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# External costs: the EU context

## MAXIMA Workshop

*External costs of electricity production: dialogue  
on estimation for EU new Member States*

Krakow, Jagiellonian university,

28 February – 1 March 2005

*Domenico Rossetti di Valdalbero*

Commission Européenne, DG Recherche

Tel.: +32-2-296.28.11

Fax: +32-2-299.49.91

E-mail: [domenico.rossetti-di-valdalbero@cec.eu.int](mailto:domenico.rossetti-di-valdalbero@cec.eu.int)





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# EUROPEAN RESEARCH EFFORT

- **Energy externalities** : a terminology entered in the European “jargon” and applicable to various policies: environment, energy, transport but also taxation and state aid
- **A new way of thinking**: taking care of social and environmental damages (“polluter pays” principle), particularly human health impacts
- **Major advances in both research on energy externalities quantification and on policy implementation these last 15 years**





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# EUROPEAN RESEARCH EFFORT

- **Influence of SD and of public / social actions on the internalisation of energy externalities**
- **From the beginning of the 90's: close to 15 M€ dedicated to research on energy externalities**
- **Scientific support to European policies**
- **EU reference at the world-level**
- **Multidisciplinary research consortium**
- **Genuine European methodology and approach**





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# IMPACT PATHWAY ANALYSIS

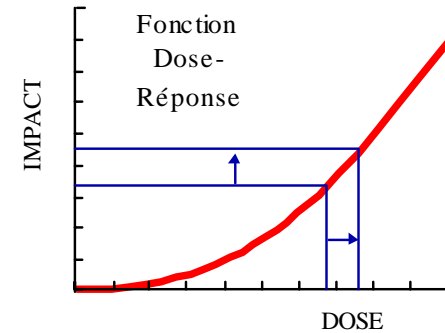
**SOURCE**  
 (specification of site and technology)  
 -----  
 ⇒ **emission**  
 (e.g., kg/yr of particulates)



**DISPERSION**  
 (e.g. atmospheric dispersion model)  
 -----  
 ⇒ **increase in concentration at receptor sites**  
 (e.g.,  $\mu\text{g}/\text{m}^3$  of particulates in all affected regions)



**DOSE-RESPONSE FUNCTION**  
 (or exposure-response function)  
 -----  
 ⇒ **impact**  
 (e.g., cases of asthma due to ambient concentration of particulates)



