

# Energy, Climate and Biodiversity

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International Network for Sustainable Energy

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**INF**  **RSE-EUROPE**

**International Network for Sustainable Energy - Europe**

# Man-made Climate Change Destroy Biodiversity – and is mainly Caused by Energy

The world energy supply and use:

- ❖ Causes about 60% of man-made climate change
- ❖ Is beyond environmental limits of radioactivity, acidification, resource depletion, and others.
- ❖ Does not provide basic energy needs as light and healthy cooking facilities to 1/4 of the world's population

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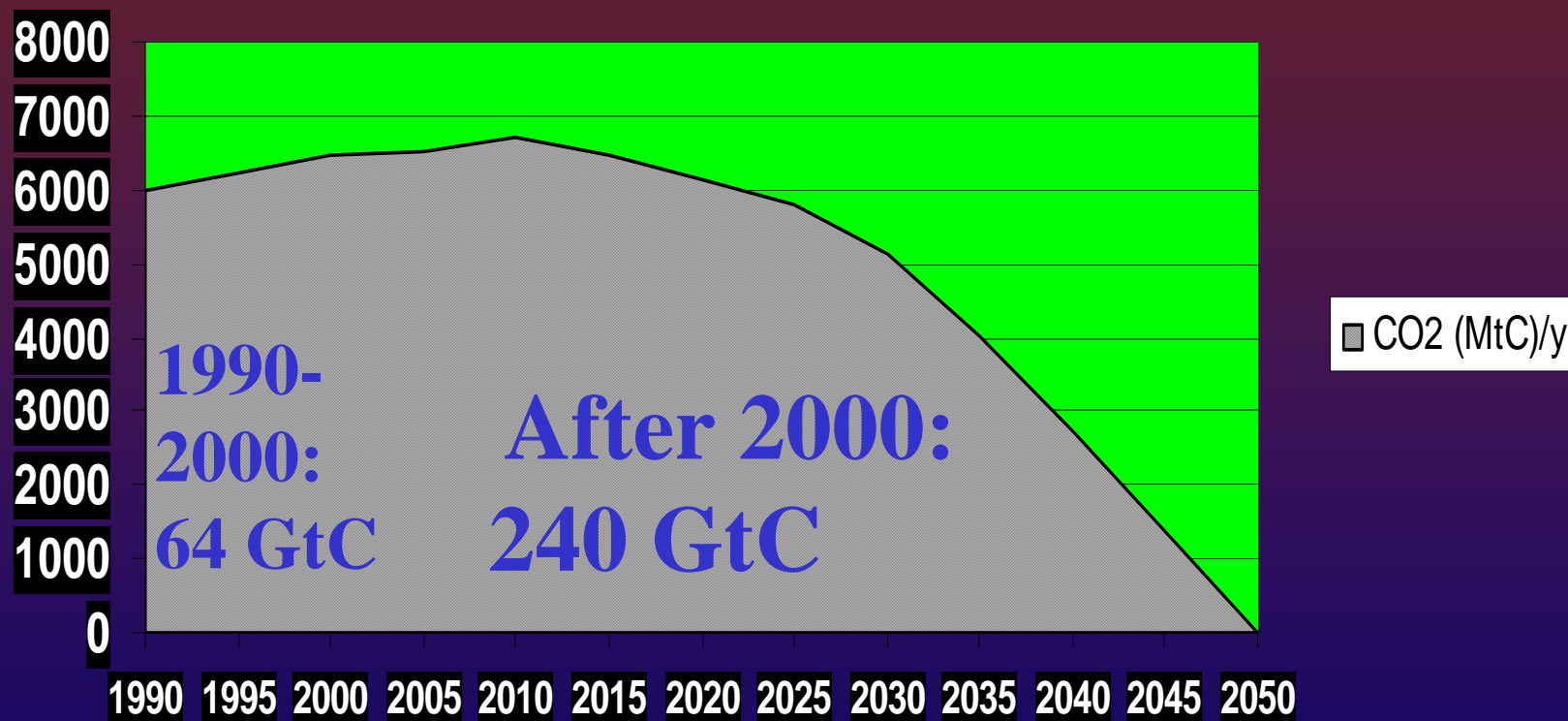
# Global Warming & Biodiversity

