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COMMITTEE ON ENVIRONMENTAL POLICY

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(Item 11 (c) (i) of the provisional agenda)

**WORKSHOP ON ENHANCING THE ENVIRONMENT
BY REFORMING ENERGY PRICES**

Report by the secretariat

The attention of the Committee is drawn to the recommendations prepared at the ECE/OECD Workshop held in the Czech Republic on 14-16 June 2000. The Committee may wish to:

- (a) Take note of the report on the ECE/OECD Workshop and thank the Czech Republic for hosting the Workshop;*
- (b) Adopt the Recommendations to ECE Governments on Enhancing the Environment by Reforming Energy Prices as contained in annex I to the report on the Workshop;*
- (c) Invite the Committee on Sustainable Energy to establish jointly a task force of environment and energy experts to develop, on the basis of the Workshop's results and in cooperation with OECD, IEA and the European Commission, detailed guidelines for decision-makers on reforming energy prices to promote sustainable development. These guidelines would be submitted to a joint meeting of the Bureaux of the two Committees in early 2002 and thereafter, if agreed, to the Ministerial Conference "Environment for Europe" (Kiev, 2002) and the "Rio+10" Conference.*

1. The Workshop on Enhancing the Environment by Reforming Energy Prices was convened jointly by the ECE Committee on Environmental Policy and the Organisation for Economic Co-operation and Development (OECD), and in cooperation with the ECE Committee on Sustainable Energy. At the invitation of the Government of the Czech Republic, the Workshop was held in Průhonice near Prague from 14 to 16 June 2000. Italy's Ministry of the Environment provided financial support.

2. The Workshop was attended by some 100 environment, energy, economic and fiscal experts representing governments, the private sector, the academic community and non-governmental organizations from: Austria; Belarus; Bulgaria; Canada; Croatia; Czech Republic; Denmark; Estonia; Finland; Georgia; Germany; Italy; Kazakhstan; Kyrgyzstan; Lithuania; Netherlands; Norway; Poland; Republic of Moldova; Romania; Russian Federation; Slovakia; Sweden; Turkey; United Kingdom. Representatives of the United Nations Economic Commission for Europe (ECE), the United Nations Environment Programme (UNEP), the European Commission, OECD, the Energy Charter secretariat, the International Energy Agency (IEA), Global Legislators Organization for a Balanced Environment – European Union (GLOBE EU), and the Regional Environmental Center (REC) for Central and Eastern Europe also participated. A list of participating institutions is annexed to the present report (annex III).
3. Mr. Lubomir Petruzela, Czech Deputy Minister of the Environment and Mr. Jan Poucek, General Director, Czech Ministry of Industry and Trade made opening statements.
4. The discussions were guided by Mr. J. Marousek (Czech Republic) and the representatives of the secretariats of ECE and OECD.
5. The main purpose of the Workshop was to compare approaches in developed market economies and in countries in transition to internalizing environmental costs in energy prices. The economic instruments considered at the Workshop included: emission taxes or charges on measured or estimated NO_x and SO₂ emissions, and on SO₂ and CO₂ content of fossil fuels; taxes on motor and heating fuels, electricity and heating; and environmentally harmful subsidies - support measures to producers and consumers of fossil fuel, nuclear energy and electricity.
6. The discussion was based on a series of commissioned introductory reports and country case studies. National experiences were at the centre of the presentations, which were followed by a general debate. A list of the Workshop papers is annexed to the present report (see annex II).
7. Before reviewing existing implementation strategies for energy-related economic instruments, the Workshop considered trends in energy production and consumption in Europe and related environmental impacts. Technological developments, changes in fuel mix, trends in air pollution and in greenhouse-gas emissions from fuel combustion, the liberalization of energy markets, reforms in the energy sector, environmental objectives for energy, and energy conservation and efficiency policies were highlighted.
8. Thereafter, the role of energy in taxation policy and green tax reform was reviewed with insights into the basic tax structures and policies. The discussion on the introduction of new environment-related taxes focused on competitiveness, household income distribution, public acceptability, administrative costs and compliance effects when defining tax bases and setting tax rates. The expected impact of energy taxes and charges on the demand for relevant products and activities and on environmental conditions was also under debate. Opportunities for tax shifts, with revenues from new environment-related taxes used to reduce existing distortional taxes, were also discussed. International competitiveness and the need for international coordinated action were considered as well.

