

ZEW-Bruegel workshop: Europe's way to a low-carbon economy

Bruegel, November 22nd, 2011

The workshop on “Europe's Way to a Low-Carbon Economy” was organized by Bruegel in conjunction with the Center for European Economic Research (ZEW). Guest speakers at this event included **Wolfgang Franz**, Chairman of the German Council of Economic Experts and President of the ZEW; **Andreas Löschel**, Head of the Environmental Economics department of ZEW and chairman of the German monitoring group on the energy transition; **Jos Delbeke**, Director General for Climate Action, European Commission; **Georg Zachmann**, Research Fellow at Bruegel; and **Jean Pisani-Ferry**, Director of Bruegel.

The workshop began with a welcome and introduction by Jean Pisani-Ferry. Georg Zachmann then gave the first presentation, on an upcoming Bruegel Blueprint studying the challenges and needs of an energy system transition. The European targets for reducing GHGs will require a transition to new energy sources, as the incumbent technologies provide a limited carbon-reduction potential. However, energy system transitions in the past have been characterized by strong inertia. The current transition faces additional challenges – low-carbon technologies do not have serious advantages over incumbent ones, and require substantial downstream changes. Market failures also prevent markets alone from encouraging the development and deployment of uncompetitive but necessary low-carbon technologies. These include path dependencies due to institutions, risk-aversion, and network effects. Coordination by the market may result in late deployment and fragmented networks and markets. Additionally, the exploration of new low-carbon technologies may have a high social value and create positive spillovers which may not be compensated by the market. Using the case of Fuel Cell Electric Vehicles (FCEV) as an example of a potential carbon-free transport alternative with adequate range, a model was used to predict the outcomes under different framework conditions. The model used predicts that, under existing framework conditions, FCEV would be virtually absent in the 2050 vehicle market.

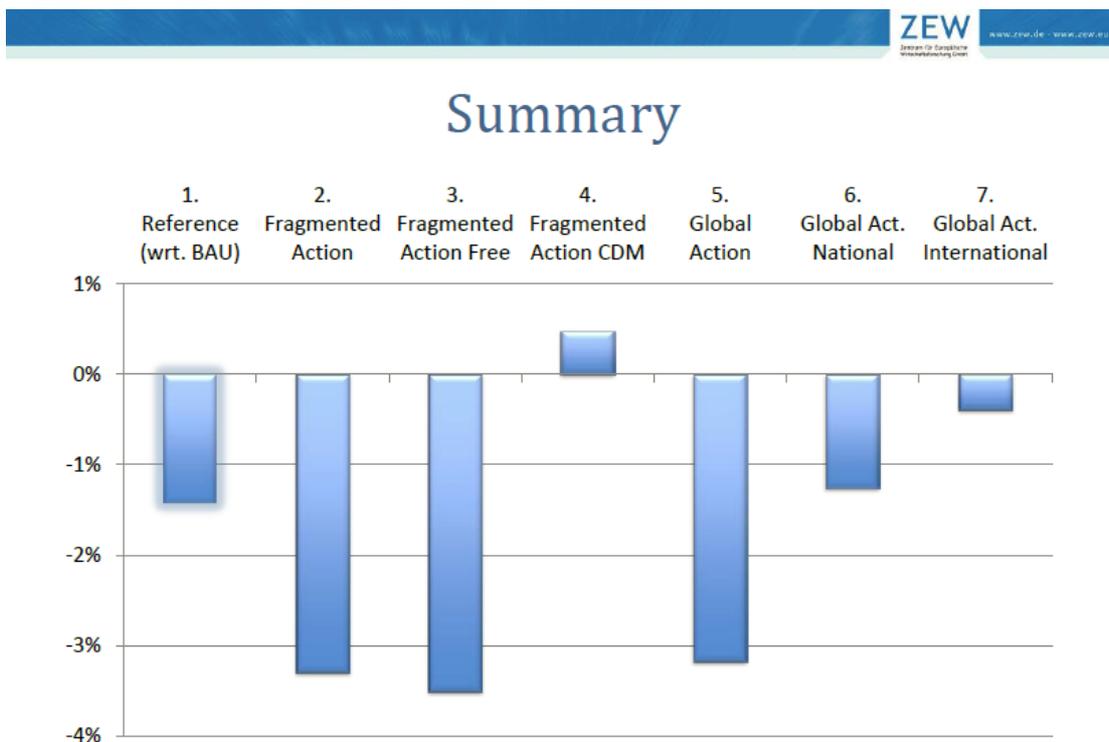
Existing policies are insufficient to resolve the market failures hindering the transition. The Bruegel Blueprint will propose several policy tools to fill this gap. Firstly, the alignment of a long-term carbon price across different sectors. All forms of transport should be included in the EU ETS. Policy could commit future budgets via issuing put options on the carbon price to provide assurance to investors and incentivize investments in low-carbon technologies. Tightening average emissions standards is an effective second-best solution. Temporary infrastructure consortia are another way to provide infrastructure which would not otherwise be provided by the market – although this option would need to be cleared ex ante by competition authorities. Finally, a transparent and predictable support policy is key – the methodology should be technology-neutral and should be a multi-technology model which provides guidance for targeting support attempting to elicit the most accurate information from stakeholders.

Andreas Löschel followed with a presentation on the effects of the EU Low Carbon Roadmap 2050 on industry. The EU Roadmap contains simulations of different scenarios but the report being compiled by the ZEW project expands the analysis to sector effects and macroeconomic effects. Seven policy scenarios were assessed during the development of this report: The reference scenario with current policies only; Fragmented action (unilateral EU climate policy); Fragmented action with free allocation (benchmarking); Fragmented action with CDM (Clean Development Mechanism; Global climate policy; Global climate policy with price equalization across EU ETS/non-ETS; and Global climate policy with price equalization across regions (global ETS).