The EU leaders has agreed that we must limit man-made global warming to 2°C above pre-industrial level

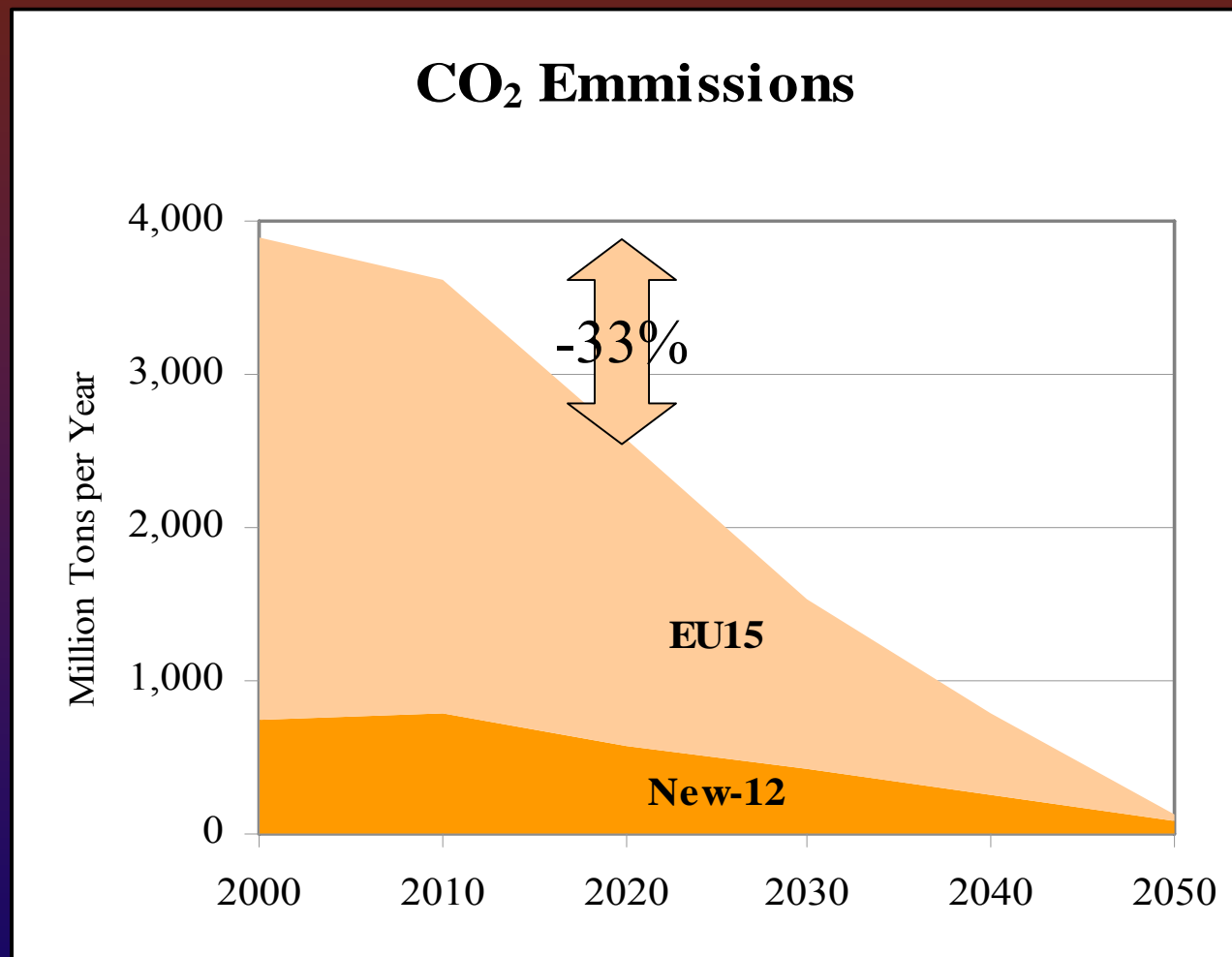
- ❖ Global warming above 1.5-2.5°C is likely to cause extinction of 20-30% of species and major changes in ecosystems (IPCC4, WG2, summary)
- ❖ How much biodiversity loss will we accept?
- ❖ INFORSE advocates to limit global warming to 1.6 °C above pre-industrial level.

