Voices on the Technology Mechanism”*

organized by AIWC - INFORSE - HELIO
18th November, 2013, Warsaw, Poland

Sustainable Energy Visions

Gunnar Boye Olesen

International Network for Sustainable Energy - Europe
INFORSE-Europe, and SustainableEnergy, Denmark

INFORSE-EUROPE

International Network for Sustainable Energy - Europe

Proceedings: www.inforse.org/europe/conf13_COP19.htm



Sustainable Energy Visions

**Transition to 100% renewable
energy**

- ZeroCarbonBritain, year 2030**
- 100% RE in Denmark by 2030**
- 100% RE in EU in year 2040**

>- technical and economical feasible

International Network for Sustainable Energy

Network of 150 NGOs worldwide, 75 in Europe

An international voice to NGOs promoting renewable & energy efficiency

- **Sustainable energy visions**
- **North-South cooperation,**
- **Climate policies**
- **Sustainable Energy News**



INFORSE

International Network for Sustainable Energy

The Climate Action we Need:

IPCC 2013 projection to keep global warming below 2°C with 66% certainty (RCP2.6):

We must globally reach zero net GHG emissions just after 2050, followed by negative emissions for 2-3 decades

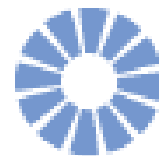
As a consequence: a 2°C scenario with 66% certainty and with no negative net emissions will require zero net emissions around 2050

This can realistically be done only be achieved if some countries lead and become zero emitters by 2040 or earlier

ZERO CARBON BRITAIN

Rethinking the Future

July 2013



Centre for Alternative Technology
Canolfan y Dechnoleg Amgen

ZeroCarbonBritain

- Use energy (much more) efficiently
- Limited physical growth, more sustainable transport
- Expand renewables to cover remaining energy demands with UK's own renewable resources
- Smart demand management
- Use of surplus electricity for synthetic gas
- Sustainable biomass from UK sources
- Reduced meat consumption, healthier diet
- Capture carbon in forests and wetland
- 1 million jobs and a healthier economy

