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ECONOMIC COMMISSION FOR EUROPE

EXECUTIVE BODY FOR THE CONVENTION ON  
LONG-RANGE TRANSBOUNDARY AIR POLLUTION

**THE 2000 REVIEW ON STRATEGIES AND POLICIES  
FOR AIR POLLUTION ABATEMENT –**

Addendum 3

REPLIES TO QUESTIONS 50 – 71 OF THE 2000 QUESTIONNAIRE

Prepared by the secretariat from submissions by the Parties

**Introduction**

1. This document is part of the planned 2000 Review of Policies and Strategies requested by the Executive Body at its seventeenth session in December 1999. It follows on from Addendum 3 and provides the answers to questions 50 – 71 received from Parties in response to the questionnaire circulated in January 2000.

Documents prepared under the auspices or at the request of the Executive Body for the Convention on Long-range Transboundary Air Pollution for GENERAL circulation should be considered provisional unless APPROVED by the Executive Body.
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## SECTION 7. GENERAL INFORMATION

2. This section summarizes the answers received to questions 50 to 71 of the questionnaire. The questions in this section are of a general nature and optional. Their purpose is to provide further information that will enable the secretariat to analyse the current situation regarding air pollution abatement in the region, and provide information that the Executive Body would like the Parties to the Convention to share to identify air pollution abatement. Parties may wish to recall that under article 4 of the Convention they have committed to exchanging information on their policies aimed at abating air pollution.

### I. INTEGRATING POLICIES

3. **Question 50** **An increased integration of decision-making in some key areas that determine the level of pollution, such as transport, energy, trade and economics, can be considered as a means of strengthening preventive measures and complementing end-of-pipe control measures. Provide a brief summary of the most important measures in these policy areas that aim at, inter alia, to reduce the air pollution burden, in particular sulphur, nitrogen oxides, VOC, heavy metal and POP emissions.**

4. **Austria.** The transport sector has a considerable share of emissions for several pollutants. The Austrian Overall Traffic Concept („Ö. Gesamtverkehrskonzept 1999“) targets a significant emission reduction and recommends many transport measures simultaneously ensuring sustainability. Based on this concept, the Austrian Federal Transport Infrastructure Plan („Ö. Bundesverkehrswegeplan“) has been developed, which integrates planning measures for rail, road and inland waterways and shall bring about a clear shift of freight transport from road to rail. It provides for clearly higher investments in rail than in road infrastructure with 300 bill. ATS (21.8 bill. €) in the long term. Concrete policy measures (e. g. laws for the earmarking of budget for rail infrastructure and for the support of integrated public transport systems) have been taken on this basis.

5. A package of measures for the reduction of greenhouse gases according to the Kyoto Protocol is currently being developed, which comprises all relevant sectors and aims a. o. at the reduction of energy demand, at the promotion of renewable energy and at a modal shift in transport. It will surely contribute to the reduction of air pollutants as NO<sub>x</sub>, VOC and SO<sub>2</sub>.

6. The Austrian agricultural policy aims at environmentally sound and sustainable farming and at the preservation of the existing structure with a large share of small farms. Funding programs support organic farming as well as extensive farming in general (integrated husbandry and reduced fertilizer use); Austria therefore has a high number of organic farms (approx. 20,000). These agricultural practices result, besides many other beneficial effects, in reduced energy demand, less transport and decrease of pesticide use.

7. Furthermore the support of R&D should also be seen as a long term strategy for a sustainable development with considerable impact on air pollution. Research on renewable energy sources is supported as well as the development of marketable products, e. g. by building „clusters“ of small producers to allow for an optimized exchange of know-how. In the framework

of five-year research programs for environmentally sound transport (vehicle technology, integrated logistics concepts, improvement of public transport) and for sustainable economy (e.g. sustainable buildings, renewable raw materials, regional-scale economy) support for development and pilot-projects is granted.

8. **Belgium.** Flemish region: integration of environmental aspects in transport policy: In Flanders a staff administration exists in the department of environment and infrastructure dealing with mobility aspects. This administration (the mobility cell) co-ordinates all actions on transport policy and develops a sustainable mobility strategy. There is a good co-operation between the mobility cell and the environmental department. At this moment a study is being carried out to determine the aspects of a sustainable mobility. One of the strategic goals of the mobility plan is to decrease damage to the environment. A strategic environmental assessment will be carried out which can tune the mobility plan on environmental issues.

9. In 1997 the Flemish Government adopted the Spatial Structure Plan Flanders. All future decisions related to spatial planning will be examined for their compatibility with this plan. A sustainable development is the basis of the plan. Four basic goals are adopted:

- (a) Development of the cities, bundling of functions and supplies in the cities;
- (b) Bundling of living and working in regional centres;
- (c) Concentration of economic activities;
- (d) Optimise existing traffic infrastructure.

These goals lead to a reduction in the traffic demand. The spatial structure plan is used as basis for the mobility plan.

10. Integration of transport aspects in environmental policy: In 1997 the Flemish Government adopted the Environmental Policy and Nature Development Plan for the period 1997 to 2001.

This document includes the following measures for transport:

- (a) Establishing an action program to promote ecological transport vehicles;
- (b) Establishing an action program to influence driver's behaviour;
- (c) Establishing an action program to reduce the amount of road transport;
- (d) Developing a module to predict the impact of traffic measures on the environment.

A member of the mobility cell is represented in the steering groups of the different studies that are conducted in the framework of the policy plan.

11. Integration of energy policy in environmental policy: A voluntary agreement exists since 1997 between the Flemish environmental administration and the local authorities. The municipalities have an important role in the realisation of the energy and environment policy goals. Because municipalities are important energy users, an energy management system is an important asset to lower the energy bills and to improve the environmental quality. Municipalities serve as an example to their inhabitants. As a local government, they have the task and the possibility to stimulate rational energy use.

12. For the rational energy use theme, two requirements have to be met in order for the municipalities to obtain subsidies. An energy bookkeeping system must be initiated, implemented and followed up and secondly an energy policy plan should be presented, based on the results of at least one energy-audit in an official building. Energy bookkeeping consists of collecting,

processing, analysing and reporting energy consumption data of the municipalities. The bookkeeping system forms the framework for energy management practises and is an essential instrument for an energy policy. The second requirement is the presentation of an energy policy plan. This plan gives an overview of the energy consumption patterns of a municipality and also sums up the possibilities and measures to save energy. An energy policy plan is drafted after performing an energy-audit in selected buildings. These audits evaluate the technical and economical feasibility of the various energy reduction measures. Possible REU-measures are technical modifications (double glazing, attic isolation, energy-efficient bulbs, ...), organisational measures (adjustments of the heating regulation system, ...) and behavioural changes (closing windows and doors, turning off the lights, ...).

13. Two strategies are used to combat the energy-related CO<sub>2</sub>-emissions, namely the identification of emission reduction opportunities and the founding of a centre for the promotion of these energy-efficient measures (VIREG - Flemish Institute for rational Energy Use). The first is done by preparing a CO<sub>2</sub>/REU-policy plan, in which measures are outlined in different sectors with quantitative emission reduction targets. Measures are investigated for the energy, transport, industry, household sectors, especially focused on the improvement of the energy-efficiency. The implementation of this plan will contribute to the decrease of SO<sub>2</sub>-emissions.

14. Also targets are set out for the promotion of renewables and the use of combined heat and power (CHP). The function of the Centre for the Promotion of Rational Energy Use is to co-ordinate all the initiatives taken in the Flemish Region concerning energy-efficiency and to sign voluntary agreements with the electricity producers and distributors. The Flemish minister of Energy has formulated two REU-policy targets in order to increase the rational energy use, namely the reduction of energy use in the residential sector in 2004 in reference to 1998 and the increase of the energy efficiency in the industry and the tertiary sector in 2004 in reference of 1998. Regarding the promotion of renewable energy sources (RES), the Flemish policy target is a share of 3% RES in 2004 and 5% in 2010 of the primary energy use in Flanders. The current fraction lies around 0,33%. Currently, Flanders promotes the production of electricity from renewable energy sources by means of 'green franks', i.e. higher and fixed resale tariffs for autoproduced electricity from renewables delivered to the grid. With the liberalisation of the electricity market, Flanders plans to introduce a system of green electricity certificates in order to counteract forecasted energy price decreases. Electricity distributors will be forced to demonstrate that a certain percentage, set annually by government, of their delivered electricity is produced with renewable energy sources. They can autoproduce this electricity or they can purchase certificates at the free market at market prices. Of course, other purchasers can buy certificates at market prices and thus limit the number of available certificates, which can cause higher profits for autoproducers, more production of green electricity or fines imposed on non-compliant parties, deposited in a fund to aid renewable energy sources.

15. The Flemish region has set a target for the installation of 1200MWe combined heat and power (CHP) in Flanders in the timeframe 1995-2005. Until 1999 107 MWe is already installed with 18 MWe in the year 1999 alone, totalling 146 CHP-installations.

16. Walloon region: The Walloon environmental plan for sustainable development is a cross-sectoral programme *par excellence*, in that it brings together 256 coordinated environmental

protection measures into an overall planning tool, drawing in all environmental sectors and components: the surrounding milieu (air, climate, noise), water, wastes, agriculture, forests, industrial activities, energy, transport and infrastructure, tourism, civic society, regulatory and economic instruments, monitoring and control.

17. To put this programme into effect, a sectoral air management plan is currently being formulated for 2002, and this will integrate specific aspects of policies and measures in all spheres which have an impact on atmospheric pollution, including energy, transport, agriculture, production, etc.

18. At the political level, the regional governments are the primary agents of integration, given the close working relationship between them. Thus, a regulation cannot emanate from one regional ministry alone, but only from the Government as a whole. In this way, the Ministry of Environment can also exercise an influence on legislation in the spheres of transport, energy etc.

19. Federal Government: The act of 5 May 1997 on the coordination of federal policy in the area of sustainable development provides for the preparation of a federal sustainable development plan every four years. The plan stipulates measures to be taken at the federal level for the attainment of sustainable development targets, so as to ensure the integration, effectiveness and internal coherence of the policy in this area. It includes an action plan specifying the methods for its implementation. The first of these plans will be finalized in 2000 and will include activities in such sectors as transport, energy, agriculture, consumption, production etc., designed to reduced atmospheric pollution.

20. **Bulgaria.** Bulgarian Government adopted and is implementing the following strategies and programmes:

- (a) National strategy and action plan on Energy Development and Energy Efficiency till the year 2010;
- (b) National programme and action plan "Environment and Health";
- (c) National programme on Energy Efficiency;
- (d) National programme on phasing out ozone depleting substances;
- (e) National action plan on Climate Change.

Drafted Energy Development Strategy of the Republic of Bulgaria till the year 2010 incorporates a number of preventive measures, aiming at emission abatement, such as: forecasts and electric power consumption patterns and trends; fuel and energy prices, erection of alternative and new power generating plants; energy efficiency; economy oriented policy, legislative and regulatory framework, etc. The Government prepared and adopted an Energy Efficiency National Programme, which is in full conformity with the basic emissions abatement policy. The Programme encompasses almost all sectors, namely energy, industry, transport, regional development, civil works, agriculture and household.

21. **Canada.** The federal/provincial air issues mechanism is a joint energy-environment structure. Regular meetings between the federal-provincial Ministers of Environment and Energy are held. In developing national air pollution management policies, strategies to deal with the transport sector, energy efficiency; and energy surplus options are increasingly considered as part

of an integrated, multi-pollutant approach. The federal government is developing Phase 3 of the Federal Smog Management Plan, for release in Summer, 2000. Under Phase 3 government will engage industries in a multi-pollutant emissions reduction approach, addressing smog precursor emissions while taking into account climate change, acid rain and hazardous air pollutants. Under Canada's National Climate Change Secretariat, sectoral issues tables are investigating greenhouse gas reduction measures as well as their co-benefits to air pollution. A national implementation strategy for climate change will be discussed by federal, provincial and territorial Ministers in 2000-1.

22. **Croatia.** According to the elaborated emission inventory it could be stated that the most polluting sectors in Croatia are combustion processes and traffic. The Republic of Croatia is currently working on a consistent, modern air quality protection and improvement policy towards sustainable development. At present, the following regulations directly or indirectly govern air protection:

- (a) Law on Environmental Protection (1994);
- (b) Law on Air Quality Protection (1995);
- (c) Law on Waste (1995);
- (d) The Physical Planning Law (1998);
- (e) By-Law on Recommended and Limit Ambient Air Quality Values (1996);
- (f) Rule Book on Environmental Pollutants Inventory (1996);
- (g) Rule Book on waste Categories (1996);
- (h) By-Law on the Conditions for Handling Hazardous Waste (1998);
- (i) By-Law on Limit Values of Pollutant Emissions (LVE) from Stationary Sources in the Air (1997);
- (j) By-Law on Quality Standards for Liquid Oil Fuels (1997);
- (k) By-Law on Conditions for Issuing Permits for Performing Professional Environmental Activities (1997);
- (l) By-Law on Substances Depleting the Ozone Layer (1999);
- (m) Rule Book on Environmental Impact Assessment (2000);
- (n) Rule Book on Jet Engine Fuel Quality (1995);
- (o) Rule Book on Fuel Supply Stations for Vehicles (1998);
- (p) Rule Book on Technical Inspections of Vehicles (1993);
- (q) By-Law on Certification of Compression Engines and Vehicles with Such Engines Regarding Their Harmful Emissions (1998);
- (r) Law on Excise Tax on Oil Derivatives (1994) etc.

23. Croatia is a party to the following international agreements concerning air protection and its national policies are partly based on them:

- (a) Vienna Convention for the Protection of the Ozone Layer (1991);
- (b) Montreal Protocol on Substances that Deplete the Ozone Layer (1991) and its London (1994), Copenhagen (1996) and Montreal Amendments (2000);
- (c) United Nations Framework Convention on Climate Change – UNFCCC (1996);
- (d) Convention on Long-range Transboundary Air Pollution (1991);
- (e) Protocol to the LRTAP Convention on Financing of the Cooperative Programme for Monitoring and Evaluation on the Long-range Transmission of Air Pollutants in Europe (EMEP) (1991);

- (f) Protocol to the LRTAP Convention on Further Reduction of Sulphur Emissions (1998);
- (g) Basel Convention on the Control of Transboundary Movements of Hazardous Waste (1996).

24. The follow documents are under preparation or passing by the Croatian Parliament:

- (a) Environmental Protection Strategy;
- (b) Energy Development Strategy;
- (c) National Environmental Action Plan;
- (d) First National Communication in Response to Croatian's Commitments to the UNFCCC;
- (e) Draft Law on Environmental Fund.

25. **Cyprus.** In Cyprus, decisions on important environmental issues are taken by the Council of Ministers and not by the competent Ministry alone. These decisions are based on suggestions by relevant inter - ministerial committees in which, among others, officers from the Ministry of Finance and the Planning Bureau usually participate. The reduction of SO<sub>2</sub> from combustion plants emissions as well as from vehicle exhaust emissions by the use of low-sulphur fuel and the control of VOC emissions from terminals is now a subject being considered by the Council of Ministers in relation to the upgrading of the Cyprus Petroleum Refinery in what can be considered as an integrated approach in decision making. Also, for the controlled disposal of hazardous wastes and the control of the emissions of heavy metals and POPs arising from their burning, the Council of Ministers has decided recently the erection of a suitable facility that will include an incineration plant that will fully comply with the relevant EU Directive. Finally, the control of pollution is realized through both regulatory control as well as through incentives within the framework of grant schemes for those industries that take measures for the reduction of their emissions.

26. **Czech Republic.** The most important measures for integration of decision-making in key areas that determine the quality of the environment include State Energy Policy, approved by Resolution of the Government of the Czech Republic No. 50 of January 12, 2000. This constitutes a basic document expressing targets in energy management in accord with the needs of economic and social development, including environmental protection. The State Energy Policy will be prepared by the Ministry of Industry and Trade as an open document, for a period of 15 to 20 years, and this Ministry will submit it to the Government for approval. This Ministry evaluates the fulfilling of the State Energy Policy at least once every two years, informs the Government of the results of the evaluation and proposes any changes as appropriate. The establishing of a basic concept of long-term development of the energy industry and establishing the necessary legislative and economic environment, which would motivate the producers and distributors of energy to environmentally sound behaviour, must be considered the main strategic targets of the state energy policy. In the consumer sphere, the long-term strategic targets of the state energy policy include a decrease in the energy and raw material intensities of the entire national economy. These targets should be achieved particularly through support for new production technologies with minimum energy and raw material intensities and maximum added value in the use of energy and raw materials through domestic processing. In the tertiary sphere, a decrease should be achieved in

energy intensity primarily through support for programs leading to energy savings and greater utilization of alternative energy and raw material resources in supplying the population with energy.

27. The energy policy is closely connected with the economic and raw material policies and takes into account the State Environmental Policy, which is based on the long-term plans of the Government in connection with provision for sustainable development in the Czech Republic, which is significantly dependent on reliable and safe supplies of energy, and an economically optimum and environmentally sound approach to energy media and towards their consumption. Specific measures and plans are also based on the current economic conditions.

28. The energy policy is based on identical foundations as the energy policy of the European Union, i.e. it emphasizes the requirements on providing for the targets of protection of the environment and respect for the principles of sustainable development. In this framework, the following basic targets are also taken into account:

(a) Provision for complex and economically advantageous utilization of primary energy sources (permitting limitation of dependence on imports of fuel and energy), including retention of an appropriate degree of national utilization of domestic energy sources and the pertinent energy infrastructure;

(b) achieving of accord between economic and social development and protection of the environment of the Czech Republic, its regions and localities;

(c) gradual provision for the joint targets and plans of the European Union, including application of legislation specially intended for the energy sector;

(d) the creation of transparent and relatively stable substantive and legislative conditions for effective management of business processes in entities that provide supplies of fuels and energy and the appropriate energy services;

29. Implemented measures and projects assisting in decreasing emissions of the monitored pollutants from mobile sources

(a) long-term measures from the "Program to stabilize and decrease CO<sub>2</sub> emissions from transportation in the Czech Republic" of 1994;

(b) individual measures from the "Set of measures to decrease the environmental burden from transportation in the Czech Republic" of 1997, especially:

(i) Implementation of combined transportation in the sector

(ii) Support for research and introduction of vehicles with alternative drive and fuels

(iii) Increasing the production and use of alternative fuels;

(iv) Concluding of international agreements on regulation of highway freight transportation;

(v) Construction and modernization of urban by-passes and access roads;

(vi) Use of alternative fuels for powering motor vehicles in urban mass transportation;

(vii) Support for the development of selected railway corridors;

(viii) Assessment of the environmental impact of infrastructure projects.

30. Measures from the medium-term strategy in the transportation sector: Gradual implementation of measures recommended by the Vienna conference of Ministers of

Transportation and the Environment and the London Charter for Transport, the Environment and Health. Implemented projects:

- (a) Assessment of Transportation Policy in the Czech Republic pursuant to Law No. 244/1992 Coll., from the standpoint of environmental impact;
- (b) stabilization and gradual decreasing of the environmental burden from transportation in CR;
- (c) environmental benefits of conversion to gas in automobile transportation.

31. **Finland.** Transport and energy authorities have been active in the field of environment protection. The Ministry of Transport and Communication has drawn up and updated action plans to decrease the pollution burden from the transport sector. The Ministry of Trade and Industries has a central role in drafting national policies and measures to reduce greenhouse gas emissions. Protection of Atmosphere is nowadays taken as one of the key starting points in energy policy planning.

32. **Germany.** Economic and efficient use of energy are objectives of the Federal Government, that are implemented in various regulations (see Q.50 and Q.63). For the protection of the global climate the national target is to achieve a 25% reduction of CO<sub>2</sub> emissions by 2005 compared to 1990.

33. **Greece.** For emissions of sulphur, nitrogen oxides, VOCs and heavy metals, see R.2, R.9, R.18, R.19 and R.28. Generally speaking, all fixed-source emissions are controlled through the medium of environmental licensing. Where necessary, steps can be taken to ensure that emission limit values, whether national or Community, are respected.

34. **Hungary.** Act on Environment LIII/1995 was enacted 31 May 1995, it created the overall framework of environmental protection. This Act prescribed the preparation of the National Environmental Program, which contains the goals, tasks, activities and financial resources for a six years period. A Governmental Decree on the Protection of Air is well under preparation, it will be issued in 2000. Two Ministerial Decrees will be connected it: Min. Decree on emission limit values and limit values of ambient air and Min. Decree on the measurement and evaluation of emissions of stationary sources and of air quality.

35. **Italy.** To strengthen the preventive measures and the complementing end-of-pipe control measure, in the last few years Italy developed a much more integrated approach to key areas that determines pollution, as it is reported in the previous answers to questionnaire. Measures related to other different policy fields like energy, transport, agriculture are reported in sections 1 to 4. Future measures will principally come from the commitments under the Kyoto protocol.

36. **Latvia.**

- (a) National Environmental Policy Plan for Latvia, approved by the Cabinet of Ministers on 25 April 1995;
- (b) National Environmental Action Programme, accepted by the State Minister for Environment on December 1996;
- (c) National Transport Development Programme (1996 - 2010), adopted by Cabinet of Ministers on 14.11.1995;

(d) National Transport Development Action Programme (1997-1999), adopted by Coordination Council on 4 February 1997;

(e) National Energy Development Program, adopted by Cabinet of Ministers in 02.09.1997;

(f) Climate Change Mitigation Policy Plan for Latvia, accepted by Cabinet of Ministers on 16.06.1998;

(g) Draft National Energy Efficiency Strategy, submitted in the Cabinet of Ministers in March 2000.

37. **Netherlands.** Please consult our homepage in english on policies on energy reductions: <http://www.minvrom.nl/minvrom/pagina.html?=&=1314>

38. **Poland.** The requirement for integrating policies, and in particular incorporating the environmental policy into other policy areas derives from the principle of sustainable development which was adopted at the beginning of the 90's. According to the decision of the Polish Government and the Parliament all policies and programmes effecting the environment must comply with the National Environmental Policy. At present a new updated national environmental policy is under preparation and discussion. It takes into consideration new policy directions and formulates new challenges that Poland needs to face in relation to its accession procedures into the European structures as well as new requirements resulting from obligations of the new protocols to the LRTAP Convention. Among one of the most important objectives included in the draft new national environmental policy is the need for integrating policies, strategies and programmes. Detailed goals and integration targets will be included in the National Strategy for Sustainable Development to 2025, which according to the resolution of the Parliament is going to be prepared in 2000. The most significant integration can be observed in the national energy policy, the national industrial policy, the agricultural policy, the transport policy as well as the national health policy and education programme.

39. One of the key issues of the energy policy is environmental protection against negative effects caused by energy processes (draft Principles for the National Energy Policy until 2020 were approved by the Council of Ministers in February), incorporated into the policy is the strategy for integrated energy and environmental management indicating the need for sustainable development. Within this strategy priority is given to integrated solutions. In compliance with the Governmental Resolution the policy is directed at greater use of renewable energy sources. Significant attention is given to market instruments including emission permit trading; improvement in the effective energy use; re-negotiating longterm contracts on energy supply. Within fulfilled tasks are the following ones: (i) a change in the energy consumption structure with a decrease in the use of solid fuels and an increase in the use of crude oil, natural gas and renewable sources; (ii) putting into operation of several geothermal heating plants, wind-powered plants and small water-power plants, as well as heating plants and power plants fuelled with municipal waste landfill biogas; (iii) a decrease in energy consumption in the industry; (iv) installation of emission reduction devices; (v) modernising of technical energy production installations.

40. **Republic of Moldova.** The document "Environmental Performance Review" was elaborated and final document with recommendations for the solution of existing problems in

national environmental policy and management was presented in year 1998 for evaluation by the ECE Committee on Environmental Policy at its annual session in Geneva. This document was approved and published. There is part three “Economic and sectoral integration” in this review. This part include:

- (a) Environmental concerns in agriculture;
- (b) Environmental concerns in energy;
- (c) Environmental concerns in transport;
- (d) Environmental pollution and human health.

Also, an increased integration of decision-making in some key policy areas that determine the level of pollution such as transport, energy, trade and economy, can be considered as a means of strengthening preventive measures and complementing end-of-pipe control measures. In this context we would like to inform you regarding the future activities in area of the integration policy in the Republic of Moldova:

41. In energy and industry:

(a) In quality principal strategic goals of the energetic policy of the Energetic Strategy of the Republic of Moldova for 2000-2010:

- (i) Increasing of energy efficiency and energy conservation;
- (ii) Supporting energetic safety;
- (iii) Protection of environment, - and other goals.

(b) In mentioned Indicative Plan of Activities in Energetic Sector (Section V “Energy conservation”) of the National Strategy of the Republic of Moldova for 2000-2010 were included restrictions for 2000-2001:

- (i) Establishment of the National Fund on energy conservation;
- (ii) Elaboration and implementation of national programs on management of energy consumption and their monitoring;
- (iii) Increasing of efficiency of activity of National Agency on Energy Conservation, - and other restrictions.

(c) The following were included in the mentioned plan for 2000-2005:

- (i) Elaboration of standards of energy consumption for the buildings, traffic, for appliances of house use and for one unit production etc.
- (ii) Elaboration of programs on energetic education and population awareness.

Also, in this context we would like to inform you, that in the Republic of Moldova in goals of the protection of environment, including air protection consumption of natural gas in utility and industrial boilers and in residential sector was increased.

(d) The payment for air emissions from stationary and mobile sources was introduced in the Law on payment for pollution prevention (1998). Although this kind of payment already exists from 1993, and it wasn't approved on a legislative basis, it was applied according to the Decision of the local public authorities and the payment was taken practically only in Chisinau. The economic agents pay for air emissions from stationary sources in two cases:

- (i) In established pollutants' limits
- (ii) In limits that are higher than those established

Each economic agent pays for the pollutants that are enclosed in the license given by State Ecological Inspection of the Ministry of Environment and Territorial Development. The payment for pollution is made for the concrete emissions of pollutants and is allocated by paying agents quarterly on the accounts of local environmental funds. Local environmental funds are transferring

30% of total amount of resources to the National Environmental Fund, and 70% are used to finance environmental projects, approved by the Administrative Council of the Fund. The payment is increased in 5 times when the emissions into air from stationary sources are higher than the established limits. When the accidental emissions from stationary sources are having place then it's going to be increased in 50 times.

42. In agriculture: Certain POPs pesticides, listed in Annex I and that are settled by the POPs Protocol and other acting international agreements were prohibited in the USSR and of course it was in force also on the whole territory of the Moldavian Soviet Socialist Republic and the ban has the same value still now. Mentioned POPs pesticides are not included in the 1997 official register of permitted substances. In this context the Republic of Moldova plans to adopt a new normative act that will ban production, import, export, sales and use of POPs pesticides, listed in Annex I of the POPs Protocol.

43. In transport:

(a) State Ecological Inspection developed the Programme for emissions reduction from mobile sources. According to this Programme a range of measures for reduction of toxic emissions into air is foreseen:

- (i) total exclusion of use of leaded petrol;
- (ii) supplying the auto vehicles with neutralizers and catalysts;
- (iii) reduction of sulphur in fuel;
- (iv) enhance the usage of gaseous fuel for transport.

This program is under development and in the nearest future will be presented in the Government of the Republic of Moldova.

(b) By legislative acts and other normative acts:

The import of the auto vehicles with period of exploitation more than 10 years is prohibited.

In goals of protection of environment, including air protection, the consumption of gas fuels for mobile sources was increased.

(c) In conformity with the Energetic Strategy of the Republic of Moldova for 2000-2010 Republic of Moldova plans:

- (i) to elaborate standards and norms of emissions into environment;
- (ii) to increase consumption of gaseous fuels in traffic;
- (iii) to elaborate and implement economic mechanism for protection of environment.

(d) The payment for air emissions from stationary and mobile sources was introduced in the Law on the payment for pollution of the environment (1998).

- (i) Payment for air pollution by mobile sources, using petrol as fuel (leaded, unleaded) and diesel fuel, is established for juridical and physis persons, importing this kind of fuel;
- (ii) The payment for emissions into atmospheric air is established for the mobile sources (auto vehicles) in our republic that use liquefied natural gas and pressed hydrocarbon gas as fuel (excluding the owners of private transport, that don't carry business activities).

The established costs for payment are the following:

- (iii) Mobile sources, working on pressed hydrocarbon gas – 0,9 lei for 1 ton of used fuel

- (iv) Mobile sources, working on liquefied natural gas – 0,75 lei for 1000 cubic meters of used fuel

This payment is going to the local environmental funds, its management is undertaken by territorial ecological agencies of the Ministry of Environment and Territorial Development.

(e) Ministry of Environment and Territorial Development plans in the nearest future to elaborate proposals for:

- (i) Modification of the fuel quality standards in goals for reduction of emissions;
- (ii) Modifications of the Law on the Payment for Pollution of the Environment of the Republic of Moldova in goals of implementation of economic instruments for regulation of products containing toxic substances and stimulation of import and use of clean technologies and products (fuels, lead accumulators and etc).

44. The Ministry of Environment and Territorial Development of our country developed a draft of the New Concept of Environmental Policy of the Republic of Moldova and one of the points of this concept is integration of environmental requirements into economic reform and sectoral policy that involves environmental efficiency,, mechanisms of integration of ecological requirements in national sectoral policy):

- (a) Property reform and post-privatization process;
- (b) Industry and energy sector;
- (c) Agriculture and food industry;
- (d) Transport and communications;
- (e) Health protection;
- (f) Natural resources management;
- (g) Ecological aspects in the field of territorial development and constructions;
- (h) Environmental requirements in household activities;
- (i) Informational systems, awareness, training.

45. **Slovakia.** Integration of decision making is provided through intersectorial committees for different issues (VOCs, POPs...). They include representatives of ministries concerned, industry, NGO. The main objectives of committees are to define gaps in existing legislation concerning the specific tasks, define the needs for further work and ways how to deal with those needs. Based on results of such work, committees decide whether and when is the Slovak Republic able to fulfil commitments of respective international agreements. The process of legislation preparation binds the responsible body to ask for comments of all stakeholders involved, mainly other ministries and governmental bodies.

46. **Sweden.** Integration of transport and energy policies: Within the EU the Cardiff process is dealing with strategies for the environmental integration within different sectors of society, mainly transport, energy, agriculture, fisheries, industry and finance. Sweden takes an active part in this activity. In April 1999 the Swedish Parliament decided on fifteen environmental quality objectives to be reached within one generation, about 25 years. The goalbased approach of this kind is designed to broaden responsibility for the environment to the different sectors of society and are crucial to achieving a real sectoral integration. The major measures in the energy area is discussed above. The Swedish EPA together with major stakeholders in the transport sector studied the possibilities to reach the environmental targets till 2015 in a report Towards a Sustainable Transport Sector, which has since been the common platform for environmental efforts throughout the Swedish transport sector. Most targets can be met but there are certain

problems. The goals most difficult to achieve are the reduction of carbon dioxide emissions, noise and cancerogenic substances. Together with six government agencies the Swedish EPA is working on a project Environmentally Sustainable Transport in Europe.

47. **Switzerland.** By 1<sup>st</sup> March 2000, the Federal Council i.e. the Swiss Government has adopted its legislative period programme to be submitted to the Parliament. The programme outlines the goals and the measures that the Government wants to implement during the period 1999-2003. The basis for this action plan is the principle of sustainable development of Switzerland and the coherence of the different measures to be taken in the fields of energy, transport, environment and trade.

48. Extract from Report No. 2000.016 of 1 March 2000 to Parliament on the 1999-2003 Legislative Programme: 2.4 Environment and infrastructure Goal 7: An environmental, transport and energy policy based on the "Sustainable development in Switzerland" strategy

(a) R14. Follow-up programme to "Energy 2000" - Improving air quality. The Federal Council (i.e. the Swiss Government) intends to adopt a new energy programme that will take over where the Energy 2000 programme left off. Readily accepted action that has had a real impact should be pursued and where possible further developed. General taxes to promote the rational use of energy and the use of renewable energy will be allocated to the cantons, and some of the implementation tasks will be delegated to private organizations. The programme replacing Energy 2000 also provides for the signing of agreements with firms that are large energy-users, with the aim of gradually reducing CO<sub>2</sub> emissions. The Federal Council supports the introduction of an incentive tax on energy and will set up a complementary incentive programme in 2001 if the law introducing this tax is approved by popular vote in September 2000. The programme intended to replace Energy 2000 would then have a significantly stronger impact. The Federal Council also wishes to continue to examine the legal basis for opening up markets in the area of energy supply. The Federal Council intends to monitor the emission limit values set for combustion plants, small-scale and industrial firms' equipment, vehicles and machines and, where necessary, to revise these values to take account of technological progress. Regional master plans will be drawn up and implemented in order further to reduce agricultural emissions of ammonia. At the international level, Switzerland will strive within the framework of the Convention on Long-range Transboundary Air Pollution done at Geneva on 13 November 1979 under the auspices of the United Nations Economic Commission for Europe, for the setting of more ambitious targets and the adoption of appropriate measures, as well as for the introduction of monitoring for nitrogen oxides, volatile organic compounds, ozone and fine particles.

