



Lombard Odier Darier Hentsch

# Climate Change and the Kyoto Protocol

## Outlook for the investor

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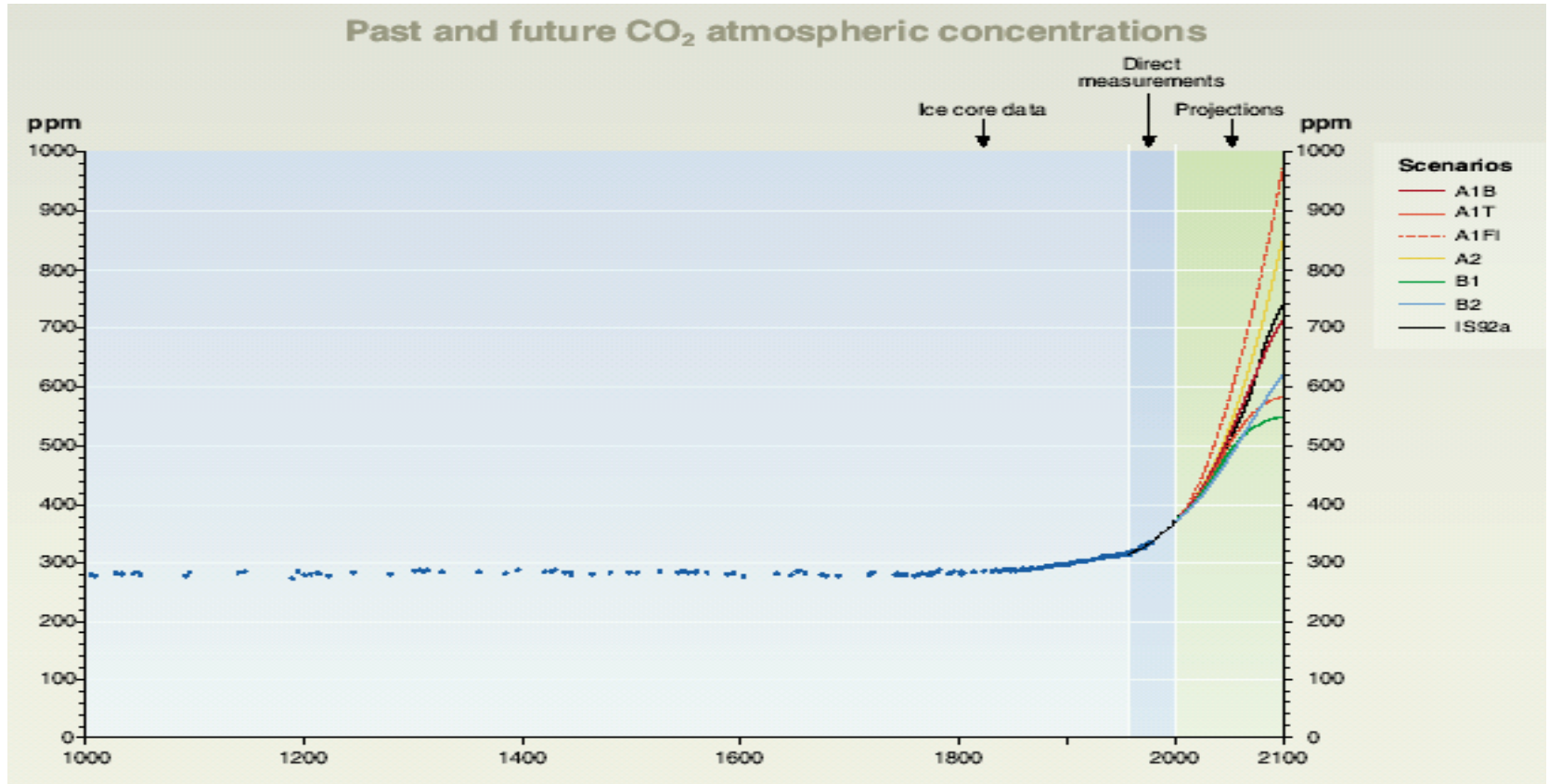
June 2005

# Climate change

Issues and regulations

# Focus on Climate Change

What is climate change?



