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REFORMING ENERGY PRICES FOR SUSTAINABLE ENERGY DEVELOPMENT

(Discussion paper prepared by the ECE secretariat)

Introduction

1. The Committee on Environmental Policy, at its seventh session in September 2000, as well as the Committee on Sustainable Energy, at its tenth session in October/November 2000, agreed to establish an Intergovernmental Task Force on Environment and Energy for the purpose of elaborating guidelines for decision-makers on reforming energy prices to facilitate the transition to a more sustainable energy future. Both Committees also requested the ECE secretariat to propose terms of reference and a programme of work (ECE/ENERGY/43, para.37 and ECE/CEP/74, para.35).
2. The objective of this paper is twofold: (a) to provide a context for an exchange of views by delegates on energy pricing, subsidization and the internalisation of environmental externalities in order to promote sustainable energy development; and (b) to consider a programme of work and follow up steps for the proposed Intergovernmental Task Force.
3. This initiative was first proposed at the Joint UNECE/OECD Workshop on Enhancing the Environment by Reforming Energy Prices, held in Prague, Czech Republic, in June 2000. It was then considered by both the Committee on Environmental Policy and the Committee on Sustainable Energy at their respective annual sessions in 2000 as well as by the High-level Multi-stakeholder Forum on Sustainable Energy in a Competitive Market, held in conjunction with the

Committee on Sustainable Energy, 1 November 2000. Both Committees recognized that a multidisciplinary approach was required to address this issue and recommended the establishment of an Intergovernmental Task Force, involving the participation of experts from industry and from the energy and environmental policy communities.

4. In addition, the Commission specifically endorsed the initiative at its fifty-sixth session in May 2001. Delegates also expressed the hope that the initiative could contribute in addressing issues related to the current liberalization of energy markets and the need for the harmonization of energy taxes in Europe (E/2001/37:E/ECE/1387).

I. WHY THE ISSUE IS RELEVANT

5. The importance of this issue stems in part from the numerous political commitments on sustainable development (e.g., Agenda 21, Kyoto Protocol) taken by governments of ECE countries, both at the global and regional levels. Fulfilment of these commitments will require major changes in how energy is produced and consumed as well as requiring a significant structural shift in the economies of ECE countries.

6. In addressing these commitments, policy measures will have to take account of the large differences that exist between ECE countries in terms of economic conditions, per capita incomes and stage/level of economic development. This is particularly the case between the western developed economies and the economies in transition of central and eastern Europe and central Asia.

7. The salient characteristics and differences between these two sets of countries can be briefly summarized as follows:

First group (western countries): high standard of living; advanced stage of economic development; high energy consumption per capita, concomitantly with high level of energy conservation and efficiency (i.e., low energy consumption per GDP); almost fully liberalised energy markets; energy prices at economic levels; practically no subsidization of energy consumption though some subsidization provided to energy production; civil society sensitive to environmental degradation and, hence, predisposed to give increasing emphasis to solving environmental problems; implementation of increasingly more stringent environmental standards but with continued resistance to the wide-scale use of economic instruments, including taxation; and significant diversity in energy mix between countries resulting in serious obstacle to adjustment and harmonization of energy tax systems.

Second group (eastern Europe and central Asia): medium to low standard of living; special difficulties arising from the legacy of the past; incomplete policy and structural reforms, thus requiring further structural transformation; energy prices below economic levels, from 30 to 85% below international price levels, with the gap being most pronounced in the case of CIS countries; inappropriate tariff structures; cross-subsidization of energy prices by industry in favour of households; high energy intensity (energy consumption per GDP); low energy production and use efficiencies; aging, environmentally polluting energy infrastructure; technologically old industrial structure; priority given to economic development and improving economic standards of living (material wellbeing of populations).

8. Needless to say, the issues of energy pricing, subsidization and the internalisation of externalities are highly relevant to both groups of countries. However, priorities and approaches will invariably differ between the two sets of countries. For example, energy pricing is much less of an issue for western countries since prices are already at economic levels. On the other hand, it is a pressing issue for governments of transition countries where energy prices have not yet been raised to economic levels. For western countries, subsidization and the internalisation of negative environmental externalities are of most relevance. Obviously, the policy concerns and policy measures implemented by both groups of countries will invariably converge over time.