# A Global Sustainable Scenario

CO<sub>2</sub> (MtC)/y

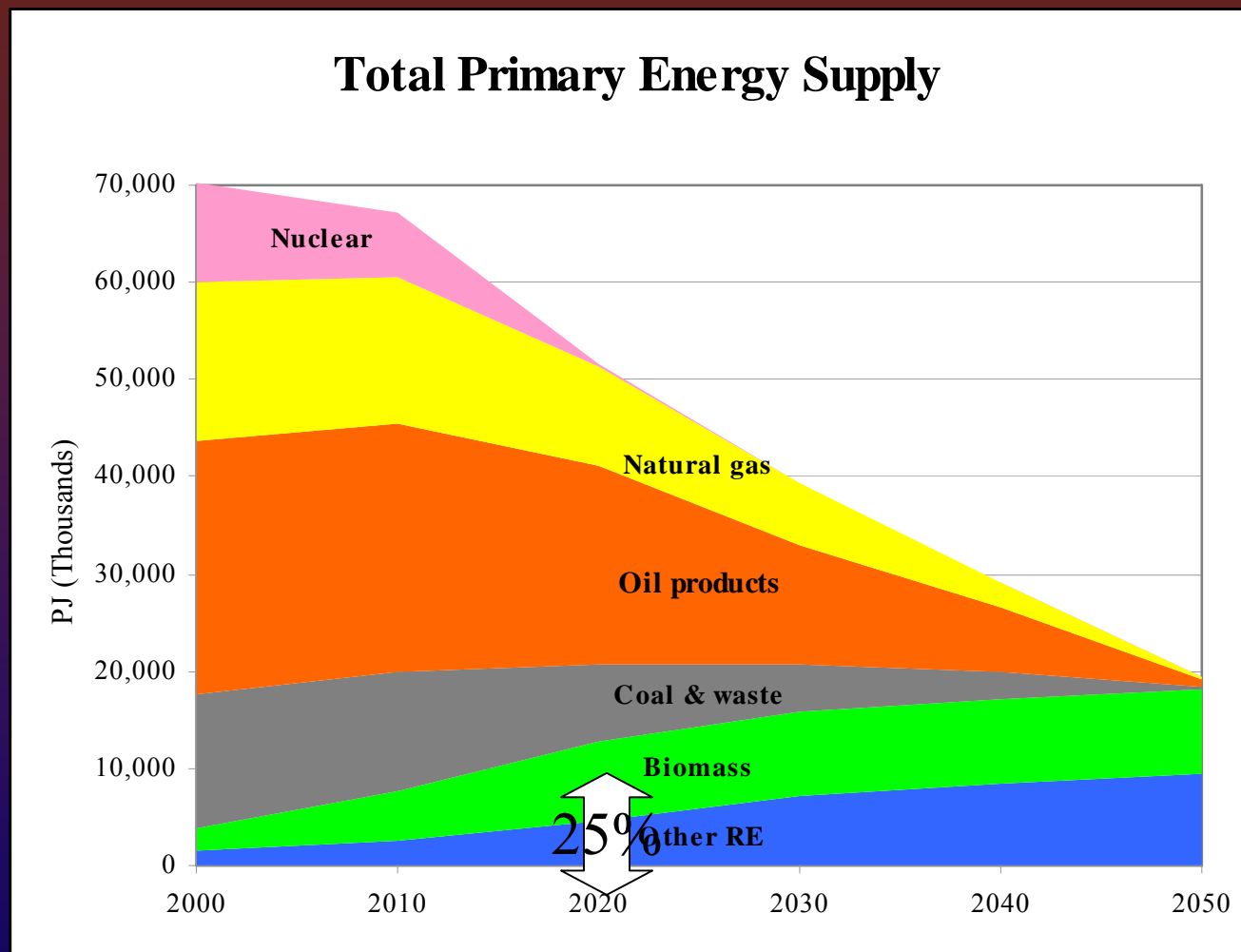


