Panel II:

Climate Change Policies

Economic and Environmental Impacts

ICCF Workshop

Tuesday, 18 October 2005

Dr. Marsmann

Dimensions of Climate Policy

Scientific Issues

- Global Warming
- CO_2-Level
- Interpretation
- Modeling
- Foresight
- Scenarios

Conventions, Protocols, Initiatives, Agreements

- UN-Framework Convention on Climate Change
- Kyoto-Protocol
- EU-Climate Policy
- US-Climate Change Technology Program
- G8 in Gleneagles 2005
- Asia-Pacific-Partnership on Clean Development
- Post-Kyoto Discussions

Strategies

- **Absolute Reduction Targets**
- **Flexible Strategies**
- New Technologies
- Renewable Energy Resources
- Capture and Sequester
- Sufficiency Strategies

Experience with Flexible Strategies

- **Background**
  Voluntary Agreement of German Industry
  Climate Policy becomes part of investment decisions
- **Bayer-Relevance**
  Energy-Intensive Production
  Own Power Supply with Cogeneration
  Fossil Energies as Material Input
- **Reduction of Greenhouse Gases by over 60 %**
  1990 15 Million t CO_2-Equivalents
  2004 4,2 Million t CO_2-Equivalents
- **Actions**
  Improvement of Energy Efficiency
  Process Developments
  Organizational Changes

Examples

Own Power Supply

- Cheap and sure energy supply with steam and power
- Combined heat power generation
- CO_2-emissions less than separate production of steam and power

Reduction of direct emissions of greenhouse gases

- **N_2O combustion in adipic acid production in Uerdingen**
  Since the investment in 1993, a two-stage process has been used to break down the laughing gas (N_2O). The energy produced is fed back into the production process, thus avoiding the need for fossil fuels
- **Gas and steam power station in Dormagen (Contracting with RWE)**
  The new gas and steam power station in Dormagen went into operation in 2000. The power station is situated on grounds belonging to Bayer. It has replaced two of Bayer's own coal-fired power stations

Investments in Energy Efficiency

- Changing chlorine-alkali electrolysis operations from the amalgam process over to energy-efficient and mercury-free membrane technology
- An desired effect is that this new process requires up to 25 % less electricity

Evaluation

Economic Reasons

- Profitableness
- Resource Mangement
- Investments within the Investment Cycle

Technical Reasons

- New Technologies
- Compliance with Benchmarks / BAT Reference Standards

Voluntary Initiatives

- Responsible Care Initiative / ICC Charter
- Voluntary Agreement of German Industry

Anticipation of Coming Regulations

Experience with Absolute Reduction Targets

Background

- EU Directive establishing a Scheme for Greenhouse Gas Emission Allowance Trading within the Community

Bayer-Relevance

- Bayer is taking part with 12 power supply installations and just under three million metric tons of CO_2
- Bayer has been granted almost a full quota of emissions allowances for the first trading period

First Observations

- Cap for economic growth by high prices for allowances
- Much bureaucracy cased by proposal, certification, monitoring
- Excessively risen electricity prices coming from pricing opportunity cost into the production cost of power plants
- Distortion of competition by different conversion of the Directive into national law