(b) R15. Modernization of the railways and the shift of goods transport from road to rail - transport telematics - Swiss airport strategy based on the Aeronautical Facilities Sectoral Plan (PSIA). Among the Federal Council's main priorities will be the modernization of the rail infrastructure, that is, completing the Rail 2000 [rail network] (first stage) and the [New Alpine Railway Lines] (NLFA, first stage) within the agreed time and financial limits, the adoption of noise-abatement measures and the connection of western and eastern Switzerland to the European high-speed train network. The Federal Council will ensure that the objectives of the reorganization of the railways are tackled systematically and will set the priorities for the follow-up to the reorganization in the light of past experience. It will also prepare the second stage of Rail 2000. The overall modernization of the railways is also a prerequisite for the shift of goods transport to the railways, a shift demanded by the people (in the constitutional article on the

protection of the Alps). In seeking to meet this demand, the Federal Council will ensure the rigorous implementation of the performance-related fee for heavy goods vehicles (redevance sur le trafic poids lourds proportionnelle aux prestations - RPLP) and the accompanying measures included by Parliament in its agreement with the European Union on overland transport. As the shift from road to rail cannot be achieved by action solely at the national level, the Federal Council will endeavour to persuade Switzerland's European partners to adopt a similar policy on the matter. Regarding transport telematics, the Federal Council will adopt a strategy that will define the targets to be met and the measures to be taken, including in the areas of multimodal information management and traffic regulation, management of traffic on busy roads, safety, the environment and the monitoring of traffic flows. This strategy will also aim at better integrating the various modes of transport and at improving cooperation between public transport (at government, canton and local levels) and private transport. The Aeronautical Facilities Sectoral Plan (PSIA) has the dual aim of meeting the needs of the country and its regions, which want attractive air links, and optimizing the protection of the populations concerned and the environment. There is also a need to create a national airport system in which services are distributed sensibly over the country's airports. This is why the Federal Council is carefully considering the possibility of creating a direct link between Basel EuroAirport and the Swiss Intercity rail network, of the kind already operating in Geneva and Zurich. The Federal Council will also be seeking to improve high-speed train services and connections in order to encourage the shift towards rail for short trips currently made by air and thus release capacity for long-haul flights.

49. **Turkey.** Beginning in 1997, the Ministry of Environment is being consulted on and involved in all major decisions relating to energy sector investments. Nevertheless, there is still considerable scope for improving integration of energy and environmental policies and ensuring that environmental objectives are taken into account sufficiently early in the decision-making process, alongside economic, social and energy security considerations. Some progress has been made in this respect, with the adoption and implementation of the regulation on environmental impact assessment.

50. There is a need to continue efforts to improve energy efficiency and encourage the use of cleaner fuels and alternative energy sources. This could be achieved by making increased use of economic instruments notably tax differentiation on use fuels according to sulphur coal, while the tax difference between leaded and unleaded gasoline is too small to produce a significant incentive effect. Furthermore, energy pricing policies should be reviewed to take into account environmental objectives such as air management. Distortions in energy prices also lead to distortions in competition between fuels and to inefficient allocation of resources, ultimately damaging both the environment and the economy.

51. The 7th Five Year Development Plan recognises the need to take account of development of all modes of transport, and of interactions between transport and other economic activities, along with environmental objectives. Co-ordination of other economic activities and policies with institutional and administrative management is poor. The Plan recommends that sub-plans, which would be mutually consistent and supportive and contribute to economic and social development, be prepared for each transport mode. Major transport policy and investment decisions have been systematically subject to environmental impact assessments.

52. With rapid increase of motorization, cities are experiencing growing congestion and air pollution from road traffic. Urban transport investments are made on a sounder basis, focusing on public transport and integration with land use and development in and around rapidly spreading urban areas. In this framework, the subway, which was operational in Ankara in 1997 and now it, is planned to expand and those planned to be built in Istanbul, Izmir and Bursa are welcome developments in this respect. Such investments should continue, as they can make a significant contribution to limiting emissions NO<sub>x</sub>, sulphur, VOCs, lead as well as CO<sub>2</sub>.

53. **United States.** The U.S. has attempted to integrate its environmental authorities governing all environmental burdens for air pollution, water pollution and solid waste through national initiatives. U.S. current policy encourages and promotes pollution prevention measures through its regulatory development. For example, in the U.S. tire industry, it has been found that the reformulation or elimination of HAPs in tire production processes provides a highly desirable economic incentive as well as an emissions reduction incentive in contrast to traditional end-of-pipe control.

54. **Question. 51 Provide the same information on energy consumption in 1985, 1990, 1995 and projections for 2000, 2005 and 2010 that you submit to the United Nations Framework Convention on Climate Change. The information should be provided in the table below.**

55. **Armenia.** We provide below the information on energy consumption in 1985, 1990 and 1995 that we submitted to the United Nations Framework Convention on Climate Change. Energy consumption patterns and trends Gross consumption of energy (millions of tons of oil equivalent) are:

Energy category	1985	1990	1995
Solid fuels	0.261	0.279	0.002
Liquid fuels	5.261	5.672	1.394
Gaseous fuels	10.578	11.124	0.508

56. **Austria.** Energy consumption patterns and trends (Gross consumption of energy in megatons oil equivalent):

Energy category	1985	1990	1995 <sup>3)</sup>	2000	2005	2010
1. Solid fuels <sup>1)</sup>	4.3	4.1	3.2	2.4	2.0	1.8
2. Liquid fuels <sup>1)</sup>	9.8	10.6	10.9	10.7	10.5	10.4
3. Gaseous fuels <sup>1)</sup>	4.6	5.2	6.4	7.0	8.0	8.9
4. Nuclear Energy	0	0	0	0	0	0
5. Electricity	3.4	3.5	3.0	4.2	4.4	4.5
6. Hydro- and geothermal energy <sup>2)</sup>	–	–	–	–	–	–
7. Steam and hot water	–	–	–	–	–	–
8. Other forms of energy	2.9	3.2	3.5	3.7	3.9	4.3
Total	24.9	26.7	27.1	28.0	28.9	30.0

<sup>1)</sup> Fossil fuels

<sup>2)</sup> included in 5

<sup>3)</sup> For the year 1995 a recalculation of the energy balance due to an adaptation to EU requirements has been performed; especially the systematics for electricity has changed.

57. **Belarus.** The patterns and trends in energy saving to 2005 and 2010 will be clarified by the end of 2000. For the purposes of this report, the data in EB.AIR/1998/3/Add.1 (p. 8) can be used.

58. **Belgium.** Federal Government

Table: Forms and trends of energy consumption  
Gross energy consumption  
(Millions of tons of equivalent petroleum-TEP)

Type of energy	1985	1990	1995	2000	2005	2010
1. Solid fuels	10,112	10,602	9,987	8,0	7,8	7,8
2. Liquid fuels	17,275	18,265	20,486	23,0	22,7	22,2
3. Gaseous fuels (1)	8,203	9,077	11,790	14,0	14,8	15,5
4. Nuclear power (2)	7,728	9,541	9,236	10,3	10,3	10,3
5. Electricity (3)	-10	-831	+909	+700	+700	+700
6. Hydroelectric and geothermal power	+301	+202	+276	300	300	300
7. Steam and hot water						
8. Other forms of energy				0,2	0,4	0,6
Total	43,609	46,856	52,684	56,5	57,0	57,7

(1) Natural gas data are provided to the Government in gigajoules of SCP (superior calorific power) → formula gigajoules SPC/41868 = TEP

(2) Conversion to TEP on the basis of a yield of 38.5% from the power stations

(3) Balance of imports minus exports

59. **Bulgaria.** The gross consumption of primary energy and the projections for 2010 in millions of tonnes of oil equivalent, pursuant to the provisions in the Framework Convention on Climate Change are given in this table:

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	10.588	9.544	8.635	9.698	10.610	10.990
2. Liquid fuels	13.061	9.937	6.417	10.932	11.066	10.944
3. Gaseous fuels	4.439	5.369	4.637	3.639	4.814	5.404
4. Nuclear energy	3.520	3.913	4.540	5.373	4.255	4.776
5. Electricity	0.370	0.327	0	0	0	0
6. Hydro-and-geothermal energy	0.176	0.163	0.198	0.208	0.208	0.258
7. Steam and hot water	0	0	0	0	0	0
8. Other forms of energy	0.028	0.027	0.028	0.030	0.032	0.033
Total	32.128	29.298	24.455	29.880	30.985	32.405

60. **Canada.** Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	26.9	25.7	26.5	29.1	28.8	27.9

2. Liquid fuels	71.1	83.7	90.0	94.1	98.0	103.8
3. Gaseous fuels	49.9	63.4	73.2	83.3	91.5	98.9
4. Nuclear Energy	14.9	19.0	25.4	21.8	23.3	20.3
5. Electricity	35.8	35.4	38.0	41.5	44.0	46.5
6. Hydro- and geothermal energy	26.2	25.1	28.2	29.7	31.0	32.9
7. Steam and hot water		0.5	0.3	0.7	0.7	0.7
8. Other forms of energy	8.5	10.8	13.7	14.4	15.8	17.0
<b>Total</b>	<b>197.5</b>	<b>227.6</b>	<b>257.0</b>	<b>272.3</b>	<b>288.4</b>	<b>300.8</b>

**Note:** 1). TOTAL refers to gross energy consumption (including loss). It is not a sum of up to items 1–8 as electricity and steam are not primary energy.

2). Data for 1985 is taken from APEC database. Other data are taken from Canada's Emission Outlook published in December 1999.

#### 61. Croatia.

**Table - Energy consumption patterns and trends**

Gross consumption of energy  
(Millions of tons equivalent)

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	1.008	0.814	0.177	0.644	0.683	0.691
2. Liquid fuel	4.245	4.504	3.488	4.011	4.515	4.968
3. Gaseous fuels	1.762	2.346	2.076	2.884	3.691	3.895
4. Nuclear energy	-	-	-	-	-	-
5. Electricity	0.595	0.607	0.301	0.201	0.188	0.188
6. Hydro-and geothermal energy	1.189	0.921	1.236	1.450	1.406	1.436
7. Steam and hot water	-	-	-	-	-	-
8. Other forms of energy	0.453	0.542	0.323	0.635	0.734	0.851
<b>Total</b>	<b>9.252</b>	<b>9.733</b>	<b>7.601</b>	<b>9.825</b>	<b>11.216</b>	<b>12.029</b>

62. **Cyprus.** Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	0,04	0.07	0.09	0.09	0.10	0.10
2. Liquid fuels	1,06	1.49	1.79	2.11	2.38	2.66
3. Gaseous fuels		---	---	---	---	---
4. Nuclear Energy		---	---	---	---	---
5. Electricity		---	---	---	---	---
6. Hydro-and geothermal energy		---	---	---	---	-
7. Steam and hot water		---	---	---	---	---
8. Other forms of energy	0,05	0.07	0.09	0.10	0.12	0.12
<b>Total</b>	<b>1,15</b>	<b>1.63</b>	<b>1.97</b>	<b>2.30</b>	<b>2.60</b>	<b>2.88</b>

63. **Czech Republic.** Energy consumption patterns and trends, gross consumption of energy (millions of tons of oil equivalent):

Energy Category	1980	1985	1990	1995	2000	2005	2010
1. Solid fuels	36.1	36.4	32.2	23.2	22.1	22.5	22.5
2. Liquid fuels	11.5	10.3	8.5	7.6	8.6	9.1	9.3
3. Gaseous fuels	2.6	4.1	5.4	6.5	7.6	8.6	11.5
4. Nuclear energy	0.1	0.8	3.4	3.4	3.4	6.0	6.0
5. Electricity	1.8	3.2	5.2	4.5	5.4	6.2	6.6
6. Hydro- and geothermal energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. Steam and hot water	2.7	4.8	7.8	6.3	6.4	6.4	6.4
8. Other forms of energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	54.9	59.6	62.5	51.7	53.5	58.7	62.3

According to the Explanatory notes to the table Gross Consumption of Primary Energy, the items 1-5 of the table have the same content as the normally used primary energy sources. However, the content of the items „Electricity,, and „Steam and hot water,, includes not only primary energy sources, so produced electricity and heat are thus included twice in the balance and the resulting sum is a misleading number. The 1998 Major Review reports of different states in comparison to the dates of Energy balances of OECD countries (International Energy Agency/OECD) seem to follow both the Explanatory notes and the methodology of International Energy Agency. It is recommended to unify the methodology of the Major Review with the IEA methodology. Notes:

(a) Data for years 1995 were slightly changed (in comparison to last year questionnaire) according to final version of the energy balance;

(b) New estimation of future development was performed and is based on a slowed down economic growth and a delay in expected completion of Temelin nuclear power plant. The completion is assumed in projection after 2000 but it is now under evaluation process (the power plant may not be finished at all);

(c) The Table was completed on the basis of the Explanatory Notes, where the concept of a source of primary energy is different from that normally used in statistics;

(d) Items 1 - 5 have the same content as the balance of primary sources of energy;

(e) Item 5 refers to electricity produced from hydrothermal and geothermal sources and thus does not include electricity produced in hydro-electrical power plants;

(f) Item 6 includes not only electricity obtained from hydro-electric sources and from the balance of imports and exports of electricity, but also includes produced electricity recalculated using the thermal equivalent (3.6 TJ/GWh);

(g) Item 7 includes heat from steam and hot water and combined production of electricity and heat.

Produced electricity and heat are thus included twice in the balance, in item 6,7 and in items 1 – 5.

64. **Denmark.** Energy consumption patterns and trends, gross consumption of energy (PJ):

Energy category	1988	1990	1995	2000	2005	2010
1. Solid fuels	367	377	326	269	240	244
2. Liquid fuels	378	357	372	320	324	336
3. Gaseous fuels	69	83	133	204	215	197
4. Nuclear Energy						

5. Electricity	100	103	111	114	117	122
6. Hydro- and geothermal energy	<1	<1	<1	<1	<1	<1
7. Steam and hot water	78	83	94	95	98	100
8. Wind turbines	1	2	4	12	21	29
Total	815	819	835	805	800	806

65. **Finland.** Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent):

Energy Category	1985	1990	1995	2000	2005	2010
1. Solid fuels	6,317	6,462	7,698	9,4	9,4	9,4
2. Liquid fuels	9,489	9,244	8,245	8,7	8,9	8,9
3. Gaseous fuels	1,068	2,653	3,228	4,1	5,8	6,0
4. Nuclear energy	4,360	4,396	4,723	5,2	5,2	5,2
5. Electricity	0,406	0,924	0,723	0,7	0,7	0,7
6. Hydro- and geothermal	1,050	0,924	1,100	1,1	1,1	1,1
7. Steam and hot water	0,170	0,176	0,156	0,2	0,2	0,2
8. Other forms of energy	2,086	2,441	2,599	3,1	3,4	3,7
Total	24,946	27,220	28,472	32,5	34,7	35,2

The figures for 1985 and 1990 have been recalculated with the current method, which offers better international comparativity than the method used in Finland before 1995.

66. **Georgia.**

**Table - Energy consumption patterns and trends**

Gross consumption of energy  
(Millions of tons equivalent)

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	1.4217	1.1788	0.1733			
2. Liquid fuels	9.1980	7.0147	1.0310			
3. Gaseous fuels	4.0894	4.5752	0.6726			
4. Nuclear Energy						
5. Electricity	4.6868	4.6300	2.3017			
6. Hydro- and geothermal energy	1.4245 0.0483	1.7290 0.0168	1.8254 0.0185			
7. Steam and hot water	0.0047	0.0049	0.0003			
8. Other forms of energy	0.0042	0.1869	0.0273			
Total	20.8776	19.3363	6.0501			

67. **Germany.** Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent):

Energy Category	1985	1990	1995	2000	2005	2010
1. Solid fuels	148.0	131.5	90.6	93.7	92.4	91.3
2. Liquid fuels	122.1	125.1	135.9	144.6	142.6	138.7

3. Gaseous fuels	49.8	55.3	67.8	69.7	73.1	76.0
4. Nuclear energy	32.3	34.5	35.1	34.1	31.8	31.0
5. Electricity	0.6	0.3	1.0	0.5	2.3	3.7
6. Hydro- and geothermal energy	3.6	3.6	4.8	4.1	4.1	4.2
7. Steam and hot water	0	0	0	-	-	-
8. Other forms of energy	2.6	3.0	3.8	-	-	-
Total	359.1	353.3	338.9	346.7	346.3	344.8

Source: 1985-1995: AG Energiebilanzen, 2000-2010: Prognos AG (1995)

68. **Hungary.** Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	8.85	6.91	4.71	3.9	3.82	3.58
2. Liquid fuels	8.44	7.26	5.87	5.6	6.21	7.01
3. Gaseous fuels	8.25	8.31	8.81	10.0	10.9	11.83
4. Nuclear Energy	1.55	3.28	3.35	3.4	3.4	3.4
5. Electricity import	2.58	2.66	0.58	0.25	0.24	0.24
6. Hydro- and geothermal energy	0.04	0.04	0.04	0.04	0.04	0.04
7. Steam and hot water						
8. Other forms of energy	0.34	0.28	0.38	0.4	0.7	1.1
Total	30.05	28.74	23.74	23.59	25.31	27.2

**Italy.** Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels		15.8	13.8			16.6
2. Liquid fuels		92.5	95.7			89.9
3. Gaseous fuels		39.1	44.9			71.5
4. Nuclear Energy						
5. Electricity		6.3	7.1			6.4
6. Hydro- and geothermal energy						
7. Steam and hot water						

8. Other forms of energy						
Total		153.7	161.5			184.4

Latvia. Energy consumption patterns and trends<sup>b</sup>, gross consumption of primary energy (Millions of tons equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	0.60	0.60	0.83	0.885	1.077	1.985
2. Liquid fuels	4.8	4.7	2.05	2.726	2.936	2.673
3. Gaseous fuels	2.0	2.5	1.0	1.682	1.984	2.129
4. Nuclear Energy	-	-	-	-	-	-
5. Electricity						
6. Hydro- and geothermal energy						
7. Steam and hot water	2.4	2.3	1.81	2.276	2.298	2.349
8. Other forms of energy						
Total						

Gross consumption of secondary<sup>b</sup> energy (million toe):

	1985	1990	1995	2000	2005	2010
Heat energy: (Steam & Hot Water)	2.4	2.3	1.81	2.276	2.298	2.349
Electricity: (produced in thermoelectric power plants)	0.172	0.172	0.082	0.143	0.277	0.512

<sup>b</sup> Table "Energy consumption patterns and trends" is divided in two parts. Consumption of primary energy resources necessary for production of steam & hot water and part of electricity (produced from primary energy resources) are included in the table of "Gross Consumption of Primary Energy". "Production of Steam & Hot Water" and "Electricity" produced from primary energy resources is enclosed in another table "Gross Consumption of Secondary Energy".

Lithuania. Energy consumption patterns and trends, gross consumption of energy (Millions of tons of oil equivalent):

Energy category	1985	1990	1995*	2000	2005	2010
1. Solid fuels	1,29	1,19	0,7	0,94	1	1
2. Liquid fuels	8,96	7,26	3,2	4,08	3,7	3,5
3. Gaseous fuels	3,61	4,67	2	2,37	3,96	5,26
4. Nuclear Energy	2,47	4,44	3,13	2,37	2	2
5. Electricity (production in TWh)		(28,41 **)	(13,9 **)			
6. Hydro- and geothermal energy	0,03	0,04	0,03	0,04	0,04	0,04
7. Steam and hot water						
8. Other forms of energy						
Total	16,36	17,6	9,06	9,8	10,7	11,8

\*Updated information

Poland. Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent, Mtoe):

Energy category	1985 <sup>1/</sup>	1990 <sup>1/</sup>	1995 <sup>1/</sup>	2000 <sup>1/</sup>	2005 <sup>2/</sup>	2010 <sup>2/</sup>
1. Solid fuels	30.2	17.5	27.7	17.8 <sup>a/</sup>	16.7-17.0	16.0-16.5
2. Liquid fuels	11.4	10.9	13.4	12.8	18.9-20.6	18.9-21.5
3. Gaseous fuels	11.7	11.5	11.9	11.1	10.5-12.9	12.4-15.3
4. Nuclear Energy	-	-	-	-	-	-
5. Electricity	10.2	10.5	9.9	9.5	9.5-9.6	10.6-11.5
6. Hydro- and geo- thermal energy <sup>c/</sup>	-	-	-	-	-	-
7. Steam and hot water	23.3	20.6	12.6	19.0 <sup>b/</sup>	5.2-5.4	4.2-4.9

8. Other forms of energy	2.0	1.2	1.3	1.6	4.3-4.6	4.2-4.7
Total	88.8	72.2	76.8	71.8	67.2-68.1	69.1-71.3

- 1/ source: Second National Report to the Conference of the Parties to the UN Framework Convention on Climate Change, 1998  
 2/ source: Principles for Poland's National Energy Policy until 2020 which was approved by the Council of Ministers in February 2000; values in columns vary depending on the scenario used  
 a/ excluding solid fuels for technical steam production and centralised heat in the industry  
 b/ including centralised heat in the industry  
 c/ included in other forms of energy

### Republic of Macedonia. Energy consumption patterns and trends

#### Gross consumption of energy (Millions of tons equivalent)

Energy category		1985	1990	1995	2000	2005	2010
1. Solid fuels <sup>4)</sup>							
2. Liquid fuels <sup>4)</sup>							
3. Gaseous fuels							
4. Nuclear Energy							
5. Electricity	Gwh ooo toe	<sup>3)</sup> 2945 253	<sup>3)</sup> 4739 408	<sup>1)</sup> 5107 439			
6. Hydro- and geothermal energy							
7. Steam and hot water	tj ooo toe	<sup>3)</sup> 7049 169	<sup>3)</sup> 7019 168	<sup>2)</sup> 5713 137			
8. Other forms of energy							
<b>Total</b>							

\* 1GCH = 0,086 (oootoe) 1tj= 0,024 (ooo toe)

\* 1) Data from the balance of electrical energy

2) Data from the thermal balance

3) Assessment data

4) Data are in the preparation phase

Republic of Moldova. Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	3.2	2.5	0.54	0.28	0.31	0.34
2. Liquid fuels	6.3	4.6	0.71	0.8	0.86	0.99
3. Gaseous fuels	1.0	3.2	1.67	1.68	2.14	2.6
4. Nuclear Energy	-	-	-	-	-	-
5. Electricity	0.9	1.1	0.47	0.3	0.52	0.714
6. Hydro- and geothermal energy	0.07	0.06	0.02	0.02	0.03	0.04
7. Steam and hot water	1.9	2.22	0.7	0.61	1.0	1.36
8. Other forms of energy	0.2	0.6	1.2	N/A	N/A	N/A

Total						
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Russian Federation. Awaiting Translation

Spain. Energy consumption patterns and trends, gross consumption of energy (Millions of tons equivalent .- IEA Methodology):

Energy category	1985	1990	1995	2000	2005	2010 (1)
1. Solid fuels	19121	18974	18721			9920
2. Liquid fuels (incl. LPG)	39538	47741	54610			67260
3. Gaseous fuels (Only Natural gas)	2195	5000	7504			23915
4. Nuclear Energy	7308	14138	14449			16410
5. Electricity (Only final consumption).	8858	10974	12462			18980
6. Hydro- and geothermal energy	2701	2205	1999			3440
7. Steam and hot water	-	-	-			-
8. Other forms of energy (Renewables other than hydro)	3489	3754	3743			13361
Total Primary Consumption	74260	91776	101412			134500

(1)Estimations published in APLAN DE FOMENTO DE ENERGIAS RENOVABLES- MINER, IDAE.- Diciembre 1999@.

Sweden. Energy consumption patterns and trends, gross consumption of energy (Millions of tonnes of oil equivalent).

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	8.2	8.3	9.7	10.6	10.8	11.2
2. Liquid fuels	18.3	16.1	17.5	18.1	18.6	19.2
3. Gaseous fuels	0.1	0.6	0.8	0.8	0.9	1.1

4. Nuclear energy	14.9	17.2	17.5	16.9	16.9	16.9
5. Electricity						
6. Hydro- and geothermal energy	6.1	6.3	5.9	5.5	5.5	5.7
7. Steam and hot water						
8. Other form of energy	0.3	0.4	0.5	1.1	1.3	1.5
Total	47.9	48.9	51.8	53.0	54.0	55.6

Switzerland. Energy consumption patterns and trends, gross consumption of energy (Millions of tons of oil equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	1.3	1.1	1.1	1.1	1.1	1.1
2. Liquid fuels	11.9	12.3	11.9	11.8	12.0	12.2
3. Gaseous fuels	1.4	1.8	2.1	2.2	2.3	2.5
4. Nuclear Energy	4.3	4.8	4.9	5.1	5.4	5.7
5. Electricity	3.5	4.0	4.1	4.3	4.5	4.7
6. Hydro- and geothermal energy	2.1	2.4	2.5	2.6	2.7	2.8
7. Steam and hot water	0	0	0	0	0	0
8. Other forms of energy	0	0	0	0	0	0
Total	24.5	26.4	26.6	27.1	28.0	29.0

Turkey. Turkey is one of the few countries, which have not signed the UN Framework Convention on Climate Change. Although in complete agreement with the concerns and aims of the Convention, could not be a part of it, due to its inclusion among the countries in Annexes II and I. Turkey believes that the policies set forth by the convention were not adequate to achieve principles and targets of the convention itself. Turkey's unique position in this sense best reflects in adequacy. Being included in Annexes has discouraged Turkey from being in the process. The lack of criteria, which would enable Turkey to participate in the international effort, has left Her with only one option. To insist on being exempted from the Annexes. Adoption of proper criteria suitable to her level of development would enable Turkey to participate in the international effort. Turkey already does contribute to the global climate security through:

- (a) Increasing energy efficiency and reduce transmission and distribution losses;
- (b) Using improved technologies and practices such as clean coal technologies;

- (c) Expanding use of natural gas, hydroelectricity and renewable (wind, solar, geothermal, biomass);
- (d) Expanding electricity trade;
- (e) Improving fuel quality for the industrial, residential and transportation sectors;
- (f) Institutional, legal and regulatory measures;
- (g) Employing market-based instruments to provide incentives for reducing the environmental impacts of energy production and consumption.

Energy Consumption patterns and trends, Gross consumption of energy (Millions of tons of oil equivalent) are:

Energy Category	1985	1990	1995	2000	2005	2010
1. Solid fuels <sup>1</sup>	11.94	16.31	17.25	24.72	31.30	56.48
2. Liquid fuels <sup>2</sup>	17.24	22.69	27.89	36.41	40.87	48.23
3. Gaseous fuels	0.06	3.12	6.22	18.59	41.88	48.92
4. Nuclear energy	--	--	--	--	--	2.66
5. Electricity						
6. Renewables <sup>3</sup>	8.80	10.01	10.32	11.53	14.69	19.64
<b>TOTAL</b>	<b>38.04</b>	<b>52.13</b>	<b>61.68</b>	<b>91.25</b>	<b>128.74</b>	<b>176.93</b>

Source: Ministry of Energy and National Resources

1. Solid fuels = (Hard coal+Lignite+Asphaltit+Petrocoke)
2. Liquid fuels = Oil (Non-energy use excluded)  
Renewable including wood, biomass, hydraulic, geothermal, solar, wind

United Kingdom. Energy consumption patterns and trends, gross consumption of energy\*\* (Millions of tons of oil equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	64.8	66.9	48.9	30.8	25.6	22.7
2. Liquid fuels	73.5	78.3	75.7	75.2	79.8	84.7
3. Gaseous fuels	51.8	51.2	69.2	94.4	102.2	108.7
4. Nuclear Energy	16.5	16.3	21.2	23.8	22.3	16.9
5. Electricity*	0.0	1.8	3.3	3.4	6.1	9.2
6. Hydro- and geothermal energy	0.4	0.4	0.4	0.5	0.5	0.5
7. Steam and hot water	0.0	0.0	0.0	0.0	0.0	0.0
8. Other forms of energy	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total**</b>	<b>207.0</b>	<b>214.9</b>	<b>218.7</b>	<b>228.1</b>	<b>236.6</b>	<b>242.8</b>

\* This category is composed of imported electricity and use of other renewables

\*\* Inland primary energy use

United States: Energy consumption patterns and trends, gross consumption of energy  
(Millions of tons of oil equivalent; 1 quad =  $23.57 \times 10^6$  tons of oil equivalent):

Energy category	1985	1990	1995	2000	2005	2010
1. Solid fuels	478	519	533	591	658	673
2. Liquid fuels	728	791	821	905	973	1040
3. Gaseous fuels	417	455	523	583	579	653
4. Nuclear Energy	99	146	169	173	170	158
5. Electricity (imports)	2	1	9	10	10	6
6. Hydro- and geothermal energy	73	74	85	89	89	89
7. Steam and hot water	0	0	0	0	0	0
8. Other forms of energy	0	1	1	2	2	3
Total	1801	1987	2142	2353	2481	2622

\*\* "Annual Energy Outlook 2000", DOE Energy Information Administration, DOE/EIA-0383(2000), December, 1999

## LEGISLATION AND REGULATORY FRAMEWORK

**Q.52 Parties may wish to report on regulatory measures other than those mentioned in sections 1 to 6. Provide a short description of your legislative and regulatory framework, including specific regulatory measures to:**

- **Control and reduce emissions of sulphur, nitrogen oxides and VOC;**
- **Control and reduce emissions of heavy metals listed in annex I to the Protocol on Heavy Metals; and**
- **Reduce the generation and emissions of the persistent organic pollutants covered by the Protocol on POPs.**

**Parties should include information on existing product regulations that have resulted in air pollution reductions. They should also report on relevant legislation under preparation. In responding to this question, please refer to the relevant responses in sections 1 to 6 above.**

Armenia. By its resolution of 22 April 1999, the Government of the Republic of Armenia ratified a new provision on the State stocktaking of harmful effects on atmospheric air.

By another resolution, of 30 March 1999, the Government established a new, improved procedure for regulating atmospheric emissions for enterprises and for the granting of permits for such emissions within existing environmental limits.

Under this new procedure, provision was made, for the first time, for the territorial regulation of atmospheric emissions of harmful substances.

By its resolution, of 30 March 1999, the Government established threshold values for planned activities (construction, renovation, demolition) which are subject to environmental and human health impact assessments.

Application of these threshold values will make possible a more precise determination of the categories of large point sources of atmospheric emissions of harmful substances in the various production areas.

Austria. Environmental protection as a general objective is embedded in the Federal Constitutional Law. The main legislative and regulatory provisions concerning air pollution abatement can be found in some 12 laws at the federal level and some additional regulations at the provincial level. Reduction of emissions is based on the precautionary principle. The precautionary reduction of emissions is achieved by enforcing emission standards based on the best available technology.

The Ambient Air Quality Law provides effect-based ambient air limit values for a number of pollutants, including sulphur dioxide, particulates, nitrogen dioxide, ozone and lead as well as deposition limit values for particulate matter, lead and cadmium. In areas where limit values are exceeded, reduction plans comprising all relevant sectors have to be established. The law also provides the basis for a comprehensive monitoring network.

The regulatory measures specific to the substances covered by the convention and its protocols are described in detail in sections 1 to 6.

Belarus. It is suggested that use be made of the information in EB.AIR/1998/3 (p. 26, para. 91).

Belgium. Awaiting translation

Bulgaria. Legislation and Regulatory Framework:

- (a) Clean Air Act (SG 45/96, am. SG 85/97, am/ SG 27/00);
- (b) Regulation 14 of 23<sup>rd</sup> September 1997 on the maximum permissible concentrations of harmful substances in urban air (SG 88/97);
- (c) Regulation 1 of 13<sup>th</sup> February 1998 on the terms and conditions for adopting temporary air pollution emission limit values from existing stationary sources (SG 51/98);
- (d) Regulation 2 of 19<sup>th</sup> February 1998 on adopting emission limit values (flue gas concentrations) for pollutants from stationary sources;
- (e) Regulation 3 of 25<sup>th</sup> February 1998 on the terms and conditions for adopting temporary emission limit values for pollutants from existing stationary sources, related to the national combustion and energy balance (SG 51/98);
- (f) Regulation 7 of 1999 of the Ministry of Environment and Water and the Ministry of Public Health on Air Quality assessment and management (SG 45/99); (Directive 96/62/EC);
- (g) Regulation 8 of 1999 of the Ministry of Environment and Water and the Ministry of Public Health on ground-level ozone standards (SG 46/99); (Directive 92/72/EC);
- (h) Regulation 9 of 1999 of the Ministry of Environment and Water and the Ministry of Public Health on emission limit values for sulphur dioxide, nitrogen dioxide, particulate matter and lead (SG 46/99); (Directive 99/30/EC);
- (i) Regulation 6 of 1999 of the Ministry of Environment and Water on the terms and conditions for measuring emissions of pollutants from stationary sources (SG 31/99);
- (j) Regulation 15 of 1999 of the Environment, Industry, Regional Development and Health Ministries on emission limit values (flue gas concentrations) of sulphur dioxide, nitrogen dioxide and particulate matter, emitted in the air by major new stationary combustion sources (SG 73/99); (Directive 88/609/EEC);
- (k) Regulation 16 of 1999 of the Environment, Industry, Regional Development and Health Ministries on the reduction of volatile organic compounds emissions from petrol transportation, storage, loading and unloading operations (SG 75/99); (Directive 94/63/EC);
- (l) Regulation 17 of 1999 of the Ministry of Environment and Water and the Ministry of Public Health on standards for the content of lead, sulphur and other environmentally hazardous substances in fuels (SG 97/99); (Directives 9/32/EC and 98/70/EC);
- (m) Regulation on industrial and hazardous waste handling and transportation (SG 25/99); (Directive 94/67/EC);
- (n) Regulation 11 on the conditions for erecting and operating facilities for household wastes decontamination (SG 10/99); (Directive 89/369/EEC);
- (o) Decree of the Council of Ministers 12/99 on the regimen for placement of hazardous substances (SG 4/99);
- (p) Decree of the Council of Ministers 254/99 on the control and management of substances, that deplete the ozone layer (SG 3/00);
- (q) Regulation 5/98 on the issuing of permits for import, export and transit of hazardous waste (SG 120/98);
- (r) Regulation 4 on the environmental impact assessment procedures (SG 84/98);

(s) Regulation 32 on periodical technical checks up of vehicles (SG 74/99).  
The specific regulatory measures are given in the answers to Sections 1 to 6.