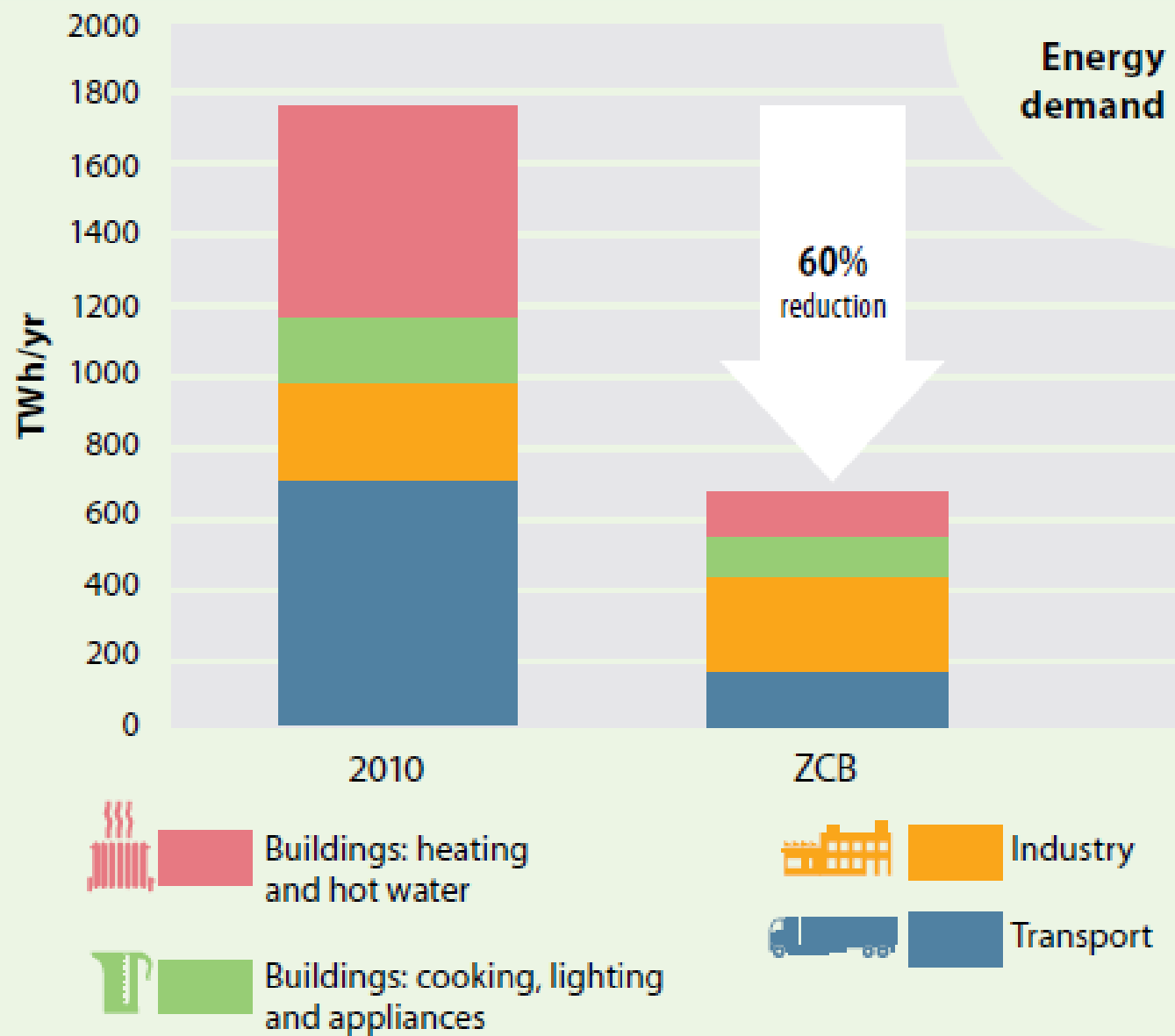
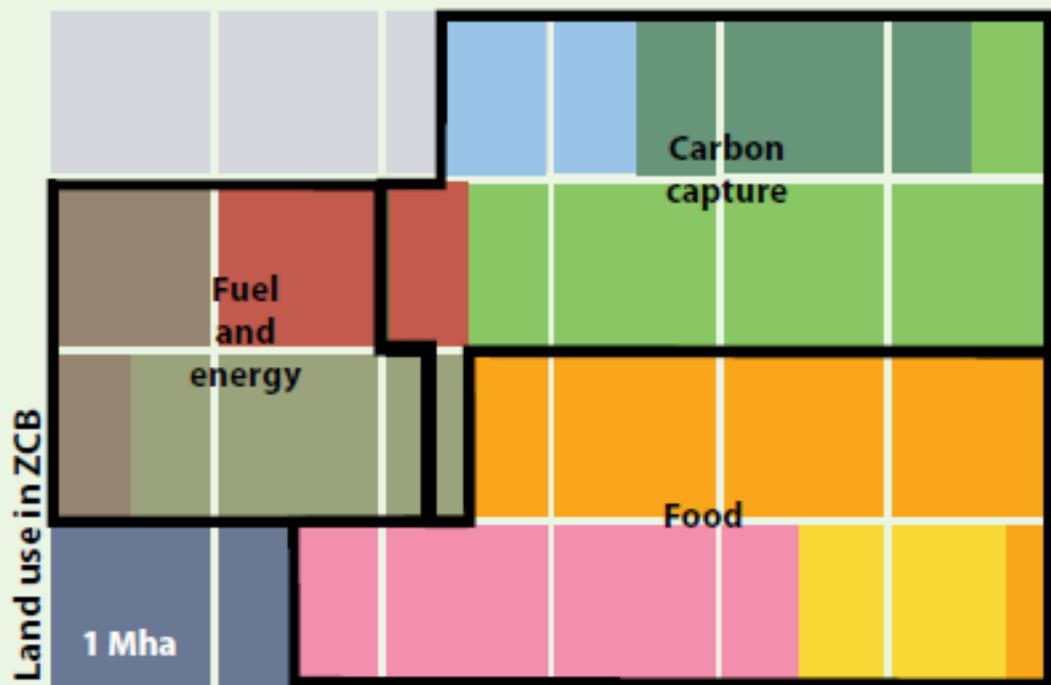


Figure 3.4: Total annual energy demand by sector in the UK in 2010 (DECC, 2012) and in our scenario.

Land use summary:

- Unmanaged/conserved
- Restored peatland
- Unharvested forest
- Harvested forest
- Mixed grasses
- Short rotation forestry (SRF)
- Short rotation coppice (SRC)
- Food for us
- Food for livestock
- Grassland for livestock
- Urban