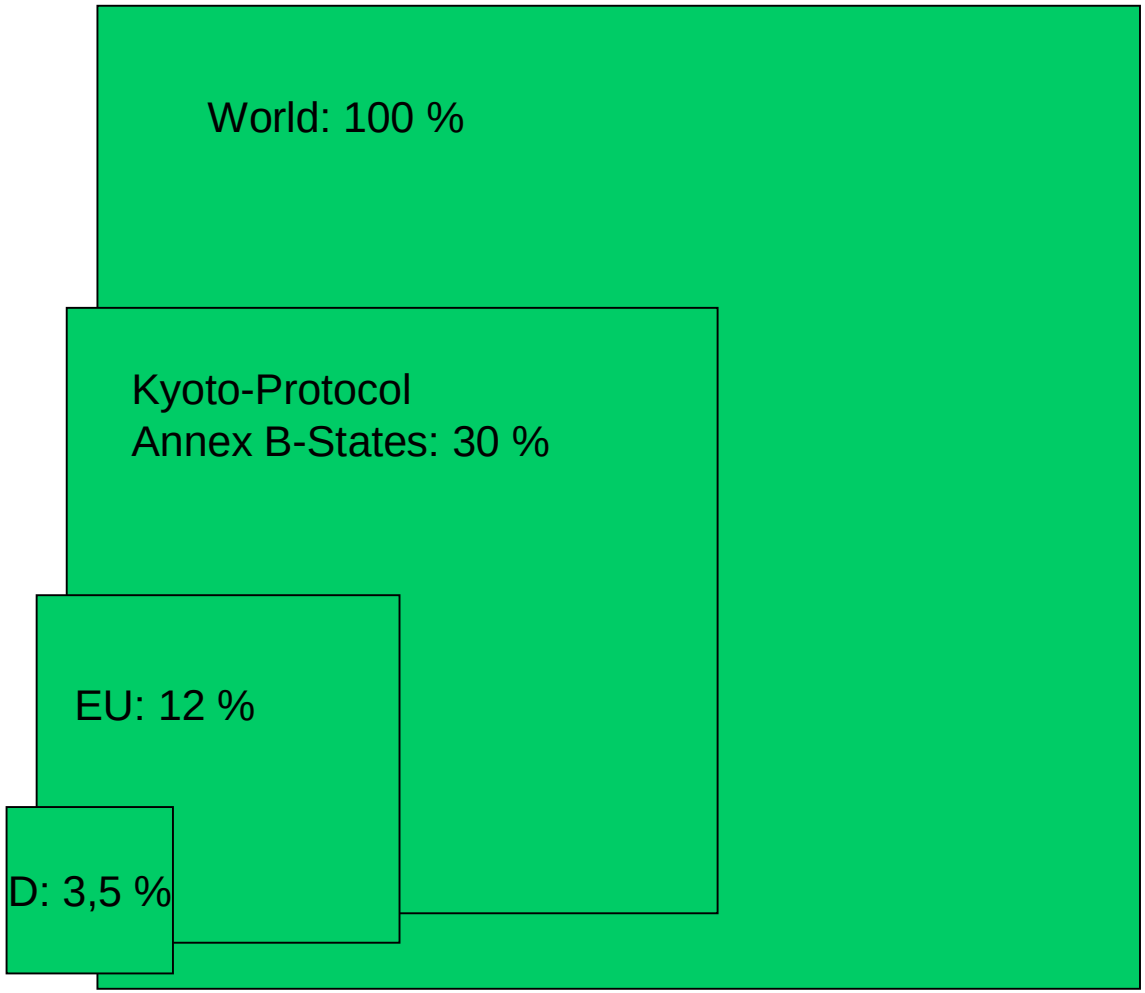
Evaluation

- It is vital for our business that the protection of the international competitiveness is taken into account in particular from the emerging increase in the price of energy, power and raw materials, which will result in severe impacts on energy-intensive industries and their supply chain.
- Strongly support for the free allocation of emissions allowances and properly functioning market and equal competitive conditions also within the EU
- Allocation allowances must ensure that similar installations receive comparable amounts of allowances

Development of Greenhouse Gas Emissions within Important Developed Countries

Region	1990 to 2004	Kyoto-Target
EU	- 1,4 %	- 8 %
USA	+ 14,3 %	(- 7 %)
Japan	+ 7,8 %	- 6 %

Part of Greenhouse Gas Emissions in Important Regions



Dilemma of the European Community

- EU and other developed countries are far away of obtaining Kyoto targets
- Many Member States of EU are not able to obtain the burden sharing agreement
- It is vital that lessons learned from the first phase of Emissions Trading are taken into account for future periods. In discussion are:
  - Tightening up of the Emissions Trading Scheme
  - Energy- and Eco Taxes
  - Quotas for Renewable Energy

Is that the right way?

Discussion Climate Policy

- Does Climate Protection Policy need absolute targets?
- Do we need a global framework which includes all regions and countries?
- What should be the role of developed countries, what should be the part of developing countries?
- What is the effect of a for-runner EU for climate protection and for competitiveness of industry?
- What is about a common policy of climate change, energy and renewables?
- What is about the need of private investments to lower greenhouse gas emissions sustainable?
- Do we need more research and development for energy efficiency and new technologies?

Climate protection policy must be developed!

Energy supply / Production	Benefits of Products	Biomass / New Technologies	Stakeholder Dialogue
Raw material and energy efficiency	Great potentials:	Renewables	Acceptance in Society,
New production technologies	Insulation	Biomass	Financial Services,
Additive Precaution	Cooling	Bio fuels	Customers,
	Electric goods	Gentechnology	Shareholders,
	Electronic goods		Politics