



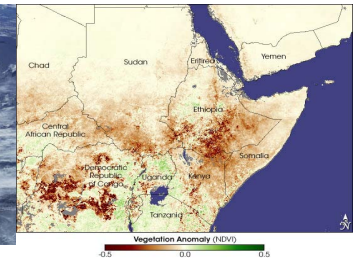
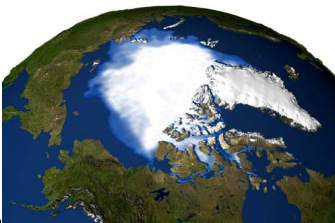
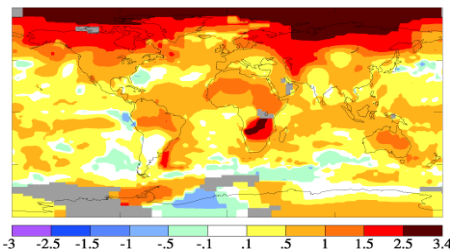
for a living planet[®]

CCS - an uncomfortable but necessary option

Dr Stephan Singer

WWF International - European Policy Office

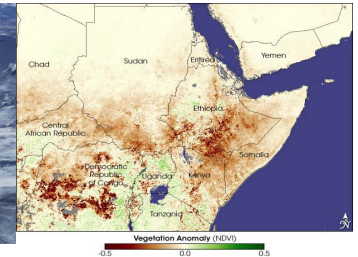
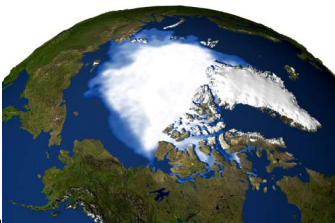
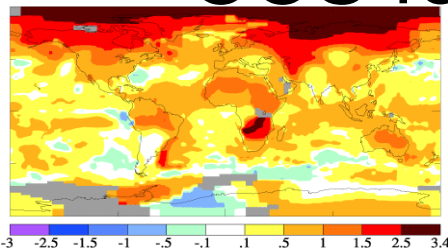
Brussels 1 Feb 2007





Rules of thumb to stay below 2 degree

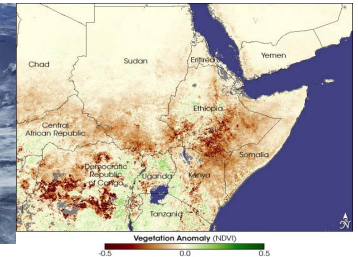
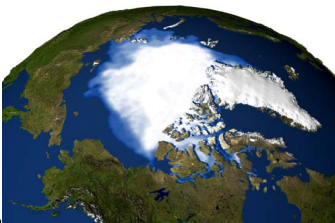
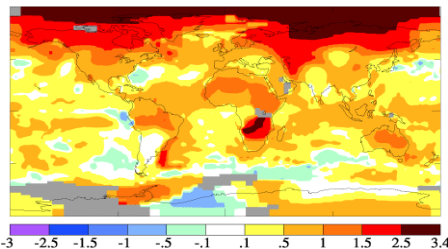
- Carbon budget max 400/500 GT C til 2200 - translates into c 2 Gt C/a (8 Gt C/a now)
- PE consumption increase <50% by 2050
- Key role for energy conservation
- Reduce and stop deforestation
- Primary renewables are biomass & wind
- Solar thermal and PV require breakthroughs
- Natural gas and CHP
- CCS for fossil fuels & biomass





CCS 'legitimacy'

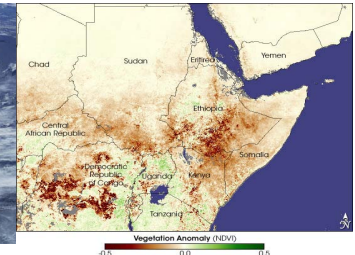
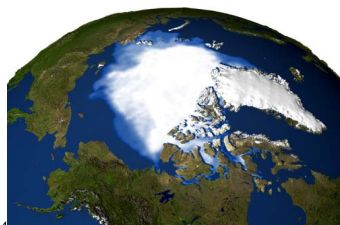
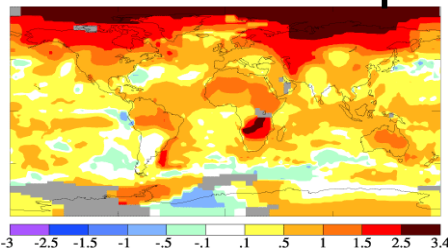
- Priority for RES and Efficiency
- Strong Caps in EU ETS and overall EU
- WWF support for CCS conditional on reducing nuclear power