Vision for Denmark (OVE) 2030

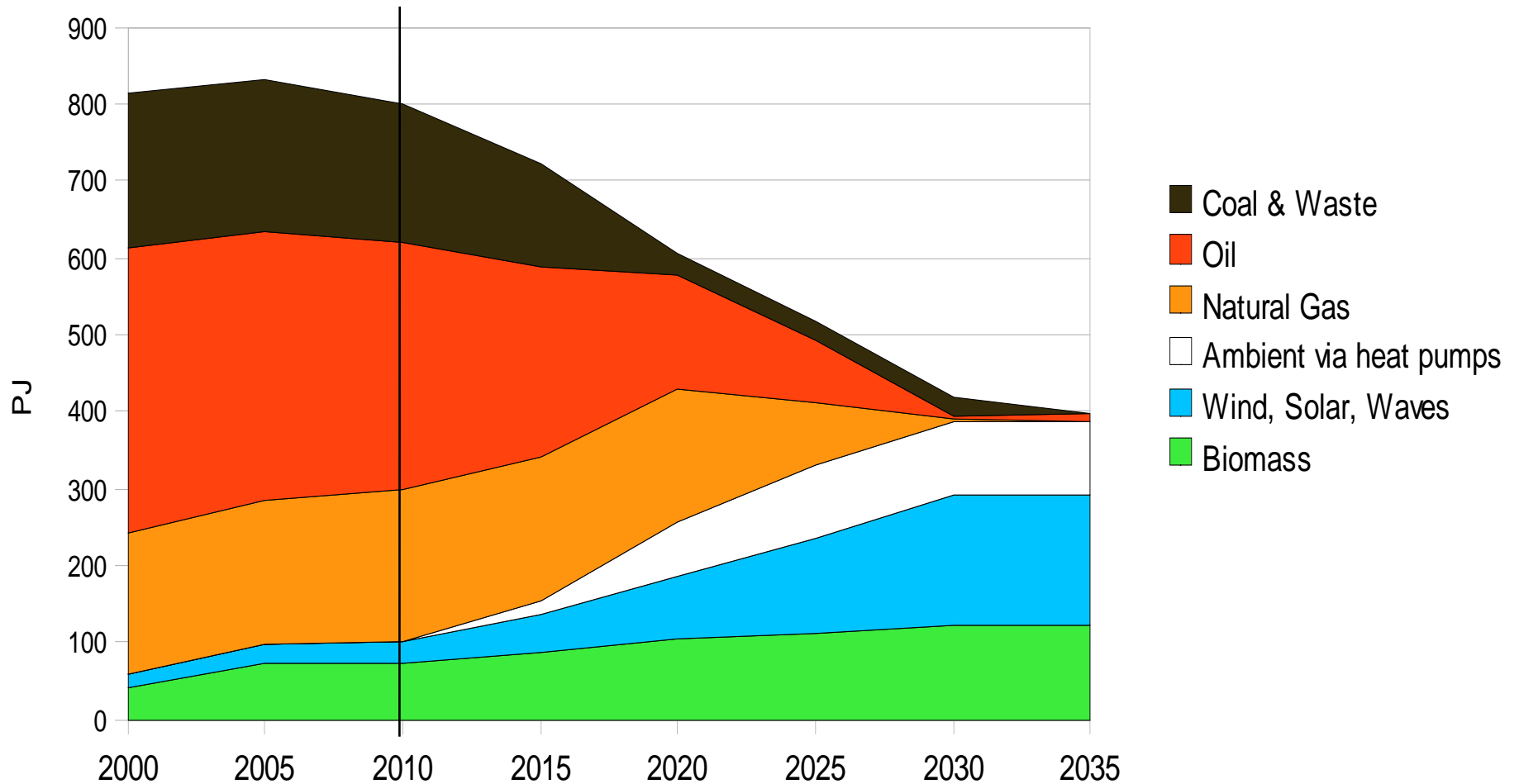
- Strong growth in windpower, sust. biomass
- Reduce specific consumption: energy efficiency
- Flexible energy: district heating, heat pumps, electric cars and hydrogen
- Sustainable transport system, 80% more efficient
- No new international power lines



Energyvision2030:

