Energy, Climate and Biodiversity

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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

CO2 (MtC)/y

- 1990-2000: 64 GtC
- After 2000: 240 GtC

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INFORSE's EU-27 Vision

CO₂ Emissions

Million Tons per Year

-33%

EU15

New-12

Preliminary version – March 2007
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Total Primary Energy Supply

- Nuclear
- Natural gas
- Oil products
- Coal & waste
- Biomass
- Other RE

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Electricity Divided in Supply

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Renewable Energy Supply

- Solar PV
- Solar Heat
- Windpower
- Biogas
- Bio-fuel, liquid
- Energy Forest
- Biomass
- Geothermal
- Hydro

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
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)

- Solid energy crops
- Biofuels/crops
- Biogas
- Straw
- Old timber/waste
- Industrial wood residues
- Wood/biomass
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

See
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