9. The Workshop examined the need, modalities and implications of removing or restructuring distortionary energy subsidies. Particular emphasis was placed on the transparency of energy market interventions, the gradual phasing-out of environmentally harmful subsidies, and compensatory measures for the less well off. The Workshop considered possibilities for shifting support measures in the energy sector to promote energy conservation and the use of renewable energy sources. Linkages with economic reform processes (privatization, sector restructuring, etc.) in countries in transition to a market economy were highlighted.
10. The Workshop prepared a set of recommendations to Governments (see annex I), for the consideration of the Committee on Environmental Policy. The recommendations will also be transmitted to the Committee on Sustainable Energy, the OECD Working Group on Economic and Environment Policy Integration, and the OECD Joint Meeting of Tax and Environment Experts.
11. The Czech Ministries of the Environment and of Industry and Trade proposed that as a follow-up a joint task force of environment and energy experts should be established by the ECE Committees on Environmental Policy and on Sustainable Energy to develop, on the basis of the Workshop's recommendations, detailed guidelines for decision-makers on reforming energy prices to promote sustainable development. These guidelines would be transmitted to the Ministerial Conference "Environment for Europe" (Kiev, 2002) and the "Rio+10" Conference.
12. Mr. Milos Kuzvart, Minister of the Environment of the Czech Republic, addressed the participants with a closing statement.
13. The participants expressed their gratitude to the Czech Ministry of the Environment for the excellent facilities that it had provided and for its hospitality.

Annex I

**RECOMMENDATIONS TO ECE GOVERNMENTS ON
ENHANCING THE ENVIRONMENT BY REFORMING ENERGY PRICES**

Prepared at the UN-ECE/OECD Workshop
in Průhonice (Czech Republic) on 14-16 June 2000

SUMMARY

To effectively implement energy price reform as required by Agenda 21, the Kyoto Protocol and the Aarhus (1998) Environment Ministers' Declaration, it is recommended that:

- *The significant environmental externalities related to energy production and use, and to the environmental damage caused should be identified;*
- *Any negative social impact of a given subsidy or tax reform should be identified and measures to alleviate such an impact considered;*
- *The most distortional (from the market point of view) and environmentally damaging subsidies and tax provisions should be identified so that they can be abolished first;*
- *Environment-related taxes or charges should be introduced and environmentally harmful energy subsidies removed;*
- *Energy price reform should be announced in advance to allow producers and consumers to adapt their behaviour accordingly and to create a reliable investment climate, and the relevant legislative and regulatory instruments and institutions should be phased in;*
- *Public and private stakeholders should be involved and a broad consensus on energy price reform sought;*
- *Internationally coordinated action should be taken to remove environmentally damaging subsidies and institute green tax reform while still considering unilateral actions as appropriate.*

Getting the energy prices right

1. Prevailing pricing, fiscal and financing mechanisms in many ECE countries do not support energy conservation or a wider use of new and renewable sources of energy. But market-based mechanisms aimed at motivating energy producers and users to reduce pollution are gaining in importance in Governments' approaches to promoting sustainable development in accordance with Agenda 21 and towards achieving the objectives of the Kyoto Protocol. At the 1998 Pan-European Conference "Environment for Europe" held in Aarhus, Denmark, the Ministers stressed the need to reform energy markets and prices to increasingly internalize the environmental costs of energy production and use, and by 2005 to reduce or remove, where possible, energy price subsidies which have harmful effects on the environment.