# INFORSE's EU-27 Vision



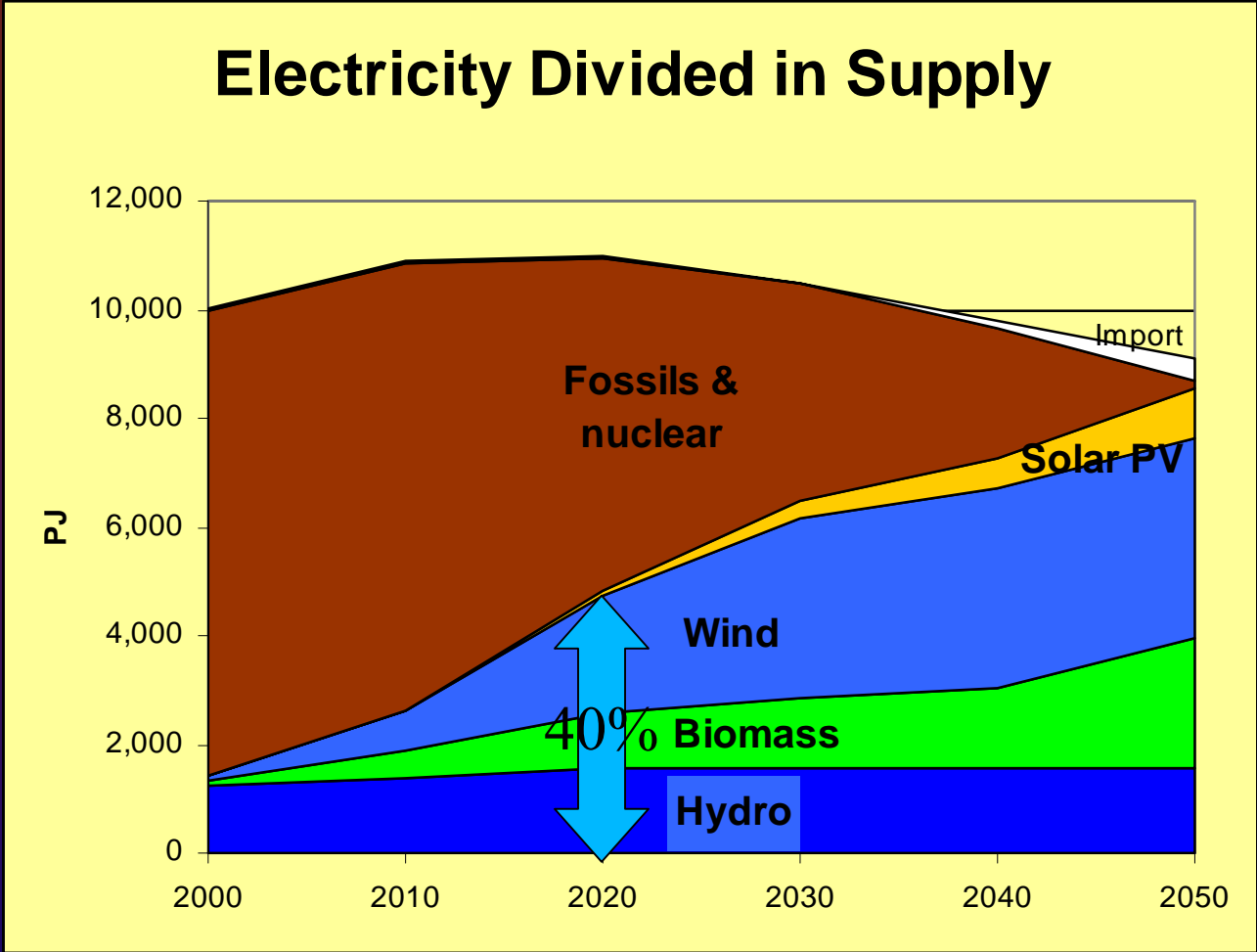
Preliminary version – March 2007