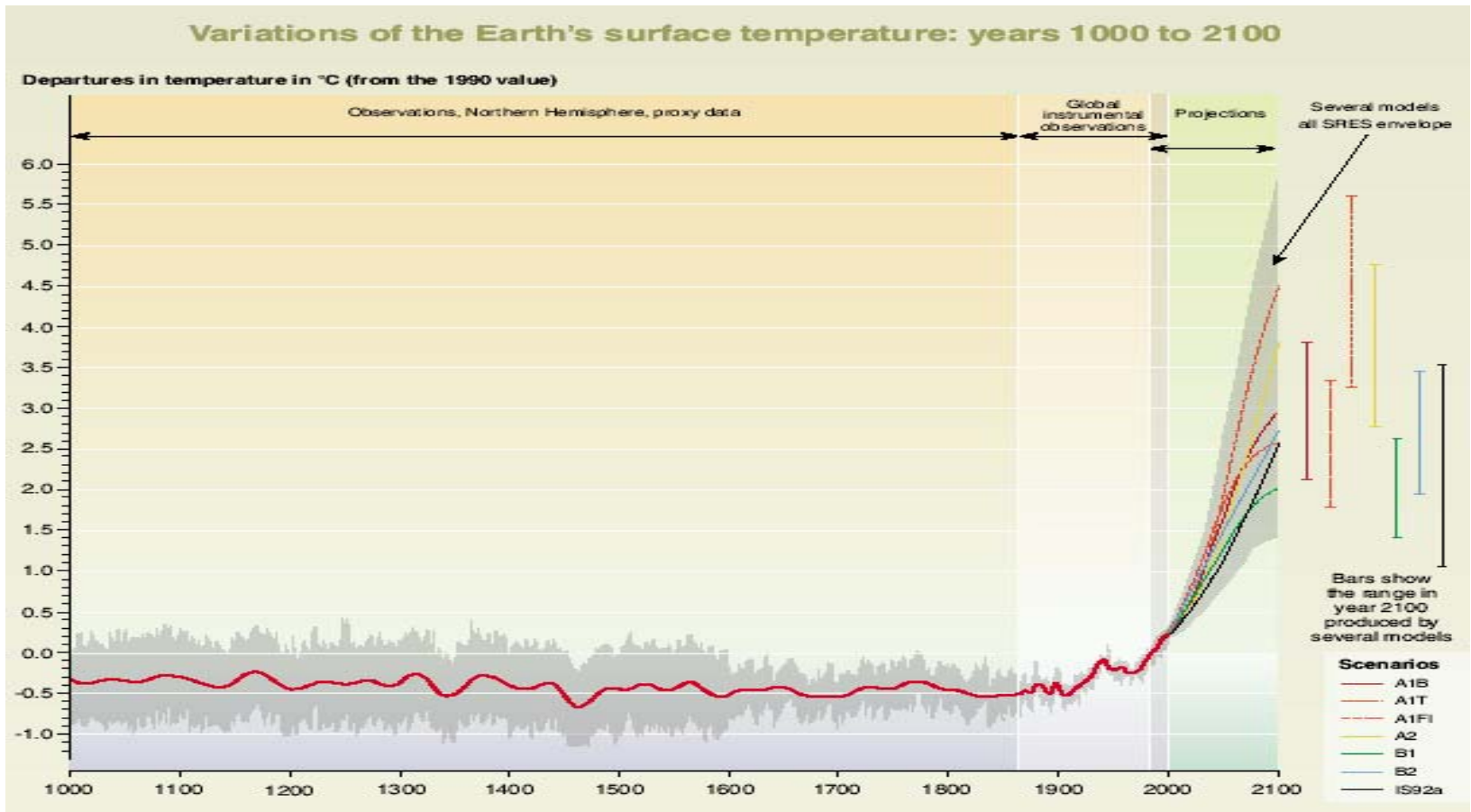
Source: IPCC, 2001

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# Focus on Climate Change

## Impact on temperature