Canada. The federal and provincial governments share responsibility for addressing air quality problems and for implementing air pollution control programs. Emission requirements for most industrial sources are set and enforced provincially, although the federal government may develop or contribute to the development of national guidelines, objectives, or codes of practice which individual provinces may adopt. The Canadian Council of Ministers of the Environment (CCME) is a major forum for the national integration of environmental policies, programs, standards etc. In addition to the development of guidelines, objectives and codes of practice, the federal government has jurisdiction in the areas of mobile sources (fuel and emission standards), toxics, research and monitoring, and international air pollution.

With regards to VOCs, in addition to what has already been described in section 3, there are additional guidelines, codes of practice or standards (for VOC content) being developed for surface coating of auto parts and maintenance coating.

Cyprus. The Law on the Control of Atmospheric Pollution No. 70/91 and Regulations issued under it constitute the legislative and regulatory framework related to air pollution abatement.

The above Law provides for a licensing system for those processes prescribed by Regulations as "Registrable", through which emission limits and other restrictions as well as technical requirements for emission abatement equipment may be imposed.

Emission limits for the Registrable Processes are prescribed on each License. For the non-Registrable Processes, SO<sub>2</sub> emission limits are directly proportional to the sulphur content of fuel used.

The NO<sub>x</sub> emission limit for new large power plants is 450 mg/Nm<sup>3</sup> and for existing 600 mg/Nm<sup>3</sup>.

The emission limit for VOCs for registrable processes are 50 mgC / Nm<sup>3</sup>.

The regulation of the POP's Aldrin, Dieldrin, DDT, Chlordecone Endrin, Chlordane, Hexachlorobenzene, Mirex, Toxaphene, Hexachlorocyclohexane, Heptachlor, PCB's, by prohibiting their import and use has as a result air pollution reduction.

Czech Republic. Current legislation on the air:

- (a) Law No. 309/1991 Coll., on protection of the air against pollutants (the Clean Air Law), as amended;
- (b) Czech National Council Law No. 389/1991 Coll., on state administration of air protection and payments for air pollution, as amended;
- (c) Law No. 86/1995 Coll., on protection of the ozone layer of the Earth;
- (d) Decree 117/1997 Coll., laying down emission limits and other conditions for the operation of stationary pollution sources and air protection;
- (e) Decrees for implementation of some of the provisions of the Law on protection of the ozone layer of the Earth that lay down for a limited period of time the amounts of substances that cause or could cause depletion of the ozone layer of the Earth and that may be produced, imported or exported for production, consumption or further export;

- (f) Annex No. 4 of the Measure of the Federal Committee for the Environment, in which the binding imission limits for pollutants are laid down;
- (g) Act No. 38/1995 Coll., on technical requirements for operation of vehicles on roads and Decree No. 244/1999 Coll;

Legislation under preparation:

- (a) The new Law on protection of the air and protection of the ozone layer of the Earth;
- (b) the new Law on integrated pollution prevention and control;
- (c) the Draft Law on management of energy;
- (d) draft regulations for implementation of these Laws;
- (e) the draft regulation for implementation of the Draft Law on technical conditions for traffic on roadways;
- (f) draft amendment to Decree 117/1997 Coll., laying down emission limits and other conditions for the operation of stationary pollution sources and air protection;
- (g) the draft new Act on technical requirements for operation of vehicles on roads and implementing Decree (prepared by the Ministry of Industry and Trade).

The legislation being prepared will cover the requirements of the adopted protocols.

The current management system, if understood to consist in the work of the administrative authorities, is set forth in detail in Law No. 389/1991 Coll., on state administration of air protection and payments for air pollution. Simultaneously, the Ministry of the Environment carries out supreme state supervision in accord with Law No. 2/1969 Coll., on establishing the Ministries and other central bodies of the state administration of the Czech Republic, as amended, in which it controls how the pertinent bodies and organizations comply with the legal regulations and decisions issued pursuant to them and issue standpoints and methodical instructions, explaining in detail some of the provisions of the Law and regulations for implementation. Simultaneously, the obligations set forth in the legal regulations on air protection are controlled. In addition to supreme state supervision, the Czech Environmental Inspection is active in the area of air protection as a supervisory body and some of the obligations following from the Law are also controlled by the District Authorities and municipalities.

Legislative provision for compliance with protocols: Practical implementation of the protocol on decreasing emissions of nitrogen oxides and their transboundary fluxes is currently provided for in the legislation by Law No. 309/1991 Coll., on protection of the air against pollutants, as amended, and implementing Decree 117/1997 Coll., laying down emission limits and other conditions for the operation of stationary pollution sources and air protection.

At the latest by January 1, 1999, all the operators of large and medium-sized air pollution sources were obliged to comply with the emission limits laid down in Decree No. 117/1997 Coll., replacing the emission limits laid down for the previous period by the air protection administrative authority. The Decree came into effect on June 1, 1997.

It should be pointed out that the current legislation (Law No. 309/1991 Coll. in the valid wording) contains three categories of sources,, the category of large air pollution sources (larger than 5 MW thermal output), the category of medium-sized air pollution sources (from 0.2 MW to 5 MW thermal output) and the category of small air pollution sources (less than 0.2 MW thermal output). Full legislative compliance with this protocol will be achieved after passing of the new

Law on air protection and protection of the ozone layer of the Earth, including the regulations for implementation, which is expected by November 1, 2001.

The Protocol to the Convention on Long-Range Transboundary Air Pollution, on decreasing emissions of volatile organic compounds and their transboundary fluxes is only partly incorporated into the Czech legislation, in Decree 117/1997 Coll., laying down emission limits and other conditions for the operation of stationary pollution sources and air protection and the draft amendments to this Decree, which are expected to come into effect from May 1, 2000.

The current legislation deals primarily with requirements on processing, storage and handling of petroleum products and the area of paint shops in the category of consumption of coatings of greater than 5 kg per day up to a total consumption of 10 t p.a. (medium-sized pollution sources) and with an annual consumption of coatings greater than 10 t (large pollution sources).

Annex No. 1 of the amendment to the Decree supplements the list of pollutants to include volatile organic compounds (VOCs) and Annex No. 3 extends the generally valid emission limits to include emission limits for volatile organic compounds. Full transposition will be the draft amendments to this Decree, which are expected to come into effect from May 1, 2000.

The current legislation deals primarily with requirements on processing, storage and handling of petroleum products and the area of paint shops in the category of consumption of coatings of greater than 5 kg per day up to a total consumption of 10 t p.a. (medium-sized pollution sources) and with an annual consumption of coatings greater than 10 t (large pollution sources).

Annex No. 1 of the amendment to the Decree supplements the list of pollutants to include volatile organic compounds (VOCs) and Annex No. 3 extends the generally valid emission limits to include emission limits for volatile organic compounds. Full transposition will be achieved through approval of the new Law on air protection and protection of the ozone layer of the Earth. The new legislation is expected to come into effect from November 1, 2001.

The Protocol to the Convention on Long-Range Transboundary Air Pollution of 1979, on a further decrease in sulfur emissions, is only partly incorporated into the legislation through Decree 117/1997 Coll., implementing Law No. 309/1991 Coll., as amended. This Decree lays down the national emission limits for sulfur dioxide for selected large and medium-sized pollution sources that contribute most towards air pollution and for other pollution sources (generally valid emission limits), including conditions for determining the amount of emissions. Simultaneously, this Decree lays down requirements on the quality of fuel supplied for combustion in small pollution sources and to the population. These requirements are laid down in the indicators "specific sulfur contents of fuels".

Compliance with all the requirements of the Protocol will be achieved through the passing of the new Law on air protection and protection of the ozone layer of the Earth, the Law on integrated pollution prevention and control, and the pertinent Decrees for implementation, including the Decree of the Ministry of Industry and Trade to the Draft Law on the technical conditions for traffic on roadways, laying down the contents of sulfur in liquid fuels.

Law No. 309/1991 Coll., on protection of the air against pollutants (the Clean Air Law), as amended, and implementing Decree 117/1997 Coll., including the prepared amendment, will provide to a considerable degree for the requirements of the Protocol on heavy metals.

Full provision through suitable legislation will be achieved when the new Law on air protection and protection of the ozone layer of the Earth and the pertinent regulations for

implementation are passed and when the new Law on integrated pollution prevention and control is passed, which are expected to come into effect by November 1, 2001 (air) and January 1, 2003 (IPPC).

Denmark. The long-term objective of national air pollution abatement is to limit air pollution to minimize damaging effect on Man, ecosystems and nature areas. The Environmental Protection Act provides the basis for regulations to safeguard the environment. The regulatory instruments established by this Act are: (a) the power of environmental authorities to assess polluting activities with a view to giving or refusing approval, or setting certain requirements; and (b) the power of the Minister of the Environment to lay down emission limitations and production standards.

The main instrument for licensing is the Environmental Protection Act, cf. Order No. 625 of 15 July, 1997. The Environmental Protection Act lists the activities, which need a license to operate. All procedures in licensing operation are fully public. Decisions under the Act shall take place by public announcement. When the license is granted the time limit for lodging a complaint is four weeks from the day the decision was announced. The license represents an unreserved right to operate and, in accordance with given restrictions, discharge pollutants to water and emit pollutants into the air. The conditions are valid for at least eight years, but the permit itself is not restricted in time. For all potential polluting activities the supervisory authorities issue monitoring programs for emissions that have to be carried out and paid for by the owners of the polluting installations. Reporting to supervisory authority usually takes place yearly.

The concept of best available technology (BAT) is explicit stated in the permits in order to meet the emission standards.

The EC Regulation concerning Eco Management and Audit Scheme (EMAS) was implemented by statutory order in 1994. An experimental scheme for non-industrial sectors was introduced in 1997 on a trial basis. Under the experimental scheme public activities, agriculture/horticulture, forestry maintenance and repair of motor vehicles, hotels and restaurants, transport and laundry/dry-cleaners can apply. 141 sites have been registered under the EMAS and 8 sites under the experimental scheme. Up to 1996 most companies were registered under BS 7750, which has now been replaced by ISO 14001. In June 2000 the total number of enterprises with an accredited environmental management system was approximately 450.

Germany. The basic principles guiding the national policy for abatement of air pollution are laid down in particular in the Federal Immission Control Act (BImSchG) of 15 March 1974. The purpose of this Act is to protect human beings, animals and plants, soil, water, the atmosphere as well as cultural assets and other material goods against harmful environmental impacts and to take precautions against the emergence of any such harmful environmental impacts. This legal mandate to protect and take precautions is responded to by the Federal Immission Control Act primarily by limiting immissions in accordance with scientific knowledge and by limiting emissions at source in accordance with the state of the art.

Italy. All the Italian regulatory measures to reduce air pollutants covered by Protocols have been reported in sections 1 to 4. The regulation framework for air pollution is based on the Clean Air Law of 1966, together with its associated regulations. The principal regulations for air pollution are related to air quality standards, emission limit values for industrial and craft

activities, fuel quality standards. Presently, application of European Community Directives represents one of the most important part of Italian regulatory framework.

Latvia: Control and reduce emissions of sulphur, nitrogen oxides and VOC.

The Division of Laboratory of the Environmental Data Centre of Latvia provides the quality of emission control data according to the requirements of international standards for emission measurements of major stationary sources of pollution:

- (a) LVS ISO 7934: 1989 Stationary source emissions B Determination of mass concentration of sulphur dioxide B Method of hydrogen peroxide/barium perchlorate/ thiorin;
- (b) ISO 11632:1998 Stationary source emissions B Determination of mass concentration of sulfur dioxide B Ion chromatography method;
- (c) PrEN 1911 Stationary source emissions B Manual method of determination of HCl;
- (d) US EPA METHOD TO1: 1984 Method for the determination of volatile organic compounds in ambient air using TENAX absorption and gas chromatography/mass spectrometry (GC/MS);
- (e) US EPA METHOD TO5: 1984 Method for the determination of aldehydes and ketones compounds in ambient air using high performance liquid chromatography (HPLC);
- (f) US EPA METHOD TO11: 1987 Method for the determination of formaldehyde in ambient air using adsorbent cartridge followed by high performance liquid chromatography (HPLC);
- (g) VDI 3482/Blatt 4: 1984 Measurement of gaseous Immisions B Gaschromatographic determination of organic compounds using capillary columns B Sampling by enrichment on activated carbon B Desorption with solvent;
- (h) US EPA METHOD 8315A:1996 Determination of carbonyl compounds by high performance liquid chromatography (HPLC);
- (i) US EPA TO17: Determination of volatile organic compounds in ambient air using active sampling on to sorbent tubes.

Poland. The Act on the protection and management of the environment is a fundamental act of a framework nature dealing with environmental issues, being a legal basis for the implementation of measures for air protection. Until now it has been amended and modified many times. Among its numerous executive acts that are still in force, the following regulations are of major significance to air protection:

- (a) On limit values for ambient air concentrations of pollutants (ambient air quality standards) (1998);
- (b) on air emission standards from technological processes and technical operations (containing only emission standards for fuel combustion sources) (1998);
- (c) on fees for emissions of pollutants into the atmosphere (updated every year);
- (d) on inventories and registers of lists of air pollutants (1998);
- (e) on procedures for setting restriction limits for certain types of pollutants and their amounts as well as documentation requirements for issuing air emission permits covering the types and amounts of pollutants (1998).

At present a new set of legal acts with some accompanying executive regulations are in the preparatory phase (some very much advanced submitted to the Parliament). The following ones are of major interest as far as the protocols to the Convention are concerned:

- (a) Act on environmental protection;
- (b) new Act on waste;
- (c) Act on packaging and packaging waste;
- (d) Act on product charges and deposit fees;
- (e) Act on the increase of energy use from renewable sources;

Regulations introducing emission limit values for major stationary sources are under preparation (see Q.31).

Republic of Moldova. The general objective of protection of environment in our republic is defined by the Constitution of the Republic of Moldova (art. 37, art. 46, art. 59 and etc.). For example: Art. 37 (1) requires that: “ Each person has a right for the ecologically safe environment as well as for safe food and other goods for house use”. Art. 37 (2) requires that: “ The country guarantees for each person the right for free access to environmental information, conditions of life and labor, quality of food and goods of house use and for distribution of this information“.

The main activities for atmospheric air pollution prevention are included in the range of laws, prepared and entered in force after the Republic of Moldova became independent. The following legislative acts were developed and introduced:

- (a) Law on Protection of Environment (nr.1515 from 16.06.1993);
- (b) Law on Air Protection (nr.1422-XIII from 17.12.1997);
- (c) Law on Ecological Expertise and Environmental Impact Assessment (nr.851 from 29.05.1996);
- (d) Law on the Payment for Environmental Pollution (nr.1540 - XIII from 25.02.1998);
- (e) Law on Sanitary-Epidemiological Protection of the Population (nr.1514-XII from 16.06.1993), - and other legislative and sub-legislative acts.
- (f) Law on Hydrometeorological Activity (nr.1536 – XIII from 25.02.1998).

The main activities for management of toxic chemical substances, products and wastes included in the range of laws, prepared and entered in force after the Republic of Moldova became independent. The following legislative acts were developed and introduced:

- (a) Law on Regime on Harmful Products and Substances;
- (b) The Law on Licensing Certain Types of Activities;
- (c) Law on Wastes of Production and Consumption.

In the National Strategic Action Plan for Environmental Protection, approved by the Decree of the President of the Republic of Moldova in 1995 and National Action Plan on Environmental Protection, approved by the Decision of the Government in 1996 the principle “Polluter pays” was included. Realization of this principle was established in new legislative and normative acts:

- (a) Law on Change and Adding to the Law on Protection of Environment (nr.1539 – XIII from 25.02.1998);
- (b) Law on the Payment for Environmental Pollution (nr.1540 - XIII from 25.02.1998);
- (c) Regulation on Ecological Fund (nr.988 from 21.09.1998).

The main goal of the Law on the Payment for Environmental Pollution was implementation of the principle “Polluter pays” and stimulation of industrial enterprises in the process of

restructuring and privatization. It was made for the implementation of the most economic installations with minimum impact on the environment, and also resources collection for formation of ecological funds for financing of environmental projects.

Also, strategic directions of environmental protection, including atmospheric air were included in the following documents:

- (a) National Programme on submission of substances depleting ozone layer in Republic of Moldova, approved by Decision of the Government of the Republic of Moldova (nr.1064 from 11.11.1999);
- (b) Environmental Performance Review. The ECE Committee on Environmental Policy and the ECE review team wish the Moldavian environmental managers success in implementing and following up the policy recommendations that are included in this review.

Presently the following documents are under development:

- (a) National Strategy on Sustainable Development "Moldova 21";
- (b) First National Communication in the framework of UNDP project "Enabling Moldova to prepare its first National Communication in response to its commitments to the UN FCCC". Chapter "Diminishing of greenhouse gases" is included in this communication, where the measures for reduction of priority greenhouse gases and other gases such as NO<sub>x</sub>, NMVOCs, CO etc. were developed. Also, presently in the framework of mentioned UNDP project is under development chapter National Plan of Activities of reduction of greenhouse gases.
- (c) Law on Energy Conservation;
- (d) Programme for emissions reduction from mobile sources. According to this Programme a range of measures for reduction of toxic emissions into air is foreseen:
  - Total exclusion of use of leaded petrol;
  - Supplying the auto vehicles with neutralizers and catalysts;
  - Reduction of sulphur in fuel;
  - Enhance the usage of gaseous fuel for transport.

This program is under development and in the nearest future will be presented in the Government of the Republic of Moldova.

- (a) New Concept of Environmental Policy of the Republic of Moldova. One of the points of this concept is pollution prevention and improvement of the environment, including atmospheric air.
- (b) National Programme on Production and Municipal Wastes Management.

Actually proposals to introduce modifications in the Law on payment for environmental pollution are under development and their goal is stipulation of payment provisions for some goods that have environmental impact. List of goods that are supposed to be regulated by some economic instruments will include the following:

- .Substances depleting ozone layer and products containing those substances . . . .Plastic packaging including PVC;
- .Heavy fuel oil medium-sulphur and high-sulphur;
- .Luminescent lamps;
- .Pesticides;
- .Cigarettes;
- .Auto vehicles accumulators;
- .Detergents;
- .Mineral oils;

.Naphtaline and other products.

In conformity with mentioned legislative acts and other sub-legislative acts the criteria applied to ambient air quality are public health standards: limit permissible concentrations (LPCs) and indicative safe exposure levels of pollutants in the air in population settlements. LPC levels in ambient air are normally set in mg/m<sup>3</sup>. Indicative safe exposure levels are liable to be made stricter or replaced by LPC on the basis of toxicological and public health information. These levels are valid for three years.

Russian Federation. Awaiting translation

Sweden. Regulatory measures other than reported above. A new Swedish environmental code has been decided by the Parliament. The rules contained within 15 acts have been amalgamated in the Environmental Code. The acts are:

- (a) The Natural Resources Act;
- (b) the Nature Conservancy Act;
- (c) the Flora and Fauna (Measures Relating to Protected Species) Act;
- (d) the Environmental Protection Act;
- (e) the Health Protection Act;
- (f) the Water Act;
- (g) the Agricultural Land Management Act;
- (h) the Genetically Modified Organisms Act;
- (i) the Chemical Products Act;
- (j) the Biological Pesticides (Advanced Testing);
- (k) the Pesticides (Spreading over Forest Land) Act;
- (l) the Fuels (Sulphur Content) Act;
- (m) the Public Cleansing Act;
- (n) the Dumping of Waste in Water (Prohibition) Act;
- (o) the Environmental Damage Act.

Switzerland. In 1986 the Government adopted an overall Air Pollution Control Strategy covering sulphur dioxide, nitrogen oxides and volatile organic compounds (VOCs).

The 1985 Federal Law relating to the Protection of the Environment and its implementing ordinances, in particular the 1986 Ordinance on Air Pollution Control (OAPC), the 1997 Ordinance on the incentive tax on "extra light" heating oil with a sulphur content of more than 0,1 per cent (HELV) as well as the 1997 Ordinance on incentive taxes on VOC and the 1986 Ordinance relating to Environmentally Hazardous Substances set the legal framework of a comprehensive air pollution control programme.

The 1986 OAPC, amended in 1992, 1997 and 1999, regulates emissions from stationary sources. It contains emission standards for about 150 individual inorganic and organic pollutants. Moreover, the Ordinance contains fuel and petrol requirements as well as effect-oriented ambient air quality standards. As regards pollution caused by motor vehicles, emission standards are laid down in the Ordinances relating to the Laws on Road Transport, Navigation and Aviation.

The principles of the air pollution control policy are set out in the 1985 Federal Law relating to the Protection of the Environment. Its objective is to protect human beings, animals and plants, their biological communities and habitats against harmful effects or nuisances and to maintain the

fertility of the soil. Both a source-oriented (through emission standards) and an effect-oriented (through ambient air quality standards) approach are followed. Irrespective of existing environmental pollution, as a precautionary measure, emissions are to be limited as much as technology and operating conditions allow, provided this is economically feasible. Emissions shall be limited more stringently if harmful effects are found or expected, taking into consideration the existing level of environmental pollution.

The Ordinance relating to Environmentally Hazardous Substances of 1986 regulates the import, the production, the supply, the use and the export of substances that may present a hazard to the environment. It comprises instructions for the environmental impact assessment of new and existing substances and products. Corresponding to the assessment, the substances must be labelled with information on the type of hazard, on the methods of disposal and on other particular instructions such as safety instructions. In addition to the general regulations, annexes to this ordinance contain special regulations for particular groups of chemicals. Among them, several are of special interest regarding the emissions of hazardous substances into the atmosphere which may occur during production and use or during waste treatment (e.g. CFCs, halogenated organic compounds, heavy metals).

Turkey. Environmental issues have received special consideration in Turkey during the 1970s in parallel to the activities throughout the world, which in turn necessitated new policies and decisions yielding certain social and economic results. Following this, Turkey has established her legal and administrative structure and defined her environmental problems.

The Environment Law (coded 2872), which came into force in 1983, starts from the principle of "the polluter pays", and handles the issue of environment on a very broad scope. The aim of the law, which considers the environment as a whole, is not only to prevent and eliminate environmental pollution, but also to allow for the management of the natural and historical values and the land in such a way as to utilize and preserve such richness with the concern for future generations as well.

The main instrument of air quality management in Turkey is The Air Quality Control Regulation which gives ambient quality standards and emission permission system for stationary sources of pollution. The Air Quality Control Regulation was formulated in line with the purpose and principles envisaged in the Environmental Law and it was issued in November 1986. The purpose of AQCR is to bring control over the emissions in the form of soot, smoke, dust, gases, steam and aerosols diffused into the atmosphere as a result of activities; to protect human beings and their environment from hazards arising from pollution of the air as a receptor medium; to eliminate the adverse environmental effects of air pollution which cause serious damage to the public and neighborly relations and to ensure that such effects are not created.

To achieve the purpose stated above, the provisions of this Regulation embrace:

- (a) The construction and operation of plants;
- (b) The production, use, storage, transportation and importation of fuel raw material and other products in plants;
- (c) The conditions governing the equipping and operating of motor vehicles and the specifications to be obeyed.

The regulation specifies the facilities, which have significant negative effects on human health, and the environment according to its terms, permission and operations of such facilities are to be granted by emission licences system.

The AQCR specifies the facilities, which have to be controlled because of their potential impact, divided into two groups. Plants in group A are licensed in accordance with Public Health Law No: 1593) by taking into account the views of the Ministry of the Environment Permissions for plant in group B are granted taking into account the views of the local environmental boards, again in accordance with the Public Health Law.

Sulphur, nitrogen oxides, VOCs, heavy metals and persistent organic pollutant emissions limits are defined in AQCR. Furthermore, the AQCR is under revision now. The regulation is being revised according to European Union Standards. It is expected that this revision process shall be completed by the end of 2000.

United Kingdom. Parties may wish to report on regulatory measures other than those mentioned in sections 1 to 6. Provide a short description of your legislative and regulatory framework, including specific regulatory measures to:

- (a) Control and reduce emissions of sulphur, nitrogen oxides and VOC: Please refer to answers given to questions 2, 9 and 18 above.
- (b) Control and reduce emissions of heavy metals listed in annex I to the Protocol on Heavy Metals: Please refer to the answer given in question 70.
- (a) Reduce the generation and emissions of the persistent organic pollutants covered by the Protocol on POPs: Please refer to the answer given in question 71.

United States of America. The Clean Air Act, as amended in 1990, created a comprehensive plan to significantly reduce the emissions of air pollutants over the next 15 years and a framework for addressing air pollution problems in the future. It established significant new emission requirements for mobile sources and fuels, requirements for the installation of best available control technologies on major new and existing stationary sources of 188 hazardous air pollutants many of which are VOCs, requirements for a reduction of approximately 10 million tons of reductions in sulphur dioxide and approximately 2 million tons of reductions in nitrogen oxides to address acid rain problems, and requirements for achieving the obligations under the Montreal Protocol on Substances that Deplete the Ozone Layer including the early phase out of products wherever possible. It also established a detailed comprehensive framework for addressing health and environmental effects associated with what the U.S. refers to as criteria pollutants (i.e., CO, Pb, NO<sub>x</sub>, O<sub>3</sub>, PM<sub>10</sub> and SO<sub>2</sub>) through achievement of the national ambient air quality standards for these pollutants on a specific schedule in all areas of the country. This innovative framework recognized the differences in the air pollution problem in different areas of the country and allowed longer schedules in some areas provided they implemented more mandatory control measures. The 1990 CAA reinforced the framework for review of the air quality standards to ensure that they continue to protect the public health and welfare.

European community. The first daughter Directive to Directive 96/62/EC (the "Framework Directive" on ambient air quality assessment and management) relating to limit values for sulphur

dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air (1999/30/EC) was adopted by the Council and came into force in July 1999. Non-compliance with the limit values requires Member State to draw up action plans and programs in order to achieve the limit values within the period specified in the Directive. It also defines common methods for monitoring and assessing the air quality in relation to these pollutants.



**Q.53 Parties to the Convention are invited to provide further information on fuel standards. You may wish to refer to your answer to questions 19 to 23 in section 4 above. Please use the table provided below to report standards for the different fuel types. If more than one standard is applied, provide a short explanation in the “comment” column.**

Armenia. The following new quality standards have been established for automotive fuel used in Armenia:

<b>Leaded petrol</b>	<b>Unleaded petrol</b>	<b>Comments</b>
Not to exceed 0.15 gPb/litre	Not to exceed 0.013 gPb/litre	Date of introduction: 1 March 2000

Austria. Fuel quality standards are:

<b>Light fuel oil (%S)</b>	<b>Medium fuel oil (%S)</b>	<b>Heavy fuel oil (%S)</b>	<b>Comments</b>
0.1 % (gas oil) 0.2 %	0.6 %	1.0 %	see Q.19 for usage
<b>Solid fuel. Hard coal (%S)</b>	<b>Solid fuel. Lignite (%S)</b>	<b>Comments</b>	
0.2–0.3 g/MJ	0.3 g/MJ	regulations are specific for some source categories, see Q.19 for details	
<b>Leaded petrol (g Pb/litre)</b>	<b>Unleaded petrol (g Pb/litre)</b>	<b>Comments</b>	
–	0.005 g/l		

Belarus. For the purposes of this report, reference may be made to the fuel quality standards given in EB.AIR/1998/3/Add.1 (p. 23).

Belgium. Awaiting translation

Bulgaria: Fuel quality standards are:

<b>Light fuel oil (%S)</b>	<b>Medium fuel oil (%S)</b>	<b>Heavy fuel oil (%S)</b>	<b>Comments</b>
0.2 B 0.3	1.25	3.5	

<b>Solid fuel. Hard coal (%S)</b>	<b>Solid fuel. Lignite (%S)</b>	<b>Comments</b>
2.7	2.5 B 3.5	
<b>Leaded petrol (g Pb/litre)</b>	<b>Unleaded petrol (g Pb/litre)</b>	<b>Comments</b>
0.15	0.013	

Canada. Fuel quality standards are:

<b>Light fuel oil (%S)</b>	<b>Medium fuel oil (%S)</b>	<b>Heavy fuel oil (%S)</b>	<b>Comments</b>
None at federal level; some provinces have standards (diesel on-road .05% - since January 1998)			
<b>Solid fuel. Hard coal (%S)</b>	<b>Solid fuel. Lignite (%S)</b>	<b>Comments</b>	
None at the federal level			
<b>Leaded petrol (g Pb/litre)</b>	<b>Unleaded petrol (g Pb/litre)</b>	<b>Comments</b>	
.026	.0005	Effective December 1, 1990	

Note: Effective December 1, 1990 leaded petrol will only be allowed for use in aviation gasoline and competitive racing fuels.

Cyprus. Fuel quality standards are:

<b>Light fuel oil (%S)</b>	<b>Medium fuel oil (%S)</b>	<b>Heavy fuel oil (%S)</b>	<b>Comments</b>
----------------------------	-----------------------------	----------------------------	-----------------

1,0	4,0	4,0	(1) Average 0,9% (2) Average 2,0% (3) Average 2,0%
Solid fuel. Hard coal (%S)	Solid fuel. Lignite (%S)	Comments	

Leaded petrol (g Pb/litre)	Unleaded petrol (g Pb/litre)	Comments	
0,40 super 0,15 regular	0,013		

Czech Republic. Information on fuel standards: The limits for the contents of sulfur in diesel fuels and lead in automobile petrols pursuant to the pertinent Decrees are given in the answers to Q.19 and Q.29. The following standards are valid for motor fuels. Pursuant to Decree No. 244/1999 Coll., the fuel used must correspond to the pertinent Czech technical standard. A survey of valid standards is given in the following table.

Fuel	Kind of drive	Technical standard
automobile gasoline - unleaded - leaded	positive-ignition engine	CSN EN 228 CSN 65 6505
diesel fuel	compression-ignition engine	CSN EN 590
biofuel	compression-ignition engine	CSN 65 6507-9 (according to the weight fraction of methyl esters of rapeseed oil)
liquid propane gas (LPG)	positive-ignition engine	CSN EN 589
compressed natural gas (CNG)	positive-ignition engine	CSN 38 6110

The following standards are valid for liquid propane gas (LPG) and compressed natural gas (CNG) pursuant to Decree No. 102/1995 Coll:

Fuel	Standard	Units
LPG	the density of liquified propane-butane gas at a temperature of 50 °C pressure at a temperature of 70 °C	450 kg.m <sup>-3</sup> max. 2.55 MPa
CNG	volume fraction of methane or other mixtures of hydrocarbons with critical temperature below -10 °C	at least 85%

According to the plan, in the year 2001, new legislation will be valid in CR to replace Law No. 38/1995 Coll., on technical conditions for the operation of highway vehicles on roadways, and Decree No. 102/1995 Coll., on approval of the technical suitability and technical conditions for the operation of highway vehicles on roadways. According to the new legislation:

- (a) The sales of leaded petrol in CR will be prohibited (prohibition of the sales of leaded petrol is laid down by the current legislation in Decree No. 244/1999 Coll., implementing Law No. 38/1995 Coll.);
- (b) unleaded petrol and diesel fuel must comply with the requirements of EU Directive 98/70 EC. Producers and distributors of petrol and motor fuel state that, by the end of the year 2002, petrol and diesel fuel will comply with the conditions of Directive 98/70, annex I and II. The Ministry of Industry and Trade (MIT) will be responsible for control of compliance with the requirements of this Directive, for monitoring compliance with this Directive and for issuing the documents to ensure the compliance with the requirements of the Directive (implementing Decree to the Act on technical requirements for operation of vehicles on roads).

Denmark. Petrol and diesel fuels for motor vehicles have to meet EU-directive 98/70. Due to use of tax-incentives the auto diesel already meet the 2005-requirement for sulphur (50 ppm). See Q.24. Fuel quality standards are:

Light fuel oil (%S)	Medium fuel oil (%S)	Heavy fuel oil (%S)	Comments
1.0	1.0	1.0	Tax incentives have resulted in market values of 0,1-0,8%
Solid fuel. Hard coal (%S)	Solid fuel. Lignite (%S)	Comments	
0.9	0.9	A sulphur tax on electricity production as of January 2000 is expected to lower the sulphur content.	