Danish Primary Energy Demand

Danish Primary Energy Supply



Energyvision2030: with 80% windpower

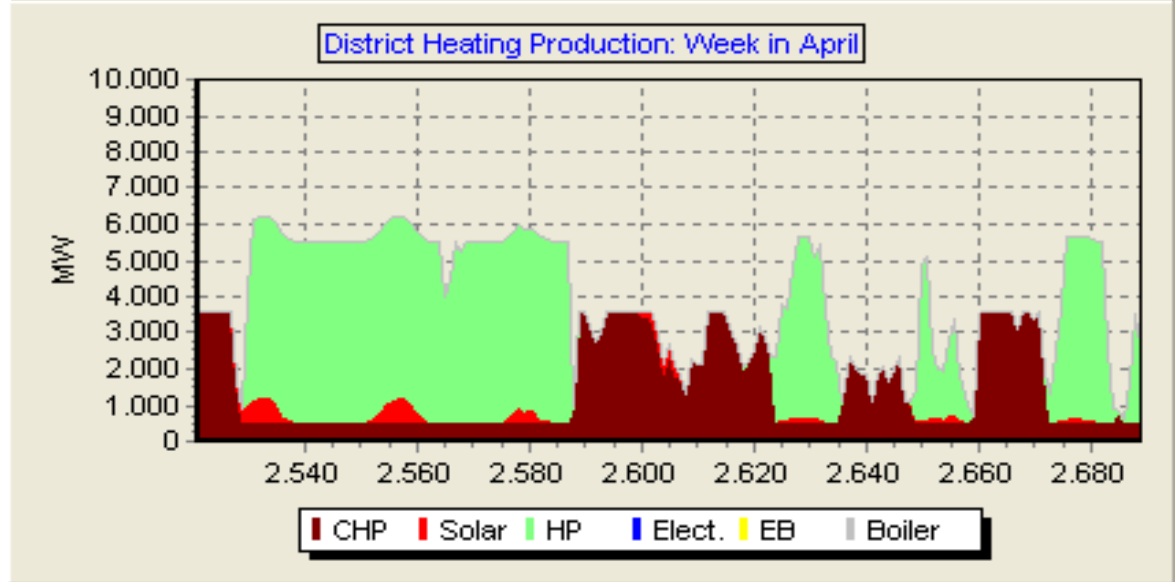
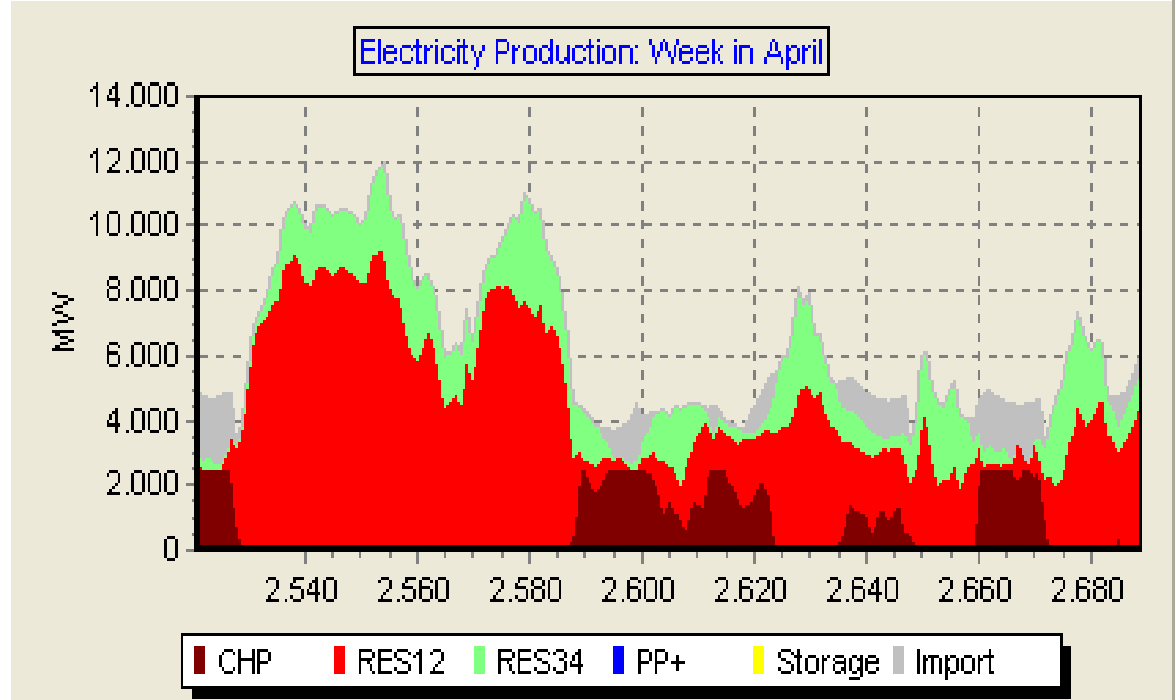
DK System in balance in 2030

