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Regulatory and policy challenges for companies in a climate-constrained world economy

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1. European Union & climate policies

Two basic blocks of climate policies (EU, OECD, UNEP)

- Pricing carbon emissions
- Structural change in the economy towards a carbon-free basis

Pricing carbon: (society)

- The key issue: the necessary condition for any success whatsoever
- Emissions trading, instruments on non-trading sectors
- Promoting research and development of new technologies

Structural change to green economy: (business)

- Carbon-free energy systems
- Processing industry: material and energy efficiency
- Other sectors: green technology and business services

Structural change of communities (consumers, citizens, communes)

- Energy efficient construction, renewable energy solutions, smart energy grids

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2. Societies & business

What do societies want?

- New innovations that replace carbon-based solutions
- Solutions to improve the state of the terrestrial and aquatic environment
- Intensified and determinate R&D work
- Long-term commitment to cleantech solutions

What do societies provide?

- Climate policy targets and instruments
- Other environmental policy targets and instruments
- Direct and indirect support
- Joint ventures on research

Are these measures enough and are they reliable?

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3. Sources of climate policy risks

Angle 1. Risks caused by inefficient climate policies: cleantech

- **Demand risk:** the inability of decision-makers to achieve a global agreement or a high ambition level: ***reduces the expected demand for carbon-free solutions***
- **Business risk:** inconsistency in established climate policies: ***ruins the business environment, destroys established enterprises***

Angle 2. Risks caused by climate policies: fossil-based industry

- **Carbon risk:** the amount of carbon that can be emitted into the air becomes smaller and smaller
- Huge amounts of capital invested in fossil industries, ***large financial risks may emerge***

4. Firms have three possible cards to play

1. ***Rely on current climate and environmental policies***
   - **Choice:** cleantech industries
   - **Advantage**: support from policies and (thanks to increasing income) increasing demand for a cleaner environment

2. ***Stick to carbon, hope for policy delays and play for CCS***
   - **Choice:** firms in the fossil industry
   - **Advantage**: continuation of fossil business and be a champion if CCS becomes profitable

3. ***Remain passive and wait for the tide***
   - **Choice:** (too) many enterprises
   - **Advantage**: no extra costs in developing new technologies, chance to reap benefits from others' inventions

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5. Who has the winning card?

Lower hand: ***waiting and sticking to fossils***

- Fossil industry
  - CCS may come too late or be too expensive to save the industry
  - Others may develop the technology and get the profits
- Waiting enterprises
  - Not ready when the tide turns

Upper hand: ***cleantech industries***

- Trends support cleantech industries
  - Public policies will strengthen over time
  - The middle class all over the world will increase green demand
- But obstacles remain in the form of risks

6. How to hedge against policy risk

Best case: cleantech firms innovate and make green solutions profitable at market prices

- Conglomeration and network impacts
- Learning by doing
- Example: costs of wind and solar power

Society's options: ***build risk-insulating economic mechanisms***

- **Reduce capital costs**
  - Investment subsidies, cheaper loans and tax exemptions
- **Create steady demand**
  - Blending requirements of traffic fuels
  - Ban to biodegradable waste in landfills
- **Joint ventures on research**
  - Public private money

7. Do the EU's climate targets help?

- Emission reduction target 40%
  - Lowest serious target
  - Helps to negotiate a global climate agreement

- Allocation of emission reductions between trading and non-trading sectors not optimal
  - Carbon price will not increase as much as needed to guide investments and to improve the competitiveness of renewable energy

- Promotes – but rather slowly – development towards carbon-free solutions