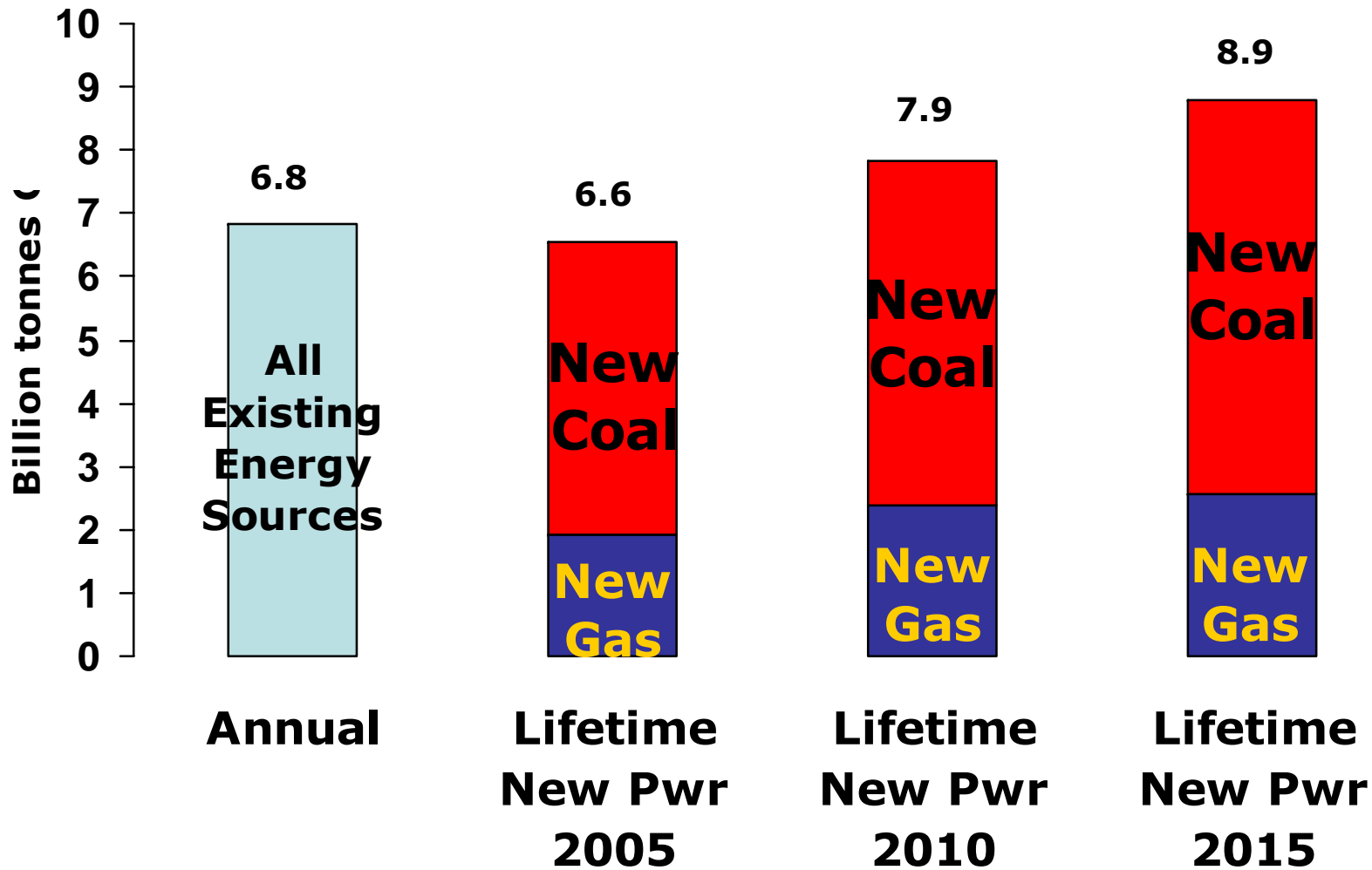
Time plan for EU

- Regulatory frame work 2007 incl. proposals for site assessments, monitoring, liability, & emissions standards for new power stations
- Early site assessments, geological suitability - most of EU's scheduled 12 CCS pilots
- *If* site assessment is positive and independently monitored (2012?) strong emissions standards developed for new (2015) and all (2020) power stations in EU
- Keep in mind: a) about 70% of all coal-PS replaced by 2025, b) tell message: new built *now* must be capture-ready
- Parts of the 12 CCS pilots should be in coal-rich developing nations