9. At the forthcoming annual sessions of the Committee on Environmental Policy and the Committee on Sustainable Energy, delegates will have to discuss and agree on a programme of work that takes into consideration the three issues, that is, energy pricing, subsidization and internalisation as well as the policy interests of both groups of countries. In terms of a programme of work, delegates may wish to consider a three-pronged approach, with different time frames, such as the following:

- review and assessment of energy pricing in economies in transition with the aim of elaborating guidelines on energy pricing for policy makers in time for the 2003 Kiev Ministerial Meeting;
- analysis of energy subsidization in western and eastern countries of the ECE with the aim of elaborating guidelines on the issue by mid 2004;
- assessment of methodologies for internalising environmental costs through the use of fiscal instruments, including taxation, and measures to promote their use, to be completed by the end of 2005.

A. Raising energy prices to economic levels in economies in transition

10. **Issue:** As a general rule, energy prices should, at a minimum, reflect “economic” costs, that is, the costs of production, transportation, distribution and use of energy in order to enhance overall economic efficiency. In many economies in transition, energy prices are still well below economic levels, despite having been significantly increased in recent years. This is particularly the case in the household sector where prices have been raised but at a slower rate than in the industrial sector in order to avoid eroding household incomes, depressing household expenditures on other goods and services and contributing to hyperinflation. The consumers’ ability to pay has been an important consideration in deciding the extent and rate of energy price increases.

11. **Recommendations:** The Task Force might wish to consider to:

- assess the level of energy prices in economies in transition in relation to prices in western countries, their tariff structure, the cost elements taken into account in regulating prices, overall price formation mechanisms, the gap between actual prices and “economic” price levels, etc.
- conduct a cross-country comparison of price adjustment mechanisms and patterns;

- elaborate guidelines on best policy options for reforming prices as well as measures to alleviate the full impact of higher energy prices on those least able to absorb higher energy prices; and suggest policy measures and related tools for more flexible energy price adjustments.

12. Energy prices play a crucial role in bringing energy supply and demand into balance, and also have a strong influence on the level of energy intensity, energy efficiency and investments. Energy pricing is a powerful instrument for affecting the behaviour of consumers.

13. Since 1990, all countries with economies in transition have taken steps to restructure their energy sectors along market-based principles and practices. This has also included raising energy prices. However, for all intents and purposes, energy prices are still under state control (except for petroleum products) and below economic and international levels in most transition countries. These price distortions impede structural adjustment and discourage investment in the energy sector. The shortfall between prices and costs is currently covered by state subsidies, but in some cases by the energy enterprises themselves through various cross-subsidization schemes and depreciation of their capital assets.

14. Governments in transition countries view energy pricing as very politically sensitive. It not only has a crucial impact on the success of reforms and on investment in the energy sector but also because of its impact on household disposable incomes and the spill over effects on industry and agriculture where energy is an important component. Achieving the right balance between the benefits of market pricing and other policy goals is often not easily resolved.

15. Prices have been raised most in the countries of central Europe that are most advanced in the implementation of market reforms. This is particularly the case for energy prices for industry, which are now approaching economic and international prices levels. The gap continues to be large for those countries where market reforms are lagging or countries that are less dependent on energy imports (Russian Federation and CIS countries). The current gap between prices in economies in transition and western countries ranges from 20% up to 85 per cent.

16. Compared to 1992, the current average price (2000) of electricity for industry in ten selected European countries in transition (see Charts in Annex II) has slightly risen by about 10% (compared to a decrease of 30% for EU countries, on average), while that for households has risen by about 250%. Therefore, prices in the ten selected economies in transition have now reached about 80% of the average EU price for industry and 52% for households.

B. Reforming energy subsidies

17. **Issue:** Energy subsidies often fail to meet their intended objectives. They fail either to correct market imperfections or to meet social objectives, such as to protect the most vulnerable groups in society. While it is difficult to quantify the costs and benefits of subsidization, it is clear that subsidies keep energy prices below economic levels, contribute to environmental degradation and contribute to inappropriate depletion of natural resources. Removing subsidies, once in place, is an acute political problem for governments, particularly in economies in transition where social safety nets are weak or nonexistent.