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

RES12 = Wind

RE34 = wave+PV

CHP incl. geothermal



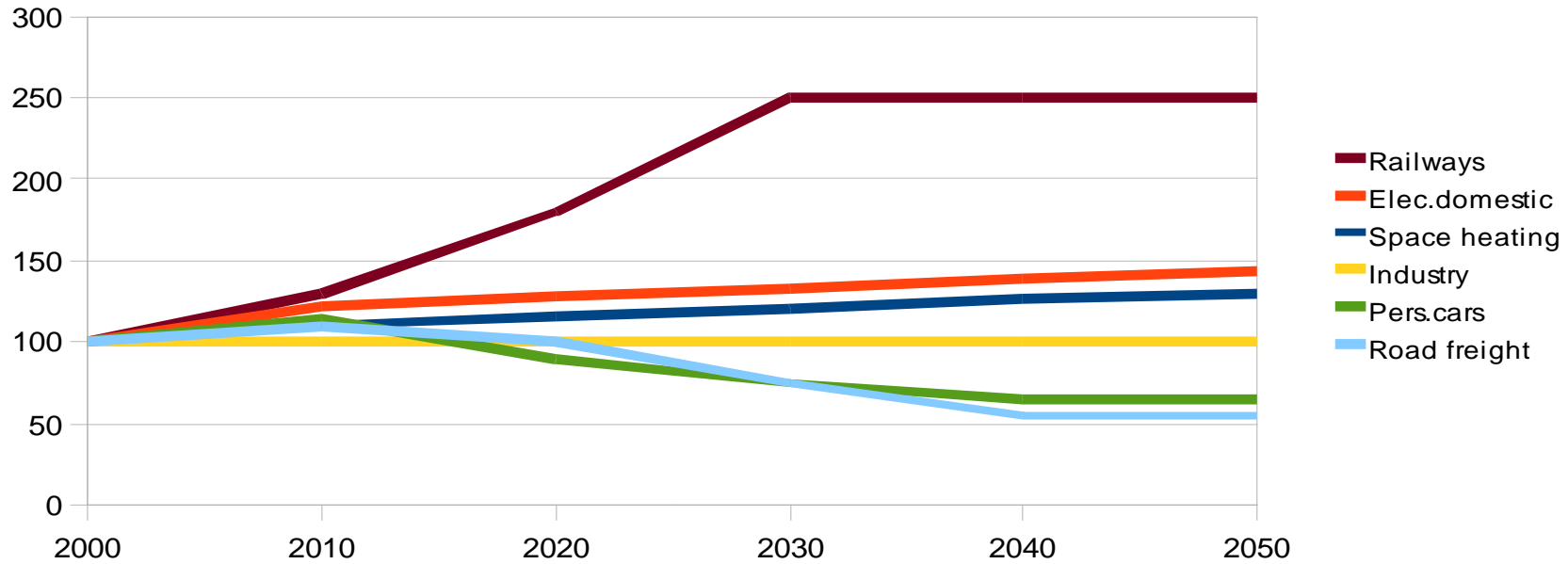
EU-27 Sustainable Energy Vision

- Above 98% CO₂ reduction by 2040,
- Fast application of known solutions to 2020 and 2030
- Sustainability issues addressed (biomass, biofuels)
- No net import or export over longer periods, but exchange to for balancing over days, months, no “DESERTEC”