<b>Leaded petrol</b> (g Pb/litre)	<b>Unleaded petrol</b> (g Pb/litre)	<b>Comments</b>
	Lesser than 0.003	Tax incentives have driven leaded petrol out of the market since February 1994

Finland. Fuel quality standards are:

<b>Light fuel oil</b> (%S)	<b>Medium fuel oil</b> (%S)	<b>Heavy fuel oil</b> (%S)	<b>Comments</b>
0,2	0,2	1,0	
<b>Solid fuel. Hard coal</b> (%S)	<b>Solid fuel. Lignite</b> (%S)	<b>Comments</b>	
1,0			
<b>Leaded petrol</b> (g Pb/litre)	<b>Unleaded petrol</b> (g Pb/litre)	<b>Comments</b>	

Germany. See Q.23

Hungary. Fuel quality standards are:

<b>Light fuel oil</b> (%S)	<b>Medium fuel oil</b> (%S)	<b>Heavy fuel oil</b> (%S)	<b>Comments</b>
1	1.02-2.4	2.5-2.7	
<b>Solid fuel. Hard coal</b> (%S)	<b>Solid fuel. Lignite</b> (%S)	<b>Comments</b>	
Domestic brown coal: 2-3.6	1.2-1.4	According to the calorific value the domestic	

Import hard coal: max. 1		brown coal can be considered only as lignite, and the domestic lignite as peat
<b>Leaded petrol</b> (g Pb/litre)	<b>Unleaded petrol</b> (g Pb/litre)	<b>Comments</b>
-----	0.002	

Italy. Fuel quality standards are:

<b>Light fuel oil</b> (%S)	<b>Medium fuel oil</b> (%S)	<b>Heavy fuel oil</b> (%S)	<b>Comments</b>
0.3 (jet fuel) 0.2 (others)	0.2 (0.035 for diesel )	0.3 (<3MWth and residential 1 (3-50 MWth) 3.0 (>50 MWth and refineries)	
<b>Solid fuel. Hard coal</b> (%S)	Solid fuel. Lignite (%S)	<b>Comments</b>	
1	1		
<b>Leaded petrol</b> (g Pb/litre)	<b>Unleaded petrol</b> (g Pb/litre)	<b>Comments</b>	
0.15	0.05		

Latvia. Fuel quality standards are:

<b>Light fuel oil</b> (%S)	<b>Medium fuel oil</b> (%S)	<b>Heavy fuel oil</b> (%S)	<b>Comments</b>
0.05	0.2 (aviation fuel)		
<b>Solid fuel. Hard coal</b> (%S)	<b>Solid fuel. Lignite</b> (%S)	<b>Comments</b>	

<b>Leaded petrol (g Pb/litre)</b>	<b>Unleaded petrol (g Pb/litre)</b>	<b>Comments</b>
, 0.15 <sup>c</sup> 0.15	0.005	Max benzene content in petrol is 5% (mass %)

<sup>c</sup> restricted for use after 01.05.2000.

Lithuania. Fuel quality standards are:

<b>Light fuel oil (%S)</b>	<b>Medium fuel oil (%S)</b>	<b>Heavy fuel oil (%S)</b>	<b>Comments</b>
≤ 0,05	≤ 1,1	≤ 2,5	Light fuel oil means all types of gasoline and diesel fuel.
<b>Solid fuel. Hard coal (%S)</b>	<b>Solid fuel. Lignite (%S)</b>	<b>Comments</b>	
No limits	No limits	S content in coal or lignite is not limited as their consumption is small in comparison to that of oil or gas.	
<b>Leaded petrol (g Pb/litre)</b>	<b>Unleaded petrol (g Pb/litre)</b>	<b>Comments</b>	
Banned	0,013	From 1996, Lithuania produces only unleaded petrol. From 1998, the use of leaded petrol is banned.	

Netherlands. Please refer to Q 19 to Q 29.

Poland. Fuel quality standards.

<b>Light fuel oil (%S)</b>	<b>Medium fuel oil (%S)</b>	<b>Heavy fuel oil (%S)</b>	<b>Comments</b>
< 0.3	< 1.0	< 3.5	

<b>Solid fuel. Hard coal (%S)</b>	<b>Solid fuel. Lignite (%S)</b>	<b>Comments</b>
-	-	
<b>Leaded petrol (g Pb/litre)</b>	<b>Unleaded petrol (g Pb/litre)</b>	<b>Comments</b>
0.05-0.15	0.013	

Light fuel oil (%S)	Medium fuel oil (%S)	Heavy fuel oil (%S)
Light - 2% <sub>S</sub> Light low sulphur 1% <sub>S</sub> Light special - 1.5% <sub>S</sub>	Medium - 2% Medium low sulphur - 1% <sub>S</sub>	Heavy - 2% Heavy low sulphur - 1% <sub>S</sub>
Leaded petrol (g Pb/litre)	Unleaded petrol (g Pb/litre)	
Premium (RON 98) - 0.60 g/litre Regular (RON 86) - 0.60 g/litre	Premium (RON 95) - 0.02 g/litre	From 2005: Premium leaded (RON 96) - 0.15 g Premium unleaded (RON 95) - 0.01 Regular unleaded (RON 90) - 0.013



The following tables have also been provided for information

CURRENT STANDARD MKS B.H2.220  
Motor gasoline, leaded

Property	Premium MB 98	Regular MB 86
Distillation, %vol. recovered		
- 10 %vol. at °C, max.		55 <sup>1)</sup> 65 <sup>2)</sup>
-50 %vol. at °C, max.		115
-95 %vol. at °C, max.		200
Reid vapor pressure, kp/em <sup>2</sup> , max.		0.9 <sup>1)</sup> 0.7 <sup>2)</sup>
Vapor-liquid ratio 36:1, °C, min.		45 <sup>1)</sup> 55 <sup>2)</sup>
Octane number		
RON, min.	98	86
MON, min.	87	80
Lead content, g/lit, max.		0.60
Sulphur content, %wt., max		0.10
Corrosion (cu, 3hr, at 50 °C		1a
Gum content, mg/100 ml., max.		6
Induction period, min.		420
Color	blue	yellow

1) From 1 October till 31 March (winter period)

2) From 1 April till 30 September (summer period)

Standards  
CURRENT STANDARD MKS B.H2.210  
Motor gasoline, unleaded

Property	Premium BMB 95
Distillation, %vol., recovered	
-10%vol., at °C, max.	55 <sup>1)</sup> 65 <sup>2)</sup>
-50%vol., at °C, max.	120
-95%vol., at °C, max.	205
- FBP, °C, max.	220
- residue and losses, %vol., max.	3
Reid vapor pressure, bar, max.	0.9 <sup>1)</sup> 0.7 <sup>2)</sup>
Vapor-liquid ratio 36:1, °C, min	53 <sup>2)</sup>

Octane number	
RON, min.	95
MON, min.	85
Lead Content, g/lit, max.	0.02
Sulphur content, %wt., max.	0.2
Corrosion (Cu, 3hr, at 50 °C), max.	1b
Gum content, mg/100 ml., max.	5
Induction period, min.	420
Color	non colored

1) From 1 October till 31 March (winter period)

2) From 1 April till 30 September (summer period)

**CURRENT STANDARD MKS B.H2.410**  
Fuels for high speed compression-ignition engines

<b>Property</b>	<b>Diesel fuel D1</b>	<b>Diesel fuel D2</b>
Density at 15 °C, g/ml	0.80 - 0.84	0.81 - 0.86
Distillation, %vol., recovered		
- at 300 °C, min.	90	-
- at 360 °C, min	-	90
-----	-----	-----
Viscosity at 20 °C, cSt	1.0 - 6.5	1.8 - 9.0
-----	-----	-----
CFPP, °C, max.	-17 <sup>1)</sup> -7 <sup>2)</sup>	-9 <sup>2)</sup> +1 <sup>2)</sup>
-----	-----	-----
Flash point, °C, min.	40	55
-----	-----	-----
Carbon residue (Conradson), %wt., max.	0.15 (from 10% of the residue)	0.10
-----	-----	-----
Ash content, %wt., max.	0.01	0.02
-----	-----	-----
Water content, %vol. max.	0.05	0.10
-----	-----	-----
Corrosion, max.	1	2
-----	-----	-----
Sulphur content, %wt., max.	0.50	1.0
-----	-----	-----
Octane number (CB), min.	45	45

1) From 15 October till 14 April (winter period)

2) From 15 April to 14 October (summer period)

Fuel oil

Property	Heating Oil Extra light EL	Fuel Oil			
		Light special LS	L	Light LNS	M S
Density at 15°C, g/ml.max.	870				
Flash Point, oC	55	60		60	
Kinematic viscosity, min <sup>2</sup> / <sub>s</sub> - at 20°C - at 50 °C - at 100 °C	2.5-6	6-12	6-20		
Sulphur content, %wt, max.	1	1.5	2	1	2
Water & sediment, %vol, max.	0.15	0.3		0.5	
Color	Red				

**Future standard MKS B.H2.210 (2005)****Motor gasoline, unleaded**

Property	Motor gasoline unleaded				
		BMB 90		BMB....	
Description	Units	Min.	max.	min.	max.
Density at 15 °C	g/ml	0.730	0.780	0.730	0.780
<b>Distillation, vol. recovered</b>					
- at 70°C	%vol.	15	45	15	45
- at 100°C	%vol.	40	65	40	65
- at 180°C	%vol.	85		85	
- FBP	°C		215		215
- residue	%vol.		2		2
<b>Reid vapor pressure</b>					
- winter <sup>1)</sup>	kPa	45	80	45	80
- summer <sup>2)</sup>	kPa	35	65	35	65
<b>Volatility Index, VL1</b>					
- winter <sup>1)</sup>			1050		1050
- summer <sup>2)</sup>			950		950
<b>Octane Number</b>					
- RON		90.0		95.0	
- MON		80.0		85.0	
Induction period at 100 °C	min.	360		360	
Corrosion (Cu,3 hr, 50 °C)			1		1
Lead content	g/l		0.013		0.013
Sulphur content	%wt.		0.05		0.05
Gum content	mg/100ml		5		5
Benzene content	%vol.		5.0		5.0
Color		green		Non colored	

1) from 1 October till 31 March (winter period)

2) from 1 April till 30 September (summer period)

\* Maximum Oxygenates limits are according to the Directive 85/536/EEC (column A).

**FUTURE STANDARD MKS B.H2.220 (2005)****Motor gasoline, leaded**

Property		Motor gasoline MB 96	
Description	Units	min.	max.
Density at 15 °C	g/ml	0.730	0.780
<b>Distillation, vol. recovered</b>			
- at 70°C	%vol.	15	45
- at 100°C	%vol.	40	65

- at 180°C	%vol.	85	
- FBP	°C		215
- residue	%vol.		2
Reid vapor pressure			
- winter <sup>1)</sup>	kPa	45	80
- summer <sup>2)</sup>	kPa	35	65
Volatility Index, VL1			
- winter <sup>1)</sup>			1050
- summer <sup>2)</sup>			950
Octane Number			
- RON		96.0	
- MON		86.0	
Induction period at 100 °C	Mib.	360	
Corrosion (Cu,3 hr, 50 °C)			
Lead content	g/l		0.15
Sulphur content	%wt.		0.05
Gum content	mg/100ml		5
Benzene content	%vol.		5
Color			blue

1) From 1 October till 31 March (winter period)

2) From 1 April till 30 September (summer period)

\*Maximum Oxygenates limits are according to the Directive 85/536/EEC (Column A)

FUTURE STANDARD MKS B.H2.410 (2005)  
Fuels for high speed compression-ignition engines

Property		Diesel fuel D	
Description	Units	Min.	Max.
Density at 15 °C	g/ml	0.820	0.860
Distillation, % vol. recovered			65
- at 250°C	%vol.		
- at 350°C	%vol.	85	
- at 370°C	%vol.	95	
Flash point	°C	55	
Kinematic viscosity at 40°C	mm <sup>2</sup> /s	2.00	4.50
CFPP			
- winter <sup>1)</sup>	°C		-15
- intermediate period <sup>2)</sup>	°C		-7
- summer <sup>3)</sup>	°C		-2
Octane number		49	
Octane index		46	
Corrosion (Cu,3 hr, 50 °C)			1
Sulphur content	%wt.		0.20
Water content	%vol.		0.05

Carbon content			
(on 10% residue)	%wt		0.30
Ash content	%wt		0.01

- 1) From 1 December in the current year till 28 (29) February next year (winter period)
- 2) From 1 October till 30 November and 1 March till 15 April (intermediate period)
- 3) From 16 April till 30 September (summer period)



Republic of Moldova: State quality standards are laid down in the Republic of Moldova for the content of fuel used. At present in the Republic of Moldova the fuels are not produced. Fuel quality standards are:

Light fuel oil (%S)	Medium fuel oil (%S)	Heavy fuel oil (%S)	Comments
0,1	0,2 – 0,5	0,5 – 3,5	
Solid fuel. Hard coal (%S)	Solid fuel. Lignite (%S)	Comments	
2,9	-		
Leaded petrol (g Pb/litre)	Unleaded petrol (g Pb/litre)	Comments	
0,17	0,013		

In goals of reduction of emissions of toxic substances Ministry of Environment and Territorial Development plans in nearest future activities for the modification of State standards of the fuel quality.

Russian Federation. Awaiting translation.

Slovakia. Fuel quality standards are:

Light fuel oil (%S)	Medium fuel oil (%S)	Heavy fuel oil (%S)	Comments
1	1	1	All liquid fuels have the same limit for sulphur content
Solid fuel. Hard coal (%S)	Solid fuel. Lignite (%S)	Comments	
0,78 g S/MJ	1,1 g S/MJ	Briquettes: 0,6 g S/MJ Coke: 0,35 g S/MJ	

Leaded petrol (g Pb/litre)	Unleaded petrol (g Pb/litre)	Comments
-	0,005 g/l	Leaded petrol is not allowed in the SR

Spain. Fuel quality standards are:

Light fuel oil (%S)	Medium fuel oil (%S)	Heavy fuel oil (%S)	Comments
< 1% (AFuel Oil n1 1 BIA@)	2,7% (AFuel Oil n1 1)	3,5% (AFuel Oil n1 2)	
Solid fuel. Hard coal (%S)	Solid fuel. Lignite (%S)	Comments	
0,8-1,5	2-5		
Leaded petrol (g Pb/litre)	Unleaded petrol (g Pb/litre)	Comments	
0,15	0,005		

Sweden. Q .18 ,Q.23, Q.53 Sulphur in fuels: The max sulphur content in light fuel oil is 0.2 %. There is no specific limit for sulphur in heavy oil and solid fuels. The content in both light and heavy fuel oils are decided by the sulphur tax ,less than 0,1% in light oils and about 0,4 % in heavy oils.

Switzerland. Fuel quality standards (see also answer to question 30) are:

Light fuel oil (% S)	Medium fuel oil (% S)	Heavy fuel oil (% S)	Comments
Less than 0,2 %	1,0 %	1,0 %	Quality A
	2,8 %	2,8 %	Quality allowed only with FGD

<b>Solid fuel. Hard coal (% S)</b>	<b>Solid fuel. Lignite (% S)</b>	<b>Comments</b>
1,0 %	1,0 %	Quality A
3,0 %	3,0 %	Quality B allowed only with FGD

<b>Gas oil (diesel) for on-road vehicles</b>	<b>Petrol (gasoline)</b>	<b>Comments</b>
350 mg S / kg 0,035%	150 mg S / kg	since 1.1.2000 following 98/70/EC directive
50 mg / kg	50 mg / kg	by 1.1.2005

<b>Leaded petrol (g Pb/litre)</b>	<b>Unleaded petrol (g Pb/litre)</b>	<b>Comments</b>
0,15	0,013	Until 31.12.1999
Phased out	0,005	Since 1.1.2000 following 98/70/EC directive

Turkey. Concerning fuel quality regulations, Diesel's fuel sulphur content has been limited to 0.7 % since 1997 and will be limited to 0.05 % by 2004. Two types of heavy fuel oils are marketed in Turkey: that for domestic heating (maximum sulphur content 1.5 %) and heavy fuel-oil No:6 (average sulphur content allowed for domestic lignite, but imported coal cannot have a sulphur content higher than 1 %). The benzene content in gasoline, with 0.15 g/l for RON 91 and 0.40 g/l for RON 95, is equal to 5 %. These standards are generally less stringent than those in other OECD countries. Fuel Quality Standards are

<b>Light fuel oil (% S)</b>	<b>Medium fuel oil (% S)</b>	<b>Heavy fuel oil (% S)</b>	<b>Comments</b>
	1.5	3.5	
<b>Solid fuel. Hard coal (% S)</b>	<b>Solid fuel. Lignite (% S)</b>	<b>Comments</b>	
0.6	1-2.5		
<b>Leaded petrol (g Ph/litre)</b>	<b>Unleaded Petrol (g Ph/litre)</b>	<b>Comments</b>	
0.40	0.013	After 2005, all petrol will have to be unleaded	

Source: 1996 Air Quality Control Regulation

Ukraine. Information on fuel standards is contained in the following table:

<b>Light fuel oil (%S)</b>	<b>Medium fuel oil (%S)</b>	<b>Heavy fuel oil (%S)</b>	<b>Comments</b>
0.5-2.0	0.5-3.5	0.5-3.5	

Solid fuel. Hard Coal (%S)	Solid fuel. Lignite (%S)	Comments
None	None	Standard is being developed for solid fuel allowing a maximum sulphur content of 1.5 %
Leaded petrol (g Pb/litre)	Unleaded petrol (g b/litre)	Comments
0.05-0.5	0.013	

United Kingdom. Fuel quality standards are:

Light fuel oil (%S)	Medium fuel oil (%S)	Heavy fuel oil (%S)	Comments
Under EC Directive 1999/32/EC, the sulphur content of gas oil in the UK will be limited to 0.2% from 1 July 2000 and to 0.1% from 1 January 2008. The sulphur content of heavy fuel oil will be limited to 1% from 1 January 2003.			
Solid fuel. Hard coal (%S)	Solid fuel. Lignite (%S)	Comments	
No Standard	No Standard		
Leaded petrol (g Pb/litre)	Unleaded petrol (g Pb/litre)	Comments	
0.15	0.013		

United States of America. Fuel quality standards<sup>1</sup> are:

Light fuel oil (%S)	Medium fuel oil (%S)	Heavy fuel oil (%S)	Comments
.05%	N/A	N/A	Expected to be tightened in 2006

<sup>1</sup>Transportation Diesel Fuel

<b>Solid fuel. Hard coal</b> (%S)	<b>Solid fuel. Lignite</b> (%S)	<b>Comments</b>
N/A	N/A	
<b>Leaded petrol</b> (g Pb/litre)	<b>Unleaded petrol</b> (g Pb/litre)	<b>Comments</b>
N/A	.013	

European community. Adoption of Directive 99/32 limits the sulphur content of HFO to 1% from 1 January 2003 and the maximum sulphur content of gas oil to 0.2% from July 2003 and 0.1% from 1 January 2008. See Q 19. Fuel quality standards are:

<b>Light fuel oil</b> (%S)	<b>Medium fuel oil</b> (%S)	<b>Heavy fuel oil</b> (%S)	<b>Comments</b>
<b>Solid fuel. Hard coal</b> (%S)	<b>Solid fuel. Lignite</b> (%S)	<b>Comments</b>	
<b>Leaded petrol</b> (g Pb/litre)	<b>Unleaded petrol</b> (g Pb/litre)	<b>Comments</b>	
0.15gPb/1	0.005gPb/1		

## ECONOMIC INSTRUMENTS

**Q.54** Parties are invited to describe briefly their application of emission charges and/or taxes in relation to the amount of a given pollutant or the characteristics of the pollutant, if it is covered by one of the protocols. Charges or taxes are often linked to energy consumption, as emissions can in many cases be directly related to energy use; if they are applied to the price of products, such as fuels, they should be reported under question 55.

Armenia. In December 1999, the National Assembly of Armenia adopted a law on nature protection payments and on fees for the utilization of natural resources (the second stage in the introduction of fee-based utilization of natural resources in Armenia), which establishes fees for atmospheric emissions of harmful substances. A number of subsequent subsidiary instruments enacted in 1999 and 2000 regulate the corresponding arrangements for the collection of these fees. In accordance with a Government resolution of 25 May 1999, where a polluter exceeds the emissions limit established for him, the fee is trebled.

Austria. Austria currently does not make use of taxes which are directly linked to the amount of pollutant emissions. There is, however, a motor vehicle tax (increasing with engine power, surcharge for cars without catalytic converter; for heavy-duty trucks the tax is based on vehicle weight) and a motorway toll sticker (which allows use of motorways for a specific time period, with different prices for trucks, buses, passenger cars and motorcycles). Furthermore there is a general road use duty for heavy-duty trucks > 12 t (for domestic and foreign vehicles). The introduction of road-pricing (charge according to the distance actually driven) for heavy-duty vehicles on motorways is planned for the year 2002.

Belarus. In accordance with the Tax on Use of Natural Resources (Environmental Tax) Act of 23 December 1991, payment for air pollutant emissions is mandatory. Tax rates per ton of emissions are set annually by the Council of Ministers and differentiated according to the hazard class of the substance (in Belarus there are four hazard classes based on health and safety indicators regarding their content in the ambient air).

Tax reductions are calculated for emissions resulting from the burning of fuels to meet the fuel and energy needs of the population with a coefficient of 0.3, and for emissions from mobile sources or emissions of components of natural gas during transfer (technical emissions) with a coefficient of 0.8. Exemptions from the environmental tax on emissions apply to sources belonging to organizations financed from the national budget or local budgets, and also to owners of private vehicles not engaged in entrepreneurial activities. There is a 15-fold increase in the rate of tax if the established emission limit is exceeded.

Belgium. Awaiting translation.

Bulgaria. The 1993 Regulation for determining and levying of charges for environmental damages and excessive pollution was amended in 1999 (SG 63/99) to address charges amount, e.g. amounts charged for:

Nitrogen oxide emissions from combustion plants	0,12 Lv/kg
Sulphur oxide emissions from stationary combustion sources above 500 MW	0,06.10 <sup>-3</sup> Lv/kg
100 B 500 MW	0,6.10 <sup>-3</sup> Lv/kg
Lead	45 Lv/kg
Cadmium	13,60 Lv/kg

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(1 USD = 2 Leva)

Canada. Canada has no environmental taxes or greenhouse gas taxes at the federal level that would related to the level of pollutant emitted. Some provincial governments charge stationary sources a fee based on emissions for operating permits; the higher the emissions, the higher the fee.

Czech Republic. Payments for the discharge of pollutants into the air are imposed on large and medium-sized sources, i.e. with an installed output of greater than 5 MW<sub>th</sub> and between 0.2 and 5 MW<sub>th</sub>. Small sources with an installed output of up to 0.2 MW<sub>th</sub> of business entities are subject to payments according to the kind of fuel (this is more of a user's fee, so that the discharge of pollutants is indirectly subject to payment). The payments for the burning parts of coal mines, open-pit mines or tips also constitute indirect payments for emissions, where the fee rate is determined per unit affected area or volume. 93 substances are subject to emission fees for large and medium-sized sources. The main pollutants have the following fee rates for emissions:

(a) Pollutant	Fee rate (USD per ton)
(b) Particulate matter	85.7
(c) SO <sub>2</sub>	28.6
(d) NO <sub>x</sub>	22.9
(e) CO	17.1
(f) Hydrocarbons	57.1

USD = 35 Czech Crowns (CZK)

The other substances are divided into classes according to their harmfulness and each of these classes has its own rate:

Class	Fee rate (USD per ton)
Class I	571
Class I	286
Class I	29

The fee rate for the burning part of coal mines, open-pit mines or tips is 5.7 USD/m<sup>3</sup>.

In connection with energy production, the "green haller" should be mentioned, which is part of the Law on management of energy, i.e. the energy policy. This is a measure according to which a very small amount should be set aside from each kWh of electricity (of the order of hallers, in the draft 10 CZK per MWh of electricity supplied to the end consumer) and transferred to the State Environmental Fund; the use of this amount would be bound to support for energy savings and the use of renewable sources of energy. It is estimated that income from this source will be about 500 mil. CZK annually i.e 14.3 mil USD (USD = 35 CZK).

Denmark. Yearly tax on passenger cars are related to fuel consumption (CO<sub>2</sub>-emission)

Germany. Under clean air policy, emission-oriented charges have so far only been applied to products (motor vehicle tax, mineral oil tax).



compounds		
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Four air pollutant categories of hazardousness account for more than 160 substances.

Lithuania. The following economic instruments are used for the integration of economic and environmental decisions:

- (a) Taxes on natural resources;
- (b) charges on discharge of pollutants into air;
- (c) penalties for exceeding established discharge limits;
- (d) excise duty/customs duty on fuels and cars.

The taxes on natural resources (mineral) are paid into the State budget. It links the tax directly to the quantity of extracted resource. The extraction of more mineral resources than is allowed leads to fines.

The new Law on Environmental Pollution Charges (1999) sets rates for all air polluting substances. SO<sub>2</sub>, NO<sub>x</sub> and particulates matters are in the list of major air pollutants. All other pollutants are divided into four groups according to the degree of their hazardness. The rate schedule is valid for five years.

The penalty for illegal (unlicensed) extraction of mineral resources is ten times of the regular tax. Excess pollution can be fined in two situations:

- . if an environmental inspectorate finds some evidence of unreported pollution, and
- . if an enterprise pollutes more than the permit allows, the polluter is liable for a fine.

Monaco. Not relevant..

Netherlands. The situation is unchanged from what was reported in the latest reviews. See also Q 56.

Poland. Poland has a significantly wide use of economic instruments in environmental protection, and especially in air protection. They include fees for the use of the environment and causing negative effects due to economic activity (in the form of pollution emission fees) and fines for not complying with the mandatory environmental requirements. A separate regulation on fees which are updated is published every year. Emission fees are listed in several tables covering:

- (a) fees for 1 kg of emission of pollutants depending on the pollutant (e.g. for cadmium, mercury, PCB – 120 PLN which is app. 30 USD/1 kg; for lead – 27 PLN which is app. 7 USD/1kg; dioxines/furans – 240 PLN which is app. 60 USD/1 kg; SO<sub>2</sub>, NO<sub>x</sub> – 0.34 PLN, app. 0.09 USD);
- (b) fees for emissions from petrol handling operations;
- (c) fees for air pollution from combustion processes (installations of thermal capacity over 0.5 MWth – fuelled by coal or oil and of less than 1MWth fuelled by coke, wood or gas) which are calculated on the basis of the amount of fuel used;
- (d) fees for emissions from mobile sources - combustion engines depending on the type of engine and motor vehicle and fuel used (e.g. leaded petrol, unleaded petrol, diesel oil, and gas).

In cases where enterprises obliged to submit for emission permits do not comply with this obligation fees are increased by 500%. If the legal requirements are violated a fine of ten times the fee rate is imposed and it can be doubled if the violation continues.

Republic of Moldova. The economic instruments currently used for air pollution abatement under the Law on the Payment for Environmental Pollution are charge for pollution of the environment, including the ambient air. The procedure for determining such payments for pollution of the environment, disposal of wastes and other harmful activities, and their maximum levels, was approved by the Parliament of the Republic of Moldova in decision nr.1540 - XIII from 25.02.1998.

Payment of environmental pollution charges does not release users of natural resources from the need to pay full compensation for harm caused to the environment, the health and property of citizens and the economy by pollution, in accordance with the applicable legislation.

Pollution charges take the form of partial compensation for economic damage caused by pollutants in the ambient air, and are applied in accordance with the basic tariffs of charges for emissions of pollutants within permissible concentrations levels and established emission limits. Step – up coefficient 5 is applied in the case of emissions in excess of the limit.

The payment for air emissions from stationary and mobile sources was introduced in the Law on the Payment for Environmental Pollution (1998). Although this kind of payment already exists from 1993, and it wasn't approved on a legislative basis, it was applied according to the Decision of the local public authorities and the payment was taken practically only in Chisinau.

The economic agents pay for air emissions from stationary sources in two cases:

- (a) In established pollutants' limits;
- (b) in limits that are higher than those established.

Each economic agent pays for the pollutants that are enclosed in the license given by State Ecological Inspection of the Ministry of Environment and Territorial Development. The payment for pollution is made for the concrete emissions of pollutants and is allocated by paying agents quarterly on the accounts of local environmental funds. Local environmental funds are transferring 30% of total amount of resources to the National Environmental Fund, and 70% are used to finance environmental projects, approved by the Administrative Council of the Fund.

The payment is increased in 5 times when the emissions into air from stationary sources are higher than the established limits.

When the accidental emissions from stationary sources are having place then it's going to be increased in 50 times.

Payment for air pollution by mobile sources, using petrol as fuel (leaded, unleaded) and diesel fuel, is established for juridical and physic persons, importing this kind of fuel. The differentiation is especially used in relation to fuel taxes to encourage the consumption of less polluting fuels. Differentiation of fuel taxes has, for instance, been widely applied to promote unleaded petrol. In our country payment for air pollution by mobile sources, using petrol as fuel (leaded, unleaded) and diesel fuel, is established for juridical and physic persons, importing this kind of fuel.

Payment for air pollution by mobile sources, using leaded fuel and diesel fuel, is established 1% of the custom taxation if fuel.

Payment for air pollution by mobile sources, using unleaded fuel, is established 0,5% of the custom taxation if fuel.

The payment for the emissions into atmospheric air is established for the mobile sources (auto vehicles) in our republic that use liquefied natural gas and pressed hydrocarbon gas as fuel (excluding the owners of private transport, that don't carry business activities).

The established costs for payment are the following:

- (a) Mobile sources, working on pressed hydrocarbon gas – 0,9 lei for 1 ton of used fuel;
- (a) Mobile sources, working on liquefied natural gas – 0,75 lei for 1000 cubic meters of used fuel.

This payment is going to the local environmental funds, its management is undertaken by territorial ecological agencies of the Ministry of Environment and Territorial Development. The funds' resources are channeled to environmental protection measures of significance at the republic and local level, in the form of non-reimbursable or interest-free aid.

Russian Federation. Awaiting translation

Slovakia. Emission charges are paid for each pollutant, by each legal or individual subject authorized for business activities. Charges are paid for each polluting substance, listed in the regulation 401/1998, Annex 1. They include, inter alia: sulphur oxides, expressed as sulphur dioxide\_ nitrogen oxides expressed, as nitrogen dioxide\_ organic substances expressed as total organic carbon\_ and others. Charges are paid on monthly basis (if the total year charge is equal or higher than 1 million SK), and on quarter-year basis (if the total year charge is from 1100 to 1 million SK). The charges are paid to the State Environmental Fund. If the operator fails to fulfil its obligations, it could be charged with penalty from 5 000 to 1 000 000 SK (depending on due amount, source category etc.). The total sum of charge depends on compliance/non-compliance with emission limit value, categorisation of the pollutant (category B has higher coefficient \_ see also R.5.), monitoring of compliance with emission limits, and on compliance with allocated emission quotas.

Spain. Despite there is not a national legislation about taxes in relation to the amount of SO<sub>2</sub>, the Comunidad Autónoma GALICIA (administrative region in the Northwest of Spain) has adopted a specific legislation about the sulphur released by large stationary sources inside his territory : thermal power stations, refineries and heavy industries (paper). The tax is proportional to the SO<sub>2</sub> released every year.

Sweden. Q.54, Q.55 and Q.56. Emission charges and taxes:

- (a) The sulphur tax: A sulphur tax was introduced in 1991 and led to a switch of the sulphurcontent in heavy fuel oils to about 0.4 %. A nitrogen oxide charge come into force 1992, an effective mean to reduce emissions from large and medium sized combustion plants. In the coming years the climate change policies with a reduced consumption of fossil fuels will also lead to reductions of SO<sub>x</sub> and NO<sub>x</sub>-emissions.
- (b) The shipping sector: A system with environmental charges for the shipping sector is introduced from 1998 and will reduce SO<sub>x</sub>- and NO<sub>x</sub>-emissions from this sector.
- (c) Nitrogen oxides charges: The nitrogen oxides charge is based on actual recorded emissions. It is levied at a rate of SEK 40 per kg NO<sub>x</sub>. The charge applies to combustion/incineration plants for energy generation, which includes the production of heat or electricity in industry. Combustion directly involved in industrial processes is exempt. It doesn't include the smallest boilers. The total revenues, not including administrative costs, are refunded to the charge payers in proportion to their share of the total energy output.

- (d) Carbon dioxide tax: The carbon dioxide tax is levied on all fossil fuels under the General Energy Tax Act. Tax rates vary in relation to the average carbon content of each fuel. Fuels covered by the carbon dioxide tax are also covered by energy tax. Following rises in stages the carbon dioxide tax now (from 1 January 1997) averages SEK 0.36 per kg CO<sub>2</sub>.
- (e) Environmental classification of diesel oil: The general tax on diesel fuel oil and heating oil was differentiated according to three environmental classes. The differentiation has changed over time and was on 1 September 1996 SEK 500 m<sup>3</sup> for EC 1 and SEK 280/m<sup>3</sup> for EC 2. The most important parameter is sulphur, 50 ppm i EC 1 diesel oil.
- (f) Environmental classification of petrol: The energy tax on petrol is differentiated, two environmental classes, EC 2 and EC 1. A tax differential was achieved by raising the tax on non-EC2/1 petrol by SEK 0.06 per litre.