18. **Recommendations:** The Task Force might wish to consider to:

- identify the most distortionally damaging energy subsidies, from an economic and environmental point of view;
- advise whether the subsidies support social policy goals and suggest alternative mechanisms that policy makers might use to replace them;
- elaborate guidelines or principles regarding the provision of subsidies (e.g., income-related rather than production or input-related);
- suggest appropriate measures for monitoring effectively and in a transparent manner, the costs and benefits of subsidies as well as to prevent or limit abuses.

19. Subsidies are often used to promote specific policy objectives, such as to encourage domestic production or lower the cost of energy to households. Subsidies can also be used to promote clean fossil fuel technologies and renewable energy sources. In economies in transition, state subsidies are mainly provided to the electricity, district heating, natural gas and coal sectors.

20. State subsidies in economies in transition have been gradually reduced since 1990, and in some cases, such as subsidies to producers, even completely eliminated. For example, 75% of subsidies to coal mining in economies in transition were removed between 1990 and 2000. However, significant subsidies continue to be provided in the energy sector, raising the issue of whether they are well targeted, for the right purposes and who really benefits.

21. While some subsidies, both in economies in transition and western countries, are likely to continue to be provided for the rest of this decade, their overall amount should be substantially reduced. By 2005, electricity prices in the industrial sector in most central and eastern countries should reach economic levels, thus making it possible to remove most subsidies for industrial consumers. The trend to the liberalization of electricity gas markets should re-enforce this tendency.

22. The experience with subsidies shows that when poorly designed they unfortunately can create significant distortions. Energy subsidies to consumers are frequently used to keep end-user prices below international levels for social welfare reasons. Thus, subsidies are sometimes intended for income redistribution to lower-income population groups, although it is often the higher-income households or the corporate sector that benefits most. These unintended and unwanted leakages to the wrong consumer groups have the most adverse and perverse effects.

23. Subsidies are also sometimes extended to producers in western and eastern ECE countries and take many and different forms, such as tax credits, special transportation tariffs, and R&D expenditures on energy technology. Sometimes direct state subsidies are used to encourage indigenous energy production but this form of subsidy has been substantially reduced in recent years. On the other hand, indirect and hidden subsidies continue.

24. In a number of transition economies, especially in CIS countries, there are also unusual forms of subsidization. For example, non-payment of utility bills by both industry and households is a common phenomenon and constitutes a major source of implicit state subsidy. Another is the

poor metering and billing of energy deliveries to end-consumers. A high percentage of households pay so-called “flat rate” tariffs, the same price applied to all, regardless of electricity consumption. It is commonly applied in countries in central Asia.

C. Internalisation of external costs through the greater use of fiscal instruments, including taxation

25. **Issue:** Energy taxation and the imposition of other types of levies can be a powerful tool in reducing energy consumption by changing consumer behaviour. In recent years, in the context of “green” tax reform, the use of taxes and levies on energy consumption has been increasingly applied to change consumer behaviour and reduce energy consumption and energy-related environmental degradation. But despite this positive trend, resistance to the use of environmental taxes and other fiscal measures has remained strong, much stronger than the opposition to the harmonization of taxation systems at the regional level.

26. **Recommendations:** The Task Force might wish to consider to:

- review the different methodologies under development for internalising environmental externalities, bearing in mind the complexity of the issue, in terms of compilation of comparable data, peculiarities of different regions and sites;
- facilitate and bring about a greater convergence of views regarding approaches, methodologies and definitions;
- assist policy making by elaborating guidelines for the wider use of fiscal instruments, including taxation, to reduce environmental degradation.

27. The shift to sustainable energy development will require major adjustments to the way energy is produced, transported and used. A powerful instrument for initiating and facilitating this transition is the Polluter Pays Principle. The Principle calls on those who impose costs on others, on society at large or on future generations, to bear the costs of their actions. In the case of environmental degradation, it means that those responsible for the degradation should pay those costs.

28. As presently constituted, the market system, through the pricing mechanism, is unable to take full account of these social or external costs. It is therefore up to governments to ensure that those costs are adequately reflected in everyday decision-making. There are basically two ways for governments to do so: (a) through norms, standards and regulations; or (b) through economic instruments, including fiscal measures.

29. The second of these methods, such as the use of taxes and levies, has been particularly unpopular, even though their judicious use can promote environmental objectives in an efficient manner. For example, energy taxation has been mainly used to generate revenues for government rather than to affect consumer behaviour and pursue environmental objectives. It has been particularly difficult to forge a common approach on energy taxation because of the large differences in tax structures and tax levels among countries, large differences in the energy mix and structure of energy industries as well as the potential impact that taxation could have on international competitiveness.

