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DELIVERING ENERGY EFFICIENCY: DEVELOPMENTS AND PRIORITIES

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PARTNERSHIPS

ENVIRONMENTAL FINANCE AND PARTNERSHIPS TO SUPPORT THE IMPLEMENTATION OF ENVIRONMENTAL POLICIES AND PROGRAMMES

DELIVERING ENERGY EFFICIENCY: DEVELOPMENTS AND PRIORITIES[1]

CONTENTS

[1] Pending approval by the Ad Hoc Working Group of Senior Officials. The text in this document is submitted as received from the authors. It is based on the more comprehensive report "Delivering Energy Efficiency for competitive energy markets and a cleaner environment" submitted as category II.

CONTENTS

I. INTRODUCTION

1. Energy efficiency policies started after the first oil crisis in 1973 (initially as energy saving initiatives) and have delivered important results until now. But they can, and should, deliver more. Globally there is a widely held view that good energy efficiency policies have the potential to make a real difference, and this is especially true throughout much of Europe in 2007. More than ever, energy efficiency is seen as crucial to addressing energy-related issues that societies face at the local, regional, national and global level.

2. The main drivers for improving energy efficiency in Europe[*] are energy security, concerns about global climate change and improved competitiveness. Improved energy efficiency can also help alleviate poverty and other social concerns. Historically, energy efficiency policies became rigorous in the 1970s because of concerns for energy security after two major oil crises. Today, energy security is an ever greater concern, as economies become more and more dependent on imported supplies of variable reliability and on an energy infrastructure that is prone to technical failure or weather.

3. The European region leads in the promotion of energy efficiency and in addressing global climate change. The two are intertwined. A relatively small group of countries, together with the European Commission, is at the vanguard of advocating a more ambitious approach to energy efficiency. That small group has expanded in the past decade and many countries now have undertaken innovative work.

4. This report focuses on ways of delivering improved energy efficiency. Since even before the convincing arguments for an accelerated energy efficiency approach was discussed and approved at the Aarhus Environment for Europe Conference in 1998, participating countries, including transition countries, have seen the need to adapt their policies and their delivery institutions. The policy foundation is a necessary condition for successful implementation, although even the best-designed policy will not guarantee results. Real results from energy efficiency policies and measures require a long-term commitment from governments, including developing strong alliances and partnerships with a wide range of actors that play an important part in promoting energy efficiency actions. It is well understood that an energy efficiency strategy is not a quick fix to take place over only a few years. Implementing energy efficiency measures is complex because it affects all sectors of the economy and requires awareness of all stakeholders in the energy sector regarding the benefits of both developers and beneficiaries of

[*] The region includes for the purpose of this report all of Europe (west, central and east), the former Soviet Union and Australia, Canada, Japan and the United States are added.

energy efficiency projects. Energy efficiency improvements also involve a wide array of technologies, depends on end-use energy prices that provide consumers with market signals which motivate them to save energy, and requires effective policies compatible with a market approach.

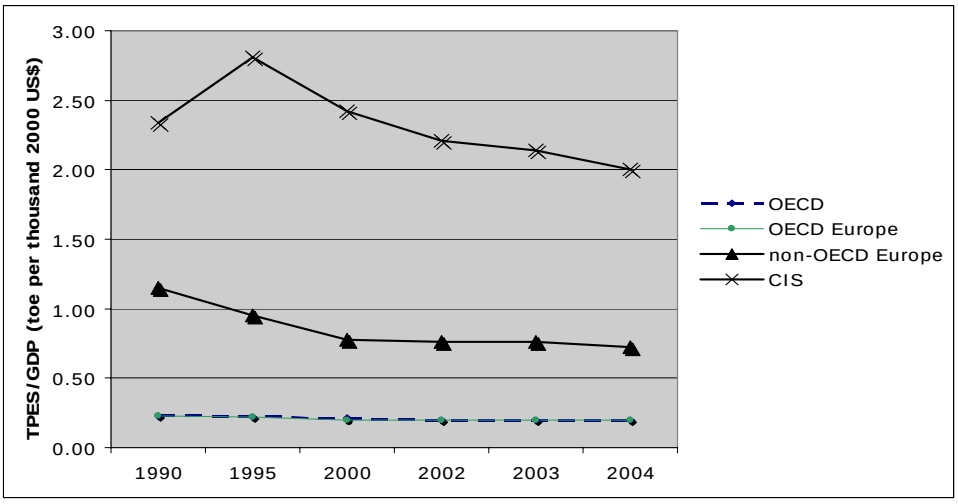
II. SHOWING RESULTS – WHAT THE NUMBERS REVEAL

5. Showing quantitative results is a slow process because of the time lag between developing policies and noting the results, and also because recent data are reported and centralized with a certain delay. However, some trends have clear implications for both energy and environment policymakers.

(a) Since 1990, primary energy production has increased 12.2 % in OECD Europe, but has decreased in the CIS 7.2%. But in CIS countries, there was a collapse in the early 1990s and since 1995 primary energy production has been steadily increasing.

(b) Energy intensity -- which includes energy efficiency, fuel switching and structural changes, but is often used as a proxy to determine the level of energy efficiency improvements -- has improved in all regions. Between 1990 and 2004, it decreased 13 % in OECD Europe, it decreased 14.5 % in CIS countries and decreased 37.4 % in non-OECD Europe. It is shown in the following diagram.