Switzerland. A tax on sulphur emissions from extra light heating oil with a sulphur content above 0,1% was introduced on 1 July 1998. The tax amount to SFr. 2 per tonne of oil. The incentive tax on VOC emissions has now been introduced and is charged as of January 2000. The rate is initially SFr. 2 per kg of VOC emitted and will rise to SFr. 3 in 2003.

The distribution of revenue from the taxes shall be in equal part to all persons, subject to mandatory health insurance and with domicile in Switzerland, who are insured on 1 January of the year of payment.

Turkey. No environmental taxes are directly related to air quality, though part of the revenue from motor vehicle inspection taxes and vehicle sales taxes and taxes on aeroplane tickets goes to the Environmental Pollution Prevention Fund. As part of the plan to phase out leaded gasoline, a small tax advantage was given to unleaded gasoline in 1999. The market share of unleaded gasoline increased to 25 %.

Energy prices are traditionally either set or Influenced by the Government. Since 1954, to encourage economic activity in Priority Development Areas electricity tariffs have been 14 % below those in the rest of the country- This concerns about 10 % of the electricity consumed in Turkey. Domestic hard coal production is heavily subsidized. According to the Producer Subsidy Equivalent method, total subsidies were USD 267 million in 1995. The price of oil has been kept low in hopes of curbing inflation. An automatic Pricing Mechanism was introduced in 1998.

Ukraine. Pursuant to the Customs and Excise (Certain Goods and Products) Act, the rate of excise and customs duty on imported leaded petrol has been increased by a factor of 1.5.

United Kingdom. The UK Government does not currently operate a system of emissions charges or taxes.

United States of America. EPA's Market Incentives Resource Center (MIRC) has a website that provides a database of various market based emission reduction programmes that have been implemented in the United States, along with related guidance. (Note: The main emphasis of the database is on State programmes; it does not at this time include all national market-based air programmes.) The address is:

<http://www.epa.gov/oms/transp/traqmkti.htm>

**Q.55 Parties are invited to report briefly on the product charges and taxes, and tax differentiation, including fuel taxes, that they apply.**

Armenia: By resolutions of 31 December 1998 and 15 June 1999, the Government of the Republic of Armenia established payments for the import, production and use of the following products, which have a harmful effect on the environment:

Product name	Fee as percentage of value of product
Products containing lead, paints	3
Bitumen	2
Luminescent lamps, amalgams (mercury)	3
Printing materials, white pigment	3
Electrodes	1.5
Petroleum, petroleum products	2
Fuels and lubricants	2
Naphthalene	1.5
Car batteries (lead, lithium)	1.5
Transformers, condensers	1.5
Car tyres	0.8
Photographic film	0.8
Fibreglass	0.8
Dirty containers (containers, tankers, jerrycans)	0.8
Plastic and polythene packaging	0.5
Mineral oils	2
Detergents (cleaning agents)	0.5
Freon-containing appliances and products	0.5

Austria. Taxation on energy products exist for electricity and natural gas (12 per cent of the revenues are transferred to the federal provinces for environmental and energy-saving measures and 5 per cent to the municipalities for funding of public transport), for petrol and diesel (part of the revenues earmarked for investments in public transport) and fuel oil.

The fuel consumption levy applies to newly registered passenger cars and depends on the standard fuel consumption of the vehicle. It is meant to provide an incentive to purchase cars with

lower fuel consumption and ranges from 0 per cent (for electric cars) to 16 per cent (for cars with high fuel consumption).

Belarus. Product charges and taxes are not currently applied in the Republic of Belarus.

Belgium. Awaiting translation

Bulgaria. Environmental taxes are levied for fuel production and import. In compliance with the amendment of the Clean Air Act (SG 27/00), levied taxes are added to the price of fuel. The National Environment Protection Fund (NEPF) charges the following amounts:

-Unleaded petrol for light vehicles	24 Lv/Ton
- Diesel fuel	14 Lv/Ton
- Residual oil with sulphur content over 1%	22 Lv/Ton
- Leaded petrol for vehicles:	
A 91 octane petrol	37 Lv/Ton
A 98 octane petrol	48 Lv/Ton
- Industrial gas oil	13 Lv/Ton

Canada. The federal government imposes a flat rate tax on automobile air conditioners (\$100Cdn.) and a sliding scale tax on vehicles based on their weight over and above a certain threshold (2007 Kg for cars and 2268 Kg for vans and wagons). Alternative fuels (ethanol, methanol, natural gas and propane) are not subject to excise tax. The Province of Ontario has a Fuel Conservation and Rebate Charge System which targets fuel-inefficient vehicles.

Cyprus. Recently a change in fuel pricing took place, by which the unleaded petrol's price became less than the price of leaded petrol. There is also a price differentiation between regular (lower Pb content) and super (higher Pb content) petrol.

Although not directly relevant, it is noted that there is a tax per ton of material quarried or mined. The tax collected is used for environmental projects in the area around the quarries or mines.

Finally, the Electricity Authority of Cyprus has made available a sum of USD 20 mill for environmental projects for those communities in the vicinity of which it is erecting a new Power Station.

Czech Republic. Consumer taxes. The tax rates for liquid fuel/automotive fuels are laid down to come into effect from May 1, 2000 for automobile petrols, airplane fuels, technical petrols, diesel fuels, heating oils (if not used for heating), oils and lubricants, fuels containing alcohol and

liquified gases used as automotive fuels. The total revenue from consumer taxes on automotive fuels in 1999 equalled 44.7 bil. CZK (1.28 mil. USD), of which about 40% corresponded to income from taxes on petrols and about 60% to income from taxes on diesel fuel.

The state budget was the only recipient of revenues from consumer taxes on automotive fuels up to 1999, and thus there was no purpose-bound use of this income.

Denmark. Tax differentiation is used for auto diesel related to sulphur content (50 ppm). (See Q.24)

Finland. Energy taxes in Finland from 1.9.1998 are:

	Basic duty	Additional duty (CO2-tax)	Remarks
<b>Liquid fuels, 1998</b> pennies /litre			
Unleaded petrol - normal grade - reformulated	309.4 304.4	23.9 23.9	
Diesel oil - normal grade - extremely low sulphur content	166.6 151.6	26.9 26.9	
Light fuel oil for commercial, industrial and heating purposes	10.9	27	Applied only for heating
Heavy fuel oil, p/kg		32.1	Applied only for heating
<b>Other fuels and electricity</b>			

Coal, lignite mk/tonne		246	Applied only for heating
Milled peat, mk/MWh	-	9	Applied only for heating
Natural gas, p/nm3	-	103	Applied only for heating
Electricity, p/kWh rate I	-	4.1 *)	households, services
rate II	-	2.5 *)	industry
Pine oil, p/kg	32.1	-	

\*) The electricity is taxed only at the consumption level. Therefore, the additional tax for electricity is not based on carbon content of fuels. There are subsidies for electricity produced with wood and wood-based fuels. There are some exceptions for combined heat and power production, wind power and electricity production with waste gas from metallurgical processes.

Germany. In Germany the two main **energy taxes** are the Mineral-Oil Tax and the Electricity Tax, which was introduced in 1999. The Mineral Oil Tax Act regulates the taxation as follows (status: 31 March 1999):

Diesel	62	pfennigs/litre
Petrol (unleaded)	98	pfennigs/litre
<b>Light fuel oil</b>	<b>8</b>	<b>pfennigs/litre</b>
Natural gas	0.36	pfennigs/kWh
Electricity	0	pfennigs/kWh

These tax rates were increased in April 1999 through Stage 1 of the Ecological Tax Reform. In addition, an electricity tax of 2 pfennigs/kWh has been levied since April 1999. The rates of increase of Stages 1 to 5 of the **Ecological Tax Reform** are - with some exemptions in order to enhance eco-efficiency and to avoid economic disadvantages for certain sectors - as follows:

	Stage 1 (as of April 1999)	Stages 2 – 5 (January 2000 – 03)
	non-recurring	annually
Motor fuels	6 pfennigs/litre	6 pfennigs/litre
Light fuel oil	4 pfennigs/litre	-
Gas	0.32 pfennigs/kWh	-

Electricity	2 pfennigs/kWh	0.5 pfennigs/kWh
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To promote low-emission motor vehicles, the annual **Vehicle Tax** has been restructured. For passenger cars (six vehicle categories) pollutant emissions are now the basis of taxation. The rates are to be increased in several stages over a period extending to the year 2005:

	Petrol	Diesel
	DM/100 cm <sup>3</sup> and year	
Euro 3, Euro 4, 3 litre car	10.00	27.00
Euro 2	12.00	29.00
Euro 1	13.20	37.10
Other cars allowed to operate during smog alert	21.80	45.50
Partially clean, not allowed to operate during smog alert	33.20	57.10
other cars	41.60	65.50

Hungary. Product charges are applied to fuels, tyres, batteries, refrigerators, fuel oil and grease.

Italy: In Italy there is a price differentiation between leaded and unleaded petrol; presently this differentiation is Lit 85/l. A reduced excise duty is applied to fuel oils with a sulphur content of less than 1 per cent.

Latvia. Law on Excise Tax for Oil Products, approved by Parliament on 13.11.1997, applies differentiated tax for leaded and unleaded gasoline. The difference rises year by year, and up to the year 2000 the leaded gasoline will be more expensive as unleaded. Law on Excise Tax for Oil Products provides the scheme for increase of excise tax from 01.01.1998 to 01.01.2000.

Oil products	Excise tax , 01.01.98; Ecu/l	Excise tax , 01.01.99; Ecu/l	Excise tax, 01.01.2000; Ecu/l
Leaded petrol	0.27	0.28	0.31
Unleaded petrol	0.21	0.23	0.27
Diesel	0.15	0.19	0.23
Other gaseous VOCs, except natural gas	0.015	0.045	0.075

Excise tax has extension regarding fuel for air transport, sea transport and use for agriculture. There are no specific limitations for price formation. VAT is 18%.

Accordinging Law on Natural Resource Tax the import of mercury luminiscent bulbs, all types of tires, electric power batteries and chemical batteries with purpose of free circulation in the customs area of Latvia is entities subject to the natural resource tax.

Type of products	Unit of measure	Tax rate, Euro
Mercury luminiscent bulbs	Item	0.155
All types of tires	Kg	0.077
Electric power batteries	Value in national currency	15%
Chemical batteries:		
Pb with capacity		
up to 50 Ah	Item	2.32
51-100 Ah	Item	4.64
101-150 Ah	Item	6.97
151 Ah and more	Item	9.29

On 04.02.1999, Parliament adopted amendments to the Law on Excise Tax, changing excise tax for imported old cars: for cars up to 10 years age B 15.48 Euro per year; for cars more than 10 years old the excise tax is 31 Euro per year; and in addition there is obligation to pay tax from 46 Euro to 2555 Euro, depending on type of engine for petrol-fuelled and diesel-fuelled cars.

**Monaco.** Not relevant (unofficial translation).

Netherlands. The situation is unchanged from what was reported in the latest reviews. See also Q 56.

Poland. Differentiated taxes (excise duties) for a list of products, incl. fuels are annually updated by a regulation issued by the Minister of Finances. This year taxes for domestically marketed fuels differ from imported fuels. Additionally the rates are different for different periods of time. In 2000 the following examples of tax levels per 1000 litres were applied: 1399 PLN (app. 350 USD) for leaded petrol, 1257 PLN (app. 314 USD) for unleaded petrol; 926 PLN (app. 232 USD) for diesel oil with 0.05-0.2% of sulphur; 881 PLN (app. 220 USD) for diesel oil with 0.005-0.05% of sulphur; 850 PLN (app. 212 USD) for diesel oil with sulphur content below 0.005%; 418 PLN (app. 105 USD) for diesel oil with at least 10% content of components from recycled oil waste.

Apart from the existing economic instruments mentioned above (see Q.54) draft legal acts are now under preparation and discussion introducing other mechanisms, such as:

- (a) Product taxes and environmental deposits;
- (b) fees and charges for the use of public environmental facilities;
- (c) fuel environmental charges and/or coal charges;
- (d) environmental deposits.

Republic of Moldova. Payment for air pollution by mobile sources, using petrol as fuel (leaded, unleaded) and diesel fuel, is established for juridical and physic persons, importing this kind of fuel. The differentiation is especially used in relation to fuel taxes to encourage the consumption of less polluting fuels. Differentiation of fuel taxes has, for instance, been widely applied to promote unleaded petrol.

In our country payment for air pollution by mobile sources, using petrol as fuel (leaded, unleaded) and diesel fuel, is established for juridical and physic persons, importing this kind of fuel.

Payment for air pollution by mobile sources, using leaded fuel and diesel fuel, is established 1% of the  $\text{\textit{taxation \u00e0 la consommation}}$  of fuel.

Payment for air pollution by mobile sources, using unleaded fuel, is established 0,5% of the  $\text{\textit{taxation \u00e0 la consommation}}$  of fuel.

Actually proposals to introduce modifications in the Law on payment for environmental pollution are under development and their goal is stipulation of payment provisions for some goods that have environmental impact. List of goods that are supposed to be regulated by some economic instruments will include the following:

- (a) Substances depleting ozone layer and products containing those substances;
- (b) Plastic packaging including PVC;
- (c) Heavy fuel oil medium-sulphur and high-sulphur;
- (d) Luminescent lamps;
- (e) Pesticides;
- (f) Cigarettes;
- (g) Auto vehicles accumulators;
- (h) Detergents;
- (i) Mineral oils;
- (j) Naphtaline and other products.

Russian Federation. Awaiting translation

Sweden. See Q. 54

Switzerland. There is a tax differentiation (8 centimes, approximately 7% of the market price) between unleaded and leaded gasoline. The basic tax for diesel is between the tax for unleaded and leaded petrol, so the retail price of diesel is higher than that of unleaded petrol.

Turkey. Although these are the taxes on goods and services that affect the environment, such as the gasoline consumption tax, marine vessel, or electricity and coal consumption taxes,

they are generally revenue raising instruments and do not aim at significantly altering consumer behaviour. Part of the revenues from taxes on motor vehicle sales and aeroplane tickets is earmarked for environmental purposes.

There is some tax differentiation based on environmental considerations for some energy products. For example, the consumption tax is 300 % on leaded gasoline, 290 percent on unleaded, 190 per cent on diesel and 1% per cent on LPG. The difference between unleaded and leaded gasoline prices is not great enough to have a strong incentive effect.

United Kingdom. Vehicle Excise Duty: In the March 1999 Budget the UK Government announced a package of measures to reform vehicle excise duty (VED) to encourage the use of more environmentally friendly vehicles. These included a reduced rate for cars under 1100cc introduced on 1 June 1999. In the March 2000 budget it was announced that the reduced rate will be extended to cars with engines up to 1,200cc from March 2001. Further, from March 2001, all new cars will be placed into one of four VED bands, based on their rate of carbon dioxide emissions. There will be discount rates within each band for cars using cleaner fuels and a small supplement for diesel cars to reflect their higher emissions of local air pollutants.

The March 1999 Budget also doubled the maximum VED discount for low lorries and buses with low particulate emissions to £1000. Some 13,000 vehicles have benefitted from the concession. The UK Government recently consulted on proposals to tighten the standards which vehicles would need to meet to obtain the concession, and expects to legislate during 2000. In the March 2000 budget a package of reforms to lorry VED included the introduction of a favourable VED rate for 44-tonne lorries meeting European emissions standards.

Fuel Duty: In the November 1999 pre-Budget statement the UK Government announced the end of pre-determined above inflation increases in fuel duties – previously the UK had a policy of increasing duty on petrol and diesel each year by at least 6% above inflation. From now on the level of duties will be set on a Budget by Budget basis taking into account the Governments environmental commitments as well as economic and social objectives. Revenues from any increases in fuel duties over and above inflation will, in future, go straight to a ring-fenced fund for improving public transport and modernising the road network.

In the March 1999 budget, the duty differential between ultra-low sulphur diesel and ordinary diesel was widened to 3p per litre to encourage take-up of the cleaner fuel. The duty differential between diesel and unleaded petrol was also widened to 3p per litre. The Budget also announced a 29% cut in the duty on environmentally-friendly road fuel gases (natural gas and liquefied petroleum gas) to encourage the greater use of these cleaner fuels, giving the UK the widest duty differential between road fuel gases and other types of fuel of any country in the EU. In the March 2000 Budget it was announced that a new 1p per litre cut in duty to help incentivise the use of ultra-low sulphur petrol will be introduced from October 2000.

Industrial Energy Tax: A levy on the business use of energy (Climate Change Levy), with offsetting cuts in employers' National Insurance Contributions and additional support for energy efficiency schemes and renewable sources of energy, will be introduced from April 2001. The levy is projected to save at least 2M tonnes of Carbon by 2010. The levy is expected to raise £1 billion in 2001/02 with these revenues being used to reduce employers' National Insurance contributions by 0.3 percentage points and to support energy efficiency measures.

United States of America. See response to Q.54.

**Q.56 If relevant, provide a short description of your country's experience with the use of emission taxes and charges. Also provide information, if possible, on whether such revenues have been earmarked for environmental purposes: e.g. to compensate those that suffer damage from pollution; to subsidize emission control measures; or to compensate for a loss in competitiveness for the industry concerned.**

Austria. Part of the revenues of energy levies are earmarked for energy-saving measures and public transport (see. Q.55).

Belarus. Taxes on emissions are paid into the budgetary funds for environmental protection from the district (60%), region (30%) and republic (10%). The environmental protection funds of all three levels are constituted from taxes on emissions into the ambient air, discharges into surface water, dumping of waste and mining, and fines for breaches of environmental protection standards and rules. Up to 10% of the resources of the national fund are used for interest-free loans (over a two-year period) to finance environmental protection measures. Up to 70% of such resources at all levels are ploughed back in the form of investment and shared financing of environmental protection measures. A proportion of the funds goes for research and development work aimed at reducing environmental pollution. Estimated expenditures from district and regional funds are approved by the local authorities, and those from the national fund by the Council of Ministers.

Belgium. Awaiting translation

Bulgaria. System of levying charges for exceeding air pollution emission limits was established in 1993. Control emission measuring at stationary sources is carried out twice a year by the 15 Regional Inspections to the Ministry of Environment and Water. Regional Inspection Directors may levy charges up to 2 000 Lv, while for larger sums, the Ministry of Environment and Water fines the perpetrator. The penalties are collected in a special non-budgetary NEPF account of the Ministry. Penalized companies may appeal the charges in court. A Managing Committee, whose members are Deputy Ministers from all Ministries, runs NEPF and Chairman is the Minister of Environment and Water. Expenditures are only for funding ecological issues, as specified in the Regulation on the accumulation, disbursement and control of NEPF funds (SG 75/95).

Czech Republic. The existing payment system was established in 1991 by Law No. 389/1991 Coll., on state administration and payments for air pollution, and related regulations.

Payments pursuant to this Law shall be paid by the operators of large and medium pollution sources according to the amount and kind of discharged emissions. In both cases the payments are an income for the State Environmental Fund of CR (SEF). Fines laid down by the Czech Environmental Inspection or the administrators of the fund, i.e. ME, are also an income for the fund.

The financial means of SEF, including income from air pollution, are subsequently expended for implementation of measures dealing with the most acute problems in the area of the environment. In the area of air protection, these consist particularly in:

- (a) Decreasing emissions of air pollutants from small and medium-sized air pollution sources operated for the purpose of activities in the public benefit;
- (b) decreasing emissions of substances from small and medium-sized air pollution sources;
- (c) use of cogeneration units;
- (d) decreasing emissions of volatile organic compounds;
- (e) protection of the ozone layer of the Earth;
- (f) decreasing emissions and pollution levels in territories.

At the present time, a new program is being prepared, concerned with monitoring amounts and quality in the state monitoring network.

The total income from payments for emissions into the air in 1999 equalled about 1100 mil. CZK (31.4 mil. USD). Of this amount, emissions from large sources corresponded to about 85% of the total and income from emissions from medium-sized sources equalled about 15%. The fraction from other sources was negligible. The financial authorities collect the fees. The fees are an income for the State Environmental Fund (subject to the Ministry of the Environment), which uses these incomes entirely for financing investments into protection of the environment. This does not consist only of financing of measures to protect the air, but includes all projects to protect the environment that the fund can support in accord with the regulations. The payments from small sources are an income for the municipalities, in whose territory the source subject to payments is located. This is an income for the municipal budget and its use should be bound to protection of the environment in the municipality.

Germany. Taxes on mineral oil and motor vehicles are not earmarked. The eco-tax is earmarked for the reduction of social security contributions.

Hungary. The revenues coming from the product charges get to the Environmental Fund and have been earmarked for environmental purposes.

Italy. On December 1998, a Carbon Tax was approved by the Italian Parliament. It is aimed at reducing the consumption of energy products with high percentage of carbon in favour of products with lower percentages of carbon, thus to improve energy efficiency and fostering the use of renewable energy sources. In Italy in fact renewable are not subject to taxation. The Carbon tax will finance CO<sub>2</sub> emissions reduction projects: about 150 millions US dollars of the 1999 revenues of the Carbon Tax will be allocated to support projects to implement the Kyoto Protocol.

The new excise will be enforced gradually in 5 years. According to this bill, revenues of about 10,500 GLit will be collected in the year 2005. The prices will increase differently according to the sector and the fuel (see table below). The carbon tax anticipates the introduction in Italy of the so called "Monti directive", the EU proposal that tries to harmonise the minimum taxation levels on energy products across member states. The price of gasoline remains 10% above the minimum proposed level, the excise of diesel, LPG and methane for transport have been increased in order to become 10% of the minimum proposed level. Above this level, an environmental tax has been applied: 10 Lit/kg CO<sub>2</sub> for methane, 50 Lit/kg for all other liquid fuels based on the carbon content of the fuels, such tax is reduced to 4 and 14 for electricity production.

Fuel prices in 2005, as modified by the actual carbon – energy tax will be:

Sector / Fuels	Unit of measure	Effect on total price		Lit /kep	c-tax + VAT taxation ( Glit )
		Lire / variation	quantities %		
Trasport					
petrol, 98	lt	46	2.5%	60	447
petrol, 95	lt	154	8.7%	198	2272
diesel fuel	lt	190	13.9%	223	4404
LPG	lt	-133	-15.7%	-209	-307
NGL	mc	120	18.8%	145	37
			8.7% ( a)		6852
Civil					
diesel fuel	lt	190	14.0%	223	704
natural gas	mc	20	2.0%	25	413
n. gas: cooking, w. water	mc	7	0.9%	8	45
very fluid f. oil, low s.	lt	199	15.3%	221	11
fluid fuel oil, low s.	lt	309	51.1%	343	338
LPG	lt	30	4.5%	44	105
fuel oil, low s.	lt	360	127.0%	400	0
coke / coal	kg	50	24.0%	72	10
wood	kg	0	0.0%	0	0
			3.0% ( a)		1627
Agriculture / fishing					
diesel fuel	lt	36	6.0%	43	97
natural gas	mc	7	1.2%	8	1
					98
Industry					
diesel fuel	lt	190	14.0%	223	141
diesel fuel	lt	57	7.9%	67	13
fuel oil, high s.	kg	175	66.4%	179	35
fuel oil, low s.	kg	83	34.9%	84	286
natural gas	mc	24	7.3%	29	433
coal	kg	0	0.0%	0	0
pet coke	kg	71	74.1%	86	142
					1051
Refinery					
refinery gas	mc	0	0.0%	0	0
fuel oil, low s.	kg	12	7.1%	12	30
			11.8% ( b)		30
Power plants					
fuel oil, aver.	kg	14	5.1%	14	285
fuel oil, high s.	kg	14	6.4%	14	0
diesel fuel	lt	4	0.8%	4	6
natural gas	mc	10	4.0%	13	155

coal	kg	50	44.0%	79	377
orimulsion	kg	37	34.3%	56	0
Termoel. Autoprod.					
fuel oil, high s.	kg	12	5.2%	12	12
diesel fuel	kg	7	1.7%	9	0
natural gas	mc	3	1.2%	3	2
			9.2% ( a)		838
					10495

(a) sector average; ( b) average of industry, agric. and refinery

Another revenue that have been earmarked for environmental purpose is related to an aircraft noise tax. The tax is used for environmental monitoring and reclaiming of the airports, and it is based on taking-off and landing.

Latvia. The tax allowance referred to the Law on Natural Resource Tax can be granted to the tax payer which funds the projects aimed to reduce environment pollution when implementing technological improvements or environment protection measures.

The tax payments for consumption of mercury luminiscent bulbs, tires, and batteries shall be refunded to the individuals which hand the remnants of the aforesaid products for recycling, and to the enterprises (companies) which perform the disposal or recycling of these products. Latvian Environmental Protection Fund is institution for allocation of subsidies.

Apart from the natural resource tax, excise tax, the following economic instruments are available and often used in Latvia:

- (a) Subsidies, e.g. budget subsidies;
- (b) credit by the Environmental Investment fund, Self-government Environment Investment Fund, or different foreign donors, and soft loans;
- (c) Guarantee Agency of Latvia guarantees state loans for municipalities to implement environmental protection projects;
- (d) administrative charges for issuing permits and licences;
- (e) compensation for environmental damage.

Netherlands. The tax rate on fuels is derived from the energy content (50 %) and the CO<sub>2</sub> emission (50 %). The fuels which are taxed are petrol, light fuel oil and other mineral oils, LPG, coal gas, natural gas and residuals which are used in the chemical and petroleum industries. Leaded petrol (no longer on the market) is taxed at 1,299 NLG/l, unleaded petrol at 1,256 NLG/l, diesel fuel at 0,736NLG/l and LPG at 0,262 NLG/kg. In 1996 a regulatory tax on the small-scale use of gas and electricity entered into force. This tax applies to the first 170.000m<sup>3</sup> of gas and 50.000 kWh of electricity used per year and is charged in addition to the fuel tax. Taxes on ammonia were considered, but not implemented due to the existing economic pressure on farmers.

Only passengers cars are charged a registration tax (roughly 1/3 of the retail price). Annual road taxes are as follows:

- a) Passenger cars (average car, curb weight 1,100 kg): petrol engine vehicles, 852 NLG; diesel engine vehicles, 1680 NLG; LPG-equipped vehicles, conventional equipment, 1816 NLG; advanced equipment 1568 NLG;
- b) Light and heavy duty truck and buses: annual tax not differentiated according to fuel type;

c) Buses for public transport: no annual tax for gaseous fuels (LPG and CNG).

Revenues acquired from fines are not earmarked for pollution abatement.

Poland. Fees, in the first place, are an effective mechanism for collecting financial resources for environmental goals. Their direct impact on enterprises aiming at undertaking environmental activities is limited but in some cases (depending on the type of production) it is a significant element to their environmental approach in the management policy on a plant level. In general, the Polish Government considers the fee mechanism to be environmentally effective.

Republic of Moldova. The funds' resources are channeled to environmental protection measures of significance at the republic and local level, in the form of non-reimbursable or interest-free aid. Taxes for environmental pollution that were gathered during 1999 and accumulated on the account of the National Environmental Fund were foreseen for the following expenditures:

- (a) Development of national programs and plans for protection of environment;
- (b) For scientific research in environmental field at the ministry's order;
- (c) Development of the system of ecological normative;
- (d) Organization of information system;
- (e) Awareness programs and training for staff;
- (f) Organization of international cooperation;
- (g) Application of environmentally sound technologies;
- (h) Accidents consequences liquidation;
- (i) Co-financing of environmental projects;
- (j) Financing of NGO basing of grants program etc.

Russian Federation. Awaiting translation

Slovakia. All emission charges and fees are the income of the State Environmental Fund. The portion earned from air pollution charges is than used for air protection activities, based on applications, submitted through the regional and district offices to the SEF, mostly for activities, which are not commercially feasible (contributions to gasification of small municipalities, NGOs, biomass...)

Sweden. See answer to Q.54

Switzerland. Description of the redistribution to the population of the S and VOC incentive taxes revenue through the mandatory health insurance. Ordinance on incentive taxes on VOC of 12 November 1997. Article 23 Distribution of revenue from the tax: "Insurance companies who provide the mandatory health insurance required by the Federal Law on Health Insurance shall distribute the revenue to the population, on the mandate and under the supervision of the Federal Office for the Environment. They shall be reimbursed for their administrative expenses. The distribution of one year's revenue, defined as the revenue collected by 31 December including interest, shall be carried out in the subsequent year, this shall take place for the first time in the year 2002.

The insurers shall pay out to each recipient the amount due by 31 December of the year of payment, and shall inform the recipients of the amount credited to them. The distribution of revenue from the tax shall be in equal part to all persons, subject to mandatory health insurance and with domicile in Switzerland, who are insured on 1 January of the year of payment.”

Turkey. In Turkey emission taxes and charges mechanisms are not applied.

United Kingdom. The UK Government does not currently operate a system of emissions charges or taxes.

United States of America: See response to Q.54. In addition: The 1989 Budget Reconciliation Act (Public Law 101-239, a congressional budget law) included an excise tax on the production of the five chlorofluorocarbons (CFCs) and three halons regulated under the original Montreal Protocol. The tax was expanded in the 1990 Budget Reconciliation Act (Public Law 101-508) to cover more CFCs, carbon tetrachloride and methyl chloroform. The Energy Policy Act of 1992 (Public Law 102-486) increased the excise taxes on ozone-depleting chemicals. The first year the tax was collected was 1990. In addition to a tax on manufacturers and importers, which increases over time, there is a floor stock tax for firms using taxed substances in their products, which decreases over time. Rates for each substance reflect the ozone-depleting potential of the substance. Revenues go to the general treasury and are not earmarked for environmental purposes. By helping to increase the price of ozone-depleting substances, the tax added to the incentives to switch to substitutes created by the regulatory phaseout of CFCs and other key ozone depleting substances under the Montreal Protocol and Clean Air Act.

The September 1999 draft of the U.S. EPA=s Economic Incentive Program guidance (chapters 10 and 17.1) proposes a new type of economic incentive program, known as a clean air investment fund, or CAIF. Sources that find that the cost of reducing emissions exceeds a specified cost per ton (\$10,000 per ton, for example) would have the option of paying that amount into the fund. The state would then use the funds to purchase emission reductions at a lower cost, or use the money to fund research and development of improved control technology. This draft guidance is available on the U.S. EPA=s Technology Transfer Network/Economics & Cost Analysis Support webpage at: <http://www.epa.gov/ttn/ecas/innostra.htm>

**Q.57 If applicable, please provide a short description of your country’s financial assistance schemes that lead to a decrease in the emissions of major air pollutants covered by the Convention and its protocols.**

Austria. Measures for emission reduction, energy-saving and renewable energy in the commercial/industrial sector can receive financial support according to the federal Environmental Support Act. Promotion of biomass for energy use is granted by the Federation („Eco-Energy-Fund“) and the federal provinces. District heating projects, which have been started before 1993, have been supported according to the District Heating Promotion Act; current projects can receive financial assistance from the federal provinces.

The federal provinces grant subsidies for the construction and rehabilitation of residential

buildings, an increasing part of which is coupled to energy efficiency parameters. Subsidies from provinces and municipalities exist for the installation of solar collectors and heat pumps and for the purchase of electric vehicles.

In the agricultural sector, subsidies for organic and extensive (integrated husbandry and reduced fertilizer use) farming are granted. These farming methods bring about reductions in the use of pesticides, fertilizers and energy and thus contribute to a reduction of emissions covered by the Convention and its protocols.

There are also tax reductions and exemptions (e.g. for public transport, electric cars, vehicles for use in combined transport), which may be seen as a form of financial assistance.

Belarus. See answer to question 56.

Belgium. Awaiting translation

Bulgaria: The following financial assistance schemes, leading to a decrease in the emissions of major air pollutants are employed in Bulgaria:

(a) No-interest loans and cash grants from the National Environment Protection Fund. Financial sources are: pollution charges, taxes, 5% of privatization revenues from the privatization of state enterprises, grants, etc;

(b) No-interest loans and cash grants from the National Trust Fund (SG 63/2995), in which the revenues from the debt-for-environment swaps are accumulated;

(c) Grants from the EU PHARE programme. The Governments of Denmark, Germany, the Netherlands and others for the implementation of joint projects grant significant financial assistance under bilateral agreements;

(d) Fine write-offs. By amendment of the Regulation on charges for environmental damages (SG 34/1997), 80% of the fine may remain in the company for investing in pollution abatement and achieving permissible emission limit values. An implementation control and supervision procedure was drafted, as well;

(e) Value Added Tax (VAT) exemption. By amendment of the Environment Protection Act (SG 62/1998), goods and services imported on International Grant agreements are VAT exempt. For example, the Grant Agreement with the World Bank, amounting to 10.5 mln. USD for procurement of equipment and technologies for the phasing out of ozone depleting substances;

(f) Low-interest loans and accelerated write-off allowances. Such loans, amounting to 80 mln. USD were received from Japan for the reconstruction of the non-ferrous plants in Plovdiv and Eliseina;

(g) Fine write-offs upon agreement to invest in technological reconstruction and achieving permissible emission limit values for a period, not longer than five years is provided in the Regulation on Temporary Emission Limit Values (SG 51/1998). The technological reconstruction of the non-ferrous plant in Pirdop, owned by the Belgium Company Union Miniere was negotiated this way.