30. To evaluate quantitatively externalities in order to apply a suitable tax or levy is extremely difficult. However, methodologies and some experience do exist. For example, the EU-EXTERNE Project has recently applied Impact Pathway Methodology (IPM) to calculate the external socio-environmental costs of electricity production in EU Member States. A few other international organisations (UNEP, World Bank, IAEA) also have experience in this field. These methodologies and experience could usefully be applied to encourage the greater use of fiscal instruments, including taxation.

ANNEX I

DRAFT TERMS OF REFERENCE FOR ECE INTERGOVERNMENTAL TASK FORCE ON REFORMING ENERGY PRICES FOR SUSTAINABLE ENERGY DEVELOPMENT

Mandate: Committee on Environmental Policy: ECE/CEP/74, para. 35; Committee on Sustainable Energy: ECE/ENERGY/43, para. 37; and the Economic Commission for Europe: E/2001/37, E/ECE/1387, with respect to encouraging intersectoral cooperation, paras. 27-36).

Parent bodies: Committee on Environmental Policy and Committee on Sustainable Energy.

Driving forces: Political commitments of ECE member States to shift national economies and energy markets towards a more sustainable path of development (e.g., Agenda 24, Kyoto Protocol); the need for urgent implementation of political commitments; the need to complement current efforts to liberalize energy markets in order to promote more sustainable energy development; the need to harmonize policies at regional level and integrate energy markets of western and eastern countries in a sustainable way.

The scope of programme: Focus on the following main elements:

- review and assessment of energy pricing in economies in transition with the aim of elaborating guidelines on energy pricing for policy makers in time for the May 2003 Kiev Ministerial Meeting;
- analysis of energy subsidization in western and eastern countries of the ECE with the aim of elaborating guidelines on the issue by mid 2004;
- assessment of methodologies for internalising environmental costs through the use of fiscal instruments, including taxation, and measures to promote their use, to be completed by the end of 2005.

Specific programme will depend on decisions arrived to by the two Committees regarding issues raised in sections A, B and C of this document.

The main objectives: Reforming energy prices for achieving the objectives of sustainable energy development in the ECE region, including:

- assisting economies in transition in their efforts to raise energy prices to levels approximating their “economic” value or to international market levels, in conjunction with measures to alleviate the full impact of higher energy prices on those least able to absorb higher prices;
- assisting policy makers to phase out, in a socially responsive manner, energy subsidies for environmentally damaging sources of energy;

- promoting the development and use of mechanisms to internalise external costs of energy production and consumption and promoting the more extensive use of fiscal instruments to meet environmental objectives.

Expected output: Non- legally binding guidelines for policy makers.

Working methods: Members of the Task Force to be personally nominated by governments and organisations, to meet twice or more a year. Substantive work and consultations carried out through use of electronic correspondence. On the request of Task Force, the ECE secretariat may additionally organise workshops for wider discussions and consultations.

Duration: Four years, commencing 2002 and ending 2005.

Composition: Government officials or government- nominated representatives, working in the field of environmental, energy, economic and fiscal policies; experts from national institutes dealing with energy and environment; representatives of international organisations, such as UNEP, OECD, IEA, IAEA, WHO.

