

Note: This draft report will be submitted to the Executive body of the Convention on Long-Range Transboundary Air Pollution in December 2005, based on the decision of the Working Group on Strategies and Review which will meet in September 2005.

POLICY INSTRUMENTS TO REDUCE AIR POLLUTION

Draft summary report of the workshop by the rapporteur of the Network of Experts on Benefits and Economic Instruments (NEBEI) in collaboration with the secretariat in collaboration with the secretariat

Introduction

1. The European Commission hosted the third workshop of the Network of Experts on Benefits and Economic Instruments (NEBEI). The workshop on policy instruments to reduce air pollution was held on 11 and 12 November 2004 in Brussels. The papers and presentations can be found on the Internet at <http://www.unece.org/env/nebei> , and at http://europa.eu.int/comm/environment/air/nebei_workshop/index.htm
2. The main purpose of the conference was to: (a) bring together the most recent research findings from practical applications of economic and other instruments to reduce air pollution in the EU and ECE countries, and (b) to give policy guidance to the finalisation of the Thematic Strategy on Air Pollution, which – according to the 6th Environment Action Programme – will be adopted by the European Commission by July 2005, and (c) to give input to the future review of the 1999 Gothenburg Protocol which will be formally initiated after entry into force of the Protocol.
3. Experts from Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland, UK, the USA, the OECD, the European Environment Agency, NGOs, industry representatives and the European Commission as well as the NEBEI secretariat attended the conference.
4. The workshop was chaired jointly by Mr. Stale Navrud (Norway), rapporteur of NEBEI, and Matti Vainio (European Commission).
5. In her opening address the Director General of DG Environment Ms. Catherine Day stressed the importance of learning from practical applications of policy instruments, and of transforming the theoretically perfect, cost-effective policies which can be designed, into political, economic, social and environmental reality. The workshop participants were asked for down to earth guidance on two specific questions: (i) Would they recommend a change in approach in bringing further down the emissions of sulphur dioxide and nitrogen oxides in Europe? And if so, could in their view, taxing or charging be a politically acceptable alternative at Community level to current methods? (ii) Would national, regional or EU-wide emission trading be a better

alternative to further reduce emissions of sulphur dioxide and nitrogen oxides in land and sea areas?

6. Professor Frank Convery (University College Dublin), President of the European Association of Environmental and Resource Economists (EAERE; www.eaere.org) presented a list of criteria for success and failure of policy instruments including political commitment and skill, administrative commitment, persistence, learning from the past and each other, creativity in labelling and dissemination, managing the stakeholders, creative use of gains, timeliness and realism. He invited the European Commission and NEBEI to attend and contribute to the thematic workshop on “Market Based Instruments for Air Pollution” in Bremen 23 – 26 June 2005.

I. SUMMARY OF MAJOR DISCUSSION POINTS

Regulatory instruments

7. Mr. Peter Gammeltoft (European Commission) presented the lessons learned from regulatory measures in different sectors to reduce air pollution within the EU. He concluded that when new measures were considered, both regulatory and market based instruments needed to be considered. There needed to be more cross-fertilisation between traditional regulatory approaches and market based instruments to reduce efficiency losses inherent in both types of instruments under real conditions. Since EU regulations have mainly addressed large scale industries so far, the question was raised whether EU needed to go further and regulate in the Small and Medium sized Enterprise (SME) segment.

8. Richard Morgenstern (Resources for the Future - RfF) presented the main results from a comparison of different regulatory and market based approaches to the same environmental problem in six pairs of case studies in the US and Europe (*Choosing Environmental Policy: Comparing Instruments and Outcomes in the United States and Europe*). The six case study pairs were: utility SO₂ emissions, utility NO_x emissions, industrial water pollution, chlorofluorocarbons, lead in gasoline and chlorinated solvents. The case studies showed that environmental regulation had worked, both market based instruments and direct regulation, and that a mix of both type instruments is more realistic than either one of them alone.

Voluntary instruments

9. The potential role of voluntary instruments in achieving air pollution reduction targets was presented by experts from the Netherlands and the European Commission.

10. The national experience in the Netherlands with *negotiated agreements* (“covenants”) with industry seemed to be largely positive. The coverage of these agreements, concluded sector by sector, was over 80% of total industrial pollution (the declining trend indicating the efficiency of the instrument). Insofar as success criteria for environmental agreements were concerned, experience gained in the Netherlands largely confirmed the assessment done at the EC level.