2. Developed market economies today are moving towards more open and liberalized energy markets, with freely determined market prices. In their turn, countries in transition are currently going through important economic restructuring, including privatization, and are reforming their energy supply and tax systems. Many have already begun reforming or removing energy subsidies or have introduced environment-related energy taxes or charges.^{1/} Yet, as is the case in a number of developed market economies, energy markets in countries in transition are still distorted, in particular owing to substantial subsidies and distortionary tax provisions. Consequently, the adverse environmental impact of energy production and use is not appropriately internalized in energy prices.

3. It is increasingly recognized that many energy subsidies – both direct and indirect – and tax distortions exacerbate the adverse environmental impact associated with energy production and use, reduce economic efficiency and place a heavy burden on government budgets. As such, reducing these distortions is a great challenge, but also an opportunity to achieve sustainable development goals as well as nationally and internationally agreed environmental objectives. Getting energy prices "right" in this way would entail the removal of environmentally harmful subsidies and tax provisions, and the application of market-based instruments, such as environmental taxes, to internalize negative externalities. Hereinafter these fiscal or regulatory measures will be referred to as "energy price reform".

Increasing transparency

4. The often indirect and opaque nature of many subsidies and tax provisions (e.g. those that are embedded in energy prices, or in the form of tax exemptions or low interest rates) makes it

^{1/} The OECD classification defines taxes as "compulsory, unrequited payments to general government". Taxes are unrequited in the sense that benefits provided by government to taxpayers are not normally in proportion to their payments." The OECD classification also uses the terms fees and user charges (as opposed to taxes) and levies without giving a precise definition of these terms. In practice, the terms charges and fees are often used interchangeably. Therefore, charges and fees will be defined as compulsory requited payments to either general government or to bodies outside general government, such as an environmental fund or a water management board.

difficult to identify the amounts that are paid, and those who finance the measures. This lack of transparency is particularly true for “implicit” subsidies in the form of debt write-offs, exemptions from environmental regulations, taxes and charges, or the non-payment of environmental taxes, charges and fines by energy-sector enterprises. The lack of transparency regarding energy market interventions hampers the identification of environmentally harmful tax provisions and subsidies.

5. An important step in increasing the transparency of energy market interventions, and enabling a proper analysis of the full costs and benefits of these interventions, is to establish a comprehensive and regularly updated description of all existing tax exemptions, refund mechanisms, etc., such as the OECD/EU Database on Environmentally Related Taxes. A move away from indirect subsidy policies and towards more direct and targeted subsidies can also increase transparency and economic efficiency. This can help to identify the total amounts of support given, those who pay for subsidies and those who benefit from them, and the net costs and benefits of the intervention. A regular reporting system on existing support measures, which allows for international comparisons and monitoring, would be useful.

Greening energy subsidies and taxes

6. Since energy is one of the main causes of air pollution and a significant source of tax revenue, an "environmental" restructuring of energy prices and taxes is essential. As a first step, subsidies that keep energy prices below energy cost and that are linked to environmentally damaging activities should be removed. Any remaining subsidies in the energy sector should be income-related rather than production- or input-related. These should be more specifically targeted and should be directed to individual businesses to address an urgent environmental and/or economic issue, as appropriate, especially the creation of future-oriented jobs.

7. In some circumstances, it may be appropriate to redirect the subsidies to promote the development and use of renewable energy sources and technologies, disseminate information on energy-saving possibilities, develop cleaner processes and energy-efficient technologies, and encourage switching to less environmentally damaging fuels. However, due consideration should be given to compliance with the polluter-pays principle.

8. The removal and reform of energy subsidies should be accompanied by a re-designing of tax systems to promote energy efficiency and environmental protection. This can be achieved through the elimination of harmful tax provisions, increases in existing environment-related taxes and/or the introduction of new ones to internalize the external costs of energy production and use. Existing energy-related taxes should be adapted by increasing taxes on the most polluting products and activities in an effort to adjust relative prices.

9. Market liberalization may lead to reduced environmental damage from energy production. In economies in transition, energy price reforms are likely to reduce environmental damage from energy production, by pushing prices up to market levels and decreasing demand for energy.