**MONETARY VALUATION**  
 -----  
 ⇒ **cost**  
 (e.g., cost of asthma)



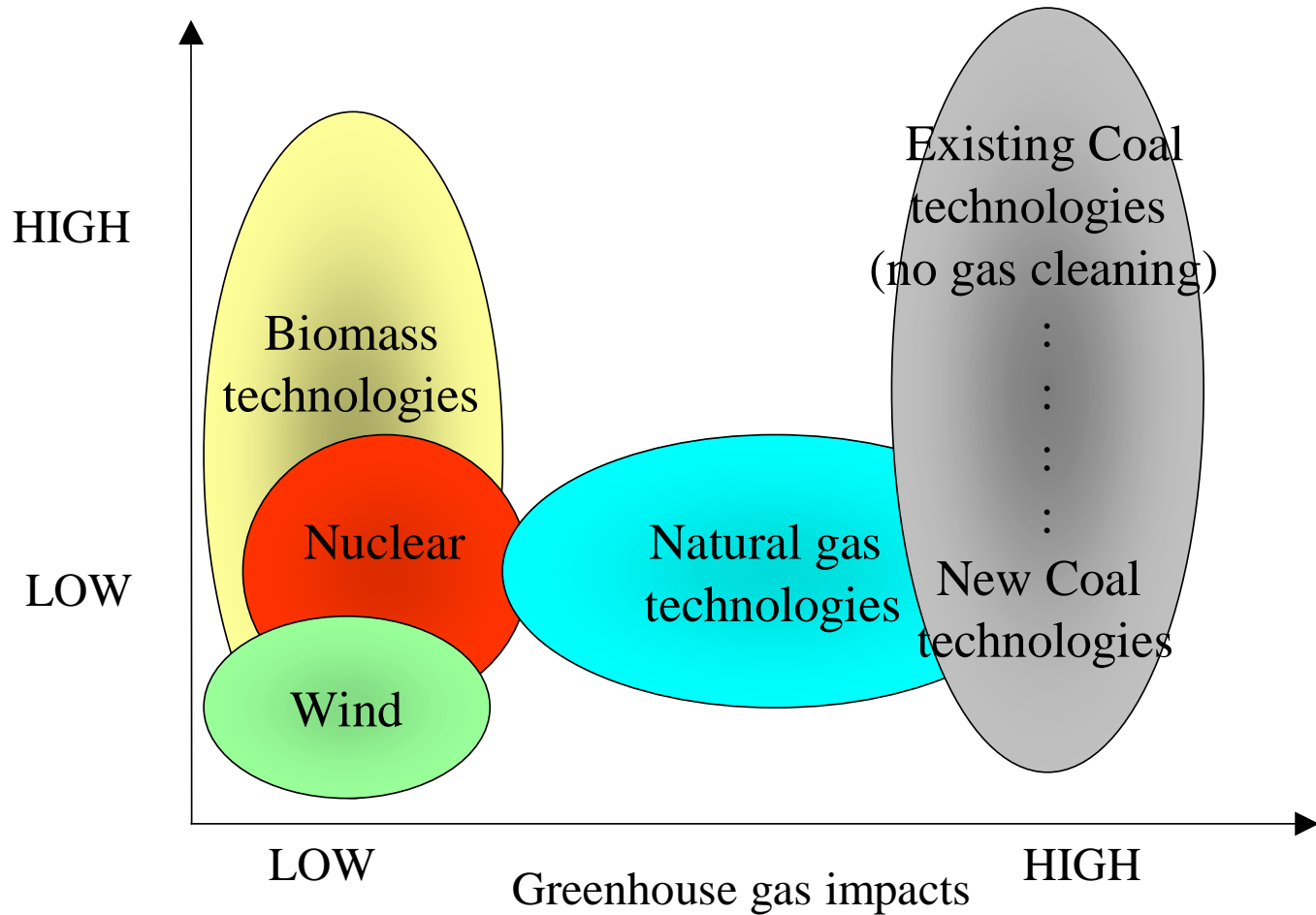


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# EXTERNAL COSTS (comparison among technologies)

Air pollution impacts (PM<sub>10</sub>) and other impacts





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# EU CONTEXT: ENVIRONMENT

- *to limit sulfur dioxide, nitrous oxides, particles and lead in the atmosphere*
- *to struggle climate change*
- *to combat acidification and eutrophication*
- *CAFE: Clean Air for Europe*
  
- **Communication on the Sixth EAP of the European Community - “Environment 2010: our future, our choice” - COM(2001)31**
  - *“To ensure that those who cause injury to human health or cause damage to the environment are held responsible for their actions”*





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## EU CONTEXT: ENERGY

- **Green paper: *Towards a European strategy for the security of energy supply* COM(2000)769**

***“Fiscal instrument (...) should lead to the internalisation of damage caused to the environment”***

- **Directive on the promotion of electricity produced from renewable energy sources in the internal electricity market - OJ L 283**

***“Need to internalise external costs of electricity generation”***





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# EU CONTEXT: TRANSPORT

- **White paper- *European transport policy for 2010: time to decide* - COM(2001)370**  
  
***“Towards modal rebalance and greater internalisation of external costs”***
- **Charging infrastructure for heavy road vehicles (“Eurovignette”)**







## EU CONTEXT: STATE AID

- **Community guidelines on state aid for environmental protection - OJ C 37**

***“The principle of prices to reflect cost states that the prices of goods or services should incorporate the external costs”***

***“Member States may grant operating aid to new plants that will be calculated on the basis of the external costs avoided (...)***

***The amount of the aid thus granted to the renewable energy producer must not exceed 5 eurocents/kWh”***





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## 6° RTD FP (2002-2006)

### **Sustainable Energy Systems (Long term research)**

- **Fuel cells, including their applications**
- **New technologies for energy carriers, particularly H<sub>2</sub>**
- **New and advanced concepts in renewable energy technologies**
- **Capture and sequestration of CO<sub>2</sub>**
- ***Socio-economic tools and concepts for energy strategy***

### **Policy-orientated research**

- **Scientific Support to Policies (Energy)**





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# CONCLUSIONS: CURRENT AND FUTURE TOPICS

**NEWEXT, EXTERNE-POL, NEEDS, MAXIMA**

- **Stakeholder dialogue (industries, NGO, MS)**
- **Methodology for ecosystem damages**
- **Effects from multi-media (air/water/soil) impact pathways**
- **Externalities from major accidents (cf. oil tankers)**
- **Fuel cycles in all Europe**
- **New and emerging new technologies**
- **Energy security of supply issues**
- **Long-term internalisation strategies**





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# INFORMATION

- <http://www.externe.info>
- <http://externe.jrc.es>
- Brochure on “External costs”:  
[http://europa.eu.int/comm/research/energy/pdf/externe\\_en.pdf](http://europa.eu.int/comm/research/energy/pdf/externe_en.pdf)
- **Contacts: European Commission and EU RTD projects coordinators. Currently: IER in Germany, ARMINES in France and ISIS in Italy**