Canada. The federal and provincial governments have many programs for funding a wide range of projects, including pollution abatement projects, in small and medium sized enterprises. They have grant, loan, investment and equity programs for funding technology research,

development, commercialization and export. There are also tax credits and refunds available for research and development. Programs include the Industrial Research Assistance Program, the Science Research and Experimental Tax incentive program, Technology Partnerships Canada, and the First Time Scientific Research and Experimental Development Claimant Service.

Cyprus: The Government of Cyprus adopted the following forms of financial assistance:

- (a) A cash grants scheme through Government funds up to 30% of the total investment in pollution abatement equipment with a ceiling value of CY Pounds 75,000 (equivalent to about USD 150,000);
- (b) a cash grants scheme of up to 25% of the total investment for the installation of modern technologies equipment;
- (a) A scheme of cash grants by the Institute of Technology, that covers up to 40% with max USD 12000 the cost of studies carried out for investments in the industrial sector, including investments in clean technologies and pollution control installations, and 50% of consultancy fees during the implementation of the study, with max USD 5000.

Czech Republic. State financial assistance leading to a decrease in the emissions of the chief air pollutants provide particularly for programs announced by the Ministry of the Environment in the framework of the ME Directive on provision of financial means from SEF. For the area of air protection, an application can be submitted for support for implementation of measures in the framework of the following programs:

The program for decreasing the principal pollutants and protection of the climate of the earth with emphasis on energy-saving approaches: The target of the program is to decrease emissions of substances and CO<sub>2</sub> from air pollution sources with emphasis on energy-saving approaches, including the creation of preconditions for reconstruction of air pollution sources through development of the infrastructure in municipalities. This includes the Program of development of the infrastructure of small municipalities, intended for municipalities of up to 1000 inhabitants. It contains especially the following measures:

- (a) construction of the public parts of the connections and medium-pressure gas pipelines;
  - (b) construction of the public parts of the connections and networks of central heat supplies.
- The program contributes to compliance with the protocol to CLRTAP on decreasing emissions of volatile organic compounds.

Program for compliance with the UN ECE Protocol on decreasing emissions of volatile organic compounds: The target of the program is to decrease air pollution by organic compounds for the installations of technical processes for small and medium-sized air pollution sources. For example, the following technology is involved:

- (a) Coating application technology;
- (b) Polygraphics;
- (c) degreasing of metals and electro-components with chlorinated organic solvents;
- (d) cleaning of textiles, leather and furs using organic solvents.

Program for attaining air quality in relation to the requirements of the European Union: The target of the program is to prepare action plans for environmental protection in the area of protection of the air and their gradual implementation on the basis of determination of the air

quality in relation to human health and the environment. This is to be achieved through the use of joint methods and criteria, obtaining of data and the availability of information on the air and maintenance of air quality in areas with acceptable pollution levels and improvement of air quality everywhere where there is excessive pollution. The expected output consists in a Program of implementation of concepts in emissions and imissions of pollutants. The target of the program consists in implementation of measures leading to a decrease in emissions and imissions of pollutants discharged into the air from local sources that significantly affect the air quality in the region. The program will be implemented on the basis of elaborated concepts of decreasing emissions and the imission burden according to the individual methods of SEF in cooperation with the locally competent authorities, institutions and public benefit organizations through public calls for tenders.

Germany. Financial assistance schemes subject to special terms are available in particular to medium-sized companies for pollution abatement measures. Direct subsidies, low-interest credits and special depreciation allowances are granted for measures to promote a rational and economical use of energy and for renewable energies. Commercial-scale demonstration projects can be supported with subsidies amounting to up to 30% of the sum invested provided they serve to generate knowledge about the measures' technical and economic feasibility as a basis for relevant regulations. Depending on federal interest, research and development projects can be supported at rates of up to 100%.

Hungary. The Environmental Fund was established in 1992. The main purposes of the Fund are:

- (a) To develop the environmentally sound economic structure;
- (b) to prevent the harmful effects of the human activities;
- (c) to reduce the contamination in the environment;
- (d) to maintain the protected natural areas.

Investors for the different purposes of air protection can apply for financial support (grant or low-interest loans) to the Environmental Fund.

Monaco. The Government of Monaco has set up a grant scheme to replace fossil-fuelled vehicles by electric ones. The scheme applies only to company cars.

Government departments use electric vehicles whenever possible (unofficial translation).

Netherlands. The Netherlands will be using 165miljon NLG to reduce NOx emissions. Please also refer to Q 58.

Poland. Forms of financial assistance used in Poland depend on the project type, the investor and the financing institution. The most often used are the following assistance schemes leading to emission reduction of major air pollutants:

- (a) Low interest rate loans. The lowest rates are applied to priority projects. Possible are also cancellations of parts of the loan repayments. The basic criteria for granting the preferential loan interest rate and partial loan redemption is the possibility of obtaining the expected environmental outcome in time. Loans are granted by the national and provincial funds for

environmental protection and water management and are operated by a banking system, including the Environmental Protection Bank;

- (b) Subsidies from environmental funds. They apply to selected areas such as nature protection, environmental education, scientific research, health protection etc.;
- (c) Bank loans. The differences between commercial and preferential interest rates are covered by environmental funds;
- (d) Budget subsidies from central and regional budgets;
- (e) Subsidies and grants from the ECOFUND Foundation and foreign environmental assistance funds;
- (f) Loan consortia established by the National Fund for Environmental Protection and Water Management jointly with the Environmental Protection Bank and other entities to finance strategic environmental projects.

The national and regional funds for environmental protection and water management are distributed in the form of loans and subsidies. The Environmental Protection Bank provides credits, in particular for air pollution abatement equipment, emission control and measuring devices. Indirect subsidies for environmental expenditures and investments are provided by granting discounts on income taxes, turnover taxes and agricultural taxes.

Republic of Moldova. Industrial enterprises could obtain financial support from local and national ecological funds in order to reduce of emissions of pollutants. Ecological funds may accomplish the follow kinds of finance:

- (a) Irrevocable subsidies or grants;
- (b) Privileged no-interest or low-interest rate credits;
- (c) Credits with guaranties;
- (d) Subsidies for percent payment on credit (for organizations which take bank credit for environmental projects).

Enterprise has (must) present to ecological fund a project where it passes certain stages of evaluation and selection. The project will be financed in case of positive conclusion. The enterprise will be released from payment for pollution of environment, including atmospheric air, when it will realize actions on emission reducing of pollutants (on personal account). The list of measures that counts in payment for pollution is indicated in the Law on Payment for Pollution of the environment.

There is also the possibility of subsidies from national and local ecological funds for environmental education scientific research and health protection, development monitoring.

Russian Federation. Awaiting translation

Switzerland. In general, application of polluter-pays principle without subsidies for new emission control measures or retro-fitting.

Turkey. The Environmental Pollution Prevention Fund, as well as the Bank of Provinces, has provided funding for a number of air management related projects. Discounted energy pricing is available for water and air treatment plants. Grants are also available to help enterprises to

cover up to half the costs incurred in obtaining a compliance (quality assurance) certificate and logo from the Turkish Institute of Standards (TSE).

Fifty per cent of the cost, up to US \$ 1,000, is available to fund audits for compliance with internationally accepted environmental standards.

United Kingdom. Please see answer on energy efficiency to question 19 above.

United States of America. The U.S. EPA has provided financial assistance to small businesses that face compliance with various air pollution regulations through the Small Business Stationary Source Technical and Environmental Compliance Assistance Program (Section 507 of the 1990 Clean Air Act Amendments). This programme has provided assistance, technical as well as financial, to hundreds of small businesses since 1990. The EPA has also sponsored the development of Clean Air Investment Funds (or CAIFs) in States and locales. A CAIF allows firms facing high pollution control costs to pay into a fund rather than control emissions themselves. The fund revenues can then be used to purchase additional emission reductions from lower cost sources. A CAIF can therefore facilitate continued progress on reducing pollution while easing compliance for sources choosing to pay into the fund. Finally, EPA has helped fund more than 50 transportation-related grants to encourage reduction of pollution from mobile sources in various States and locales. A list of these grants can be found at <http://yosemite.epa.gov/aa/grants.nsf>.

**Q.58 While subsidies have been used to support the introduction of new technologies, thus benefiting the environment, they have also been adopted on a widespread scale in the energy and transport sectors with detrimental effects on the environment. If applicable, describe shortly your country's experience in this domain.**

Austria. Direct subsidies shouldn't have severe detrimental effects on the environment any longer, as most funding guidelines request that funded projects do not have detrimental effects on the environment. Nevertheless the tax system provides tax reductions and exemptions („indirect subsidies“), which may increase emissions. They are either the result of international obligations (tax exemption for kerosene in aviation) or of currently unresolvable divergent interests (the exemption of sectors with high energy consumption was prerequisite for a compromise on the taxation of electricity and natural gas; the reduction of income tax for commuters compensates for higher transport costs and increases the necessary ability of employees to commute to distant sites, but on the other hand it may be an incentive for migration from the city and create new commuters and more traffic therefore).

Belgium. Awaiting translation

Bulgaria. All financial assistance schemes, described in A. 57 have been used to support the introduction of new technologies in the energy, industry and transport sectors.

Canada. The focus of Government of Canada energy-related expenditures, including grants and contributions which support energy technology, has changed over the years. An important trend has been a shift away from the late 1970s and early 1980s focus on the security of energy

supply. Current spending is now mainly directed at finding cost-effective ways to expand the use of renewable energy and to increase energy efficiency, both of which have an impact on Canada's emissions of greenhouse gases.

Czech Republic. One of the measures for decreasing the detrimental impacts of transportation in cities is the ME Program of support for the infrastructure of environmentally sound urban transportation. The target of the program is support for extension of urban transportation operated by natural gas or electricity, through the creation or extension of the technical base, i.e. construction of filling or charging stations, etc. The condition for provision of assistance consists in accord of the proposed measures with the territorial plan of the affected territory or the transportation conception. The program is primarily directed towards the territories of cities and districts requiring special air protection.

Denmark. ANS Q.54-Q.58. The Danish Energy Taxation System: In 1996, the existing energy taxation system was extended. The CO<sub>2</sub> tax was increased and the design of the CO<sub>2</sub> tax system was adjusted and adopted its present form. The purpose is to reduce the emissions of CO<sub>2</sub> without distorting the competitiveness between companies. Furthermore, a sulphur tax was introduced.

The present energy taxation system consists of three different taxes: an energy tax, a CO<sub>2</sub> tax and a sulphur tax. The energy taxes on oil, coal, gas and electricity are determined according to the gross energy content of the different fuels. The CO<sub>2</sub> tax rate on energy is determined according to the CO<sub>2</sub> emissions on combustion by the different fuels. The sulphur tax rate on energy depends on the content of sulphur of the fuels or the net SO<sub>2</sub> emission on combustion.

Energy taxes are fully reimbursed to companies for energy used in industrial processes. The CO<sub>2</sub> tax is partially reimbursed to companies. The present tax reimbursement system provides concessions for energy intensive applications of energy, regardless of where or in which company the application arises. The most energy-intensive processes, which are identified as heavy processes, face the highest rate of refund, i.e. the lowest CO<sub>2</sub> tax rates. Presently, 35 processes are identified as heavy processes in an appendix to the Act. All other processes are characterised as light processes and receive a lower rate of reimbursement; i.e. the net CO<sub>2</sub> tax is higher than for heavy processes. The CO<sub>2</sub>-tax allows for having a low marginal taxation on the most energy intensive processes, but in such a way that the CO<sub>2</sub> tax burden per unit produced increases. Energy used for space heating in companies is subject to energy-, CO<sub>2</sub>- and sulphur taxes without reimbursement

Furthermore, the rates of reimbursement for heavy processes depend on whether the company has entered into a voluntary agreement with the authorities. The use of agreements between the authorities and the companies is to be seen as a means of promoting energy efficiency measures in trade and industry. Companies carrying out heavy processes can enter into a voluntary agreement, as the agreements are conceived as a suitable instrument to improve the degree of energy efficiency and thereby contribute to reducing the emissions of CO<sub>2</sub>. The rate of refund increases if the company enters into a voluntary agreement with the authorities on improving its energy efficiency.

As a consequence of the energy tax system introduced in 1996, the tax revenue increased and the additional revenue was to be re-transferred to industry and trade. The re-transfer is effected through reduced labour market contributions and reduced pension payments paid by the enterprises; through subsidies to investments in energy-saving technology and finally through

various retransfer systems for the group of self-employed that do not benefit from reduced non-wage labour costs.

Germany. No cases reported

Monaco. In addition to a smoke-cleaning system, the urban waste incinerator is also fitted with an energy recovery unit intended for street lighting and for heating and air conditioning system of government buildings (unofficial translation).

Netherlands: In the Netherlands recently a study is completed on so called environmental harmful subsidies. The goal of this study was to list the direct subsidies that have environmental harmful effects and investigate what ways there are to (partly or in whole) take away these effects. Fiscal subsidies with environmental harmful effects were listed but not investigated. The scope of the study included subsidies in the energy and transport sectors. It was found that in general subsidies do have sometimes environmental harmful effects, but these effects can seldom be taken away unless the goal of the subsidy itself is given up. The study did not have to make a judgement whether the environment or the goal of the subsidy was more important.

Poland. See Q.7 (information included there relates to all air pollutants)

Republic of Moldova: Central funding of environmental protection projects has now practically ceased. Consequently, one of the most widespread forms of subsidy is the granting of resources from national or local ecological funds. Funds for environmental protection projects are generally granted on non-reimbursable or interest-free terms. Funding may also be obtained through the development and governmental approval of targeted integrated programmes or decisions designed to address the most acute environmental problems. The stipulations listed in Q.57, spread on all enterprises, including energy and transport enterprises.

Russian Federation. Awaiting translation

Switzerland. In general, application of polluter-pays principle with two exceptions:

- (a) Small amount of subsidies for the replacement of oil heating systems by geothermal heat pumps and for the promotion of solar energy;
- (b) Subsidies are allocated to municipalities and cantons for the implementation of certain measures to reduce air pollution from transport infrastructure (e.g. road building with traffic moderation, roundabout).

United States of America. See response to Q.54.

**Q.59 If applicable, briefly describe the market incentives, such as labelling and procurement policies, used in your country to further reduce emissions from and/or generation of substances covered by the Convention and its protocols.**

Austria. The existing voluntary labelling scheme for environmentally friendly products („Umweltzeichen“) takes account of a product's influence on environment during the whole life-cycle. Emissions covered by the Convention and its protocols are one of the aspects considered

within this integrated assessment. Procurement policy of many public institutions takes the environmental effects of products into account. There is also an Austrian „Eco-Label“ for enterprises in tourism (hotels, boarding-houses etc.); use of environmentally friendly products and efficient use of energy are part of the requirements for the label to be awarded. An increasing number of enterprises (industry, transport, banking business) is registered under the Eco-Management and Audit Scheme (EMAS); the procurement policy of these enterprises will also be a market incentive for environmentally friendly products.

Belgium. Awaiting translation

Canada. The Environmental Technology Verification (ETV) Program aims to accelerate the application of innovative technologies that address environmental priorities. It provides independent third party assessment and validation of performance claims. Once verified, the successful company is entitled to use the ETV Logo, a Verification Certificate, a Technology Fact Sheet defining conditions of performance, and the Verification Report in their marketing activities.

Canada's Environmental Choice Program is an Ecolabelling program, which develops and promotes standards of environmental preferability against which products and services can be assessed. Certification entitles a company to incorporate the EcoLogo (the programs certification mark) in their advertising and promotional efforts. To date more than 7000 products, services and technologies have been certified by the program. Examples include low VOC paints; products made from recycled plastic, paper and rubber; renewable low-impact electricity; energy efficient tires; and vegetable based lubricants and printing services.

Czech Republic. In order to support the use of products with low VOC content (such as water-based coating materials), value added tax is decreased from the usual 22% to 5% for these products. At the present time, further advantages for products with low solvent contents are being considered in connection with the new Law on protection of the air.

Germany. Environmentally friendlier products can be awarded the "Blue Angel" environmental label. As far as products of relevance to air quality control are concerned, the label has been awarded for example to low-emission oil and gas burners and to paints low in (content of less than 10 to 15 wt.%) or free of solvents. For the public sector environmentally friendly procurement is required under the Budgetary Principles Act.

Hungary. A system of eco-labelling is in place. Environmentally sound products and technologies can apply for eco-label. Having this distinctive mark only half of the product charge should be payed.

Monaco. Given Monaco's customs agreement the countries of the European Union, Community measures are reflected in the Principality (unofficial translation).

Netherlands. In the Netherlands exists a national ecolabelsystem, which takes into account all possible environmental aspects related to the life cycle of the product. One of these aspects concerns air pollution, for example VOC or emissions because of energy use. Recently the Dutch

government has started a program for public green procurement. Information will be gathered for a great number of products and services bought (e.g. paper, furniture) or delivered (e.g. maintenance of public parks in the city) by the government. The information is available on the website. At the moment about four products/ services are available.

Poland. Eco-labelling of products has been introduced in Poland as one of the market incentives stimulating emission reduction. Although eco-labelling has a voluntary nature companies are encouraged to submit for this sign within the national system for testing and certification. A system of preferential credits granted for environmental investments also plays an economically stimulating role. Such credits are granted by the Environmental Protection Bank and their low interest rates are refinanced by the National Fund for Environmental Protection and Water Management.

Republic of Moldova. Data not available.

Russian Federation. Awaiting translation

Sweden. Market incentives. There are two major volunteer labelling systems. One is organized together with the Nordic countries, the Nordic Swan. The Swan is available for several products important for air pollution e.g. oil burners, wood stoves and pulp and paper production. An other is a Falcon, organized by Swedish Society for the Conservation of Nature.

There are provisions for more detailed environmental product information. The first products have now got licencies.

There is a system with environmental classification of automobiles; I, II and III. Higher standards for durability and low emissions regarding classification of motorfuels, see above.

Switzerland. The Ordinance relating to Environmentally Hazardous Substances of 1986 regulates the import, the production, the supply, the use and the export of substances that may present a hazard to the environment. It comprises instructions for the environmental impact assessment of new and existing substances and products. Corresponding to the assessment, the substances must be labelled with information on the type of hazard, on the methods of disposal and on other particular instructions such as safety instructions. In addition to the general regulations, annexes to this ordinance contain special regulations for particular groups of chemicals. Among them, several are of special interest regarding the emissions of hazardous substances into the atmosphere which may occur during production and use or during waste treatment (e.g. CFCs, halogenated organic compounds, heavy metals).

Turkey. According to the Regulation on the Phase-out of Ozone Depleting Substances which entered into force on 25h July 1999, importers of ozone depleting substances (those listed I in Annex A and Annex B Group II and III of the Protocol) are obliged to clearly label the package or the container in which the substance is transported with the warning inscription "Endangers the Ozone Layer". The importers of some products which either contain those substances or whose functioning relies on them are also obliged to include the name of the substance contained in the imported product on the documents accompanying the importation.

United Kingdom. The Government supports EU mandatory energy labels and minimum energy efficiency standards for domestic products. To date, regulations have been introduced requiring energy labels for refrigeration appliances (*The Energy Information (Refrigerators and Freezers) Regulations 1994* (SI 1994/3076)), washing machines (*The Energy Information (Washing Machines) Regulations 1996* (SI 1996/600)), electric tumble dryers (*The Energy Information (Tumble Driers) Regulations 1996* (SI 1996/601)), combined washer-dryers (*The Energy Information (Combined Washer-driers) Regulations 1997* (SI 1997/1624)), dishwashers (*The Energy Information (Dishwashers) Regulations 1999* (SI 1999/1676)) and lighting (*The Energy Information (Lamps) Regulations 1999* (SI 1999/1517)). Proposals to extend labelling to boilers, gas tumble dryers, ovens, water heaters and air conditioning units are under consideration.

Regulations have been introduced removing inefficient boilers (*The Boiler (Efficiency) Regulations 1993* (SI 1993/3083) and *The Boiler Efficiency (Amendment) Regulations 1994* (SI 1994/3083)) and refrigeration appliances (*The Energy Efficiency (Refrigerators and Freezers) Regulations 1997* (SI 1997/1941)) from the European market, and proposals for similar mandatory minimum standards for fluorescent lamp ballasts are being developed. In addition, voluntary agreements have been reached with European manufacturers improving the stand-by power of televisions and video cassette recorders, and removing inefficient washing machines from the European market. Informal discussions are taking place on possible agreements and measures to raise the efficiency of other appliances and components.

The Government also participates in the EU ecolabelling scheme, established by Regulation in 1992, which aims to encourage consumers to buy, and manufacturers to produce, products which do less damage to the environment than their alternatives. Products are selected, and criteria set, on the basis of their most significant environmental impacts over their life cycle. Criteria have been adopted for 15 product groups.

United States. Market-based approaches are being used to accomplish environmental goals at lower costs than traditional command and control regulation in the United States. For example, the Acid Rain Program, a federal emissions trading programme for sulphur dioxide, is an example of an existing large-scale, market-based environmental programme.

The programme for SO<sub>2</sub> emission reduction is built on a market-based system of tradeable allowances. Each regulated entity is allocated a set of allowances that it uses to cover actual SO<sub>2</sub> emissions, bank for later use, or sell to others. The trading programme allows power plants more flexibility in planning how to achieve the required reductions in emissions and facilitates cost savings. Annual allowances are allocated to affected units based on historical fuel use, emission rates specified in the law and the overall approximately 40 percent reduction in emission levels from 1980 levels from these sources. Those sources that reduce emissions the most have the greatest amount of allowances available for trading. In the first auctions held by the Chicago Board of Trade, environmental groups purchased allowances to retire them. Enforcement is provided by an automated system to track trading and continuous emission monitors. In the first Phase of the Acid Rain Program (1995-1999), sulphur dioxide emissions have dropped by 4 million tons annually. Throughout the first Phase, SO<sub>2</sub> emissions were controlled below allowable levels. For example, in 1998, emissions were reduced 1.3 million tons below allowed levels. Beginning in 2000, Phase II will further control these and many additional electric power sources to achieve a total 10 million ton reduction in SO<sub>2</sub>. This reduction in SO<sub>2</sub> power plant emissions is

maintained by a SO<sub>2</sub> cap of 8.9 million tons. For multiple reasons, the cost of the programme upon full implementation is substantially less than originally estimated.

Drawing on the experience of the acid rain programme, States within the Ozone Transport Commission (OTC) with EPA assistance have formulated and are now implementing a regional NO<sub>x</sub> trading programme to reduce transboundary ozone in the Northeast. In 1999, the first year of the OTC's NO<sub>x</sub> trading programme, the effort resulted in a 50 percent reduction in NO<sub>x</sub> emissions from 1990 levels in participating States. The NO<sub>x</sub> SIP call B a federal rule to reduce interstate ozone pollution in much of the Eastern United States -- also includes, as guidance, a model cap-and-trade programme that States may choose to adopt into their plans.

Within individual states, both cap-and-allocation and open market trading programmes have been implemented or are under development. Many local governments are adopting trading schemes to add flexibility to their attainment programmes. The most extensive programme is in Los Angeles where a comprehensive emission trading system (RECLAIM) is being used to reduce the emissions of nitrogen oxides and sulphur dioxide. The programme gradually reduces allowable levels of industrial sources emissions. EPA has issued guidance to assist states in designing trading and other economic incentive programmes to reduce criteria pollutants, and will soon update that guidance. EPA also has assisted states in setting up trading programmes, such as the RECLAIM and OTC programmes mentioned above.

Another programme involving market incentives that EPA has run is the CFC phase-out programme. EPA has issued guidance to assist states in designing trading and other economic incentive programmes to reduce criteria pollutants, and will soon update that guidance. EPA also has assisted states in setting up trading programmes, such as the RECLAIM and OTC programmes mentioned above.

EPA provides trading opportunities in most national air rules for vehicle manufacturers and fuel refiners. In the 1980s, EPA allowed refiners to trade credits to aid compliance with rules requiring the gradual reduction of lead in gasoline. The most recent example is the "Tier II" rule requiring cleaner autos and light-duty vehicles and cleaner, low-sulphur gasoline. This rule would allow averaging, banking and trading to provide additional flexibility to vehicle manufacturers and fuel providers.

EPA has issued guidance to allow states to count toward their state planning requirements programmes that encourage voluntary measures to reduce emissions from transportation sources -- such as ridesharing programmes and ozone action day.

**Q.60 If applicable, provide information on your country's experience in tradeable permits, including the cost-saving potential.**

Belgium. Awaiting translation

Bulgaria. A system of tradable permits was established, as for an Environment Impact Assessment in the industrial or energy sector the tariff is as follows:

(a) For a plant of international significance B 0,05% of the project or referential value B the long-term assets (LTA);

(b) for a plant of national or regional significance B 0,03% of project or LTA value.

Canada. Canada's experience with tradable permits has been limited. There is an overall SO<sub>2</sub> cap on power utilities in each of the provinces of Nova Scotia and New Brunswick, and the provinces allow emissions trading under this "bubble"/cap. There is no trading of SO<sub>2</sub> between provinces and no estimate of cost savings is available.

The Pilot Emission Reduction Trading Project (PERT) was launched in 1996 as an industry-led multistakeholder initiative, initially focused on smog reductions in one province and adjoining airsheds; it was expanded in 1997 to include greenhouse gases. As this is a pilot project, no regulatory mechanism is currently in place that gives the tradable commodities value. The extension of PERT to March 2001 will allow the pilot to complete its work. Approximately 15 trades have taken place under PERT to date. All of these trades are bilateral trades handled under private contract; many of them involve options to purchase. These are speculative markets and for reasons of confidentiality information on prices and potential cost savings has not been made available.

Czech Republic. not used

Germany. The Federal Immission Control Act provides the possibility to apply a compensation rule (bubble concept). This rule allows pollution rights to be traded (compensation) if this results in higher emission reductions than can be achieved through compliance with the specific emission limits. The actual use of this instrument by regulated Parties is rather poor.

Netherlands. The Netherlands has a great interest in tradeable emission and permits, but does not have any experience in that field.

Poland. Discussion and preparatory work on the possibilities of introducing tradeable permits is underway. Draft environmental legislation includes this possibility to some extent.

Republic of Moldova. There are requirements in our legislation regarding obligatory obtaining of permit for emissions of pollutants in atmospheric air. The permits given by State Ecological Inspection are paid.

Russian Federation. Awaiting translation

Slovakia. Slovakia only recently introduced the emission quotas for SO<sub>2</sub>, and they were now allocated for years 2002, 2003 and 2004. See also R.24.

Switzerland. No provision on it at the federal level. In some cantons the application of a limited form of the bubble concept is being examined at local level (through emission certificates). The application will in any case only be possible for the remaining emissions after the implementation of the emission standards set in the Ordinance on Air Pollution Control.

United Kingdom. The Government is committed to the introduction of market based instruments where these can provide a more cost-effective alternative to the traditional regulatory command and control means of achieving environmental objectives.

Under the Integrated Pollution Control authorisations for the Electricity Supply Industry in England and Wales, announced in December 1999 by the Environment Agency, provision was made for allowing sulphur emission quotas to be switched between plants, subject to site-specific constraints which reflect the local environmental conditions. Authorisations contain two types of emission limits for sulphur: a site-specific 'A' limit taking into account impacts local to the power station; and a portfolio or 'B' limit applied to a group of stations as a whole, which would reflect the impact on a regional or national scale of the combined emissions from the group. Each operator has the freedom to alter the allocation of sulphur discharges between its different power stations provided it does not exceed its overall allocated sulphur 'B' limit total, and provided the individual station's sulphur emissions reached in this way do not exceed their 'A' limits.

United States of America. Since 1990, the EPA has implemented the Acid Rain SO<sub>2</sub> Trading Program under Title IV of the CAA. This programme has led to large reductions in SO<sub>2</sub> nationwide, and improved compliance with ambient standards for coarse and fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>, respectively). Costs of Title IV are now estimated to be 75 percent less than estimated in 1990. Costs in 1990 were estimated at \$4 to 5 billion when fully implemented; costs are now estimated to be \$1 to 2 billion when fully implemented. These cost savings are attributed to the flexibility of the market-based mechanism. In addition, the EPA finalized a NO<sub>x</sub> Budget Trading Program, a cap-and-trade programme in which allowances can be bought and sold to induce NO<sub>x</sub> emission reductions in States covered by the NO<sub>x</sub> SIP call (mostly States east of the Mississippi River). Affected States are subject to a cap on summer NO<sub>x</sub> emissions. See answer to Q.59 for additional examples and detail.

## RESEARCH AND MONITORING

### **Q.61 Parties are invited to provide information on research and monitoring activities undertaken pursuant to article 6 of the Nitrogen Oxides Protocol.**

Austria. Monitoring of ambient air concentrations of nitrogen oxides is performed at about 150 monitoring stations in Austria, three of them part of the EMEP network. Research projects also dealt with e.g. improvement of data on Critical Loads, improvement of the spatial resolution of emission data, deposition of nitrogen compounds, integrated monitoring of air pollution effects on ecosystems (within the relevant CLRTAP network), dispersion and receptor modeling of air pollutants.

Belgium. Awaiting translation

Bulgaria. The National air quality control network comprises of 99 monitoring and control stations spread around 14 regions, where emission levels exceed the limit. 83 of them are manually operated and 16 are automatic.

Canada. Canada carries out some research on the nitrogen cycle at integrated monitoring sites. The overall goal is to determine the physical, chemical and biological factors controlling the magnitude of key nitrogen pools, processes and fluxes that influence water acidification, and develop, test and implement predictive models. There are, however, significant gaps in the current program and we are undertaking an examination of costs and funding options for a fuller program.

Czech Republic. Every year, the Ministry of the Environment of the Czech Republic announces projects in the Program of Care for the Environment and projects in the ME Program of Research and Development. Top-priority projects following from the individual Protocols to CLRTAP are also carried out in the framework of these programs. Financial means for work on these programs are partly or completely paid out of the state budget. The priorities of research and development in the area of transportation include:

- (a) The development of mobile means of transportation with environmentally sound parameters;
- (b) decreasing pollutant emissions;
- (c) development and application of alternative automotive fuels.

The national emission monitoring system of air pollutants is ensured by The Register of Emissions and Air Pollution Sources (REZZO) operated by the Czech Hydrometeorological Institute (CHMI). Register serve for archiving and presenting data on stationary and mobile sources (emissions and additional information on boilers, fuels and technologies), and for national emission inventory. REZZO system is in operation from 1980, and the database is updated yearly for large and medium-sized sources in cooperation with Czech Environmental Inspection Office, and relevant district authorities' environmental departments. In present time contains REZZO individual data on about 2300 large emission sources (combustion sources > 5MW<sub>th</sub> output and selected technologies) and 30 thous. medium-sized pollution sources ( 22 thous. fuel burning sources 0,2 - 5 MW<sub>th</sub> and 8 thous. technological sources).

Germany. Research and Development: In the second half of the 1990s, the Federal Government provided annual support worth DM 130 million for about 90 projects per year in the field of air quality control. Concerning technical development projects, also see Q.25 and Q.57. Main fields of research were:

- (a) use of renewable energies, use of waste heat in industrial installations,
- (b) reduction of NO<sub>x</sub> and VOC emissions with a view to the formation of ground-level ozone,
- (c) monitoring of air pollution and changes to the atmosphere.

There are three major fields of monitoring:

- (a) Emissions: all plants subject to permitting (major sources) have to monitor emissions including SO<sub>2</sub>, NO<sub>x</sub>, VOC and make the data available to the responsible authorities;
- (b) Air quality in densely populated areas: communities and Länder operate measuring networks at local level, comprising some 500 stations;
- (c) Air quality in rural areas and long-range and transboundary air pollution: the Federal Environmental Agency (UBA) operates a measuring network in the framework of EMEP with 8 stations and 14 containers in order to monitor background concentrations of air pollution and Air pollution in forests.  
NO<sub>2</sub>, NH<sub>3</sub>, NH<sub>4</sub><sup>+</sup> and NO<sub>3</sub> are at present measured at 5 UBA stations according to EMEP methods.

Hungary. Nitrogen oxides in the ambient air are measured continuously at each urban and background monitoring station. Critical loads and levels have been studied with the coordination of the NFC.

Italy. Italy developed research and monitoring programmes in order to participate to the international efforts to determine an effects based approach to reduce nitrogen oxide emissions, contributing to activities which led to the protocol to abate acidification, eutrophication and ground level ozone.

Latvia. The legal basis of the environmental monitoring state system in Latvia forms the Concept of Environmental Monitoring which was approved by Cabinet of Ministers on February 1997. The environmental monitoring is implementation of systematic observations in different environments of the nature to state and assess the changes that are caused by nature processes or anthropogenic impacts. It defines four closely linked blocks:

- (a) Monitoring of the state of the environment;
- (b) emission monitoring;
- (c) early warning monitoring;
- (d) environmental policy implementation monitoring.

The monitoring system consists of the state environmental monitoring, consolidated under the Ministry of Environmental Protection and Regional Development and financed by special state monitoring budget, and monitoring carried out by municipalities, research institutions, other ministries and financed from other sources. The coordination and information exchange will be reached through the Interministerial Environment Monitoring Council as it is stated in the concept. Such Council was established on March 1997.