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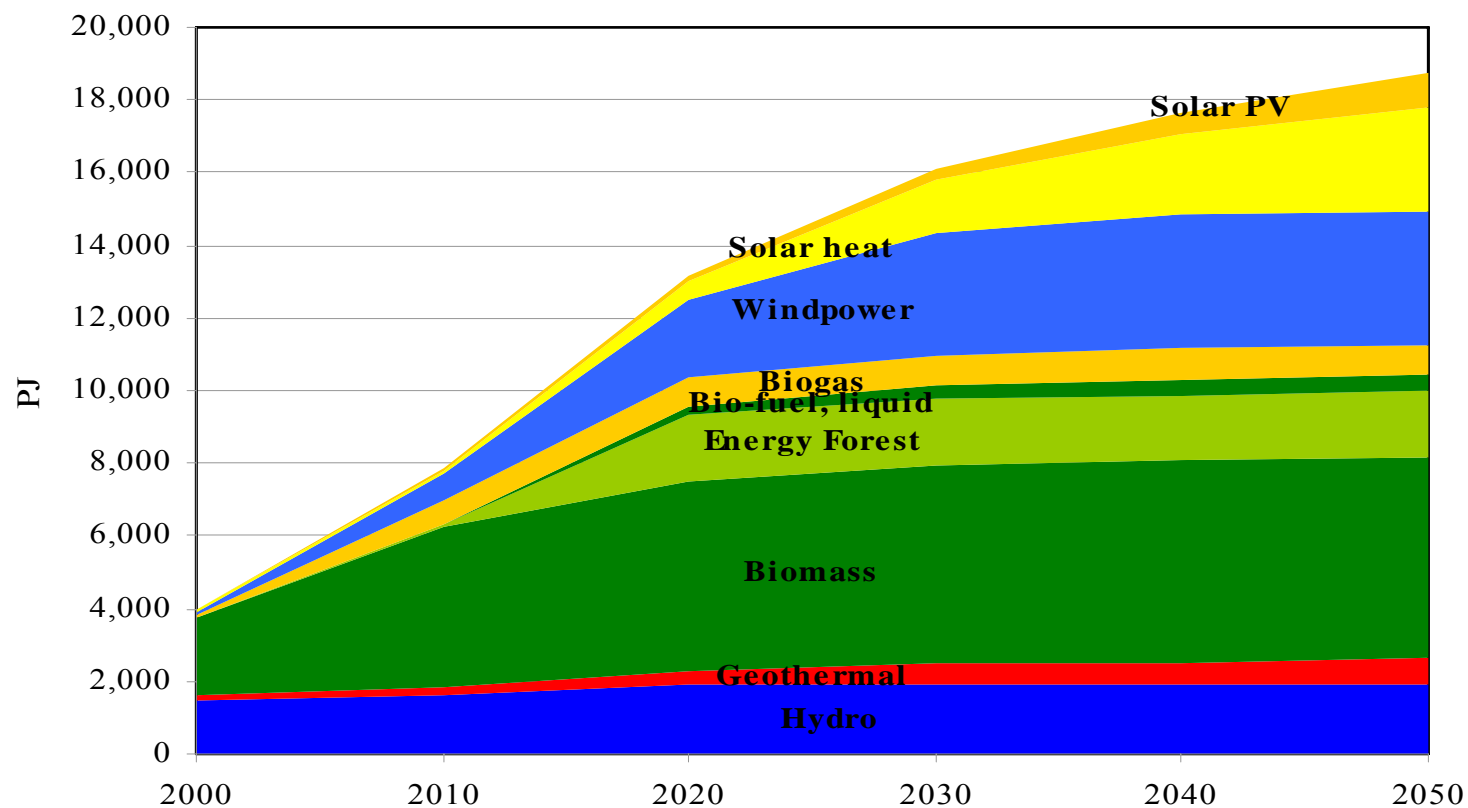
# INFORSE's EU-27 Vision



