
Risk management in face of climate change

Sven Anemueller, Senior Advisor Climate and Development,
Germanwatch

Cologne, 10 May 2006

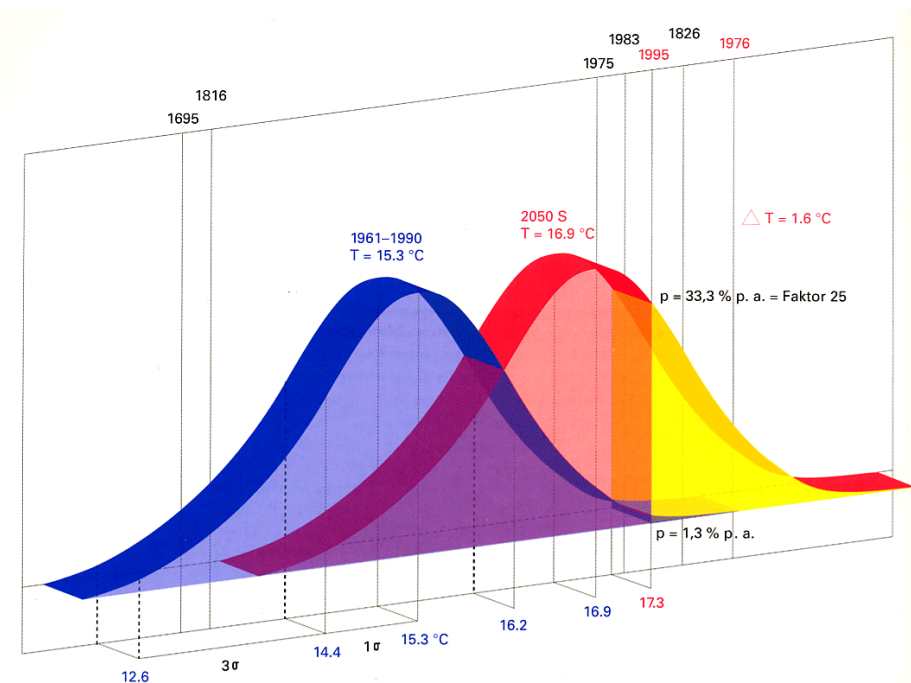
The climate is changing rapidly with serious consequences

Changes and Impacts:

- Sea-level rise
- increased intensity of extreme weather events
- rapid melting of glaciers
- acidification of the oceanic carbon sink
- changes in precipitation

Irreversible tipping points (i.a.):

- methane outburst in Sibiria
- meltdown of Greenland ice shield
- bistability of Indian monsoon

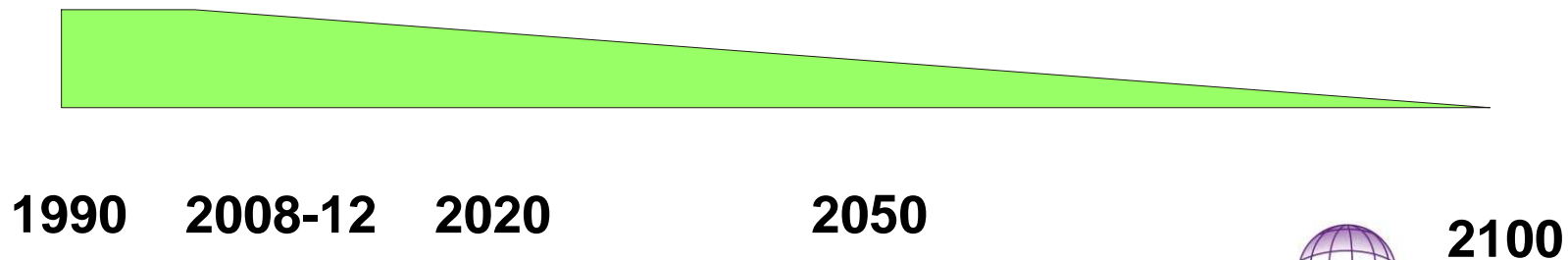


Increased probability of weather extreme events
(Source: Munich Re 2000)