Policy reforms, like taxes, are likely to push prices even higher. Where an energy producer has a monopoly, tax rises can be passed on to the consumer without the fear of losing market share. In a competitive market (with many producers), power plants can pass the cost of the tax onto consumers, invest in new technology to reduce emissions and the tax, and/or use cleaner fuels. Therefore, a competitive market should achieve at least the same level of pollution reduction, but at a lower cost to consumers – essential for the competitiveness of transition economies.

10. Taxes or charges on emissions from energy-combustion facilities should be increased or restructured (to focus on major pollutants). These taxes or charges should be linked, as far as possible, to actual emission levels, and to the related environmental damage. Differentiated taxes on energy products, such as fuels, could be further introduced. Another possibility is to restructure existing energy taxes on the basis of environmental parameters, such as carbon or sulphur content.

Policy enforcement and implementation

11. The collection of environment-related taxes and charges, and the effective payment for energy services should be enforced. Simplifying existing charging structures to focus on major pollutants and polluters could strengthen such enforcement. Emissions should therefore be effectively monitored. When continuous monitoring systems are too complex or costly to implement, proxy variables might constitute a practical alternative. Enforcement could be further strengthened by embedding the revenue collection in already existing fiscal structures. Experiences in countries whose reform is more advanced can be useful in this regard.

12. Effective and continued cooperation between public entities, in particular between ministries of environment, industry/energy and finance, constitutes a precondition for the successful design and implementation of energy price reform. The exchange of experience between developed market economies and countries in transition should be promoted.

Gradual implementation

13. Energy price reform should be implemented gradually based on a structured plan and with sufficient forewarning and time for discussion. This would limit political opposition to the reform, and give energy producers and consumers time to react appropriately to the incentives entailed in energy market reforms. Such consultations enable energy producers and consumers to prepare programmes of action that allow them to adjust to the new situation gradually. The pace of the energy price reform should generally be correlated with the development of possibilities for the affected economic subjects to rationally respond to the consequences of the reform.

Addressing distributional issues

14. The implementation of energy price reforms should take into account their potential - positive and negative - distributive effects. The greatest resistance to these reforms generally arises from those who benefit from current interventions. This resistance is particularly strong when the removal of energy subsidies would lead to significant increases in the cost of living (e.g. removal of subsidies

to energy used for heating purposes) or to significant regional unemployment (e.g. removal of subsidies to coal mining).

15. If the poorer segments of the population are affected by the energy price changes, direct compensation, such as lump-sum payments, subsidies for energy-saving expenditures, or compensation through the income tax and transfer systems, is preferable. Mitigation measures, such as tax breaks or exemptions, should be avoided as they defeat the purpose of the price reform. Where energy subsidies are removed, possible compensation in the form of increases in general social-security benefits for low-income energy consumers, or employment generation and retraining schemes for those employed in energy production could be used.

16. The introduction of new, or the increase in existing, environment-related energy taxes may be considered a particularly relevant option when Governments are looking for new sources of tax revenues. However, when revenue neutrality is desired in the longer term, new environmental taxes can be combined with a reduction in other taxes, preferably distortionary taxes (e.g. taxes on labour). This can yield additional non-environmental benefits, such as greater economic efficiency and – possibly – higher employment.

Competitiveness issues

19. Green tax reforms and the removal of subsidies are almost invariably confronted with a fear of loss of sectoral competitiveness. Both developed market economies and countries in transition often try to mitigate this by offering a number of tax exemptions, reduced rates, refunds, etc. As these measures generally apply to those industries that would be the most affected by the energy price reform (i.e. those that are the most energy-intensive), these provisions are not satisfactory from the environmental perspective. The exemptions for existing energy-intensive industries also hamper the development of more energy-efficient and less energy-intensive industries, with which they compete on domestic labour and capital markets.

20. Internationally coordinated efforts would greatly facilitate energy price reforms, including the introduction of environment-related taxes and the removal of environmentally harmful energy subsidies. However, even where there is no internationally coordinated action, individual countries should examine the full costs and benefits of implementing these reforms unilaterally. Structural adjustment should lead to more energy-efficient economies, so that what might be a loss for one sector will be a gain for another at the national level.