Preliminary version – March 2007

# INFORSE's EU-27 Vision

## Renewable Energy Supply



Preliminary version – March 2007

# Energy Demand

- ❖ Most energy consuming equipment will be replaced many times before 2050: new generations of equipment should maximize efficiency. 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

# EU Energy Supply

**Wind:** Growth to 70,000 MW in 2010 (current trend), 220,000 MW in 2020 and 375,000 MW in 2040 (up to increase of 15,000 MW/year), now 6000 MW/year), ¼ expected offshore.

**Solar:** PV market has reached the critical 500 MWp/year globally, and grows > 25% pr. year

**Biomass(all incl):** Slow growth, large resources remain, doubling proposed (from 2005)

# National Plans and Visions are Crucial

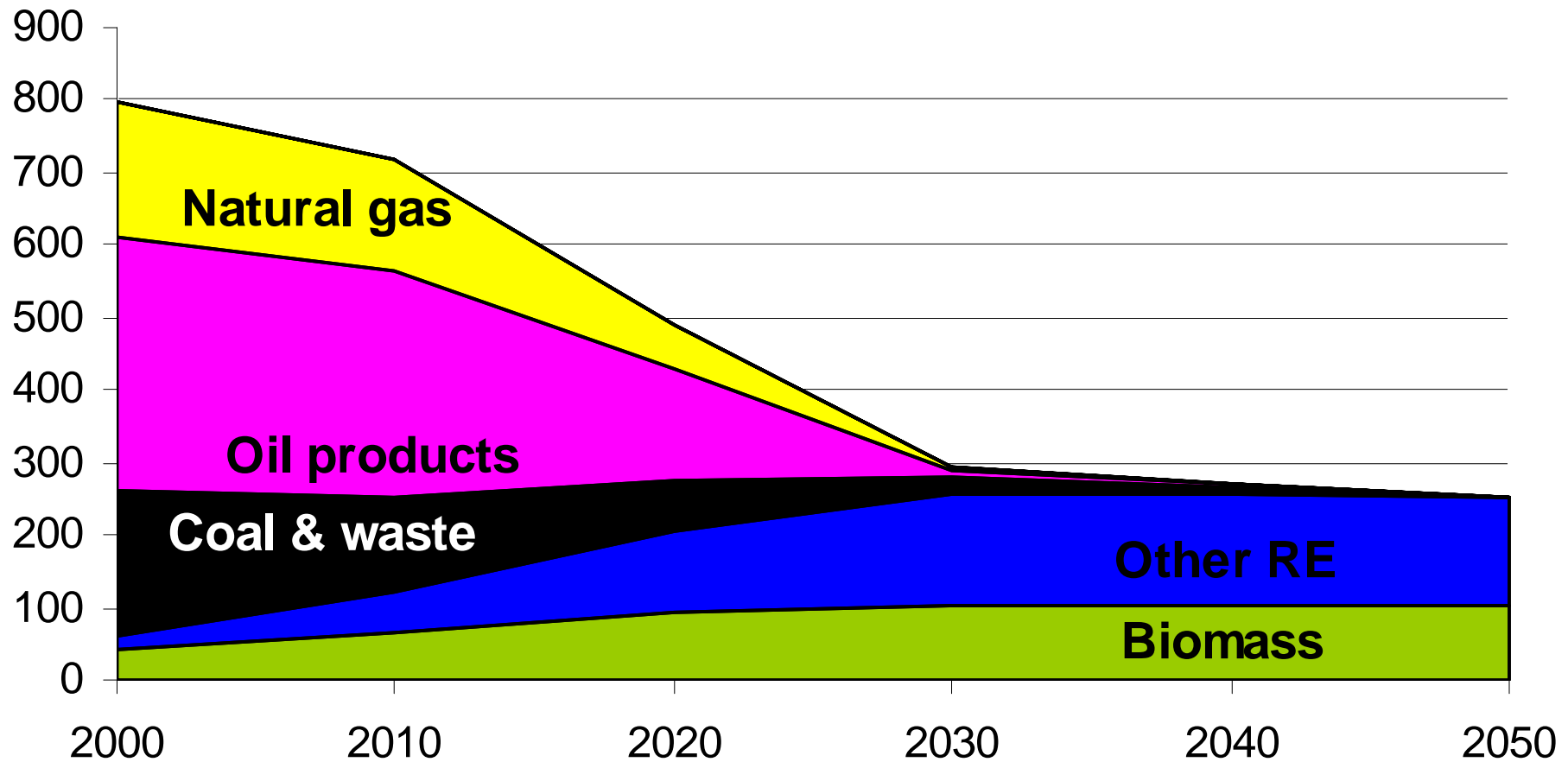
- ❖ Vision for Denmark, phase out fossils by 2030
- ❖ ZeroCarbonBritain, phase out fossils by 2027
- ❖ Vision for Latvia, phase out fossils by 2050
- ❖ Vision for Lithuania, phase out fossils by 2050
- ❖ Vision for Romania, phase out fossils by 2050
- ❖ Plans for more national visions, in cooperation with national NGOs
- ❖ Plans for more detailed framework, to follow latest climate science strictly and allow for more North-South equality