"Regulations on Air Quality" were adopted by the Cabinet of Ministers on 15 June 1999. Ambient air quality standards (related to health effects and related to ecological effects) for sulphur dioxide, nitrogen oxides, ozone, particulates and lead, methodology for measurement and monitoring, assessment levels for releases in air (maximum permissible single concentration determined within 20 minutes time and maximum permissible concentration within a day-night=s time) related to health effects for 377 chemical substances and compositions, and information indicators for public information are included in the regulations. "Regulations on Air Quality" are prepared in accordance with provisions of EU Directives: 96/62/EC; 80/779/EEC; 82/884/EEC; 85/203/EEC; 92/72/EEC; 97/0266 (SYN).

Monaco. The urban air monitoring network systematically records Nitrogen Oxides emissions (unofficial translation).

Netherlands. Please refer to Q8

Poland. Within the framework of the State Environmental Monitoring System a sub-system has been established to monitor the chemical properties of atmospheric precipitation and deposition. Data on oxidised and reduced forms of nitrogen, gained from this monitoring, serve as an experimental background for a number of regularly carried out research surveys on the health and ecological aspects of deposition of selected groups of air pollutants, including nitrogen compounds.

Republic of Moldova. The Republic of Moldova is not Party of the Protocol concerning Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes. At the same time monitoring and laboratory control of air pollution with Nitrogen Oxides is undertaken for many years in our country. In conformity with information presented by Hydrometeorological Service monitoring is effectuated in 5 industrial cities at 16 stationary posts (solid substances, nitrogen

oxides, sulphur oxides, carbon oxides, phenol, formaldehyde). Also, The Republic of Moldova has one post for monitoring of transboundary air pollution. At the same time the difficult economic situation in which we have been put now only selection of samples of atmospheric precipitation with their further analysis in laboratories for monitoring of atmospheric pollution of Hydrometeorological Service is made. Presently the Ministry of Environment and Territorial Development studies all the possibilities to enhance the level of quality of monitoring activities. Also, presently the following documents are under development in our country:

- (a) Draft of the New Concept of Environmental Policy of the Republic of Moldova and one of the points of this concept will be the main directions of resolving problems on research and monitoring;
- (b) Draft of Programme of Integrated Monitoring of Quality of the Environment;
- (c) Project proposals “ Consolidating the institutional bodies in calculating Critical Loads of pollutants and further mapping by the EMEP grid for different ecosystems”;
- (d) Project proposals “ Consolidating the institutional bodies in elaboration and implementation of the system PRTR”;
- (e) National Strategy on Sustainable Development “Moldova 21”;
- (f) First National Communication in the framework of UNDP project “Enabling Moldova to prepare its first National Communication in response to its commitments to the UN FCCC”.

Russian Federation. Awaiting translation

Slovakia. There are 23 monitoring stations for local air quality monitoring. All of them measure SO<sub>x</sub> and NO<sub>x</sub> concentrations and solid particulates. 12 monitor O<sub>3</sub> and 7 measures CO. Emissions are monitors by large sources themselves according to the Regulation of MoE Nr. 41/1997 on determination of amounts of polluting substances and data on meeting specified limits of pollution. There are 4 regional monitoring stations, included to EMEP.

Switzerland. Systematic monitoring of air pollution started in Switzerland in the mid-sixties. Since 1991, the National Air Pollution Monitoring Network (NABEL) comprises 16 monitoring stations located in different parts of Switzerland. The network was established with the aim of recording pollution levels at different characteristic sites of the country. Moreover, it serves to assess the long-term efficiency of air pollution control measures. Beside this national network, about 100 monitoring stations are now operated in Switzerland by various institutions, for example cantonal authorities, cities and research institutes. Air pollutants that are measured on a continuous basis include sulfur dioxide (SO<sub>2</sub>), nitrogen monoxide (NO), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), ozone (O<sub>3</sub>), total suspended particulates (TSP) and fine particulate matter (PM<sub>10</sub>), dust deposition, lead and cadmium in TSP (new in PM<sub>10</sub>), lead, cadmium, zinc and thallium in dust deposition.

Heavy metals were also assessed by biomonitoring in mosses. VOCs are usually not measured on a continuous basis, but results from short-term measurement campaigns and research programmes are available.

10 years evolution of air pollution in Switzerland as measured in NABEL network

Reductions  
between 1988 and 1997  
(order of magnitude)

NMVOC	50%
Nitrogen oxides (NO and NO <sub>2</sub> )	33%
Nitrogen dioxide (NO <sub>2</sub> )	25%

Research into air pollution effects and assessment of critical loads and levels: High priority was given from 1991 to 1993 to mapping critical loads of acidity for forest soils and alpine lakes at a high spatial resolution of 1 x 1 km<sup>2</sup>. The critical loads of acidity have been calculated with the steady state mass balance approach (SMB) adapted to alpine areas with high precipitation amounts. In 1992 work was started to apply more complex steady state multi-layer soil models for assessing critical loads of acidity for forest soils. Results of this work are now published. The applied multi-layer soil model PROFILE generally predicts lower critical loads than the SMB. Thus SMB-results have to be considered as conservative estimates with respect to their use for the development of effect-oriented emission reduction scenarios in Europe.

The dynamic perspective of acidification was evaluated for 622 forest sites in Switzerland for the time period 1850 - 2050. The objective was to clarify, how the chemical status of forest soils has changed in the past due to acid deposition and if and when it will improve, given the current air pollutant emission reduction plans in Europe. The results indicate an improvement in the chemical condition of upper forest soil layers and a halt of acidification of the lower soil layers during the first half of the next century. However, persisting violation of critical chemical parameter values in the soil solution at many sites towards the end of the simulation period in 2050 points to the fact that recovery is for some critical parameters very slow and that far-reaching reductions of acidifying deposition are needed to improve the status of the ecosystems.

Critical loads for nitrogen have been calculated and mapped by applying the mass balance approach for forests and the empirical approach for (semi-)natural ecosystems. Overall both types of receptors show similar sensitivities to nitrogen and the exceedances of critical loads range from zero to more than 40 kg N/ha.yr.

Critical levels for ozone and their exceedances have been mapped for agricultural crops and for forests. In addition, the population exposure with respect to exceedances of WHO Air Quality Guidelines has been assessed.

Turkey. ( given as an answer to question 61 but appears to be answer to question 63) Voluntary agreements were first introduced in 1993 for the prevention of pollution caused by cement industry emissions of which directly result in particulate matter pollution. An Environment Declaration, which dictates the achievement of lower emission limits than those stipulated in the Regulation, was signed between the Ministry of Environment and Cement Producers' Association. Negotiations with the iron and steel producers on a similar declaration are still being carried out.

In order to minimize air pollution of motor vehicles the Ministry of Environment and Turkish Automotive Industry have been working together. In this frame, the production of cars equipped with catalytic converters was started at the beginning of 1995 within the framework of a voluntary agreement, which was signed between the Ministry of Environment and the Turkish Automotive Manufacturers Association. This voluntary agreement covered an adaptation programme as well. According to the adaptation programme, which was based on EURO 93, catalytic converters were first installed in new cars with a 1800 cc engine capacity in 1995. Cars

with lower engine capacities (below 1800 cc) followed, and the programme was completed at the end of 1999. In Turkey all imported and domestically produced cars have been produced with catalytic converter since 01 January 2000.

United Kingdom. The Government sponsors various research projects monitoring levels of nitrogen in the air and in waters. It also has projects intended to elucidate the fluxes of oxidised and reduced nitrogen between the various environmental media and vegetation. Models have been developed to describe and predict the movement of nitrogen and its likely environmental impacts.

The Natural Environment Research Council has also chosen nitrogen as a priority area for basic research. Its GANE programme is intended to provide better explanations for and characterisations of the nitrogen cycle.

United States of America. Activities related to article 6 of the Nitrogen Oxides Protocol and article 5 of the VOC Protocol can be divided into monitoring, emissions, modelling, assessment, and research. Each of these topics is discussed in separate paragraphs.

The U.S. operates eight national networks for monitoring air pollution related to nitrogen oxides and VOC emissions, including ozone, fine particles, and dry and wet deposition. These networks consist of approximately 5000 sites nationwide, operated by Federal, State, and local government agencies [see <http://www.nnic.noaa.gov/CENR/aqmonit.pdf> and <http://www.epa.gov/ttn/amtic/>]. In addition, State and local governments operate their own air pollution monitoring networks. These ongoing monitoring efforts are supplemented by ad-hoc intensive field studies often involving cooperative efforts of government and industry scientists. [<http://www.epa.gov/airsdata/monitors.htm> and <http://www.epa.gov/ttn/airs/>]

The EPA has an ongoing programme to update emissions testing methods, emission factors, and emissions estimation guidance based on the best available data [see <http://www.epa.gov/ttn/chief/> and <http://www.epa.gov/ttn/emc/>]. In addition, the EPA works with State and local air quality agencies to improve emission inventory activities through the Emission Inventory Improvement Project [see <http://www.epa.gov/ttnchie1/eiip/>].

Models for predicting the fate of air pollutants are developed under a number of different programmes within the U.S. The EPA maintains a clearinghouse of models that have been approved for specific applications [see <http://www.epa.gov/ttn/scram/>]. Under EPA's Models-3 development programme, EPA has developed the Community Multi-scale Air Quality model, a state-of-the-science model that is capable of addressing transboundary flows of air pollutants. The model is currently undergoing evaluation for use in predicting ozone formation, but will also be capable of predicting acid deposition and nitrogen deposition, as well as fine particle formation and mercury transport.

The impact of nitrogen oxide controls has been assessed through a variety of studies, including the Regulatory Impact Analysis for the NO<sub>x</sub> SIP Call [see <http://www.epa.gov/ttn/rto/>], biennial assessments of the National Acid Precipitation Assessment Program [<http://www.oar.noaa.gov/NAPAP/>], and analyses conducted under the 1990 US-Canada Air Quality Agreement [<http://www.epa.gov/ardpublic/acidrain/lawsregs/uscanada.html>].

There are a number of efforts to coordinate research planning within the U.S. and across North America. The National Science and Technology Council's Committee on Environment and Natural Resources Air Quality Research Subcommittee coordinates the research efforts of Federal government agencies [see <http://www.nmic.noaa.gov/CENR/>]. Coordination also occurs as part of NARSTO, a trinational public-private partnership that coordinates research activities on tropospheric pollutants in the U.S., Canada, and Mexico [see <http://www.cgenv.com/Narsto/>].

**Q.62 Parties are invited to provide information on research and monitoring activities undertaken pursuant to article 5 of the VOC Protocol.**

Austria. Monitoring of ambient air concentrations of ozone is performed at more than 100 monitoring stations in Austria, three of them part of the EMEP network.

Research projects also dealt with e.g. development of a transport and photochemical model for ozone in eastern Austria, improvement of the spatial resolution of emission data, NO<sub>x</sub> emissions from agricultural soils, VOC emissions from natural sources, ozone transport phenomena in the alps, development of bioindicator methods for ozone, environmental effects of ozone (human health, forests, alpine ecosystems, improvement of data on Critical Levels).

Belgium. Awaiting translation

Canada. Canada conducts monitoring of ambient VOC from a national network which includes urban and rural monitoring sites. The program of systematic year-round measurements began in 1989 at the urban sites and the rural sites were added in 1993. The measurement program concentrates on the 50 to 150 most abundant C<sub>2</sub> to C<sub>12</sub> hydrocarbons consisting of the general formula C<sub>x</sub>H<sub>y</sub> and on the C<sub>2</sub> to C<sub>6</sub> carbonyls. The systematic measurements are complemented with data from occasional, short term, specialised field studies. Data are made public via regular reports and publications.

Czech Republic. See Q.61

Germany: For research and monitoring in general see Q.61. VOC concentrations are measured at 5 UBA stations and carbonyl is measured at 1 UBA station, both in cooperation with NILU. O<sub>3</sub> is measured at 22 UBA stations.

Italy. Italy developed research and monitoring programmes in order to participate to the international efforts to identify ozone standards to protect human health and the environment and to reduce VOC emissions by means of an effects based approach, contributing to the activities which led to the protocol to abate acidification, eutrophication and ground level ozone.

Latvia. See answer to question 61

Netherlands. Presently a study on the effects of ozone are being performed at the National Environmental Research Institute (RIVM). Also during the evaluation of the acidification theme an extensive literature search have been performed on research and monitoring of VOC.

Poland. Within the State Environmental Monitoring System and the EMEP monitoring network a regular monitoring of VOC imissions (ambient air pollution concentrations) are executed. Under officially promoted research programs the emission inventory procedures as well as the emission projections resulting from future macroeconomic factors are developed. Another group of research surveys aims at the identification and quantification of VOC emission effects to human health and the environment.

Additional information on monitoring related to all protocols. There are two monitoring systems of air pollution in Poland: the Inspectorate for Environmental Protection network (consisting of over 90 basic monitoring stations, including 4 EMEP stations) and the Sanitary Inspectorate network (consisting of over 450 measurement sites).

The Institute of Environmental Protection, on behalf of the Inspectorate for Environmental Protection, supervises the operation of the basic national system of air pollution monitoring stations, which was developed in 1991 by the Chief Inspector for Environmental Protection. Within the system measurements of SO<sub>2</sub>, NO<sub>2</sub>, dust, ozone and CO concentrations are carried out. Three stations are responsible for road traffic emission measurements. The Institute operates the central data base for the basic air pollution monitoring system collecting measurement results from all over Poland. All stations are supervised by the Inspectorate for Environmental Protection, the Sanitary Inspectorate and selected scientific research units. Reports on air pollution are published within the Environmental Monitoring Series by the Inspectorate for Environmental Protection.

The Institute also conducts activities and is responsible for emission balances preparing emission inventories of SO<sub>2</sub>, NO<sub>2</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub>, NH<sub>3</sub>, particulates, POPs, and in co-operation with the Institute for Ecology of Industrial Areas – VOCs and heavy metals. The results are provided by Poland in conformity with the 11 activity categories of the CORINAIR programme of the European Environmental Protection Agency and EMEP. Inventory reports on a national and regional level are included in annual publications of the Main Statistical Office. They are also submitted to EMEP fulfilling the Polish obligation within the Convention on Long-range Transboundary Air Pollution.

Republic of Moldova. The Republic of Moldova is not Party of the Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes. Unfortunately, monitoring of VOC air pollution isn't undertaken in our country. At the same time presently the Ministry of Environment and Territorial Development studies all the possibilities to enhance the level of quality of monitoring activities. We've signed already the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone in conformity with art.14 of the mentioned protocol. We included in this Protocol our obligations regarding emission ceilings on VOC for 2010. The next step after the signing of the mentioned Gothenburg Protocol will be the effectuation of necessary procedures in order to ratify it and the elaboration of National Programme of Activities regarding its implementation in the framework of our obligations, including the achievement of research and monitoring on VOC. Also, the Ministry of Environment and Territorial Development of our country developed a draft of the New Concept of Environmental Policy of the Republic of Moldova and one of the points of this concept will be the main directions of resolving problems on research and monitoring. The following documents, which are under development, are in Q.61.

Russian Federation. Awaiting translation

Slovakia. See answer to question 61

Switzerland. See Q.61 for monitoring activity of VOCs.

Turkey. (given as an answer to question 62 but appears to be an answer to question 64): Bilateral agreements are present with the countries Cyprus, Hungary, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. In order to prevent acid rains and to protect atmosphere from transboundary air pollution, common purpose of these agreements are enhancing, further cooperation, ensuring the highest level of protection from the potentially damaging effects, exchanging technology and experience, formulating a mechanism to continue a dialogue and organising education programmes for experts ,etc.

Furthermore, The Atmospheric Monitoring Project conducted within the Framework of the MED POL, Phase II, National Monitoring Programme. In May 1988, despite a limited data base existing for the region, with the realization of importance of atmospheric pollution transport on marine ecosystems especially for the semi-closed seas, airborne pollution studies were initiated within the framework of national MED POL monitoring programme with the coordination of the World Meteorological Organization (WMO). Within the MED POL national monitoring programme, the airborne pollution studies have been initiated at the beginning of 1992 in the south of Turkey. The samples collected from a monitoring site located at the Mediterranean coastal site near Antalya were analysed for the range of inorganic species. The main objective of the work has been summarized as to determine the levels of atmospheric concentration of aerosols and concentrations of pollutants in rainwater in the eastern Mediterranean, to measure the acidity and study factors affecting the acidity of rainwater in the eastern Mediterranean region, to study long-range transport of pollutants to the eastern Mediterranean region, to characterize the Saharan dust component of the Mediterranean aerosols, assessment of airborne pollution load of the Mediterranean sea and to estimate fluxes of the metals in the bio available form. This project has been carried out since 1995.

United Kingdom. The UK has an extensive hydrocarbon monitoring network, providing real-time monitoring of 26 compounds at 13 locations. This, together with 71 monitoring stations for ozone and the development of sophisticated models for ozone transport and formation, is enabling the UK to better understand the occurrence of ozone in the UK. The UK takes particular pride in the continuing research designed to describe the chemistry leading to the formation and removal of ozone, and its incorporation into models. Model development is now most apparent in accounting for ozone transport across transcontinental distances. The UK leads the Convention's ICP Vegetation, whose main focus is on assessing the vegetation stock at risk from ozone.

United States of America: See response to Q.61. Much of the research conducted relevant to nitrogen oxides is also applicable to our commitments under the VOC protocol. In addition, the EPA is also a participant in NARSTO's Reactivity Research Working Group which is identifying science questions and research opportunities related to differentiating VOCs based on their contribution to ozone formation.

## VOLUNTARY MEASURES AND AGREEMENTS

**Q.63 If applicable, briefly describe relevant voluntary measures and agreements used in your country to further reduce the air pollution from substances covered by the Convention and its protocols.**

Austria. A voluntary agreement with the Austrian Association of Electric Utilities had been concluded 1994 for the promotion of electricity from renewable sources. It fixed improved compensation for the supply of electricity from biomass, biogas, wind and solar energy sources to the public grid (see Q.19). A pilot project for reduced volatility of petrol during the summer month was based on a voluntary agreement with industry; the same reduction is now stipulated by directive 1998/70/EC. Moreover, a voluntary agreement was concluded about the maximum benzene content in petrol; it has been superseded by the requirements of directive 1998/70/EC

Belgium. Awaiting translation

Canada: The following Memoranda of Understanding are in place in the transportation sector:

- (a) Environment Canada has signed a Memorandum of Understanding (MOU) with the recreational marine engine sector. Under this MOU manufacturers have voluntarily agreed to supply cleaner engines to the Canadian market beginning with the 2000-2001 model year. These engines are certified to U.S. federal emissions standards for outboard engines;
- (b) In 1992, the Canadian Vehicle Manufacturers Association, the Ontario Government and Environment Canada joined together to launch a major pollution prevention initiative for 28 Canadian assembly and parts manufacturing plants. Key environmental teams set to work designing pollution prevention plans aimed at reducing and/or eliminating the use, generation and release of 65 targeted substances. With six years of implementation, those plans have realized major gains in overall environmental performance in areas as varied as waste reduction, recycling, re-use, and the elimination of targeted substances. The Automotive Pollution Prevention Memorandum of Understanding was renewed by the three major partners in 1999;
- (c) In 1995, Environment Canada negotiated an MOU with the Railway Association of Canada to voluntarily cap NO<sub>x</sub> emissions at 115,000 tonnes per annum, approximately 9% of all NO<sub>x</sub> emissions in the Transportation Sector.

The following Memoranda of Understanding are specifically aimed at reducing VOC emissions:

- (a) A MOU with the automotive OEM (original equipment manufacturers) and the Province of Ontario is in place to implement performance standards for VOC reduction consistent with the guidelines, codes of practice and standards identified earlier for the automotive OEM;
- (b) A MOU with the Canadian Paints and Coatings Association is in place to document the reduction of VOC contents in consumer paints;
- (c) A MOU is under development with the Canadian Chemical Producers Association to reduce VOC emissions by 25% from 1997 to 2002 from member companies.

Cyprus. The Cyprus Standards and Quality Control Organisation promotes the use of voluntary measures such as ISO schemes on Quality Assurance and Environmental Quality. Until now two industrial companies have been licensed under the ISO 14000 scheme and more are now working on the issue in order to be licensed. Many more companies have already been licensed according to the ISO 9000 scheme.

Czech Republic. The following voluntary instruments exist for further decrease of pollution of the air and other components of the environment in CR:

- (a) Ecolabelling (adopted through Resolution of the Government of CR No. 157 of April 7, 1993);
- (b) the National EMAS Program (adopted through Resolution of the Government of CR No. 466 of July 1, 1998);
- (c) the National Cleaner Production Program (adopted through Resolution of the Government of CR No. 164 of February 9, 2000);
- (d) Voluntary agreements:
  - . Between the Ministry of the Environment and the Czech Association of Producers of Soaps, Cleaning Preparations and Detergents for gradual decreasing of the environmental impact of detergents;
  - . Between the Ministry of the Environment and the Czech Industrial Association for Packaging and the Environment, based on the need to form a system of providing for the collection of used packaging with the purpose of utilization and to ensure gradual fulfilling of the targets of re-use of packaging waste as required by Directive 94/62/EC.

Germany. Through the "German Industry Climate Protection Declaration" of 1996, central industrial associations have pledged (in agreement with the Federal Government) to reduce CO<sub>2</sub> emissions and/or specific energy consumption by 20% by the year 2005 (relative to 1990), and to have compliance monitored by an independent institute.

Italy. In Italy there has been a voluntary agreement with national road vehicle manufactures since 1995 for the production of electric, hybrid and natural gas powered vehicles for both private and public transport, and for the production of low consumption vehicles (145 g CO<sub>2</sub>/km) by 2005. Ninety chemical industries with 223 production plants are covered by their Responsible Care programme, which has resulted in a substantial reduction in VOC emissions in the period 1989 - 1994. National manufacturers of mopeds and motorcycles have undertaken, in the framework of voluntary agreement signed on 18 November 1999 with Italian Ministry of the Environment, Ministry of transport, Italian Municipalities, to put in the market low emission mopeds and motorcycles in advance compared to the obligation established by European Directive 97/24/CE. National glass factories signed a voluntary agreement to develop and introduce measures to reduce NO<sub>x</sub> emissions of 50% in the period 1998 – 2002.

Monaco. The Government of Monaco supports companies that apply for ISO 9000 and 14000 certification, especially in view of the effect on air pollution (unofficial translation).

Netherlands. Please refer to section 3 and the information about KWS 2000. The KWS 2000 is a covenant with emission targets for the various sectors.

Poland. Voluntary agreements regarding the reduction of emission of pollutants into the atmosphere can be signed with companies within the Cleaner Production Movement which was developed a few years ago. Within this system enterprises make a declaration for cleaner production receiving training, advice and organisational assistance in return. Eighteen major chemical plants participate in implementation of the "Responsible Care" programme. Over 60 industrial plants take part in the implementation of individual agreements on the elimination of the so-called "hot spots". At present the need for wider use of voluntary agreements between the authorities and the industry is being emphasised in different environmental strategies and programmes, especially related to sectors of significant POP and heavy metal emission reduction needs. For additional information see Q.34.

Republic of Moldova. N/A

Russian Federation. Awaiting translation

Switzerland. A voluntary agreement between the federal authorities and the paint and lacquer producer association on the reduction of the content of organic solvents in paints and lacquers exists. Paints and lacquers with a solvent content up to 2% are defined as solvent-free, those with a content between 2-15% are described as low-solvent products. The labelling is done on a voluntary basis. The mean content of solvents in paints and lacquers in Switzerland decreased from 22% in 1985 to 13.3% in 1998.

Turkey. See question 61. (given as an answer to question 63 but appears to be answer to an answer to question 65): The Ministry of Environment has a web page as [www.cevre.gov](http://www.cevre.gov). The information related to air pollution abatement policies and activities could be obtained from same e-mail address.

Ukraine. (given as an answer to question 63 but appears to be an answer to question 65): Unfortunately there is no Web site in Ukraine providing information about air pollution abatement policies and activities.

United States of America. States may use voluntary programmes and control measures for either attaining the NAAQS or for other CAA requirements. States can assume credits for certain voluntary measures, up to 3 percent of the total needed emission reductions for any particular requirement. The United States has policy documents that provide guidance on how voluntary measure programmes should work. Examples of mobile source voluntary measures are employer-sponsored transportation management programmes that result in car pooling and van pooling, lawnmower buy-back programmes that replace gasoline powered mowers with electric ones and State-run programmes that encourage people to use public transportation instead of private vehicles. Example programmes for stationary source voluntary measures are retailers voluntarily selling only low-VOC paints during the summer, companies volunteering not to paint or use VOC-based cleaning equipment on ozone action days (days when ozone levels in the air are expected to be especially high) and printers voluntarily switching to low-VOC inks.

The United States also has voluntary agreements like the National Low Emitting Vehicle (NLEV) Program and the OTC=s Memorandum of Understanding that States include in their

plans as part of the requirement to reduce emissions and implement control measure to attain the NAAQS for ozone.

NLEV is a nationwide programme to make new cars significantly cleaner burning than today's cars and represents an alternative, more effective method of regulatory development through extensive interaction between the federal government, State and local governments, non-governmental organizations and industry. National LEV vehicles will be 70 percent cleaner than today's models.

The OTC includes the states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, the northern counties of Virginia, and the District of Columbia. In September 1994, the OTC adopted a memorandum of understanding to achieve regional emission reductions of NO<sub>x</sub>. (Virginia is not a signatory.) In signing the MOU, the states committed to developing and adopting regulations that would reduce region-wide NO<sub>x</sub> emissions in 1999 and further reduce emissions in 2003 and represents the Northeast's effort to control NO<sub>x</sub> emissions in order to make progress towards attainment of the ozone health standard.

## **BILATERAL ACTIVITIES**

**Q.64 Besides ongoing cooperation under the Convention, several Parties participate in other multilateral or bilateral programmes within the UN/ECE region to abate air pollution, such as joint implementation and burden sharing. Please briefly describe your involvement in these programmes, including their objectives, time frames and, where possible, results.**

Austria. Austria has concluded a series of bilateral treaties on cooperation in environment matters with its neighbouring countries in the Eastern part of Europe since 1985. The framework of bilateral agreements includes programmes to provide specialised technical and organizational assistance through the implementation of working plans developed under agreements on cooperation in the field of environment; enhance energy efficiency and encouraging the use of renewable energy sources; collect and exchange environmental data and information; and develop indigenous environmental counselling as well as educational capacities and structures.

Austria plays an active role in multilateral and regional cooperations such as the Central European Initiative (C.E.I.), the Regional Environmental Center in Budapest and the Central European Environmental Data Request Facility (CEDAR).

Belgium. Awaiting translation

Bulgaria. Bulgaria participates in the International Joint Programme on the assessment and monitoring of air pollution effect on the forests. A program on the approximation of Bulgarian Environmental Legislation with EU requirements for industrial pollution abatement was implemented with the Danish co-operation. Bilateral programme with France B PHARE 98 (ADEME) and with Germany in 1999 are being implemented. Bulgaria is to sign an agreement with the Netherlands on the joint implementation of a programme on greenhouse gasses reduction.

Canada. Under the Air Quality Agreement, Canada and the United States launched negotiations on February 16, 2000 in Ottawa of a new annex to the Agreement to address ground-level ozone through reductions of NO<sub>x</sub> and VOC emissions. The negotiations are expected to be complete in 2000 and are expected to establish for the two countries the bases for their ratification of the LRTAP Convention Protocol to Abate Acidification, Eutrophication and Ground-level Ozone. Joint work to describe the transboundary inhalable particles issue is underway now and an annex to the Air Quality Agreement to address this issue is expected in 2-4 years.

Cyprus. Two activities are mentioned herebelow that are relevant to this report.

Project on Industrial Pollution Control. Financed through the 3rd Cyprus – EU Financial Protocol. Objective : To enhance the capabilities of the Government of Cyprus for combating industrial pollution, to harmonise existing legislation with EU legislation and to provide technical guidance to selected industrial units to enable them to solve environmental problems. Duration: July 1996 – Dec. 1998.

Project on Industrial Pollution Control and on the Control of Chemical Substances. Financed through the E.U. LIFE Programme. Objective: Establishment of an integrated management system for industrial emissions and for the control of chemical substances and development of tasks related to Best Available Techniques for the implementation of the EU Directive on Integrated Pollution Prevention and Control (IPPC). Duration: January 1999 – December 2000 .

Czech Republic. The Czech Republic is a party to the following multilateral or bilateral programmes related to protection of the air within the UN/ECE region:

The Memorandum on exchange of imission data in the Black Triangle - cooperation amongst CR, Poland and Germany. Cooperation was commenced by signing the agreement on June 17, 1996. The target is monitoring of air quality and exchange of data amongst these three countries.

The Agreement between the Czechoslovak Socialist Republic and the Government of the People's Republic of Poland on protection of the air against pollution. This Agreement was signed on September 24, 1974 in Warsaw. Its target is an attempt to decrease air pollution, monitor discharged substances and monitor and evaluate the state of air pollution.

In addition, bilateral environmental agreements have been concluded between CR and the surrounding countries in which the area of air pollution is included. They once again deal with cooperation in monitoring, exchange of information and mutual assistance in this area.

In the years 1991 - 1997, the Silesia project was carried out in cooperation with the USA. This program dealt with risk assessment and management acting on the health of the population of Silesia, including the impact of air pollution on human health.

The Teplice project has been functioning since 1993. This is a program of scientific research dealing with air control and monitoring in the Teplice area. The original program

supported by the USA has been replaced by a new program (Teplice II) with only CR participating.

Germany. Germany is engaged in bilateral programmes with all countries of Central and Eastern Europe with the aim of improving environmental conditions. The measures include financial assistance for the installation of emission control technology, efficient energy use and pollution measurement equipment.

Hungary. There has been technical and financial cooperation between the Netherlands and Hungarian Governments aimed at improving the exchange of VOC-abatement technologies.

Latvia. In the years 1997-1999, activities were carried out aimed on improving the operation of the monitoring system and quality of the observation, and preventing environmental pollution to meet the requirements of the EC Directives:

- (a) Modernization of the air monitoring network through the installation of automated DOAS systems in major towns and industrial centres of Latvia ;
- (b) Modernization of 2 EMEP stations and the laboratory equipment for air and precipitation monitoring by financial assistance of the Swedish Environmental Protection Agency (Institute of Applied Environmental Research, Stockholm University);
- (c) State Hydrometeorological Agency (SHMA) initiated project => Development of Systems for Environmental, Air, Inland Water and Marine Transboundary Pollution, Latvia== in order to upgrade quality of work of the laboratory to comply with the EMEP requirements. The objective of the project is modernization of the laboratory by additional financial support of PHARE programme. Experts of PHARE approved the project on 1998;
- (d) SHMA laboratory, participated in 6 intercomparison exercises by assistance of NILU (Norwegian Institute for Air Research), NIVA (Norwegian Institute for Water Research), GAW/WMO-Acid Rain (Albany University), and ISPRA (European Commission Environment Institute, Italy);
- (e) The expert of the Environmental Quality Observation Department of SHMA participated, by financial support from NILU, WMO and the Stockholm University, in training courses and workshops: dedicated to extended heavy metal and POP=s observations (Lillehammer and Moscow), QA/QC issues at the EMEP stations (Czech, Bergen), first joint EMEP/WMO/GAW training workshop for System and Performance Auditors (Czech), field, laboratory and data handling training in the Czech Hydrometeorological Institute;
- (f) The air monitoring network of Latvia is involved in the EUROAIRNET system to provide the exchange of information at the regional and international levels.

Lithuania: Since independence, Lithuania has established close links for environmental cooperation with its neighbours as well as with other countries around the Baltic Sea and elsewhere in Europe. Lithuania has established very close links and environmental cooperation with the northern Baltic countries. Technical assistance and financial support (JI) from these countries has led to a gradual improvement in their common environment.

In 1995, the Governments of Lithuania, Estonia and Latvia signed the Trilateral Agreement on Cooperation in the field of Environmental Protection. It stipulates that the coordination and supervision of the relevant activities are responsibility of the Baltic Council of

Ministries. The Environmental Policy Committee of the Baltic Council of Ministers discusses and prepares all environmental issues giving rise to trilateral cooperation. It also proposes activities to the Baltic Environmental Forum. The Forum is a joint project between the EU and the three Baltic States.

In 1992, Nordic and Baltic countries set up an integrated monitoring system. In Lithuania there are transboundary pollution measuring stations that meet the EMEP standards to monitor air quality (both long-range transboundary air pollution and precipitation).

Lithuania participates in warning systems developed to comply with the Helsinki Commission's recommendations on the prevention of air pollution.

Monaco. The principality carries out a bilateral co-operation policy with several UN/ECE countries, such as Bulgaria and France, to protect and regenerate forests (unofficial translation).

Netherlands. This situation is unchanged from what was reported in the latest review.

Poland: Poland has established an advanced bilateral partnership in the field of environmental protection with the neighbouring countries. The majority of agreements has been signed before 1994 and more detailed information on them was provided in previous reviews (e.g. Polish-Lithuanian, Polish-German, Polish-Slovak, Polish-Ukrainian agreements). Below are some events related to them:

- (a) establishment of a Permanent Working Group on co-operation in environmental protection between Poland and Belarus;
- (b) implementation of the work programme of the Polish-Lithuanian environmental co-operation;
- (c) signing of the trilateral Protocol on Air Quality Data Exchange (1996) between Poland, the Czech Republic and Germany in the "Black Triangle" region (covering Northern Bohemia, part of Lower Silesia and Saxony) within a joint agreement signed in 1991. The Joint Air Monitoring System (JAMS) consists of more than 40 monitoring stations. The European Commission was invited to be the fourth partner and to assist the region financially. Since then the PHARE Black Triangle project contributed to the improvement of air and water quality in the region above;
- (d) publication of the first joint trilateral report on air quality in the Black Triangle region (1999). It focuses on measured values of air pollutants in 1998. For each air pollutant, the emissions and ambient air concentrations are presented in comparison to the EU limit values and the national standards.