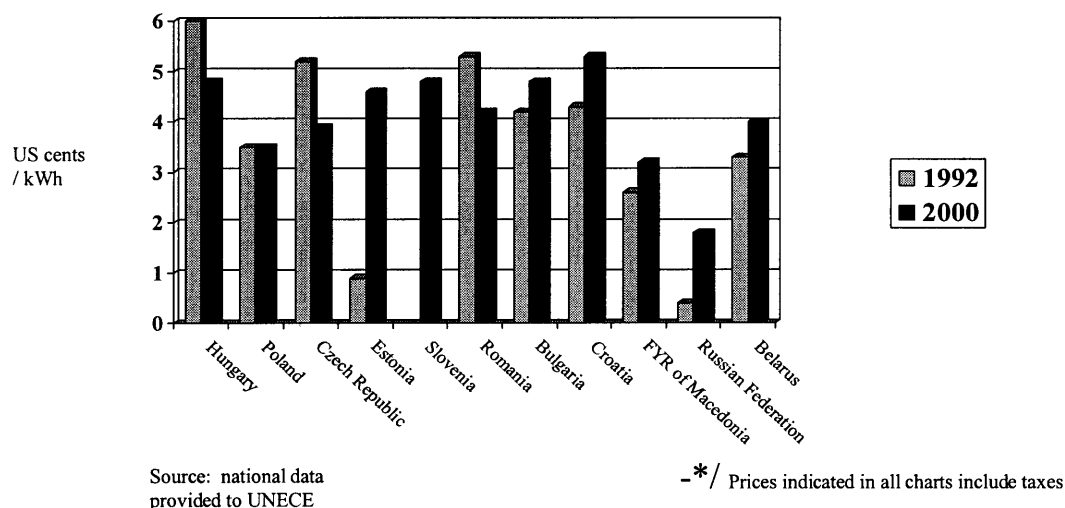
Budget: The ECE secretariat and some member countries to provide logistic support for meetings of the Task Force and workshops. Governments interested in designating regular experts to the Task Force should finance their participation. However, extrabudgetary resources will be needed to cover consultancy work, involvement of experts from some economies in transition and incidental expenses.

ANNEX II

COMPARATIVE DATA FOR ECE MEMBER STATES AND SUB-REGIONS ON ELECTRICITY PRICES FOR INDUSTRY AND HOUSEHOLDS

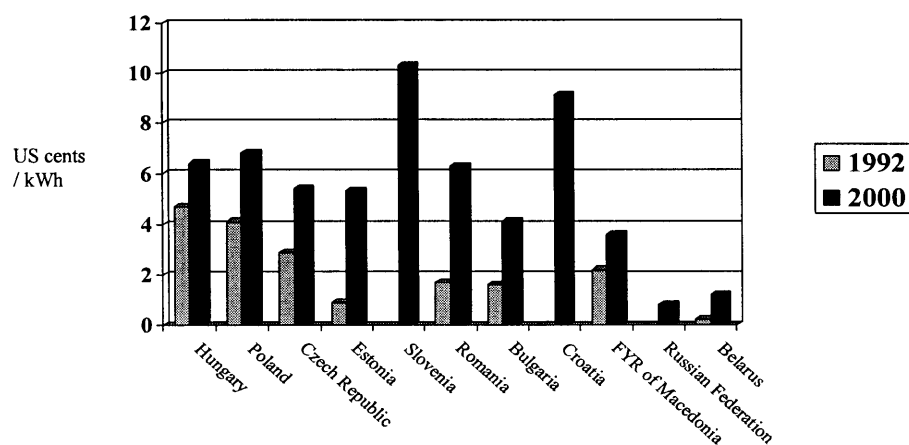
Electricity prices* in industry, economies in transition, 1992 and 2000

Chart 1



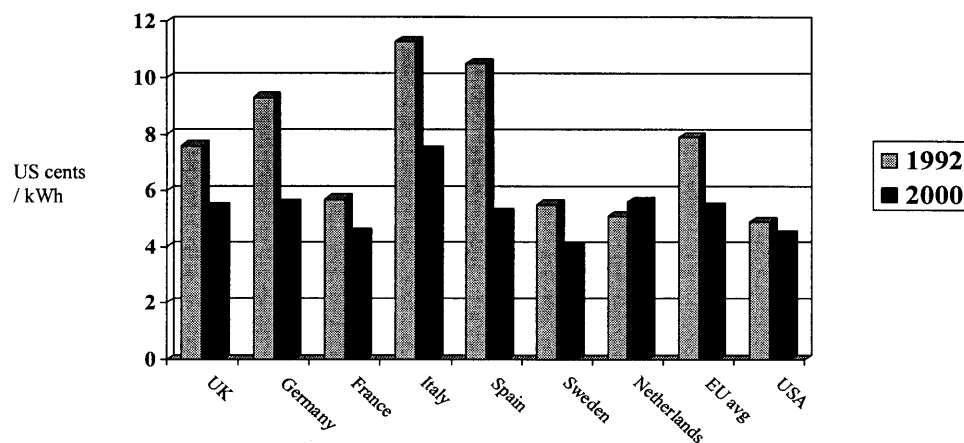
Electricity prices in households, economies in transition, 1992 and 2000

