Policy mapping tools and analytical approaches

Partnership for Market Readiness (PMR) Technical Workshop
» Post-2020 Mitigation Scenarios and Carbon Pricing Modelling «

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In the beginning a reminder:
The four ‘A’-questions for strategy assessments

- Are the potentials for GHG mitigation **AVAILABLE**?
  - from today’s knowledge
  - with sufficient trust in innovation

- Can these potentials be implemented in a way that certain (long-term) targets are **ACHIEVABLE**?
  - considering the lifetime of capital stocks
  - considering the necessary lead-times for implementation, infrastructure & innovation

- Can pathways be designed that are **AFFORDABLE**?
  - for the economy in total (efficiency)
  - for (different) consumers (distributional implications)

- Will such pathways be **ACCEPTABLE**?
  - for policy makers
  - for the public
  - for key (“backstop”) stakeholders
Beyond policy coordination: a dynamic market environment requires dynamic analysis & responses.

2005: cheap abatement options ~5 to 10 €/t CO₂

end-2015: cheap abatement options ~25 €/t CO₂

Öko-Institut 2016
Policy interactions are important
Policy mapping is a crucial part of analysis (1)

- **Different dimensions of policy interactions**
  - interactions between energy, climate and environmental policies
  - interactions between climate policies and other policy areas (market regulation/oversight, industrial policy, foreign policy)

- **Different mechanisms of policy interactions – and interactions of policy mechanisms**
  - (simple) overlapping
  - reinforcing effects
  - countervailing effects

- **The variety of interactions is huge, clear focus is needed**
  - on most significant sectors (for certain time-horizons)
  - on different economic dimensions
    - operational and behavioral patterns
    - investment patterns
    - innovation patterns
Analysis of policy mechanisms & policy interactions
Reflecting different layers of abatement

Abatement cost (from an individual perspective)
Ambition level (over time)
Subsidies
Operational
Investments 1
Investments 2
Transformational
Introductory
Subsidies

CPLC, Öko-Institut
Putting different policy mechanisms into context

Identifying primary & complementary policies

Limitation or mitigation goal

Potential left exclusively to market-based mechanism

Low-carbon fuel policy 1

Low-carbon fuel policy 2

Energy efficiency policy 1

Energy efficiency policy 2

Baseline (counterfactual)

regulated by complementary policy

regulated exclusively by market mechanism

overlap of market-based and complementary mechanisms

* requires careful (ex ante) analysis of policy interactions and potentially flexibility provisions for market-based mechanisms

mln t CO2e
• **Quantitative analysis is needed and essential**
  – with a strong focus on behavior of the economic entities (smart combination of bottom-up, simulation or partial equilibrium models)
  – with consideration of macroeconomic feedbacks (macroeconomic models like econometric or CGE models)
  – key outcomes
    • list of isolated policy outcomes (possible via decomposition analysis) – identifying the Top X to inform the policy process
    • numerical specification of policy interactions (comparing isolated policy outcomes with combined outcomes) – identifying the Top X to inform the policy process

• **How to deal with (increasing) uncertainties**
  – sensitivity analysis as an essential element
  – short modeling cycles (creating a modeling framework as well as modeling, modeling outreach and modeling feedback communities – for integrated policy modeling)
Biannual climate policy modeling for Germany
The integrated bottom-up modeling part
Thank you very much

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