The model used was the PACE CGE Modell, a global model, developed at ZEW which has been established in policy consulting and academic research (please see Figure 1 – Summary Chart from ZEW). Data were used from a top-down (macro data) and bottom-up (differentiation between different energy technologies) perspective. The main question was the cost to the EU of mitigation. The results of the simulations suggest that fragmented action may result in high marginal abatement costs in non-ETS sectors. In the fragmented action with free allocations, there are somewhat higher abatement costs for the EU-27. Without considering global action, fragmented action with CDM appears to reduce cost the most in the EU compared with the former two policy cases, though it is still costly. Additionally, CO₂ price equalization appears to have a large impact on the EU cost level, and an even larger impact at the international level. There are a number of caveats to this study as it did not include breakthrough technologies (such as CCS) or advanced renewables, there was no endogenous technical progress, there is uncertainty in economic growth, and highly increasing model uncertainty in late periods. Other studies also tended to

find lower costs around 1%. A participant also pointed out that different climate change policies have different impacts/benefits, and this study only focused on disaggregated costs but not on the impacts of different policies (which may have effects on costs of remaining mitigation efforts). The policies assessed, if implemented correctly, are not very costly – about 1 or 2 percentage points of GDP and would mean giving up one or two years of growth to forestall climate change, and in growing economies even less growth sacrifice. However, government and political failures lead to fragmented and inefficient or ineffective policies and extra cost.

Figure 1 – Summary Chart from ZEW



MITIGATION COSTS (consumption change) w.r.t 1. Reference in 2040

Wolfgang Franz then presented a critical assessment of German energy policy. At the end of June 2011, German policymakers drastically changed the direction of energy policy. The previous energy plan from just 14 months earlier had included provisions to prolong the lifetime of nuclear power plants. The shift in June included a pledge not to backtrack from the phase-out decision of the Schroeder government. The reversal of nuclear prolongation implies the expansion of other renewables, widening the geographical divide between producers and consumers. In order to address this, a grid expansion is needed which will be financed through tariffs. It is a deeper question what different stakeholders are willing to carry. The energy bill of poor households in Germany is already 10% of income. Additionally, climate protection is a public good – there are national costs but international benefits. The EU is in only a transient position and should not expand further unless other nations expand. The ETS regulates half of GHGs and is the foremost instrument for incentivizing emissions reductions. However the national renewable expansion goals may hurt its effectiveness. For example, solar energy is some of the most heavily subsidized and the costs associated with success in extra capacity are especially high. The current renewables promotion structure will involve lengthy payments and commitments. The costs already incurred in Germany amount to a net present value of €80 billion. There needs to be a more market-oriented system than the current feed-in tariff approach. There should be also greater account on the EU dimension. One possibility would be the expansion of renewables steered by a market-based mechanism such as green certificates and harmonized throughout Europe. As a matter of principle, different goals should be pursued via different instruments – goal of technological solutions should be left to research and industrial policy.

Jos Delbeke was next to speak, on the Roadmap 2050. The EU cannot be alone in ratcheting up – the EU is responsible for only 10% of global emissions. Since the 2009 Climate and Energy package, there has been a lot of implementation. The EU ETS as of 2013 will have auctioning, harmonized free allocation using benchmarks, and a single registry. The revenues from auctioning may be useful for supporting policies aimed at the goals outlined by the 2050 roadmap. In addition, aviation will be included in the ETS and there are plans to support International Civil Aviation Organization (ICAO) discussion on the global regime. The 2020 target of 130 g/km is within reach due to the car industry and may need to be revisited. Right now, we are very close to the 20%, there is a question of where to go in 2020 and also of what share we will have to give up improving economic conditions? This topic should be the subject of a political debate. Roadmap milestones have been defined differently for different sectors due to expectations over the evolution of different technologies and initiatives. Climate action promises benefits for EU energy security and air quality, as well as for growth and jobs (spending shifts from fuel costs to investment expenditure), and increased industrial competitiveness. The roadmap confirms that current measures provide adequate safeguards against carbon leakage in the current context. However, there is a need for a sectoral dialogue and long-term planning at a sectoral level. The commission proposal is to have over 20% climate-related funding in the next multiannual financial framework. Additionally, there is a need for providing clarity and defining the 2020-2030 framework, a review of 1.74% linear reduction, and a close review of carbon leakage safeguards and the interactions between instruments. Sectoral roadmaps might also be created, including industry-specific initiatives. Additionally, we cannot separate climate needs from the banking crisis as a well-functioning sector is required for investments. A very important and related discussion is the renewables policy – as it has a climate, innovation, and energy dependency dimension. The EU must become clear on it.

Jean Pisani-Ferry then led the discussion. The discussion highlighted some points previously covered, such as the inefficiency or ineffectiveness of some feed-in tariffs. If solar panels are heavily subsidized but purchased from China, that produces them in an environmentally unfriendly way, this may serve to hurt jobs creation and the climate aspect. However, a distrust of markets may be what is hindering the implementation of more market-based schemes such as green certificates. There needs to be much more emphasis on developing existing instruments and harmonizing goals so as not to lose public support. The ETS works – if, in a recession, demand for allowances decreases and the price decreases, the expectations of industry and market are very short-sighted and only look at the next two years. The ETS may possibly be improved by a regularly reviewable supply of certificates. There needs to be a more orderly debate on this. Additionally, there needs to be a transparent mechanism for directing support – most models are currently proprietary. However, there is a push from the commission on model development – there is a lot to be done and model development should have a greater push from both the scientific and public community.