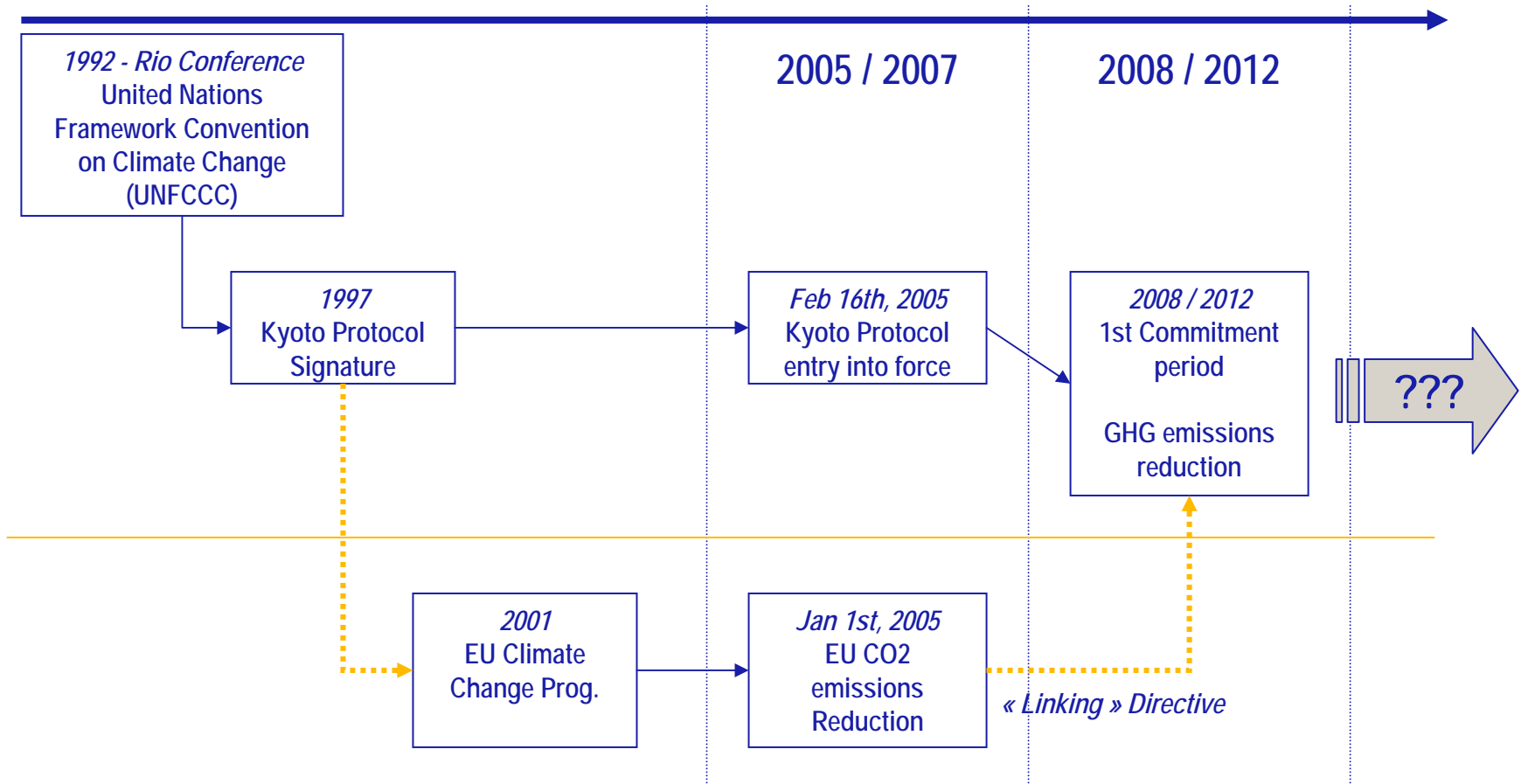


Source: IPCC, 2001

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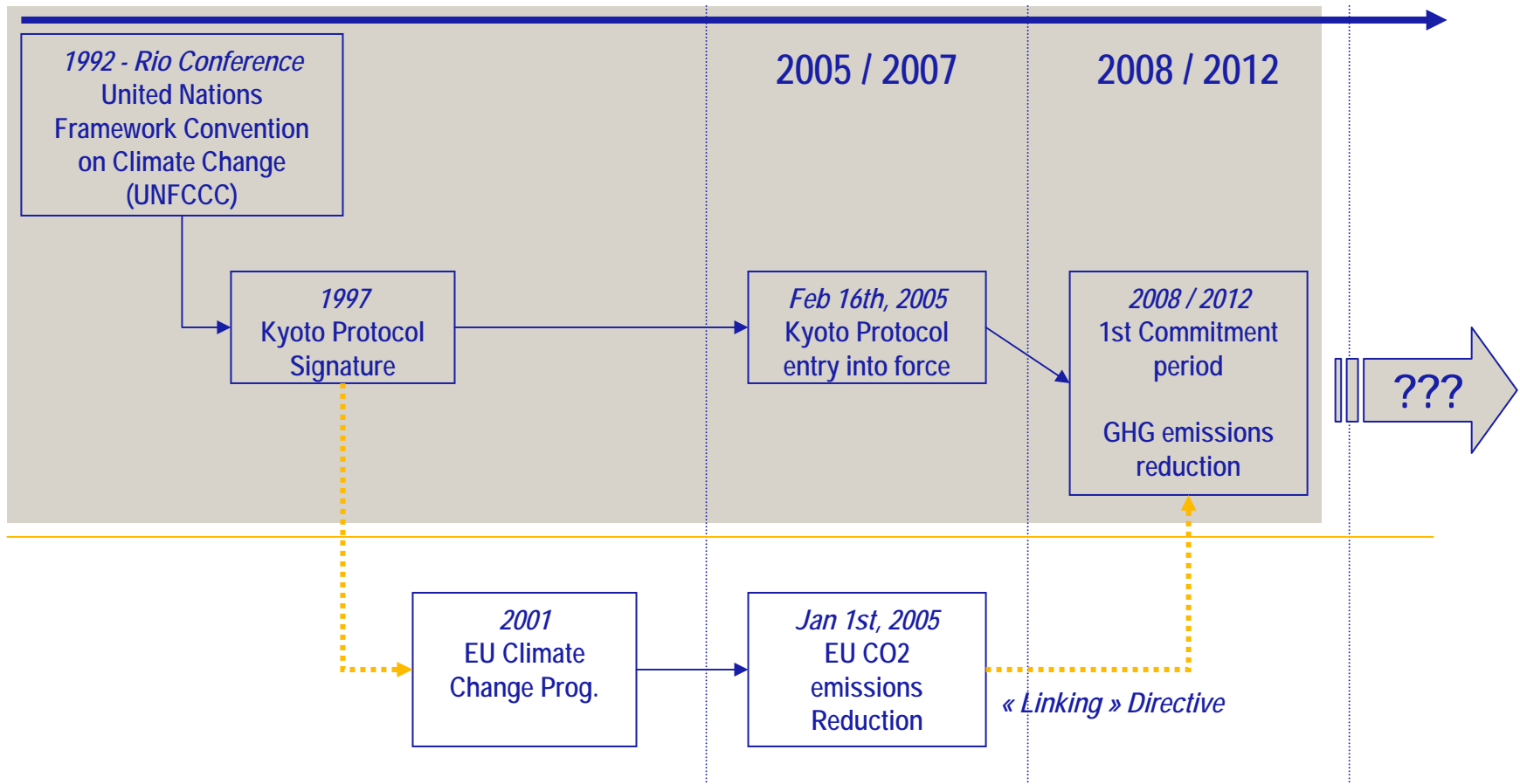
# Climate Change Regulations