Chart 2



Electricity prices in industry, EU countries and USA, 1992 and 2000

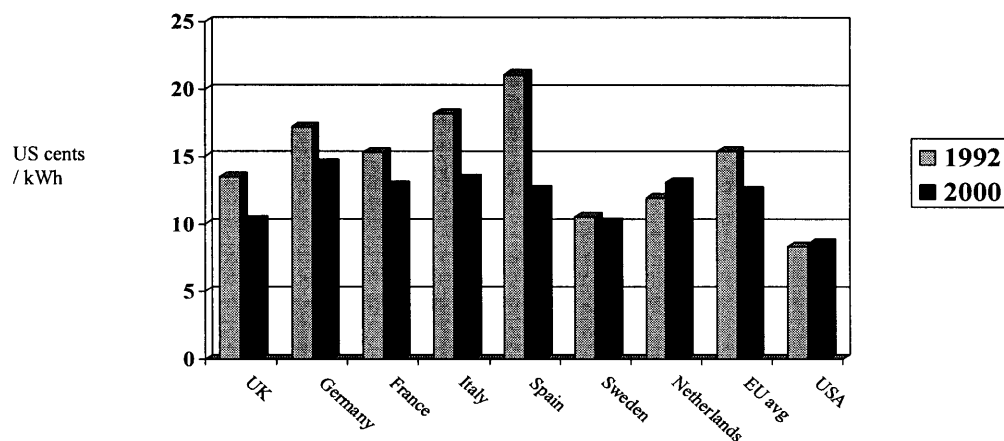
Chart 3



Source: OECD/IEA Prices & Taxes, 2001

Electricity prices in households, EU countries and USA, 1992 and 2000

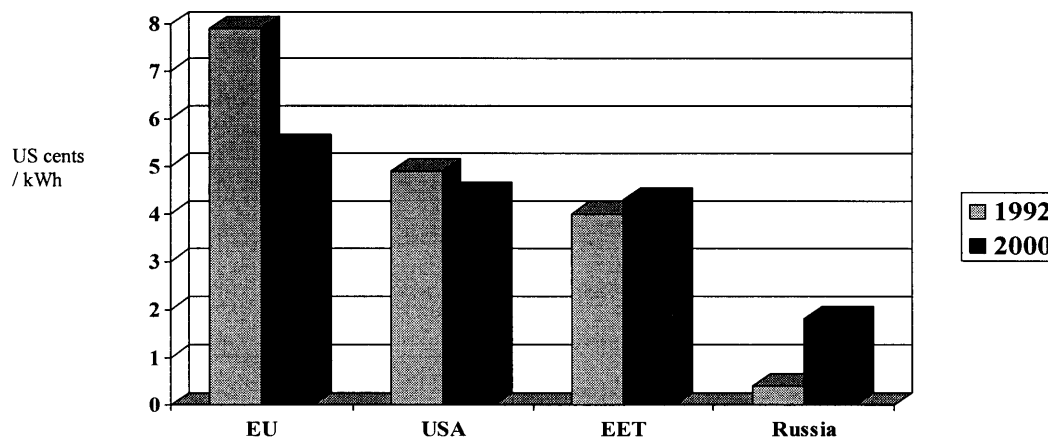
Chart 4



Source: OECD/IEA Prices & Taxes, 2001

**Electricity prices in industry, average for EU,
European economies in transition, USA and Russia,
1992 and 2000**

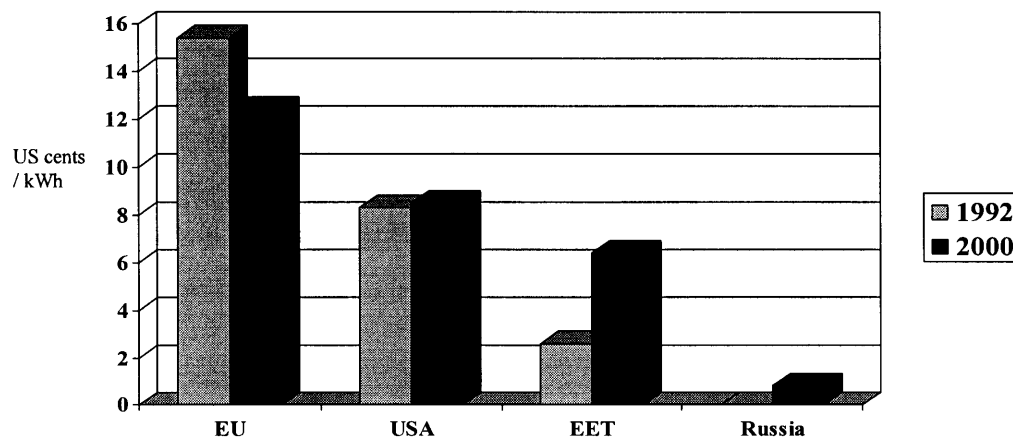
Chart 5



Source: OECD/IEA Prices & Taxes, 2001; and national data provided to UNECE