Robust and measurable objectives, clear rules for monitoring and reporting, representativeness as well as regulatory threat appeared to be key criteria for agreements at all levels. For agreements at Community level, specific issues (legal constraints resulting from the EC Treaty as well as institutional aspects) were of equal importance. In the field of voluntary programmes, the Community Eco-label Award Scheme allowed for interesting cuts in air pollution, depending on the market penetration of labelled products.

11. In general, voluntary instruments might well play a non-negligible role in combating air pollution. They were unlikely, however, to be the key element in this policy field.

Market based instruments

12. It was pointed out that the recent types of market based instruments used by EU Member States were more varied and increasingly used in combination (policy packages), which were affected by different sets of community rules: taxes, state aid, emission trading, and internal market. Therefore the scope of the new EC communication had to be widened to include the CO₂ emission trading scheme and guidelines on State aid for environmental protection. The analysis of the way forward has to be done in the light of institutional constraints within the EU; especially the unanimity rule for all taxation-related initiatives versus the qualified majority rule for emission trading. Further steps included: monitoring and assessment of the EU greenhouse gas Emission Trading Scheme (ETS) which comes into effect in 2005 (and the potential inclusion of more sectors, and linkage to other countries), a new proposal to avoid double burden by industries hit by both taxation and ETS, proposal on greening of car taxation, consider possible ways out of the difficulty of reaching unanimity for environmental taxes, review of the State aid guidelines, and reform on environmentally harmful subsidies (based on work undertaken by OECD).

13. Preliminary results from an EEA report forthcoming in early 2005 on the use of market based instruments in EU-25 and other European countries were presented, as well as the joint OECD and EEA database on market based instruments and voluntary approaches in 42 countries. With regard to environmental taxes, tax bases and applications were spreading steadily over European countries, but there were very few attempts to base tax rates on externalities. Notable exceptions included the landfill tax and aggregate tax in the UK, and the Swiss heavy vehicle charging scheme (see presentation by Ueli Balmer). Tax bases were now designed more closely to the environmental problem. There was little evidence of damages from environmental taxes on competitiveness. The tax design was important, e.g. recycling of revenues, exemptions and cuts in exchange for good performance. Subsidies are important in accelerating the commercialisation of new technologies, and only new, not existing, technology should be subsidized to motivate technological innovation. Environmentally harmful subsidies should be reduced as they reverse efficiency gains and stifle innovation. There seems to be a move from the search for an optimal instrument to an optimal mix of instruments.

14. Issues of particular concern to the new EU Member States were illustrated by case studies from the Czech Republic. In these countries, institutional conditions, e.g. housing market regulations, car dependency, growing freight road transport and social problems, should be taken into account when choosing instruments. The importance of considering the distributional effects of market based instruments was also stressed.

Market based instruments – Taxes, charges and subsidies

15. Six case studies on the application environmental taxes, charges and subsidies were presented. The Swedish NO_x charge on emissions from combustion plants for energy production (heat/electricity) had successfully reduced specific NO_x emissions by 60 % (1990-2003) using a high charge of 4.400 euro per tonne. 99 % of the collected charges was recycled back to the industry, i.e. only 1 % administrative costs. The Swedish EPA was considering increasing the charge level and making other sources liable to the source, in order to reduce emissions further.

16. Environmental taxes are one of the few alternatives available to Spanish regional authorities to increase funding, since regional taxes cannot be levied on bases already taxed by central and local authorities. Central government, however, attempts to block regional developments. The Gallician tax on SO₂ and NO_x emissions is zero for annual emissions below 1000 tonnes and increasing to 42 euro/tonne for emissions above 80.000 tonnes/year. Only 6 out of 317 companies pay charge, which questions the use of market based instruments in this case.

17. Existing market based approaches to reduce SO₂ and NO_x emissions from ships were presented, including case studies of the sulphur content of mineral oils tax and the differentiated tonnage tax in Norway, both applying to domestic vessels; the differentiated dues in other countries (Swedish Fairway Dues, and Port Mariehamn in Finland), and the “Green Award” certificate, that started in the port of Rotterdam, and for which about 50 ports worldwide offered a 5 % reduction in dues. However, these differentiated dues do not account for the distance the vessel has travelled (which the externalities they cause depend on), and the “greening of vessels” is not due to this monetary incentive but rather due to corporate image and customer demand.

18. The experience from introducing the £ 5 (7 euro) congestion charge in Central London in February 2003 was also presented. The scheme was aimed at reducing traffic delays by 10-20% and traffic circulating in the charging zone by 15 % . The scheme more than fulfilled these aims. It led to a reduction in NO_x and PM₁₀ emissions by 12 %, but the direct effects on ambient air quality are unlikely to be detectable in the short-medium term.