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# Climate Change Regulations



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# Climate Change

Regulations: Kyoto Protocol effective on February 16, 2005

- > Requires a global 5% reduction from 1990 levels in developed countries' emissions of 6 greenhouse gases by 2008-2012
  - "Developed countries": Annex I: Parties listed in Annex B of the KP
  - Sector exposure: Industrial, Energy, Building, Transportation...
  - Target for EU-15: 8% reduction
  
- > 3 mechanisms to achieve emission-reduction targets:
  - Market mechanism:
    - Emissions Trading (ET)
  - Project-based mechanisms:
    - Joint Implementation (JI)
    - Clean Development Mechanisms (CDM)



# Climate Change

## Kyoto Protocol mechanisms – Annex I Parties

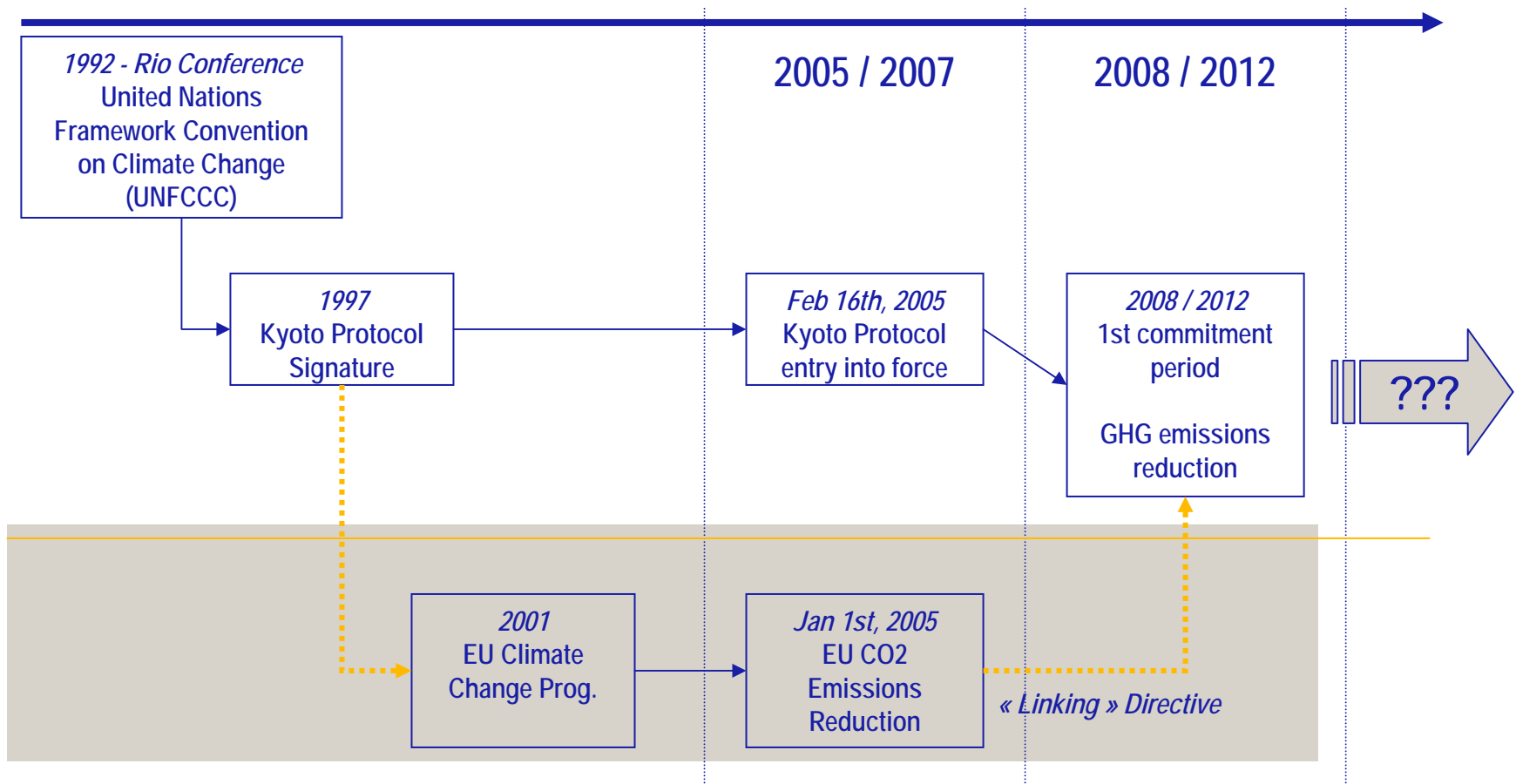
**Countries included in Annex B to the Kyoto Protocol and their emissions targets**