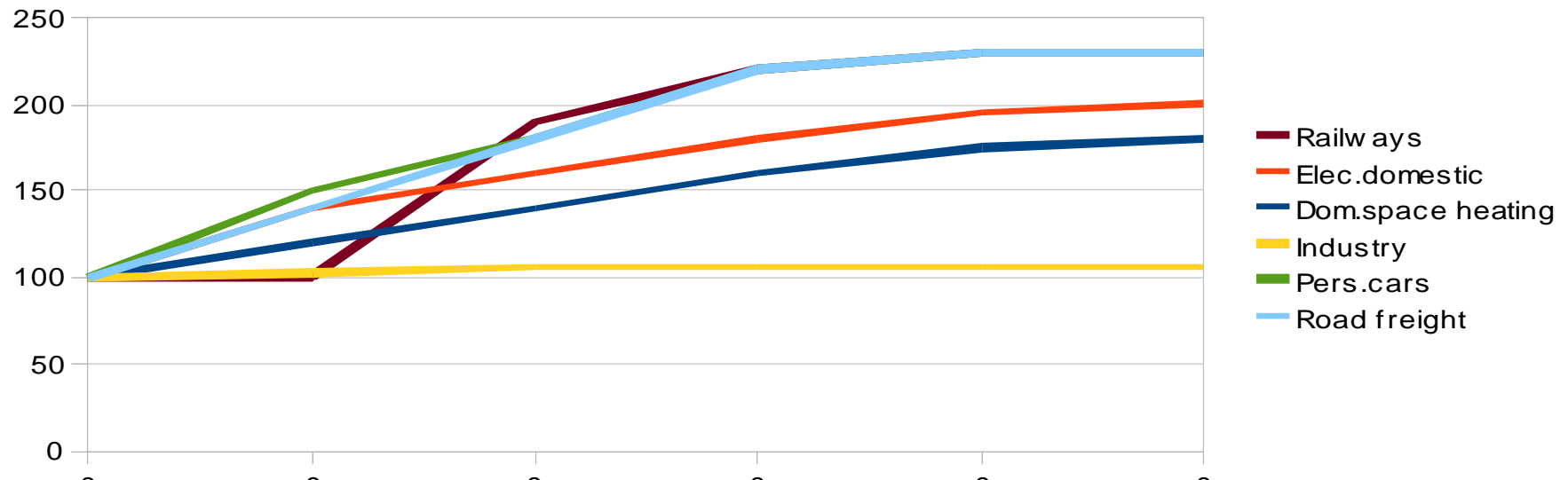


Energy Service Developments

EU-15 Activity - Relative to 2000



EU-10 Activity - Relative to 2000



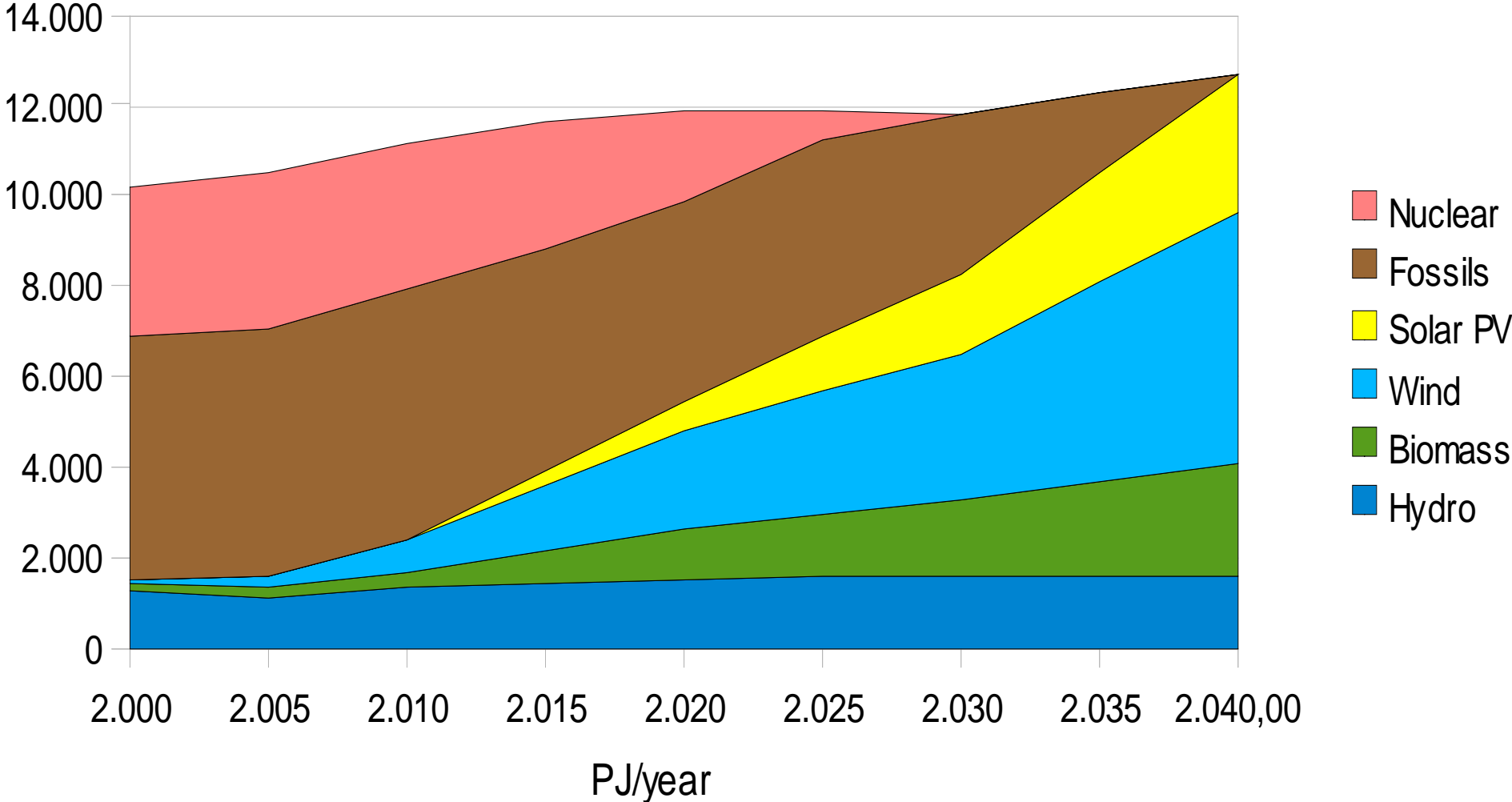
EU-27 Sustainable Energy Vision

Energy supply:

- **Efficient energy supply with combined heat and power(CHP), smarter and more efficient grids**
- **Rapid development of renewable energy**
- **Phase out of nuclear until 2025 (end of lifetime), no CCS**
- **No major imports or exports to/from EU, but electricity exchange with e.g. Norway**
- **Core gas network for storage, - with biogas**