Annex II

LIST OF THE WORKSHOP DOCUMENTS

Sustainable Energy in the ECE Region: Problems and Actions, by Mr. Slav Slavov, UN/ECE Energy Division. *

Energy Use and Environmental Impacts: Trends in the European Union, by Mr. Peter Horrocks, European Commission.

Database on Environmental-related Taxes in the OECD, by Mr. Nils Axel Braathen, OECD.*

Implementing Environmental Taxes in OECD Countries, by Mr. Jean-Philippe Barde, OECD.*

Policy Issues in the European Union: a Viewpoint from the European Commission, by Mr. Manfred Rosenstock, European Commission.*

Energy Taxation and Green Tax Reform in Central and Eastern Europe, by Messrs. Stefan Speck, Jim McNicholas and Nigel Jackson, Regional Environmental Center for Central and Eastern Europe, Szentendre.*

The Ecological Tax Reform in Germany, by Mr. Peter Wrany, Federal Ministry of Finance, and Mr. Kai Schlegelmilch, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany.*

Energy, Taxation Policy and Green Tax Reform. The Experience of Finland by Ms. Camilla Lommi-Kippola, Ministry of the Environment, Finland.

Energy, Taxation Policy and Green Tax Reform, by Mr. Corrado Clini, Ministry of the Environment of Italy.*

Environment-related Energy Taxes, Charges and Fees, and Tax Reform in the Czech Republic, by Mr. Tomas Chmelik, Ministry of the Environment, Ms. Jirina Jilkova, Institute for Economic and Environmental Policy, Messrs. Martin Kloz and Miroslav Hajek, Ministry of the Environment, Czech Republic.*

Energy-related Environmental Taxes Applied in Georgia: Design and Implementation Issues, by Mr. Malkhaz Adeishvili, Ministry of Environment and Nature Resources, Georgia. *

Design and Implementation of Environmental-related Energy Taxes in Moldova, by Mr. Victor Zubarev, Ministry of Economy and Reforms, Republic of Moldova.*

Energy-related Charges and Taxes in Belarus, by Mr. Aleksandre Savanovitch, State Committee on Energy Efficiency and Control, Belarus. *

Implementation of Environment-related Energy Taxes in Croatia, by Mr. Zoran Stanic, Hrvatska Elektroprivreda, Croatia.*

Design and Implementation of Environment-related Energy Taxes in Bulgaria, by Mrs. Daniela Stoytcheva, Ministry of Environment and Water, Bulgaria.*

Energy-related Economic Instruments in Kyrgyzstan, by Mrs. Djyparkul Bekkulova, Ministry for Environmental Protection, and Mrs. Saidekul Mambetjanova, International Foundation for the Salvation of the Aral Sea, Kyrgyzstan.*

Design and Implementation of Environment-related Energy Taxes/Charges in the Slovak Republic, Ms. Tatiana Kluvanková-Oravská, Institute for Forecasting, Slovakia.*

Experiences with Reforming Energy Subsidies, by Ms. Helen Mountford, OECD.*

Looking at Energy Subsidies: Getting the Prices Right, by Mr. Jean-Christophe Fueg, International Energy Agency.*

Environmentally Counterproductive Support Measures for Energy in Austria, by Mrs. Ulrike Eteme-Hlawatsch, Ministry of Agriculture and Environment, Austria.*

Removing/Restructuring Distortional Energy Subsidies in Estonia, by Mrs. Eva Kraav, Ministry of the Environment, Estonia.*

Removing/Restructuring Distortional Energy Subsidies in Lithuania, by Ms. Dalia Streimikiene, Lithuanian Energy Institute, Lithuania.*

Removing/Restructuring Distortional Energy Subsidies in Poland, by Messrs. Bogusław Fiedor and Andrzej Graczyk, Wrocław Academy of Economics, Poland.*

Use of Economic Instruments for Environmental Pollution Control in the Republic of Armenia, by Mr. Ashot Harutyunyan, Ministry of Nature Protection, Republic of Armenia. *

The State and Forecast of Development of the Energy Sector of the Azerbaijan Republic, by Mr. Talat Kengerly, Ministry of Economy of Azerbaijan. *

The Policy of Price Reforms in Energy and its Influence on Total Investment Climate in the Russian Federation, by Mr. Ashot Madoyan, Rostov-on-the-Don Scientific and Research Institute of Energy-related Environmental Problems, Russia.