**Republic of Macedonia.** The Republic of Macedonia indicates that in the frames of the institutional strengthening process of the Ministry of Environment, Sector Operational Programme for 1999 is being realized and financed by PHARE. It envisages improvement of the existing legal regulations, based on recommendations of the European Union aiming at approximation and harmonization of the home legislation with the one of the European Union. In the future legal projects there would be chapters on permitted level, control and measures of decrease in sulphur emissions, nitric oxides, volatile organic pollutants, heavy metals and decomposable organic pollutants. In addition, the Republic of Macedonia, through several projects, such as establishment of Cleaner Production Center and Energy Efficiency Project

financed by the Holland Agency SENTER, is joining the world trends for decreased consumption of fuels having negative effect on environment and energy savings.

Republic of Moldova. We would like to inform you, that the Republic of Moldova is party of the international conventions:

- (a) on Long-range Transboundary Air Pollution (Geneva, 1979);
- (b) on Climate Change (New York, 1992);
- (c) for the Protection of the Ozone (Vienna, 1985) and Montreal Protocol on Substances that Deplete the Ozone Layer (1987);
- (d) on the Transboundary Effects of Industrial Accidents (Helsinki, 1992);
- (e) on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991);
- (f) on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel), - and other conventions.

Cooperation in the CIS framework: The Republic of Moldova has ratified its accession to the Commonwealth of Independent States (CIS), except for all political or military agreements. Only the economic union agreements were accepted in April 1994, when Moldova became a member of the Interstate Economic Commission. The Republic of Moldova is also a member of the Interstate Ecological Council (IEC) of CIS. This organization was created in 1992. Its main functions are:

- (a) Coordinating environmental policies;
- b (b) Harmonizing environmental legislation and standards;
- (c) Drawing up and implementing joint environmental programmes and projects;
- (d) Establishing a common information system, gathering and exchanging information and experiences, and capacity building in information;
- (e) Coordinating research in different fields;
- (f) Coordinating international activities;
- (g) Drafting agreed and common recommendations for the establishment of ecological funds, and other functions.

Cooperation with Ukraine: The Republic of Moldova was signed cooperation agreement between the Ministry of Environment and Territorial Development of the Republic of Moldova and the Ministry for Environmental Protection of Ukraine in the different fields of environmental protection: air, soil, water, flora and fauna, chemical contamination in soil, processing and utilization of industrial and household waste and other fields.

Cooperation with Romania: In March 1997 a cooperation agreement on environmental protection and the sustainable use of natural resources was signed between Moldova's Ministry of Environment and Territorial Development and Romania's Ministry of Water, Forests and Environmental Protection. The main areas of cooperation are:

- (a) Harmonization of environmental legislation and technical standards;
- (b) Implementation of joint monitoring to provide decision makers with necessary information;
- (c) Promotion of cleaner technologies;
- (d) Cooperation in the implementation of international agreement and conventions;
- (e) Public participation and facilitation of access environmental information;

- (f) Environmental education and training, as well as the exchange of experiences and specialists, other areas.

Cooperation with Belarussia: In December 1994, an agreement was signed with the Belarussian Ministry of Natural Resources and Environmental Protection. The two partners committed themselves to coordinating the drafting of legislation, methodologies, energy- and resource-saving technologies, to protecting soils and fertility, to using mineral and forest resources rationally, to protecting the genetic fund of rare animal and plant species, as well as to sharing information and experiences.

The Ministry of Environment and Territorial Development of our country developed a draft of the New Concept of Environmental Policy of the Republic of Moldova and one of the points of this concept is international cooperation.

Russian Federation. Awaiting translation

Sweden. Q.7, Q.16, Q.25, Q.26 and Q.64. Exchange of technology, SO<sub>x</sub>, NO<sub>x</sub> och VOC: Sweden are active in assisting in the St Petersburg area of Russia, in the Baltic countries and Polen. Important areas have been energy saving, district heating, boiler technology and conversion from fossil to biomass fuels. In the joint projects both technology improvements and training programmes are included. Sweden amongst other countries is helping to maintain and improve EMEP-stations and city air monitoring equipment in Russia and the Baltic countries.

Switzerland. Only few projects in cooperation with Bulgaria, CIS countries and alpine countries (A, F, D, FL). Most activities in the field of the environmental protection are in favour of countries with economies in transition or developing countries outside of the UN/ECE area.

Turkey. See answer to question 62. (given as an answer to question 64 but appears to be an answer to question 66): turkey has ratified 1984 EMEP Protocol in 20.12.1985. Also Turkey is making her financial contribution regularly under the Convention.

Ukraine. (given as an answer to question 64 but appears to be an answer to question 66): The EMEP Protocol was ratified on 30 August 1985.

United Kingdom. The UK provides bilateral technical assistance for environmental projects to countries in transition through the Environmental Know How Fund (EKHF). Current projects include: the development of an Air Quality Monitoring and Management System for Budapest, which will serve as a model for other towns and cities in Hungary; in Azerbaijan, Kazakhstan and Uzbekistan; and best practice guidance for environmental management and energy efficiency in the iron and steel sector in Romania.

Recent projects include: support for the World Bank's air pollution abatement programme in Bulgaria; and support for the World Bank's National Commitment Building Program to Phase Out Lead from Gasoline in Azerbaijan, Kazakhstan and Uzbekistan, the introduction of clean-coal technologies in the Romanian and Ukrainian power sectors; and advice on the approximation of EU air legislation in the Baltic States.

Air quality management proposals for Ukraine are under consideration.

United States of America. Under the 1991 United States-Canada Air Quality Agreement, the United States and Canada have committed to cooperate in addressing transboundary air pollution. The original Agreement focussed on acid rain issues in addition to visibility, prevention of deterioration of the air quality in areas meeting NAAQS, and cooperation on research issues. The two governments have made significant reductions in emissions of the two major acid rain pollutants B sulphur dioxide and nitrogen oxides consistent with the Agreement. The United States= close cooperation with the Canadian national and Provincial governments and other interested parties has demonstrated that , in addition to the importance of continuing joint work on common concerns to reduce acid deposition, the two countries have substantial common interests in the problems of ground-level ozone and particulate matter pollution.

In April 1997, the United States and Canada agreed to develop a Joint Plan of Action for Addressing Transboundary Air Pollution focusing on ozone and particulate matter. The plan called for the two countries to develop a work plan and deliver to the EPA Administrator and the Canadian Minister of the Environment a recommendation on negotiation of an ozone annex pursuant to the Air Quality Agreement and on a joint work plan for fine inhalable particles. Negotiations on an annex to the Air Quality Agreement began in February 2000. The elements of such an annex will be designed to address ground-level ozone in the United States-Canada border region.

The United States has other bilateral initiatives as well. For example, the goal of EPA's Russia Air Management Project (RAMP) was to test the full range of U. S. air quality management techniques in Russia. The Russian-American team evaluated the success of these measures and the Russians selected several for further application Russia-wide. These included low cost technology control measures, particularly the pre-cast delta technology for electric arc furnaces; visible emissions evaluation (opacity) as an enforcement tool; monitoring and measurement techniques, including the transfer of over \$2,000,000 worth of U.S. laboratory equipment; and a training center which is sustaining itself beyond the life of the project. RAMP began in 1992 with final completion of last portion in 1999.

## **WEBSITES**

**Q.65 If your country has a website with information on air pollution abatement policies and activities (including research and monitoring), please give the addresses.**

Armenia. The Web site of the Ministry for the Protection of Nature of the Republic of Armenia can be found at this address: <http://www.nature.am>.

Austria. Information on policy related issues: <http://www.bmu.gv.at>  
Information on air quality monitoring: <http://www.ubavie.gv.at>  
Information on R&D and technology: <http://www.forschungsforum.at>, <http://www.ecodesign.at>,  
<http://www.umwelttechnik.at> and <http://www.municipia.at>.

Belgium. Awaiting translation

Bulgaria. [www.moew.government.bg](http://www.moew.government.bg) and [www.online.bg/NCESD](http://www.online.bg/NCESD)

Canada. The Environment Canada website, which contains information about air pollution abatement policies and activities is: <http://www.ec.gc.ca>

Czech Republic. Addresses: [www.env.cebin.cz](http://www.env.cebin.cz), [www.chmi.cz](http://www.chmi.cz), [www.emise.cz](http://www.emise.cz) and [www.recetox.chemi.muni.cz](http://www.recetox.chemi.muni.cz)

Denmark. [www.ens.dk](http://www.ens.dk), [www.dmu.dk](http://www.dmu.dk)

Finland. <http://www.vyh.fi/eng/fei/fei.html>  
And <http://www.fmi.fi/ENG/ILA/regional.html> for research and monitoring and environmental policies <http://www.vyh.fi/eng/moe/moe.html>

Germany. <http://www.bmu.de> and <http://www.umweltbundesamt.de>

Hungary. Information is available on the website of the Ministry for Environment:  
[www.ktm.hu](http://www.ktm.hu)

Italy. [www.minambiente.it](http://www.minambiente.it)

Latvia. General information on all activities of the ministry: <http://www.varam.gov.lv>

Lithuania. <http://www.gamta.lt>.

Netherlands. Concerning the topic acidification please consult the following homepage (in Dutch): <http://www.minvrom.nl/minvrom/pagina.html?id=499>  
Concerning climate change policies on energy reductions please consult the following homepage (in English): <http://www.minvrom.nl/minvrom/pagina.html?=1314>

Poland. A separate website limited only to air pollution abatement policies and activities or air pollution is not available in Poland. Different research institutes or institutions maintain their own databases on air pollution (such a database on air emission inventories for EMEP purposes is at the Institute of Environmental Protection). For example, a report on the state of the environment in Poland can be found at the website operated by UNEP/GRID Warsaw Environmental Information Centre <http://www.gridw.pl>. Its role is to assist and support the national environmental monitoring system in the field of processing data on environment to make it available to the public. The Ministry of Environment also provides information at <http://www.mos.gov.pl> on, inter alia, air pollution abatement policies and activities, offering access to existing and draft environmental legislation, policies, strategies, programmes and reports. Information, mainly on legislation and legislation processes, as well as parliamentary activities related to environmental protection can be obtained at <http://www.sejm.gov.pl> and <http://orka.sejm.gov.pl> the websites of the Polish Chamber of the Parliament.

Republic of Moldova. The ministry's web site is under development actually.

Russian Federation. Awaiting translation

Slovakia. There is the official website of the Ministry of the Environment of the Slovak Republic is <http://www.lifeenv.gov>. Information on air pollution is on official website of the Slovak Hydrometeorological Institute: <http://www.shmu.sk>.

Sweden. <http://www.environ.se>

Switzerland. Homepage addresses in Switzerland: Swiss Agency for the Environment, Forest and Landscape: <http://www.buwal.ch/e/index.htm>

State of the Environment report (full text): <http://www.buwal.ch/e/themen/index.htm>

State of the Environment report (chapter air):

<http://www.buwal.ch/e/themen/umwelt/luft/index.htm>

Air Pollution Control in Switzerland: <http://www.buwal.ch/luft/f/index.htm>

Various information relating to air pollution and legislation: <http://www.cerclair.ch/en/index.html>

Turkey. See answer to question 63. (given as an answer to question 65 but appears to be an answer to question 67): Turkey has not ratified the 1988 Nitrogen Oxides Protocol yet.

Common explanation for questions 65-69 [ given as answers to questions 65-69 but appear to be answers to question 67-71]: Although Turkey fully associates herself with the objectives of the Protocols, because of the limitations in technological transformation, bottlenecks in financing such transformation as well as the inadequacy of its environmental monitoring infrastructure and lack of proper emission inventories, she will not be able to sign the Protocols in the very near future.

Ukraine. See answer to question 63. (given as an answer to question 65 but appears to be an answer to question 67): Ukraine has not ratified the 1988 Nitrogen Oxides Protocol, and has no plans to do so for economic and technical reasons.

United Kingdom. The following link for air pollution issues is on the website of the UK Department of the Environment, Transport and the Regions:

<http://www.environment.detr.gov.uk/airq/aqinfo.htm>

United States of America. The United States has a large amount of information available on the internet. Parties can refer to the following address for the EPA's main website:

[www.epa.gov/air](http://www.epa.gov/air).

## **FUTURE RATIFICATION**

**Q.66 If your country has not yet ratified the 1984 EMEP Protocol, does it have plans to ratify/accede to this Protocol?**

**If so, when?**

**If not, you may wish to provide any available information as to possible problems or obstacles to ratification and on measures taken to overcome them.**

Armenia. Questions 66-72: The Republic of Armenia has repeatedly stated its intention to accede to the 1984 EMEP Protocol, the 1988 Nitrogen Oxides Protocol, the 1991 VOC Protocol, the 1994 Sulphur Protocol and to ratify the 1998 Protocols on heavy metals and on persistent organic pollutants and the 1999 Gothenburg Protocol, although this will involve economic and technical problems relating to compliance with the obligations under these instruments.

Belarus. The Ministry of Environmental Protection, the Committee on Science and Technology and the National Academy of Sciences are carrying out the scientific groundwork to evaluate the options and implications of accession by the Republic of Belarus to the VOC, heavy metals and POP protocols. The work is due to be completed in 2001.

Belgium. Awaiting translation

Bulgaria. Ratified

Czech Republic. The 1984 EMEP Protocol has been ratified

Lithuania. Yes, after accession into the EU

Monaco. Not relevant (unofficial translation).

Netherlands. The Netherlands has already ratified the 1984 EMEP Protocol

Poland. Poland has acceded to the 1984 EMEP Protocol on 14 September 1988 and is fully fulfilling its obligations.

Republic of Moldova. Republic of Moldova plans to ratify the 1984 EMEP Protocol. At present the possibility of ratification is studying in our country and our participation in EMEP Programme as a consequence. Unfortunately, the greatest obstacle of the earlier ratification is the difficult economic situation in which we have been put now. In this context we are preparing project proposals concerning our participation in EMEP Programme, including our contributions in kind.

Russian Federation. Awaiting translation

Slovakia. Yes. Slovakia is a party to the EMEP Protocol since 28 May, 1993 by succession of former Czechoslovakia.

Switzerland. The 1984 EMEP protocol was ratified on 26 July 1985 by Switzerland.

Turkey. See answer to question 64. (given as an answer to question 66 but appears to be answer to question 68): Turkey has not ratified the 1991 VOC Protocol yet.

Ukraine. See answer to question 64. (given as an answer to question 66 but appears to be answer to question 68): Ukraine has not ratified the 1991 VOC Protocol, and has no plans to do so for economic and technical reasons.

United Kingdom. The UK ratified the Protocol in 1985.

United States. The United States has ratified the 1984 EMEP Protocol.

**Q.67 If your country has not yet ratified the 1988 Nitrogen Oxides, does it have plans to ratify/accede to this Protocol?**

**If so, when?**

**If not, you may wish to provide any available information as to possible problems or obstacles to ratification and on measures taken to overcome them.**

Armenia. See answer to question 66.

Belarus. For the time being the Republic of Belarus considers it impossible to accede to the 1994 Sulphur Protocol. Reconstruction and major investment will be needed at the two oil refineries in Novopolotsk and Mozyr to achieve the standards set by the Protocol for sulphur content in fuels. A considerable proportion of the light and dark petroleum products supplied to Belarus comes from the Russian Federation and other CIS countries which have not ratified the Protocol. This creates serious problems in meeting obligations under the Protocol.

Stationary source categories	National emission standards for NO <sub>x</sub> (in NO <sub>2</sub> equivalent)		Units and statistical treatment	Pollution control measures applied
	gas	fuel oil		
Boilers for power generation, manufactured before 1.07.90			kg/GJ (mg/m <sup>3</sup> ) dry gas with $\alpha = 1.40$ , $t = 0$ °C, 101.3 kPa	flue gas recycling, multi-stage combustion
Output less than 420 t/h	0.086 (255)	0.10 (290)		
Output more than 420 t/h	0.10 (290)	0.12 (350)		

Stationary source categories	National emission standards for NO <sub>x</sub> (in NO <sub>2</sub> equivalent)		Units and statistical treatment	Pollution control measures applied
	gas	fuel oil		
Boilers for power generation, manufactured after 1.07.90			kg/GJ (mg/m <sup>3</sup> ) dry gas with $\alpha = 1.40$ , $t = 0$ °C, 101.3 kPa	flue gas recycling, multi-stage combustion
Output less than 420 t/h	0.07 (200)	1.10 (290)		
Output more than 420 t/h	0.08 (240)	1.12 (250)		
Steam boilers, stationary, manufactured before 1.07.90			kg/kJ dry gas with $\alpha = 1.40$ , $t = 0$ °C, 101.3 kPa	flue gas recycling, multi-stage combustion for boilers with output of more than 20 t/h
Output 4-25 t/h	0.12	0.15		
Output 35-75 t/h	0.15	0.20		
Output 100-160 t/h	0.30	0.30		

Stationary source categories	National emission standards for NO <sub>x</sub> (in NO <sub>2</sub> equivalent)		Units and statistical treatment	Pollution control measures applied
	gas	fuel oil		
Steam boilers, stationary, manufactured after 1.07.90			kg/kJ dry gas with $\alpha = 1.40$ , $t = 0$ °C, 101.3 kPa	flue gas recycling, multi-stage combustion for boilers with output of more than 20 t/h
Output 4-25 t/h	0.11	0.14		
Output 35-75 t/h	0.14	0.18		
Output 100-160 t/h	0.22	0.27		
Boilers for district heating, water-heating, from 1.01.89 to 1.01.96			kg/kJ (mg/m <sup>3</sup> ) dry gas with $\alpha = 1.40$ , $t = 0$ °C, 101.3 kPa	not applied
Output 30 (35) Gcal/h (MW)	0.09 (230)	0.13 (340)		
Output 50 (58) Gcal/h (MW)	0.12 (300)	0.15 (380)		
Output 100 (116) Gcal/h (MW)	0.12 (300)	0.15 (380)		
Output 180 (209) Gcal/h (MW)	0.12 (300)	0.15 (380)		flue gas recycling, multi-stage combustion
Boilers for district heating, water-heating,				

Stationary source categories	National emission standards for NO <sub>x</sub> (in NO <sub>2</sub> equivalent)		Units and statistical treatment	Pollution control measures applied
	gas	fuel oil		
from 1.01.96 to 2006 Output 100 kW	240/150	230*	mg/m <sup>3</sup> dry gas with $\alpha = 1.40$ , $t = 0$ °C, 101.3 kPa	not applied
Output 30 (35) Gcal/h (MW)	0.08 (200)	0.10 (250)		not applied
Output 50 (58) Gcal/h (MW)	0.08 (200)	0.10 (250)	kg/kJ (mg/m <sup>3</sup> ) dry gas with $\alpha = 1.40$ , $t = 0$ °C, 101.3 kPa	not applied
Output 100 (116) Gcal/h (MW)	0.08 (200)	0.10 (250)		flue gas recycling, multi-stage combustion, heaters with low NO <sub>x</sub> output
Output 180 (209) Gcal/h (MW)	0.08 (200)	0.10 (250)		

\* Light petroleum fuel used.

Mobile source categories	National emission standards for NO <sub>x</sub> (in NO <sub>2</sub> equivalent)	Units and statistical treatment	Pollution control measures applied
Diesels for ships, locomotives and industrial uses with average effective pressure under test of $\leq 0.3$ Mpa with average effective pressure under test of $> 0.3$ Mpa and specific	120	g/kg fuel	

Mobile source categories	National emission standards for NO <sub>x</sub> (in NO <sub>2</sub> equivalent)	Units and statistical treatment	Pollution control measures applied
fuel consumption, g/kWh:			
up to 214	29	g/kWh	
214 to 226	25	"	
226 to 238	21	"	
238 to 252	17	"	
252 to 268	14	"	
over 268	11	"	
Diesels for agricultural and industrial tractors	22.0	g/kWh	
Combine diesels	25.0	g/kWh	
Diesels for tractors to be used in places with limited air exchange	13.0	g/kWh	

Belgium. Awaiting translation

Bulgaria. Ratified

Cyprus. Due to the developing nature of the Cyprus economy the NO<sub>x</sub> emissions of Cyprus were increasing during the period covered by the Protocol. Therefore Cyprus could not meet the requirements of the Protocol.

Czech Republic. The 1988 Nitrogen Oxides Protocol has been ratified

Latvia. Latvia will ratify the Protocol to the 1979 Convention on Long-range Transboundary Air Pollution to Abate Acidification, Eutrophication and Ground-level Ozone.

Lithuania. Yes, after accession into the EU

Netherlands. The Netherlands has already ratified the 1988 Protocol on Nitrogen Oxides

Poland. Poland has signed the 1988 Nitrogen Oxides Protocol on 1 November 1988 but it has not been ratified yet. Its ratification is planned in 2000.

Republic of Moldova. The Republic of Moldova doesn't plan in the nearest future to ratify the 1988 Nitrogen Oxides Protocol. We signed the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone in conformity with art.14 of the mentioned protocol. We included in this Protocol our obligations regarding emission ceilings on Nitrogen Oxides for 2010. The next step after the signing of mentioned Gothenburg Protocol will be the effectuation of necessary procedures in order to ratify it and the elaboration of National Programme of Activities concerning its implementation in the framework of our obligations, including the achievement of NO<sub>x</sub> emission ceilings.

Russian Federation. Awaiting translation

Slovakia. Yes. Slovakia is a party to the Nitrogen Oxides Protocol since 28 May, 1993 by succession of former Czechoslovakia.

Switzerland. The 1988 nitrogen oxides protocol was ratified on 18 September 1990 by Switzerland.

Turkey. See answer to question 65. (given as an answer to question 67 but appears to be answer to question 69): Turkey has not ratified the 1994 Sulphur Protocol yet.

Ukraine. See answer to question 65. (given as an answer to question 67 but appears to be an answer to question 69): Ukraine has not ratified the 1994 Sulphur Protocol, and has no plans to do so for economic and technical reasons.

United Kingdom. The UK ratified the Protocol in 1990.

United States of America. The United States has ratified the 1988 Nitrogen Oxides Protocol.

**Q.68 If your country has not yet ratified the 1991 VOC Protocol, does it have plans to ratify/accede to this Protocol?**

**If so, when?**

**If not, you may wish to provide any available information as to possible problems or obstacles to ratification and on measures taken to overcome them.**

Armenia. See answer to question 66.

Belarus. See answer to question 66

Belgium. Awaiting translation

Bulgaria. Ratified

Cyprus. Cyprus will consider the ratification of the VOC Protocol soon and after the evaluation of data that are being collected within the accession negotiations with the European Union.

Czech Republic. The Czech Republic has acceded to the 1991 VOC Protocol

Latvia. Necessity to accede to this Protocol will be discussed. Latvia will ratify the Protocol to the 1979 Convention on Long-range Transboundary Air Pollution to Abate Acidification, Eutrophication and Ground-level Ozone.

Lithuania. Yes, after accession into the EU

Monaco. See answer to Q.71

Netherlands. The Netherlands has already ratified the 1991 VOC Protocol

Poland. Poland has not signed the 1991 VOC Protocol, but the matter of acceding to this agreement is being considered.

Republic of Moldova. The Republic of Moldova will not ratify in the nearest time the 1991 VOC Protocol. We've signed already the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone in conformity with art.14 of the mentioned protocol. We included in this Protocol our obligations regarding emission ceilings on VOC for 2010. The next step after the signing of the mentioned Gothenburg Protocol will be the effectuation of necessary procedures in order to ratify it and the elaboration of National Programme of Activities regarding its implementation in the framework of our obligations, including the achievement of emission ceilings on VOC.

Russian Federation. Awaiting translation

Slovakia. Yes. Slovakia has ratified the VOC Protocol on 16 December, 1999, and it has come to force for Slovakia on 14 March, 2000.

Switzerland. The 1991 volatile organic compounds protocol was ratified on 21 March 1994 by Switzerland

Turkey. See answer to question 66. (given as an answer to question 68 but appears to be answer to question 70): Turkey has not ratified the 1998 Protocol on Heavy Metals yet.

Ukraine. See answer to question 66. (given as an answer to question 68 but appears to be an answer to question 70): Ukraine has not ratified the 1998 Protocol on Heavy Metals. Ratification is planned for 2001-2002.

United Kingdom. The UK ratified the Protocol in 1994.

United States of America. The United States has no current plans to move forward with ratification of the 1991 VOC Protocol. However, the United States is achieving the goals of the Protocol. The U.S. made a 30 percent reduction by 1999 in VOC emissions from 1984 levels and will maintain this level.

European community. Ratification of the Protocol on behalf of the European Community is not envisaged.

**Q.69 If your country has not yet ratified the 1994 Sulphur Protocol, does it have plans to ratify/accede to this Protocol?  
If so, when?**

**If not, you may wish to provide any available information as to possible problems or obstacles to ratification and on measures taken to overcome them.**

Armenia. See answer to question 66.

Belarus. See answer to question 66.

Belgium. Awaiting translation

Bulgaria. Signed. Ratification expected in 2002.

Cyprus. Cyprus will consider the ratification of the 1994 Sulphur Protocol on the basis of the outcome of the accession negotiations that are now taking place with the European Union.

Czech Republic. The 1994 Sulphur Protocol has been ratified

Hungary. In 2000.

Latvia. Latvia foresees to accede to this Protocol on 2000.

Lithuania. Yes, after accession into the EU

Monaco. See answer to Q.71

Netherlands. The Netherlands has already ratified the 1994 Sulphur Protocol

Poland. Poland has signed the 1994 Sulphur Protocol on 14 June 1994, but it has not been ratified yet. Its ratification is planned in 2000.

Republic of Moldova. The Republic of Moldova doesn't plan in the nearest time to ratify the 1994 Sulphur Protocol. We've signed already the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone in conformity with art.14 of mentioned protocol. We included in this Protocol our obligations regarding emission ceilings for Sulphur for 2010. The next step after the signing of mentioned Gothenburg Protocol will be the effectuation of necessary procedures in order to ratify it and the elaboration of National Programme of Activities regarding its implementation in the framework of our obligations, including the achievement of emission ceilings on Sulphur.

Russian Federation. Awaiting translation

Slovakia. Yes. Slovakia has ratified the Second Sulphur Protocol on 1 April, 1998, and it has come to force for Slovakia on 1 July, 1998.

Switzerland. The 1994 second sulphur protocol was ratified on 23 January 1998 by Switzerland

Turkey. See answer to question 67. (given as an answer to question 69 but appears to be an answer to question 71): Turkey has not ratified the 1998 Protocol on Persistent Organic Pollutants yet.

Ukraine. See answer to question 67. (given as an answer to question 69 but appears to be an answer to question 71): Ukraine has not ratified the 1998 Protocol on Persistent Organic Pollutants. Ratification is planned for 2001-2002.

United Kingdom. The UK ratified the Protocol in 1996.

**Q.70 If your country has not yet ratified the 1998 Protocol on Heavy Metals, does it have plans to ratify/accede to this Protocol?**

**If so, when?**

**If not, you may wish to provide any available information as to possible problems or obstacles to ratification and on measures taken to overcome them.**

Armenia. See answer to question 66.

Austria. Ratification planned for early 2001.

Belgium. Awaiting translation

Bulgaria. Signed. Ratification expected in 2002.

Cyprus. In 2004 at the latest.

Czech Republic. The 1998 Protocol on Heavy Metals is expected to be ratified till the end of 2000

Denmark. Autumn 2000

Finland. Yes. Finland is on the process of ratifying the Heavy Metals Protocol in the next few months.

Germany. In 2001

Hungary. Not earlier than 2002.

Italy. The ratification of the 1998 Protocol on Heavy Metals is in process.

Latvia. Preparation work for ratification is started. Due to limited financial resources ratification of the Protocol is envisaged on 2002 or 2003.

Lithuania. Yes, after accession into the EU

Monaco. See answer to Q.71

Netherlands. The Netherlands has ratified the 1998 Protocol on Heavy Metals on 23 June 2000.

Poland. Poland has signed the 1998 Protocol on Heavy Metals on 24 June 1998 and is planning to ratify it in 2001. As soon as the strategy on heavy metal emission reduction is approved by the Government the ratification procedure can be started.

Republic of Moldova. Republic of Moldova plans to ratify/accede to the 1998 Protocol on Heavy Metals. Presently the consultations are undertaken in order to assess the possibility of ratification of this Protocol and the real terms for it. Unfortunately, the greatest obstacle of the earlier ratification is the difficult economic situation in which we have been put now. That is why it's hard to undertake the monitoring and laboratory control, there is insufficiency of knowledge for estimating critical loads and levels, pollutants transfer assessment on long ranges, level of sedimentation and modelling.

Russian Federation. Awaiting translation

Slovakia. Slovakia has to prepare the detailed emission inventory for heavy metals and then decide on appropriate measures to fulfil commitments of the protocol. We expect its acceptance or approval by the end of the year 2002 at the latest, most likely within the year 2001.

Spain. Yes

Switzerland. The 1998 heavy metals protocol will probably be ratified at the end of 2000 by Switzerland.

Turkey.

Ukraine. See answer to question 68.

United Kingdom. The UK plans to ratify the Heavy Metals Protocol in 2001.

United States of America. The United States is intending to ratify the 1998 Heavy Metals Protocol and is currently taking the necessary steps with a view toward ratification within the next year.

European community. The ratification procedure already started (Proposal for a Council Decision on the conclusion on behalf of the European Community of the HM Protocol, COM(2000)177 final of 12 April 2000).

**Q.71 If your country has not yet ratified the 1998 Protocol on Persistent Organic Pollutants, does it have plans to ratify/accede to this Protocol?**

**If so, when?**

**If not, you may wish to provide any available information as to possible problems or obstacles to ratification and on measures taken to overcome them.**

Armenia. See answer to question 66.

Austria. Ratification planned for early 2001.

Belgium. Awaiting translation

Bulgaria. Signed. Ratification expected in 2001.

Cyprus. In 2004 at the latest.

Czech Republic. The 1998 Protocol on Persistent Organic Pollutants is expected to be ratified till the end of 2000.

Denmark. Autumn 2000

Finland. Finland will ratify the POPs Protocol as soon as we can fix the base year for emission reductions. The preliminary results will be ready in autumn this year. So the ratification might happen early next year (2001).

Germany. in 2001

Hungary. In 2001.

Italy. The ratification of the 1998 Protocol on Persistent Organic Pollutants is in process.

Latvia. Preparation work for ratification is started. Due to limited financial resources ratification of the Protocol is envisaged on 2002 or 2003.

Lithuania. Yes, after accession into the EU

Monaco. In this context, it must be pointed out that Monaco is a very small, entirely urbanized country, and as a result is considered to be a point source of pollution, most of which is transboundary.

The Protocols' reduction targets are designed for large areas with many sources. Consequently, Monaco's pollutant emission assessment cannot be compared to those of the other Parties to the Convention and its Protocols. It is, therefore, difficult for Monaco to comply with the obligations as they are spelt out in the Protocols. However, the general obligations for abatement are part of its national sustainable development policy.

Monaco, nevertheless, plans to ratify the Protocols on Heavy Metals, Volatile Organic Compounds and Sulphur. (unofficial translation)

Netherlands. The Netherlands has ratified the 1998 Protocol on Persistent Organic Pollutants on 23 June 2000.

Poland. Poland has signed the 1998 Protocol on Persistent Organic Pollutants on 24 June 1998 and is planning to ratify it in 2001. As soon as the strategy on POP emission reduction is approved by the Government the ratification procedure can be started.

Republic of Moldova. Republic of Moldova plans to ratify/accede to the 1998 Protocol on Persistent Organic Pollutants (POPs). We plan to ratify it this year. Presently we are effectuating the necessary procedures for that. Unfortunately, the greatest obstacle of the earlier ratification is the difficult economic situation in which we have been put now. That is why it's hard to undertake the monitoring and laboratory control, there is insufficiency of knowledge for estimating critical loads and levels, pollutants transfer assessment on long ranges, level of sedimentation and modelling.

Russian Federation. Awaiting translation

Slovakia. Slovakia has to prepare the detailed emission inventory for POPs and then decide on appropriate measures to fulfil commitments of the protocol. We expect its acceptance or approval by the end of the year 2002 at the latest, most likely within the year 2001.

Spain. Yes

Switzerland. The 1998 persistent organic pollutants protocol will probably be ratified at the end of 2000 by Switzerland.

Turkey.

Ukraine. See answer to question 69.

United Kingdom. The UK anticipates ratifying the POPs Protocol in 2001. Further research is required to prepare the UK for ratification, and it may be that EC action is required to fulfil some aspects of the Protocol's obligations.

United States of America. At the conclusion of the Global POPs negotiations, the United States will begin the process to make the appropriate changes to U.S. law that are necessary to ratify both the 1998 POPs Protocol and Global POPs concurrently.

European community. Ratification on behalf of the European Community is planned. No precise timetable yet.