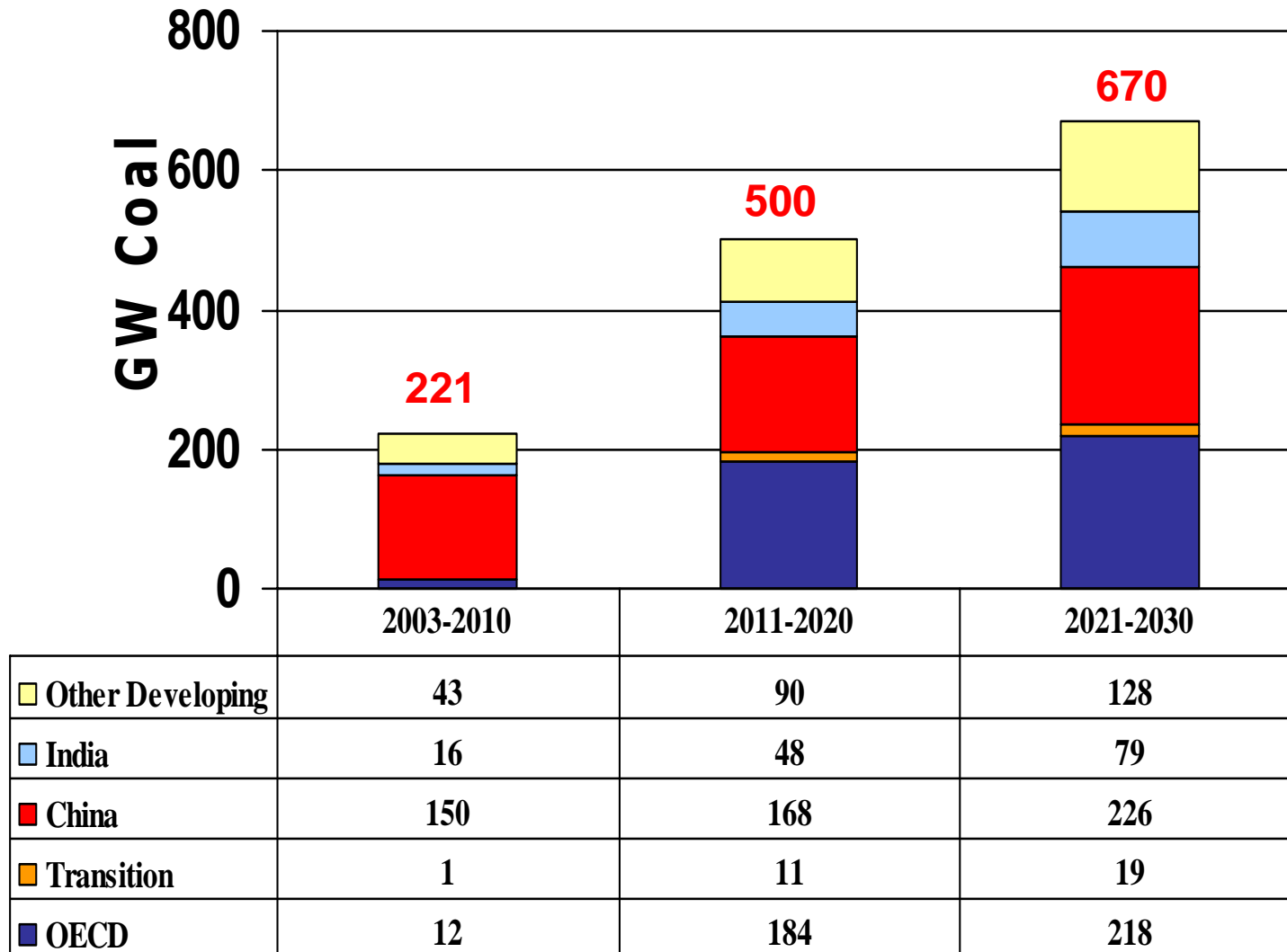
Annual Carbon Commitment

Lifetime Emissions of Annual New Fossil Investment



Source: new fossil capacity, IEA, WEO 2004

New Coal Build by Decade



Incremental new coal capacity by decade



Without CCS

- **Still, if only 1/3 of coal will be build til 2030 (500 GW), without CCS it will emit approx. 1 Gt C/y alone - 1/10 of all current GHG emissions**
- **Increase of global energy demand probably impossible to meet while staying below 2 degree**
- **Sustainable renewables are presently <5%, & CO2 emissions rose globally by ca. 3% p.a. in last years**





And in EU til 2020

- **410 GW new fossil power capacity in BAU**
- **200 new GW capacity in a 30% GHG reduction scenario**
- **In Germany alone, up to 26 GW new (replacing) coal in pipeline for 2012. CO2 emissions would be 100 - 150 Mt CO2/a - or up to almost 20% of all German present CO2 emissions in the worse case.**

Assume only half is being build and most is CHP and/or CCGT there are still emissions of 30-50 Mt CO2/year - or about up to 8/9% of all CO2 emitted in Germany.

- **And now think about the new investments from 2012 til 2020?**





Preconditions

- **ASAP scientific site assessments**
- **Focus on EOR/EGR, depleted oil/gas fields in Atlantic**
- **10 large storage pilots, some outside EU**
- **Results by 2012**
- **Capture ready now**
- **CCS mandatory for all (new) stations by 2020 (2015)**





Wake up - its time for fighting climate change!