Country	Target (1990** - 2008/2012)
EU-15*, Bulgaria, Czech Republic, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia, Switzerland	-8%
US***	-7%
Canada, Hungary, Japan, Poland	-6%
Croatia	-5%
New Zealand, Russian Federation, Ukraine	0
Norway	+1%
Australia	+8%
Iceland	+10%





# Climate Change Regulations



# Climate Change

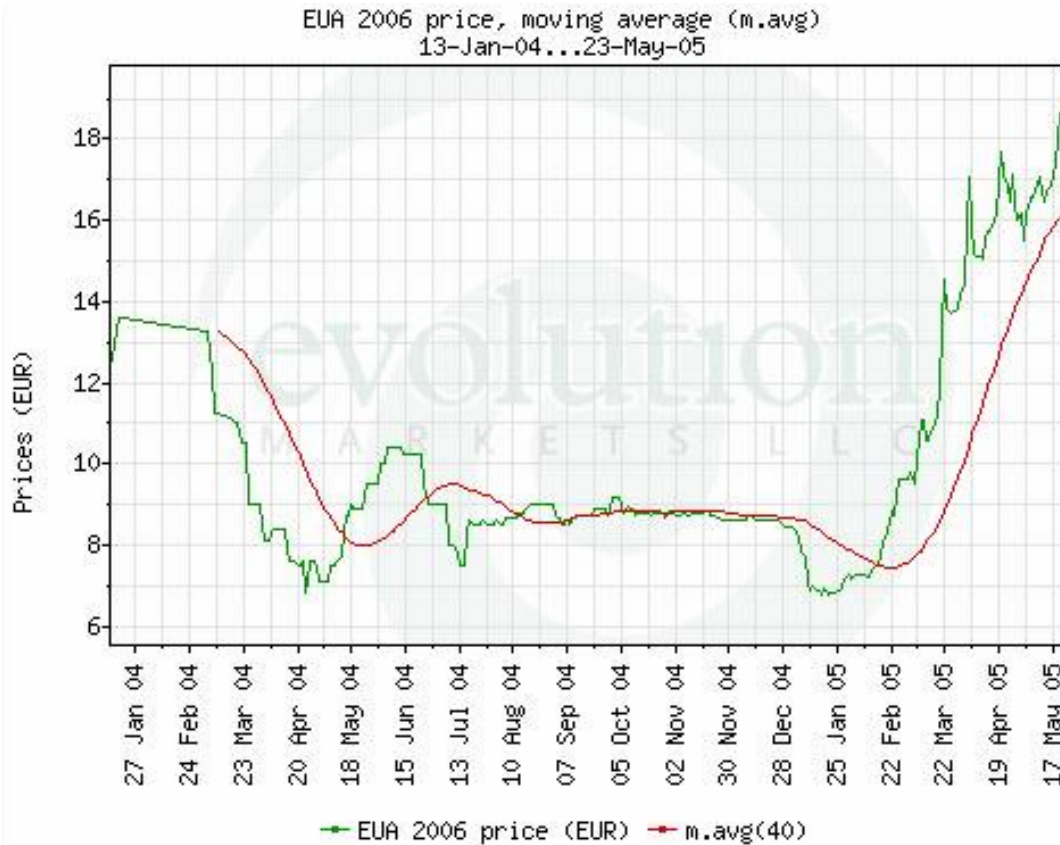
## Regulations: EU 'Emissions Trading Scheme' Directive

