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*JRC's techno-economic support
to EU policies*

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ITRE visit to Ispra
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Outline

- What is “techno-economics”?
- Main application fields and institutes involved
- Techno-economics in the policy cycle
- Examples of techno-economic support
 - techno-economic policy studies
 - societal impact assessment of new technologies
 - techno-economic bureaux
 - techno-economic intelligence
 - economic modelling platforms

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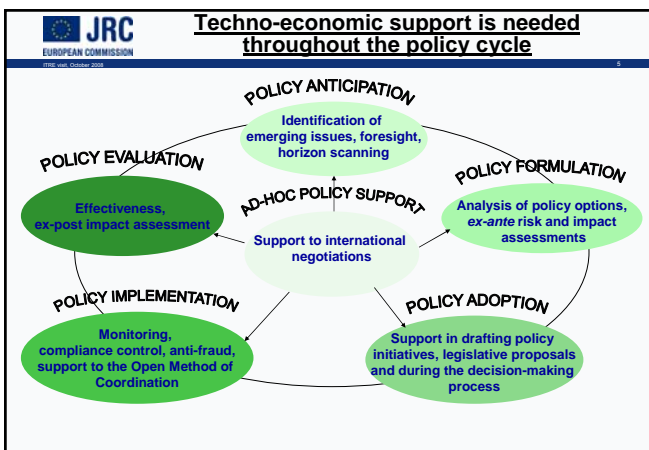
What is “techno-economics”?

- We define “techno-economics” as ...
 - ... research aimed at generating evidence-based responses...
 - ... to policy challenges that are essentially socio-economic in nature ...
 - ... but that also have some scientific/technological dimension
- Techno-economic research involves multi-disciplinary teams, underpinned by a portfolio of specialised research tools
 - quantitative tools
 - modelling, econometrics, mathematical programming, data mining, statistical analysis, cost benefit analysis, ...
 - qualitative (expert-based) tools
 - foresight (technological, economic and societal), scenario building, Delphi, benchmarking, ...
- Constitutes ~10% of the JRC’s overall business

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Main application fields for techno-economics in the JRC

- Institute for Prospective Technological Studies, Sevilla
 - knowledge for growth policies
 - information society policies
 - sustainable consumption and production economics
 - climate change, energy and transport economics
 - agriculture and rural development economics
- Institute for Environment and Sustainability, Ispra
 - environment and sustainability policies
- Institute for Energy, Petten/Ispra
 - energy and transport policies
- Institute for the Protection and Security of the Citizen, Ispra
 - econometric and statistical support to a broad range of EU policies in education, internal market, competition, economics and finance, research, innovation, trade, anti-fraud, ...



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Examples of techno-economic support

Classification

- 1) techno-economic policy studies
- 2) societal impact assessment of new technologies
- 3) techno-economic bureaux
- 4) techno-economic intelligence
- 5) economic modelling platforms

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(1) Techno-economic policy studies

- Policy studies support all parts of the policy cycle
 - e.g. horizon scanning, analysis of policy options, ex-ante impact assessment, monitoring implementation and compliance, ex-post evaluation, ...
- Examples
 - understanding why the EU is weak in high technology industries
 - is our "deficit" in corporate R&D a cause or a symptom of the weakness?
 - ex-ante assessment of the impact of first-generation biofuels
 - what are the facts? what are the uncertainties?
 - composite indicators for monitoring the impact of policy
 - for example, the European Innovation Scoreboard
 - ex-post analysis of the impact on biobanks of the EU Data Protection Directive
 - is the Directive unintentionally hampering medical research and, if so, could legislation more specific to biobanks address the issue?

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(2) Societal impact of new technologies

- Studies to assess the potential impact of new and emerging technologies on society and the economy
 - and then to explore whether there is a need for an EU-level policy response
- Examples
 - radio frequency identification devices (RFIDs)
 - ex-ante analysis of the opportunities (economic etc) and barriers (privacy, social acceptance etc) -- and possible policy options for the EU
 - automobile technologies
 - which technologies will be most cost-effective in reducing the environmental impact of the passenger car, from a life-cycle perspective?
 - agronomic impact of GM-maize on Spanish farmers
 - ex-post analysis, showing that farmers growing first-generation GM-maize experienced higher yields, similar prices and similar overall costs

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(3) Techno-economic bureaux

- In the environmental field, there is a trend towards more "adaptive" legislation at the EU-level
 - which allows the environmental limits enforced by MS to evolve as the technologies and the economics evolve
 - e.g. Integrated Pollution Prevention & Control (IPPC) Directive
- For this type of legislation to work, independent techno-economic facilitators (the "bureaux") are essential
 - to manage the consensus-building process between key stakeholders from all MS
 - that determines the common basis on which individual MS must set their environmental limits
- JRC techno-economic bureaux
 - The European IPPC Bureau (since 1997)
 - The European Co-Existence Bureau (since 2007)
 - The Ecolabel Bureau (planned for 2010)
 - The Environmental Management and Audit Scheme Bureau (for 2010)
 - The Environmental Technology Verification Bureau (for 2011)

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(4) Techno-economic intelligence platforms

- Evidence-based policy-making is often hampered by a lack of reliable up-to-date information
 - that is pre-digested and readily accessible
 - "intelligence" platforms are designed to meet that need
- Examples of our techno-economic intelligence platforms
 - SET-Plan Information System (SETIS)
 - an open-access information system on energy technologies to support the European Strategic Energy Technology Plan
 - Centre for Research on Life-Long Learning (CRELL)
 - provides indicator-based intelligence on the quality and effectiveness of education and training systems in the EU
 - ERAWATCH
 - a web-based service to provide regularly updated policy-relevant information on the research systems of MS, AS, and competitor countries
 - Industrial Research Investment Scoreboard
 - annually analyses the performance of the world's top corporate investors in R&D

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(5) Economic modelling platforms

- Economic models are being increasingly used by the Commission to help prepare and justify policy initiatives
- However, many Commission Services were becoming dependent on external consultants, with the risks that implies
 - and started to ask the JRC to provide them with a more secure in-house modelling service
- The JRC has taken up this challenge and now aims to establish itself as a reference centre for economic modelling
 - agriculture economics, climate change economics, energy economics, transport economics
 - well advanced
 - environmental economics, rural development economics, macro-economics (The Euro-Area Economic Modelling Centre)
 - under development
 - regional development economics
 - at an early stage

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