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

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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

Energy Services per capita

Primary Energy (TWh/y)
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

Primary Energy

INFORSE's EU-27 Vision

Vision for Denmark (OVE)
- 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

http://www.inforse.org/europe/seminar09_Artefact.htm
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

Balance in all Seasons

January, calm

July, calm

Variations in Power Supply & Heat P.

CHP: Capacity factor 24% (2100 full load hours)

Power only: Capacity factor 3% (220 hours)

System Heat Pumps: Capacity factor 33% (2900 full load hours)

Thank you

See www.inforse.org/europe

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