

## Round Table, Paris, 31 January – 1 February, 2008

### The Cost and Effectiveness of Policies to Reduce Vehicle Emissions

Transport relies to a very large extent on fossil fuels for motive power. Burning fossil fuels results in a variety of air emissions, many of which cause health and environmental damage, either by themselves or in combination. The costs of this pollution are largely external to the market, requiring government intervention if economic welfare is not to be seriously impaired.

Increasing concern over greenhouse-gas emissions and CO<sub>2</sub> in particular, is driving the introduction of new regulations and new types of intervention as well as leading to tightening some existing fuel efficiency regulations. Transport Ministers and leaders from civic society will discuss the challenge of climate change for their sector at the International Transport Forum meeting in Leipzig in May 2008. The Round Table will help prepare this discussion, as it is designed to set out the principles for cost-effective emissions control policies. Because of interactions between various transport externalities, CO<sub>2</sub> mitigation measures cannot be evaluated in isolation. The Round Table will therefore take a broader view, identifying the main messages from economic research for the development of policies to manage the transport problems, including congestion, local air pollution, and safety.

In order to reach emission reduction objectives at the lowest possible cost to society, the marginal costs of mitigation clearly are central to the choice of emissions control strategies. Implementation of this key principle is not simple, however, as there are a number of problems in the design of the regulatory approach that are often ignored in textbook analysis. The Round Table will focus on some of the issues that may be crucial in determining cost-effectiveness and the overall benefits of emission control policies, including the following examples:

- How to arrive at regulation of technology that is effective and enforceable? This is not straightforward as there is frequently a gap between the way emissions control technology performs in the laboratory and its effectiveness in real-world operation, a gap resulting from both the difficulty of simulating real-world conditions in the laboratory and the influence of driver behaviour.
- How to ensure that regulatory policy provides incentives for technological innovations to reduce the costs and improve the effectiveness of mitigation on a continuing basis? Traditional regulatory targets are not good at providing the flexibility required to achieve this.
- Is differentiation of transport-related taxes according to CO<sub>2</sub>-intensity of vehicle technology a reasonable complement to, or an alternative for fuel economy regulation?

- Emissions control technologies interact. There are sometimes trade-offs to be made between the effectiveness of reducing different types of emissions when regulations promote particular technologies. How should we deal with such trade-offs, taking account of the problem that the economic costs of some types of emissions are relatively well understood, while for others uncertainty remains large.

The roundtable discussions will be initiated by a set of presentations organised around the following themes.

1. How should CO<sub>2</sub> emissions be reduced? Economists tend to favour fuel taxes over fuel economy standards. Many countries rely on both, and also use differentiation of fixed vehicle charges. Should we opt for more stringent standards or higher fuel taxes? Is there a role for tradable permits and if so what are the critical factors for trading systems to be effective? How do the instruments interact?

Theme 1 will be introduced in presentations from Dr **Steve Plotkin** (Argonne National Laboratory) and Dr **Charles Raux** (Laboratoire d'Economie des Transports, CNRS, Lyon). Steve Plotkin has examined reform of the fuel efficiency regulations across the OECD. Charles Raux has investigated the potential of a wide range of possible emissions trading systems for the transport sector.

2. CO<sub>2</sub>-emissions are one of several sources of external costs in transportation. The main external costs of transport are related to congestion, accidents, energy security, health and environmental effects. How can CO<sub>2</sub> emission reduction mechanisms account for interactions among transportation externalities? Still more broadly, what are the economy-wide costs of reducing emissions? Studying these issues requires a detailed account of the effects that regulations have on producer and consumer behavior. The aim is to reveal “unintended consequences” as far as we can.

Theme 2 will be introduced by presentations from Dr **Winston Harrington** (Resources for the Future) and Dr **Stef Proost** (Department of Economics, Katholieke Universiteit Leuven). Mr. Harrington will focus on interactions among transport externalities and on the incentive effects of regulation on producer behavior. Mr. Proost will focus on demand side effects and on macroeconomic impacts.

The meeting will be chaired by **Dr Terry Barker** (Department of Land Economy, University of Cambridge). The participants to be invited to the Round Table will include economists, emissions control engineers and regulators.