- > **Effective on January 1, 2005 for the following sectors:**
  - Electricity, Ferrous Metals, Cement, Oil Refining, Glass, Paper (newsprint)
- > **Cap and trade system within the EU:**
  - National Allocation Plans (NAP) (allowance at plant level)
    - 12,000 plants concerned
  - EU Trading + Kyoto mechanisms (CDM + JI) to achieve targets
    - Non-conformity: EUR 40 / tonnes CO<sub>2</sub>
- > **Exposure:**
  - Energy intensity
  - Ability to pass cost increases through to prices
  - Opportunity for carbon abatement



# Climate change

## European carbon market



### Exponential growth

- 0.05 Mn EUA in 01/04
- 6 Mn EUA in 01/05

### Price of carbon depends on:

- NAP (EU), Kyoto allocations
- Energy and oil prices
- Temperature

### Carbon products:

- Spot market (March 1, 2005)
- Futures, hedge funds

Source: Evomarkets, 2005



# Sector Perspective

## Focus on Utilities



# Focus on Utilities

## Issue recognition

Financial disclosure related to climate change issues is increasing (risk factors in annual reports, Carbon Disclosure Project...)

As filed with the Securities and Exchange Commission on June 28, 2004

**SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

**FORM 20-F**

**Our activities are likely to be covered by stricter national and international standards relating to climate change and related costs may negatively affect our financial position**

Particularly in electrical power generation and waste treatment and waste recycling, we are engaged in activities that come under national, international and European Union climate change programs established pursuant to the Kyoto Protocol. Since none of the elements that would enter into quantifying the impact of the “carbon constraint” can be estimated with sufficient accuracy, the risk it represents cannot yet be quantified either. This uncertainty, however, should disappear once rules on how the “carbon market” will operate are formalized. Once formalized, we may have to incur significant costs to comply with these rules which could have a negative impact on our business, results of operations and financial condition.

*Source: SUEZ, 2004*

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# Focus on Utilities

Issue recognition and disclosure issues...



Source: Suez (2004)



Source: Electrabel (2004)

Indicateurs de performance environnementale		Unités	EGE	
		2003	2002	2003
<b>Air</b>				
<input checked="" type="checkbox"/>	Emissions totales de GES	t. eq.CO <sub>2</sub>	32 824 209	41 624 179
<input checked="" type="checkbox"/>	Emissions de CO <sub>2</sub> —Production d'énergie	tonnes	32 774 922	41 446 214

		2003	2002
Émissions absolues			
CO <sub>2</sub>	kilotonnes	41 587	44 481

- > 2003 data are the same. Discrepancies in 2002 data : **+11,707 Ktonnes CO<sub>2</sub>** for Electrabel compared to Suez
- > **Negative trend** (emissions increase) disclosed by Suez/Electrabel (+8.7 Mt CO<sub>2</sub>)
- > **Positive trend** (emissions reduction) disclosed by Electrabel (-2.9 Mt CO<sub>2</sub>).
  - **Electrabel was in political negotiations (Belgium NAP)**
- > Financial cost (with a cost per CO<sub>2</sub> tonne at EUR 8.5):  
 11.7 Mt \* 8.5 EUR/t = **M EUR 100**, i.e. **6% of 2002 EBIT...**



# Focus on Utilities

## Accounting and reporting issues...

Accounting and reporting practices on CO2 emissions differ among companies

Companies	Reporting scope	Consolidation level of data disclosed	Quality of the data	Units used
IBED	Majority control	Production site level	No assurance	<ul style="list-style-type: none"><li>▪ tonnes of CO<sub>2</sub></li><li>▪ grammes CO<sub>2</sub>/kWh</li></ul>
RWEG	Majority control	Country level	Reporting procedure	<ul style="list-style-type: none"><li>▪ tonnes of CO<sub>2</sub></li></ul>
SZE	Operational control	Concerned activities level and global level	Moderate assurance on data disclosed	<ul style="list-style-type: none"><li>▪ tonnes of CO<sub>2</sub></li><li>▪ MWh / tonnes CO<sub>2</sub></li></ul>
VIE	Operational control	Country level and global level	Moderate assurance on data disclosed	<ul style="list-style-type: none"><li>▪ tonnes of CO<sub>2</sub></li><li>▪ tonnes CO<sub>2</sub>/MWh</li></ul>