Review [of Energy Developments and Energy-related Economic Instruments in Kazakhstan], by Mr. Kairat Muhamediev, Almaty Power Consolidated, Kazakhstan.

Energy Efficiency and Environment-related Policies – an East-West perspective from the Energy Charter, by Mr. Tudor Constantinescu, Energy Charter Secretariat. *

Note

*These documents can be found at the Workshop Web site:
http://www.env.cebin.cz/_nav/_index_hp_en.html (under EVENTS)

Annex III**LIST OF PARTICIPATING INSTITUTIONS**

Federal Ministry of Agriculture, Forestry, Environment and Water Management Austria	Synergo Group, a.s. Czech Republic
State Committee on Energy Efficiency and Control Belarus	CONTE-EKO, Ltd. Czech Republic
Ministry of Environment and Water Bulgaria	Czech Ecological Institute Czech Republic
Environment Canada Canada	EkoWATT Czech Republic
Hrvatska Elektroprivreda - HEP Croatia	Czech Solar Energy Society Czech Republic
Ministry of the Environment Czech Republic	Association for Renewable Energy Sources Czech Republic
Ministry of Industry and Trade Czech Republic	SRC International CS Czech Republic
Ministry of Transport and Communications Czech Republic	EMI Energy Czech Republic
Parliament Czech Republic	Technology Centre Czech Academy of Sciences Czech Republic
CITYPLAN Czech Republic	VUZT – Research Czech Republic
EkoWATT Czech Republic	INFO-Princip Ltd. Most Czech Republic
ENA Czech Republic	Danish Energy Agency Denmark
Hnuti DUHA Czech Republic	Danish Organization for Renewable Energy Denmark

Ministry of the Environment
Estonia
AS EESTI PÕLEVKIVI
Estonia

Ministry of the Environment
Finland

Ministry of Environment and Natural
Resources
Georgia

Federal Ministry of Economics and
Technology
Germany

Federal Ministry for the Environment,
Nature Conservation and Nuclear Safety
Germany

Federal Ministry of Finance
Germany

Ministry of the Environment
Italy

Ministry of Industry
Italy

Norfolk Southern Corp.
Italy

Almaty Distribution Network
Kazakhstan

Ministry of Environmental Protection
Kyrgyzstan

Lithuanian Energy Institute
Lithuania

Ministry of Housing, Spatial Planning
and the Environment
Netherlands

Ministry of the Environment
Norway
Ministry of Environment
Poland

Ministry of Economy
Poland

Wroclaw University of Economics
Poland

Ministry of Economy and Reforms
Republic of Moldova

S.C. IPROMIN S.A.
Romania

National Company of Lignite
Romania

Centre for Nuclear Energy and Ecology
Russian Federation

Scientific and Research Institute of Energy-
related Environmental Problems
Russian Federation

Institute of Physical-Technical Problems of
Energy of the Russian Academy of Science
Russian Federation

Institute for Forecasting of the Slovak
Academy of Science
Slovakia

Swedish Environmental Protection Agency
Sweden

Ministry of Finance
Turkey

Department of Environment, Transport
and the Regions
United Kingdom

United Nations Economic Commission
for Europe ((Environment and Human
Settlements Division and Division for
Sustainable Energy)

United Nations Environment Programme

European Commission

International Energy Agency

Organisation of Economic Co-operation and
Development

Energy Charter Secretariat

GLOBE EU

Regional Environmental Center for Central
and Eastern Europe