Side Event jointly organised by INFORSE & WECF
UNFCCC COP-14, Poznan, Poland. December 6, 2008
By Gunnar Boye Olesen, INFORSE Europe, OVE, Denmark
http://www.inforse.org/europe, http://www.inforse.org/europe/conf08_Poznan.htm

Transition to Sustainable Energy in 25-50 years, Scenarios for Europe, Employment etc.

Gunnar Boye Olesen,
International Network for Sustainable Energy (INFORSE)

INFORSE-EUROPE
International Network for Sustainable Energy - Europe

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6th December 2008

Global Energy Challenges

Global imperatives:

- The world energy use is beyond the environmental limits, e.g. Greenhouse gas emissions should be reduced > 80%
- does not provide basic energy needs as light and healthy cooking facilities to 1/4 of the world's population
- We must limit global warming to 2'C above pre-industrial level
- EU must take the lead

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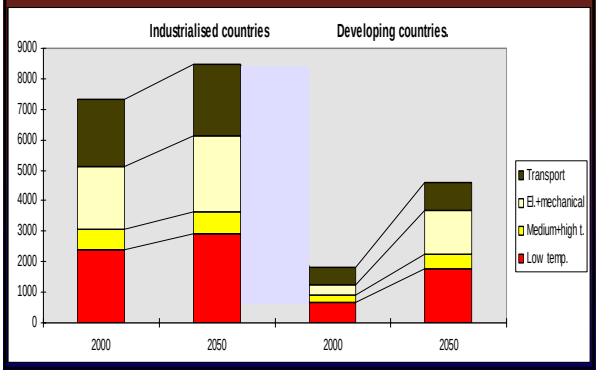
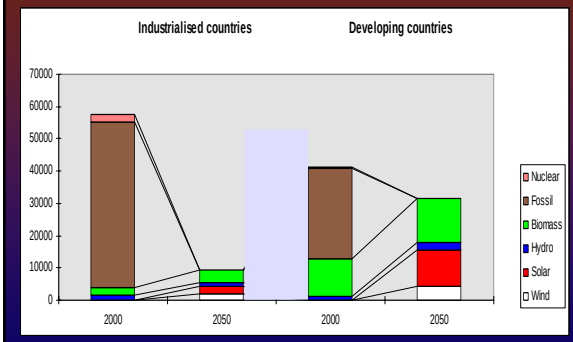
Energy Services per Capita



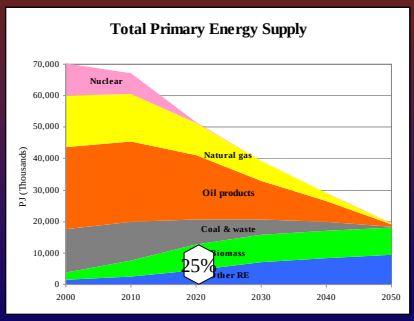
Primary Energy (TWh/y)



INFORSE Sustainable Energy Visions

- Vision for the World
- Vision for EU-27
- For Denmark, Latvia, Lithuania, Romania, Slovakia, Ukraine, (Bulgaria, Russia, Belarus)
  - Phase out nuclear 2025 and fossils '30-'50
  - Factor 4 energy efficiency when possible
  - Sustainable use of national renewables
  - Efficient energy systems
  - Electric and hydrogen transport
- Energy Balance for every decade to show path

INFORSE's EU-27 Vision



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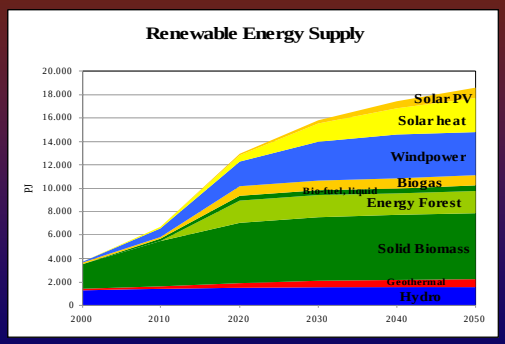
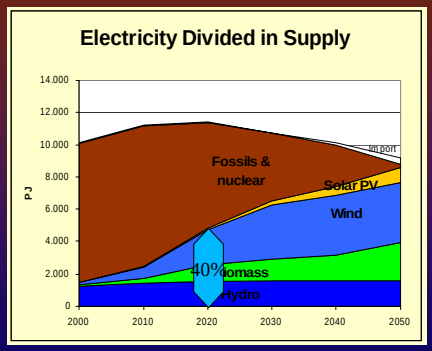
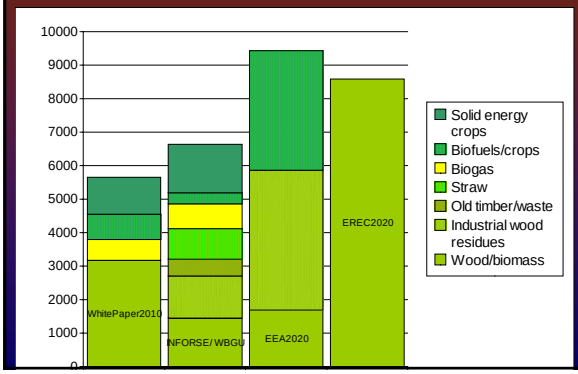


INFORSE's EU-27 Vision



Biomass, Sustainably in EU (PJ)



Energy Demand

- Most energy consuming equipment will be replaced many times before 2050. Factor 4 energy efficiency increase is possible (consumption per unit 25% of today). Technology learning drives prices down.
- One exception is houses. In EU houses could use only 1/7 of today's heat demand in 2050. For the vision is proposed 1.7%p.a. specific reduction leading to 57% reduction 2000 – 2050.
- For transport is expected increase in conversion efficiency from today's 15-20% to 50%, and re-gain of "break energy": factor 4 efficiency increase
- Energy service demand will increase, 0-100%
- -33% in car use in EU-15, but + 100% in Lithuania

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Realise Efficiency

Realising factor 4 in electric equipment,industry, transport, many examples:

- Computer screens: change to flat screens save 50 - 66% in one generation.
- A hydrogen car can be 4 times as efficient as present petrol cars, electric cars are 6 times as efficient.

Buildings:

- Industry (Eurima/EuroACE) finds that more than 50% of energy use in buildings could be reduced – INFORSE-Europe proposes 57% until 2050.

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Vision for Denmark (OVE)

- Strong growth in windpower until 2030
- Half specific building consumption 2005-2025
- Flexible electricity use: heat pumps and hydrogen
- Sustainable transport system by 2030 (33% reduction in car use)
- el-storages from 2030

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