**Source: Iberdrola, RWE, SUEZ, Veolia, 2004**

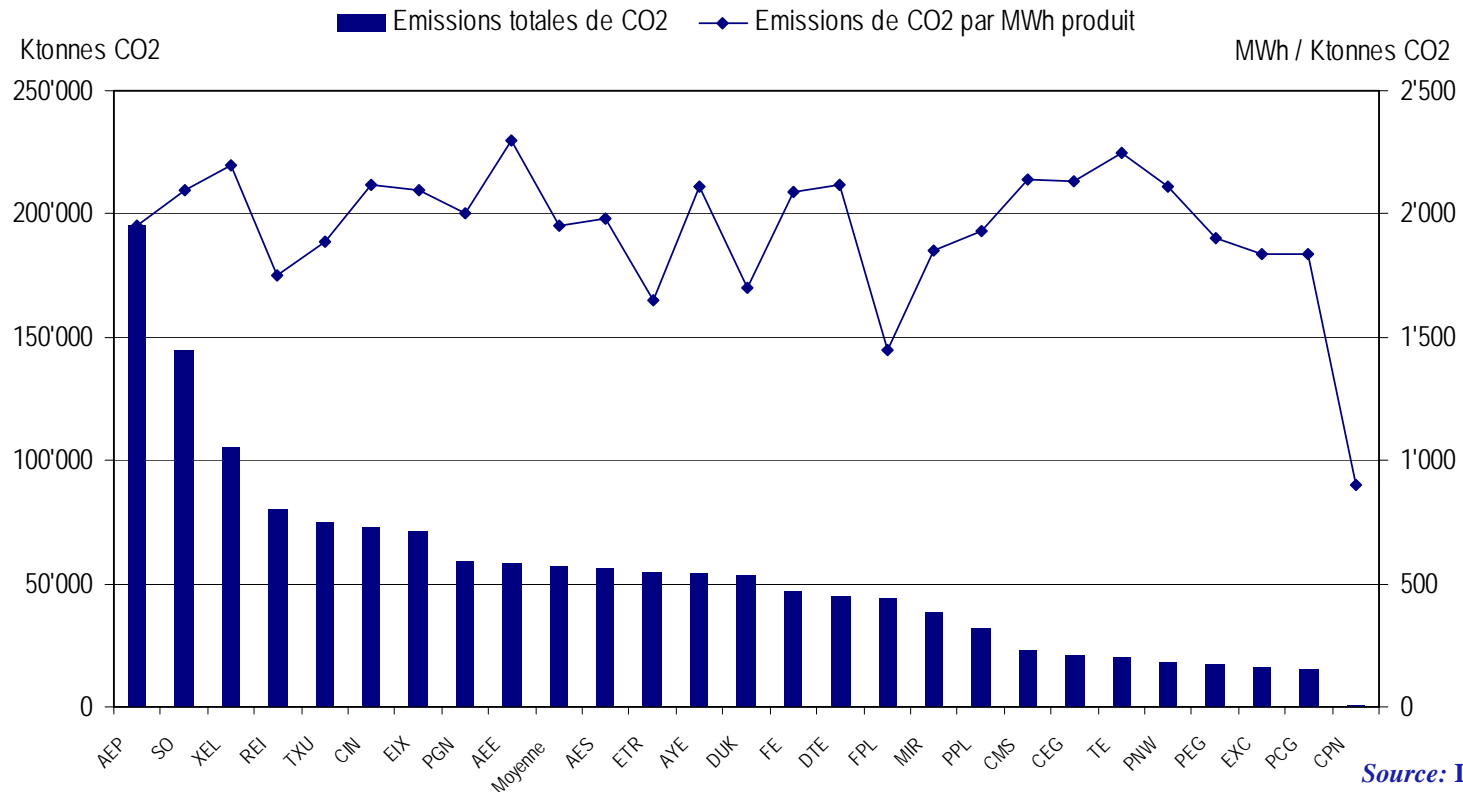
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# Focus on Utilities

Performance depends on energy mix

U.S. companies do not present the same profiles in terms of carbon intensity and production.