To limit temperature increase to 2° above preindustrial level requires

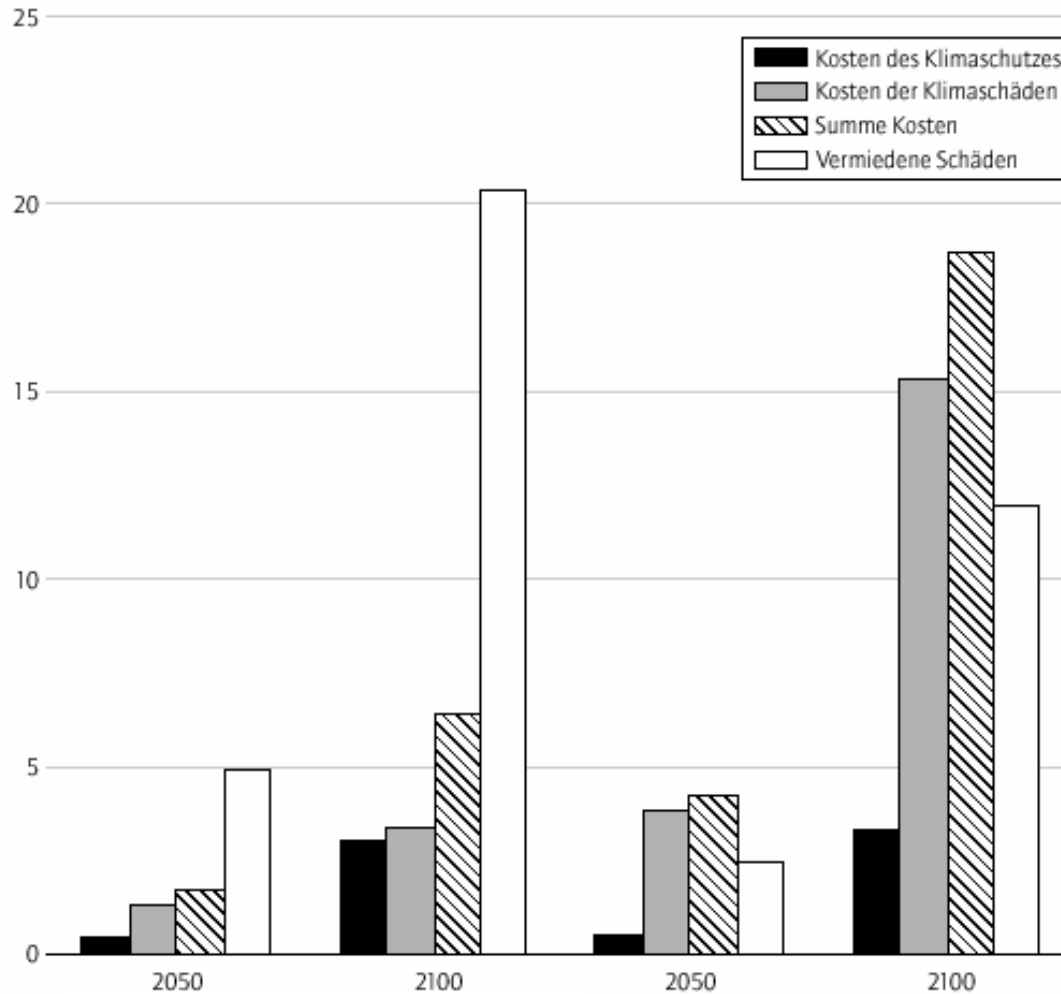
- stabilization of CO₂ concentration at **450** ppm
- reduction of global CO₂ emissions by 50% to 2050 compared to 1990
- due to larger „historical responsibility“: minus 80% in industrialised countries
- global „peak“ to be achieved within 10 to 20 years

Greenhouse gas reduction pathway



Costs of action and non-action in climate protection including technological change

In trillion US-Dollar



Climate protection begins in 2005

Climate protection begins in 2025

Delay in climate protection will increase the costs significantly.

Financial risks!