**Electricity prices in households, average for EU,
European economies in transition, USA and Russia,
1992 and 2000**

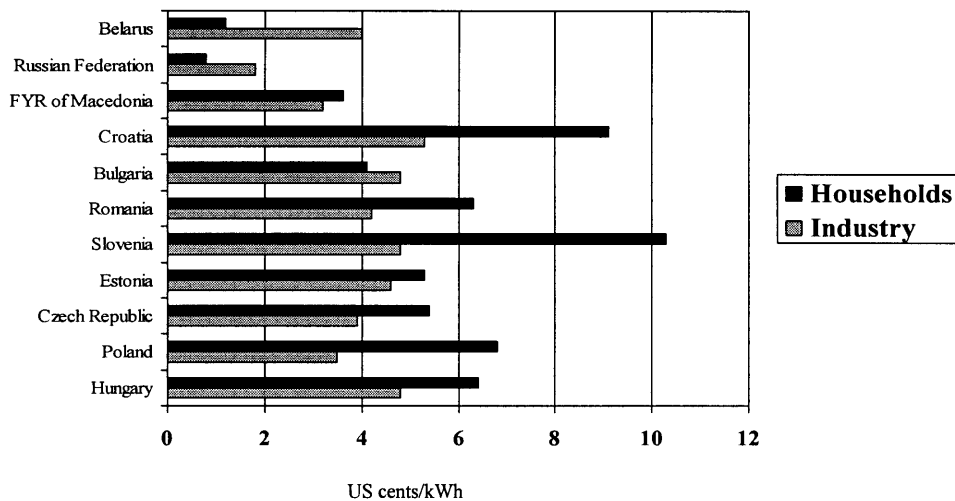
Chart 6



Source: OECD/IEA Prices & Taxes, 2001; and national data provided to UNECE

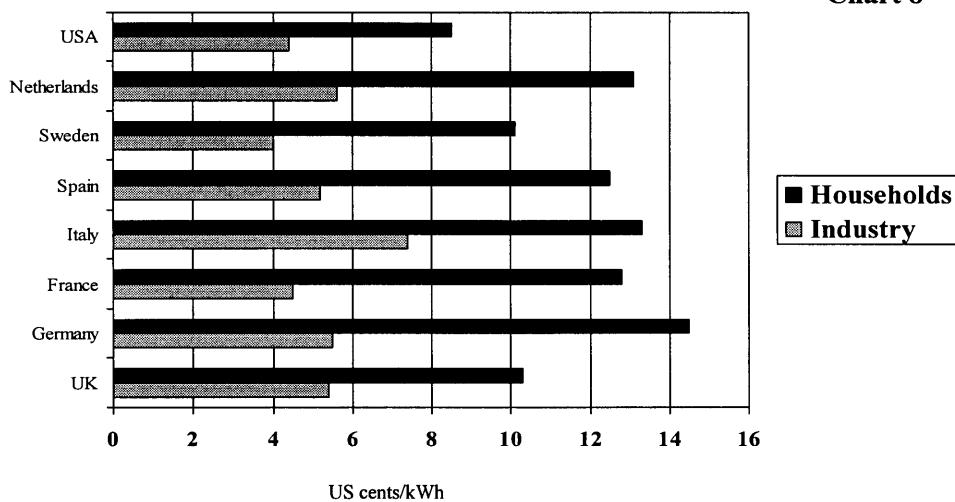
Electricity prices in industry and households, selected countries, 2000

Chart 7



Electricity prices in industry and households, selected countries, 2000

Chart 8



Electricity prices in industry and households, selected groups and countries, 2000

Chart 9