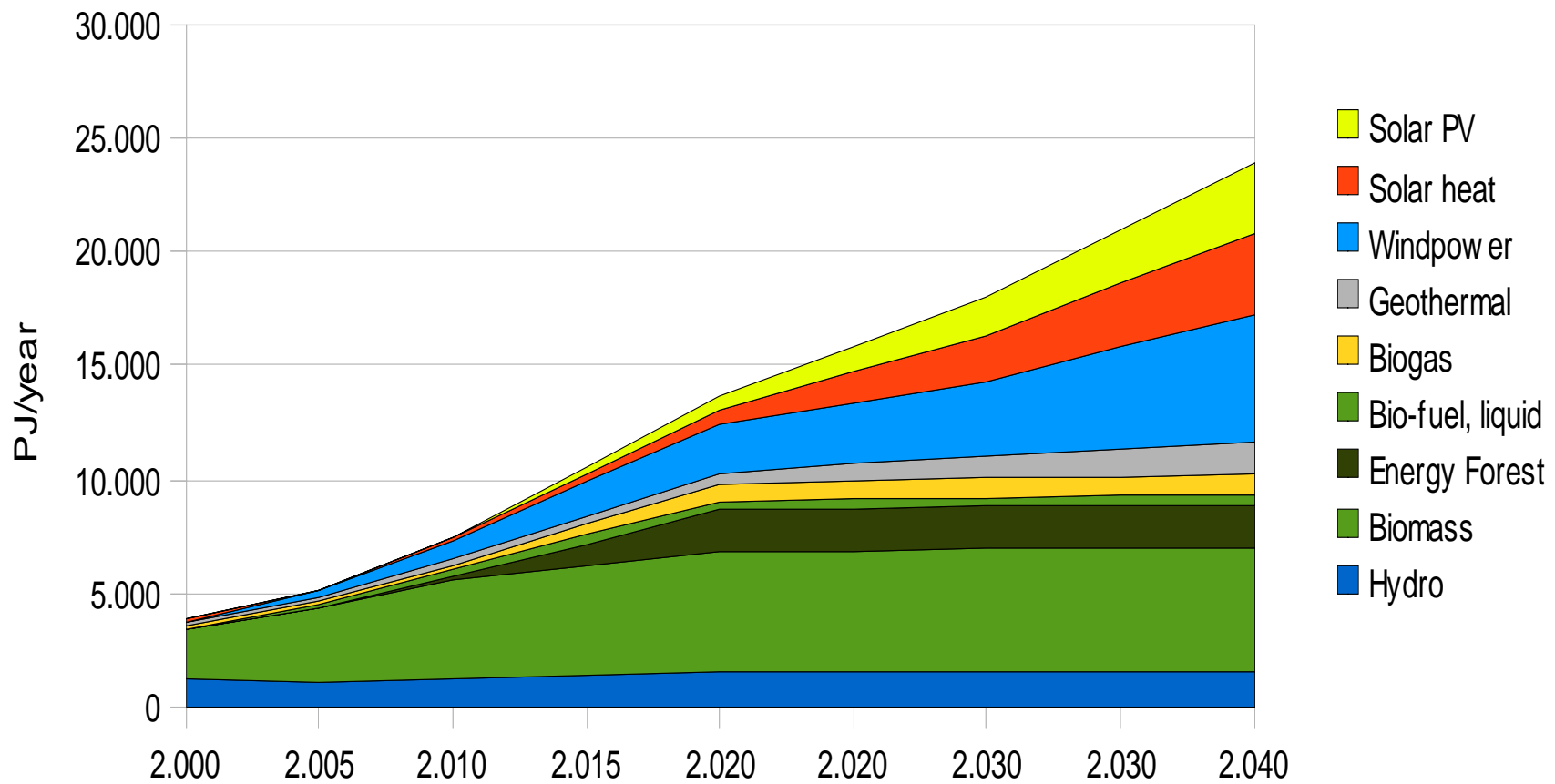
EU-27 Sustainable Energy Vision

Electricity divided in sources in EU27, INFORSE Vision

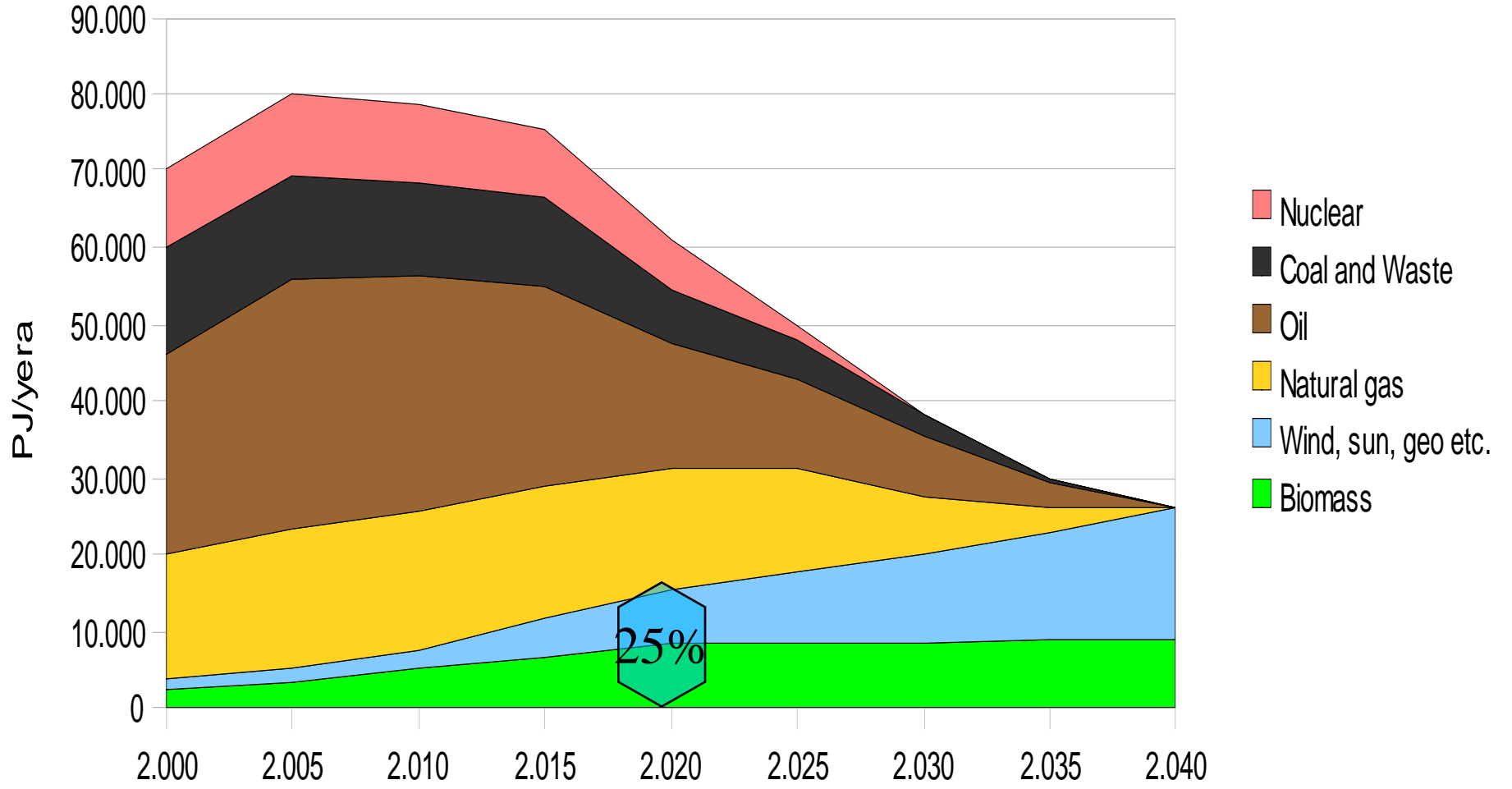


Renewable Energy Supply - EU27

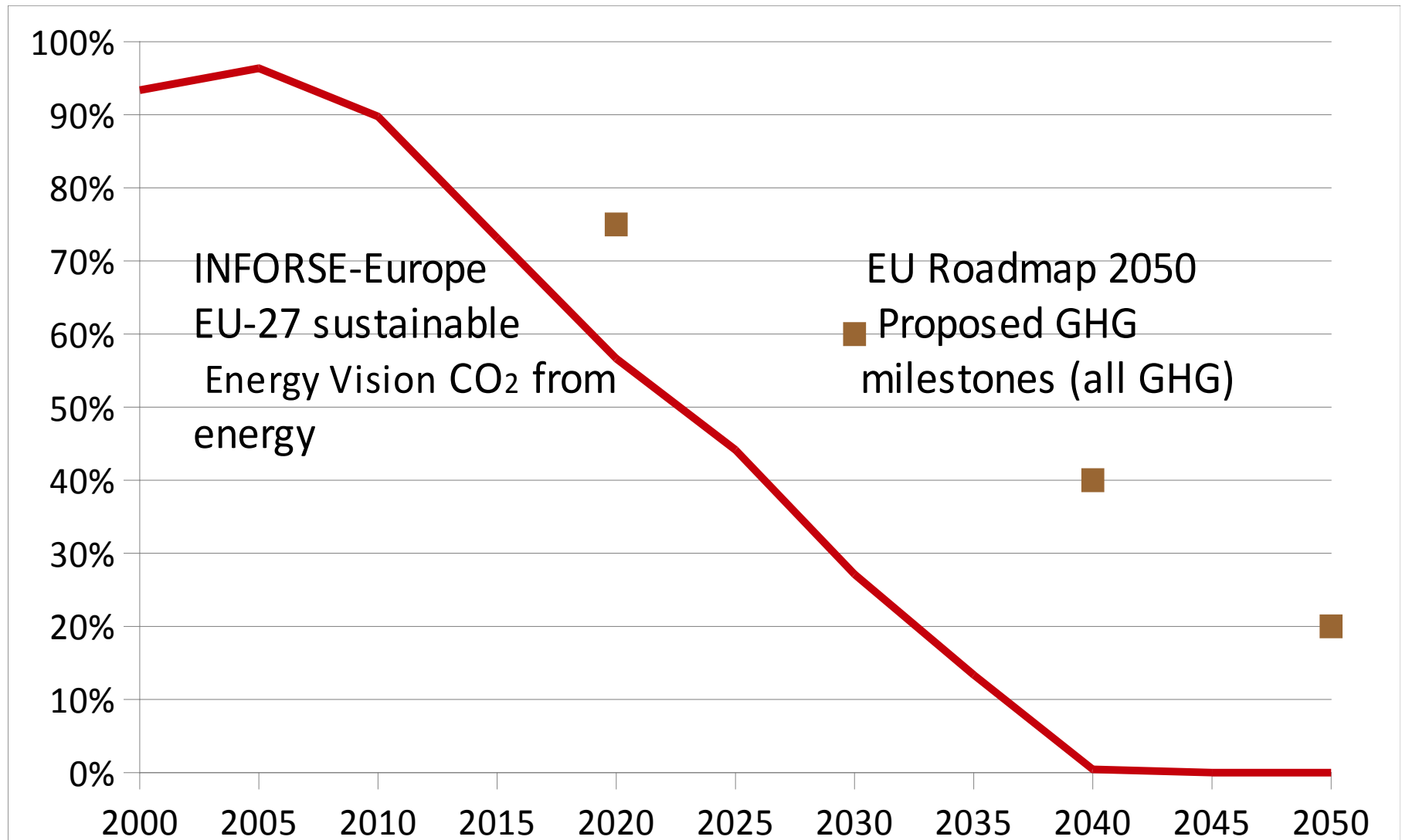
Renewable Energy in EU27, INFORSE Vision



EU Primary Energy, INFORSE Vision 2040



EU-27 Grenhhouse gas emmissions



Relative to 1990-levels

Thank you for your attention

Read more:

www.inforse.org/europe/Vision2050.htm

www.lowcarbonbritain.org

www.ve.dk/energivision

If in doubt: ask us