# Vision for Denmark (OVE'05)

- ❖ 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



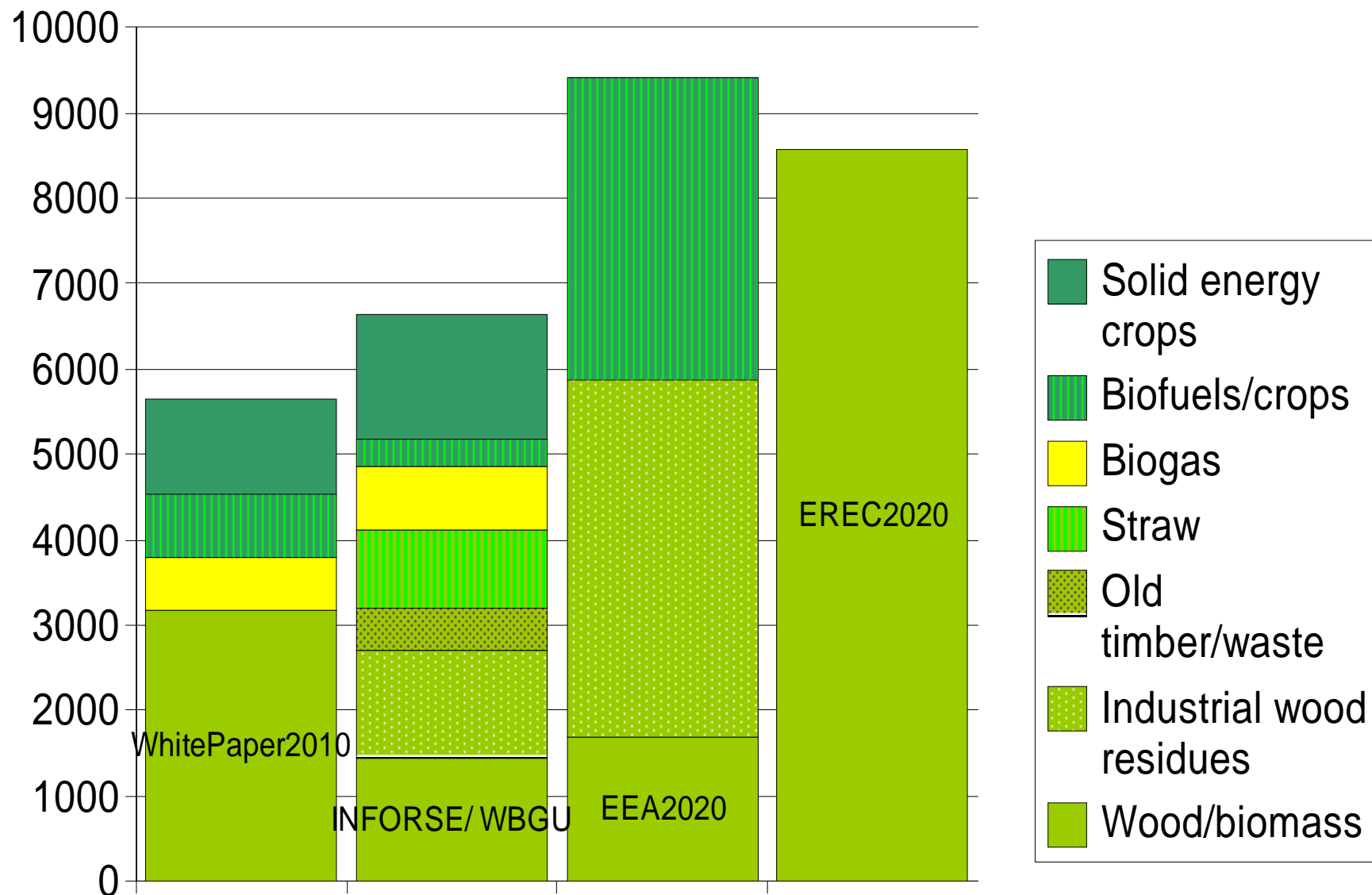
## Primary Net Energy Supply, Denmark (PJ)