19. The design of the Swiss heavy vehicle charging scheme was based on a careful analysis of externalities, and gave positive impacts in terms of reduced mileage and emissions of NO_x PM₁₀ and CO₂.

20. An overview of subsidies for cleaner transport was given. It was stressed that subsidies could be defended when they supported technological change, and that environmentally harmful subsidies should be reduced. A success story was the French natural gas buses, constituting 8 % of the fleet and 30 % of the market for new buses.

Market based instruments – Emission trading

21. The experience from the US SO₂ and NO_x ETS and the Dutch NO_x ETS was presented. The experience from the US Cap and Trade Programmes on SO₂ and NO_x is that trading is recommended in the case of a regional problem, measurable emissions, different abatement costs (i.e. potential for gains from trade), “enough” emission sources, and institutions that can run the market. Government focus is important to (i) define the environmental objective, and (ii) ensure the integrity of the allowance and (iii) minimize administrative cost. Making the source responsible for meeting the environmental goal is a very important feature of the cap and trade regimes. Thus, responsibility for compliance is shifted from the regulator to the sources. In the Netherlands the plan is to integrate the trading in NO_x and CO₂, which involves all 250 and 350 industrial facilities larger than 20 MW. The main lessons learned from the Dutch experience are that involvement of the national industry through comprehensive dialogue and a large scale demonstration project are important, and that clarity in monitoring structure and requirements, and communicating strict enforcement, are essential for success.

Policy mixes

22. The Danish experience on combining quotas and tax on SO₂ and NO_x was presented. First, environmental agreements on quotas for large combustion plants were negotiated in 1989. In 1996 the SO₂ tax speeded up the investment in abatement equipment, since the polluters could then pay a reduced tax of 1.33 instead of 2.67 euro per kg SO₂. The results of an OECD study of more than 4000 facilities (with 50 employees or more) in all manufacturing sectors of seven OECD countries (US, Canada, France, Norway, Hungary, Germany and Japan) on the effectiveness of reducing emissions from policy mixes led to the conclusion that there were few cases in which single policy measures were actually applied. Thus, policy mixes are the rule rather than the exception, and the policy instruments are often introduced consecutively with little thought given to potential interactions. The environmental effectiveness of the policy mixes depended on policy stringency and frequency of inspections, performance standards are important, and technical assistance with

flexible instruments work well. Subsidies do not have an effect on environmental effectiveness.

23. The lessons learned from the Swedish NO_x tax were presented. A very high tax coupled with a refund mechanism to the emitters has led to a rapid reduction in NO_x emissions. The refund mechanism made the high tax, and thus the large emission reduction (40%) feasible.

24. Emission trading imposes a price on emissions, and thereby provides an incentive for a decentralized solution that will be effective and least costly. The basic deal is that regulators recognize informational and political limits of their legally absolute authority, and that firms accept regulation and prefer permits. Emission taxes could do the same, but only with compensation to the polluters as in the Swedish NO_x tax case. The policy mix was seen rather as an evolution of policy instruments. There were five main reasons for the move towards tradeable permits: i) later environmental problems are more subtle; ii) the more subtle nature of the problem makes good information far more important and the potential for informational asymmetry bigger; iii) availability of enabling technology, i.e. monitoring and data handling, that was not possible before (and also a move from expensive labour-intensive inspection methods of direct regulation to cheaper data-intensive methods for market based instruments; iv) easier and more effective implementation, since allowances in the trading schemes make initial agreement easier; and v) more faith in markets, in general.

II. CONCLUSIONS AND RECOMMENDATIONS

25. Both traditional direct regulation and market based instruments have been applied successfully to reduce emissions of NO_x and SO₂ in the past and in the future. In practice, market based instruments often build on the legislative basis, and are used together with direct regulation.

26. Since market based instruments are still in the pilot stage, rather than in the routine application stage, experimentation with instruments and policy mixes should be encouraged. However, more ex-post evaluations of the instruments currently used should be done.

27. Several excellent programmes have been designed to reduce emissions, e.g. the Swiss heavy vehicle charging scheme, the Swedish NO_x charge, the Danish SO₂ tax, the Dutch NO_x trading scheme and the US SO₂ and NO_x trading schemes. The challenge is either to expand the sectoral coverage or geographical scope of these programmes in particular in Europe.

28. NEBEI and EAERE will organize a specific, applied thematic session on market based instruments at the EAERE conference in Bremen 23 – 26 June 2005, and seek to monitor the implementation of the greenhouse gas Emission Trading Scheme (ETS) and the Dutch NO_x trading scheme during 2005.