Source: DIW 2005

Climatic risks: the energy sector is vulnerable to climate change

- Electricity generation depends on climatic factors
- Heat wave 2003: temporary shutdown of nuclear power plants, reduced generation from thermal power plants due to decreased cooling water availability
- Water shortage impacts electricity generation from hydro power plants
- expected decline in precipitation impacts southern european hydro and thermal power plants
- changing patterns of wind velocity, in some parts increased intensity peaks

Climatic risks: the energy sector is vulnerable to climate change

1. The future of the European electricity system is built on many uncertainties and risks arising from climate change alone.
2. The energy sector and future energy scenarios are not prepared for the impacts of climate change
3. Adaptation needs and extent of damages depends on the time we start with and the extent of mitigation efforts: delay leads to increasing risks

Regulatory and legal risks in the context of climate change

- The future is carbon constraint!
 - Investment sector and insurance industry watch climate change risk management strategies of companies
 - Companies become financial risks when not prepared for mitigation regulations
- Climate change litigation:
 - Liability concerns for those companies and governments responsible for climate change and not taking appropriate action
- Other technological risks: nuclear energy not an option to build on

Principles to deal with uncertainty and risks in a European electricity system

Avoid technological lock-ins, which may appear when

1. too much attention is paid to costly future technologies that have many uncertainties
2. too much weight is put on a too limited number of options,
3. long-term technologies fail to anticipate the future mitigation needs,
4. the system developed lacks flexibility to adapt to climatic changes and variations.

Principles to deal with uncertainty and risks in a European electricity system

1. Built on the technologies well-known and experienced today, or that are at least clearly on their way to market introduction. The uncertainties regarding their practical applicability will be much lower than for those technologies that still need decades to be developed, are very costly and come much too late if ever (especially nuclear fusion).
2. Probably no single source should cover more than x%, e.g. 20% [to be discussed], of European electricity generation, in face of climate change (and other) impacts

Principles to deal with uncertainty and risks in a European electricity system

3. Problem: When long-term technologies fail to anticipate the future mitigation needs

A recent paper of the Wuppertal Institute for Climate, Environment and Energy analysed the current plans to build new power plants in Germany. When all the 18 GW conventional power plants in the pipeline, including about 9.5 GW of coal and lignite power plants, would be built until 2012 as announced, **in the year 2040 these sources alone would cover 100% of the emissions allowed for the whole German electricity sector**, when minus 80% until 2050 is assumed as the objective.

Principles to deal with uncertainty and risks in a European electricity system

4. Increased flexibility through

- a more decentralized system, built on many pillars, with „virtual power plants“ and storage technologies
- a European grid which allows exploiting large RE potentials to balance Europe wide variations, e.g. with offshore wind and
- to benefit from solar thermal plants in the Maghreb states

Risk management strategy for new coal power plants

Second best option:

- prepare as much as possible for CCS, to keep open this option; probably government regulation would be needed

First best option (!):

- realize alternative scenarios which have shown how companies can substitute the new building through a combination of energy savings, efficiency measures, renewable energies and flexible gas power plants (Greenpeace, Wuppertal Institut)

End the neglect of energy efficiency and energy savings potential

The less electricity we consume, the easier it will be to raise the share of renewable energies as the prior carbon-neutral energy source, and the less dependent we will be on external forces threatening our energy security.

The EU Green Paper on Energy Efficiency:

“The EU could save at least 20% of its PRESENT energy consumption in a cost-effective manner, equivalent to EUR 60 billion per year, or the present combined energy consumption of Germany and Finland”

Questions to discuss:

- What are the incentives needed to realize the climate-friendly scenarios, especially for the major power companies?
- What are the incentives needed to profit from selling services and “negawatts” instead of selling electricity and megawatts?
- Where large-scale investments are needed, how can synergies between different sources and stakeholders be created (e.g. offshore wind and liquified natural gas power plants)?
- What are the conditions to make all of us become fighters for the same goal, the stabilization of the atmosphere to avoid dangerous climate change?

Thank you for your attention!

www.germanwatch.org

Sven Anemueller

Senior Advisor Climate and Development

Germanwatch

Kaiserstr. 201

53113 Bonn

Tel: 0228 / 60492-22, Fax: -19

anemueller@germanwatch.org

Sie fanden diesen Foliensatz interessant und hilfreich?

Wir haben ihn unentgeltlich zur Verfügung gestellt, sind jedoch für unsere weitere Arbeit auf Spenden und Mitgliedsbeiträge angewiesen.

Vielen Dank für Ihre Unterstützung!

Spendenkonto 32 123 00
Bank für Sozialwirtschaft AG
BLZ 100 205 00

Infos zur Mitgliedschaft: www.germanwatch.org