# Renewable Energy & Biodiversity

- ❖ Sustainable energy strategies, based on renewable energy solutions are necessary for climate stabilisation and thereby to limit biodiversity loss
- ❖ Nuclear power is inadequate, limited in resources, inflexible, dirty (with GHG emissions and radioactivity), and too expensive to reduce greenhouse gas emissions sufficiently
- ❖ Carbon Capture and Storage is too expensive, uncertain, and costly to reduce GHG in time
- ❖ Some renewables pose problems for biodiversity: primarily hydro and biomass (in particular biofuels)

# Biomass, Sustainably in EU (PJ)



# Sustainable Biomass

- ❖ Substantial wood residues in industry and resources of old wood (timber) that can be used without conflicts with biodiversity
- ❖ Biogas from manure, organic wastes and sludge without POPs or heavy metals can be used without conflicts, degassed sludge to be used as fertiliser
- ❖ Straw harvest can be used partly without conflicts
- ❖ Wood residues from forest can be used, regulation required (such as FSC)
- ❖ INFORSE-Europe propose up to 14% of agricultural land used for solid biomass + biofuels, regulation required

# Unsustainable Biomass

- ❖ Imported biofuels (agrofuels) are often produced in very unsustainable ways in the South (Indonesia, Latin America); import of this is very problematic
- ❖ Forest practices with clear cutting of forests are problematic, if instead FSC rules are applied, a minimum of biodiversity is maintained in production forests
- ❖ Increased food prices, partly driven by use of (inefficient) biofuel crops, increases conflicts between (expanding) farming and conservation of biodiversity conservation.

# Moratorium on Agrofuel Support

- ❖ The increased use of liquid biofuels are driving an unexpected and unprecedented destruction of nature in several countries
- ❖ INFORSE-Europe supports a moratorium on support for agrofuels (liquid biofuels grown as large-scale monoculture)
- ❖ The Moratorium should stop support, tax-reductions, and mandatory blending of biofuels
- ❖ Truly sustainable production for local use is exempted
- ❖ Biofuel targets should be replaced with targets for sustainable transport (renewables, efficiency, etc.)

# Policies are Not in Place

- ❖ At CSD15 in May 2007 all countries agreed that biofuels should be grown sustainably
- ❖ EU leaders agreed in March 2007 a 10% target for biofuels on the condition that production will be sustainable
- ❖ BUT the current EU target for renewables in transport (5.75% by 2010) has no sustainability criteria, similar for US targets
- ❖ Production criteria are not enough, given the secondary effects, & demands on crop-land
- ❖ **We need a moratorium until policies for sustainable production are in place**

# Thank You



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