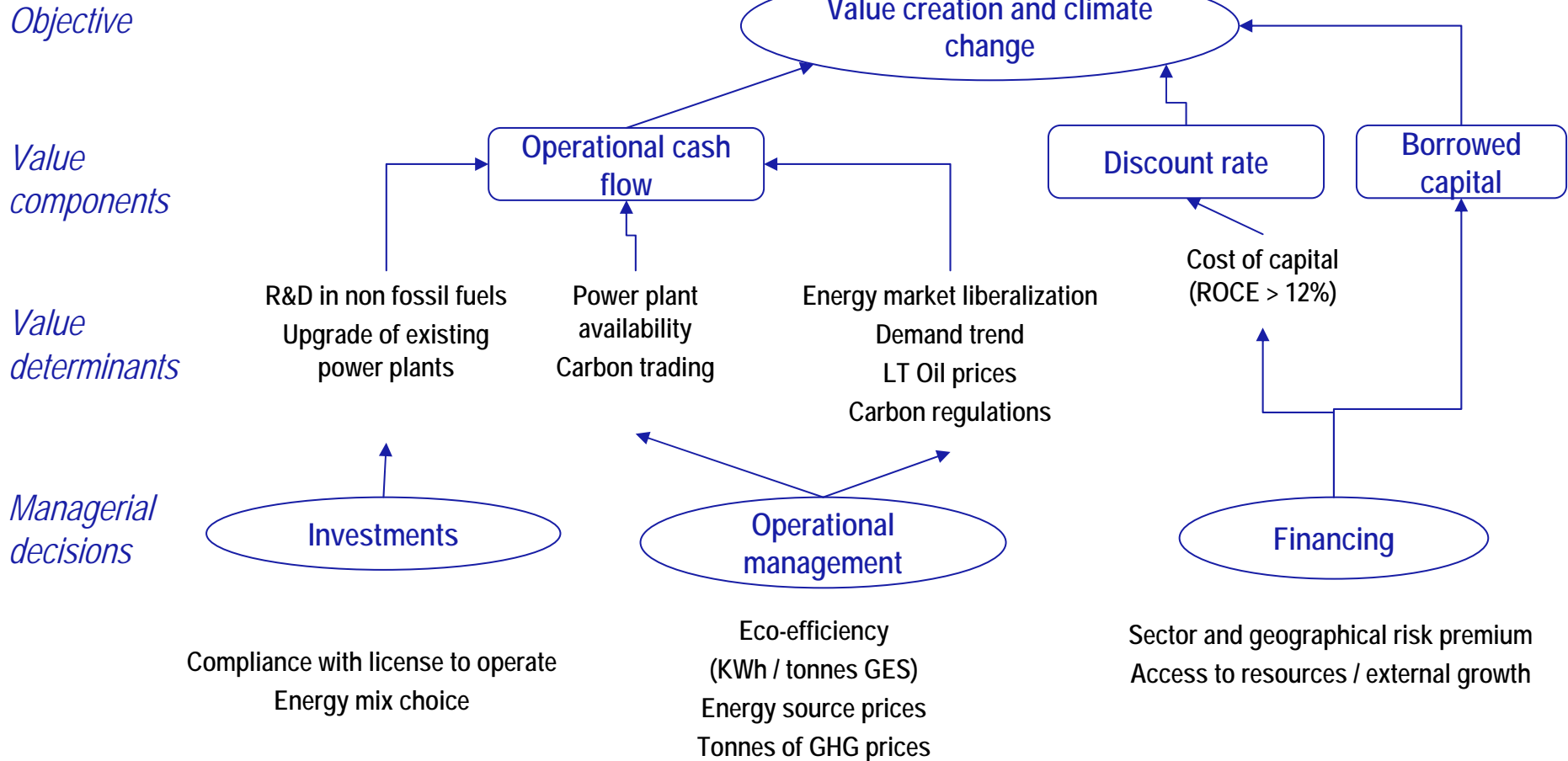
Source: Innovest, 2002





# Focus on Utilities

## Carbon constraint and value-creation model



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# Focus on Utilities

## Strategic outlook

- > Strategic choices are related to access to lower carbon intensity energy sources
  - Clean coal
    - E.ON, RWE, Endesa
  - Gas
    - Electrabel, Iberdrola
  - Renewable sources (hydro, wind)
    - Iberdrola, Gamesa
  - Nuclear option
    - E.ON, RWE, Electrabel, Iberdrola...
  
- > Uncertainties on post-Kyoto period (2012) have to be overlooked in order to make profitable investments tackling climate change issues and GHG emission reductions.



# Conclusion

- > Climate change impacts OPEX, CAPEX and the book value of companies
- > Climate change has to be taken into account in order to better assess the relevance of long-term strategic choices



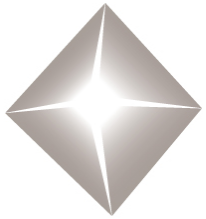
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