Energy Intensity (TPES/GDP), 1990-2004

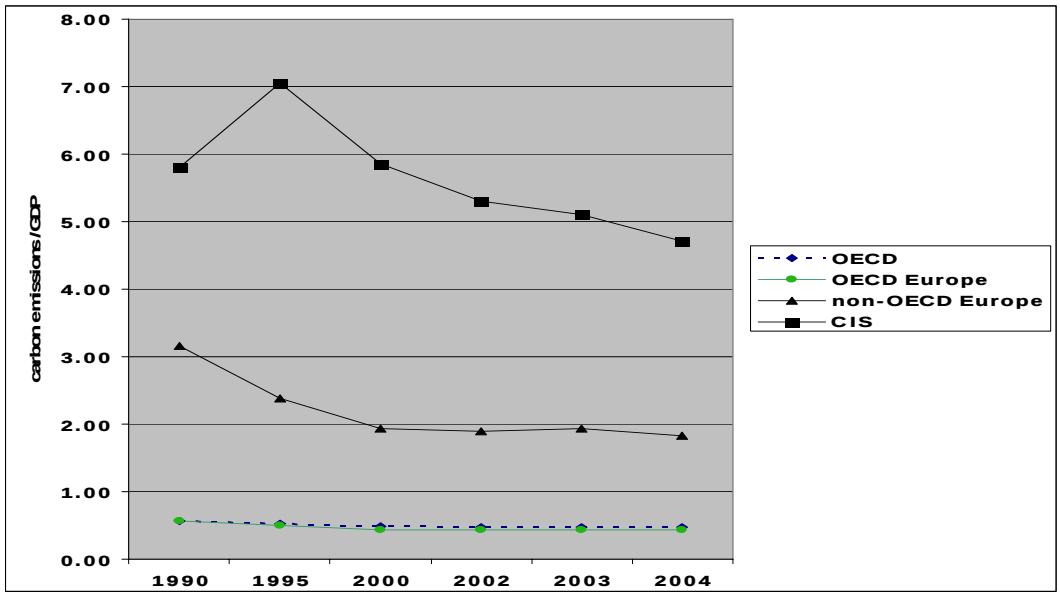


Source: IEA database

(c) Carbon emissions have increased in OECD countries but not in non-OECD Europe or the CIS. In OECD Europe, total CO2 emissions increased 4.4 % between 1990 and 2004. They decreased 30.9 % in the CIS and 31.4 % in non-OECD Europe, due initially to the economic decline and later on to the economic restructuring and technological improvements. In the CIS, however, emissions have increased since 2000.

(d) Carbon intensity, the carbon used per unit of economic activity, however, has decreased in all regions as shown in the following diagram, although it is less pronounced in the OECD region.

Carbon Intensity (CO_2 emissions/GDP), 1990-2004



Source: IEA database

III. THE GROWING PRIORITY FOR ENERGY EFFICIENCY

6. At the international level, the support for energy efficiency has never been stronger. The European Union, the International Energy Agency, various bodies of the United Nations and the major international financial institutions (IFIs) all strongly endorse greater energy efficiency. The Kyoto Protocol and its flexible mechanisms put a high priority on energy efficiency, even if there has been less uptake that anticipated. At the G8 Summit in St Petersburg in 2006, the leaders of eight industrialised nations adopted an Action Plan to enhance Global Energy Security, which included an agreement to increase efforts to boost energy efficiency. These efforts were reinforced by the G8 at their summit in Heiligendamm in 2007.

UN Commission for Sustainable Development, 2006

Energy efficiency provides a win-win opportunity with many benefits including greater industrial competitiveness, better energy security and substantial reductions in carbon dioxide and other greenhouse gas emissions in a cost-effective way. There is considerable scope for improving energy efficiency in households, the transport sector and industry, including the energy industry, by changing consumption and production patterns, behaviours and lifestyles.

7. For countries in the EU and other IEA countries participating in the Environment for Europe process have by and large accepted that energy efficiency is a major component of overall energy policy. The priority has been sharpened by the recently renewed emphasis on energy security. And undoubtedly, heightened public awareness of global climate change has been a major factor. Nonetheless, evidence from the IEA and elsewhere indicates that many countries are not putting a high enough priority on energy efficiency, and this is true for renewable energy as well.

8. Some of the participating countries have not had the traditional energy security concerns, largely because of abundant domestic supplies of oil and gas, in particular. And transition economies have not been driven by the obligation of meeting Kyoto GHG emissions targets because of the economic collapse in the 1990s. Their greatest concern in applying the Kyoto Protocol has been to make the flexible mechanisms of the Protocol work in their favour to finance much needed energy efficiency schemes.

IV. POLICY DEVELOPMENTS

9. Many countries have reacted to the higher priority by making improvements in energy efficiency policy. The US 2005 Energy Policy Act gave a high priority to renewables and energy efficiency, allocating also significant tax reductions for their promotion and introducing more stringent labeling requirements. In Europe, many changes are driven largely by the European Union and its ambitious policy developments. Various communications (Green Paper on Energy Efficiency, Action Plan on Energy Efficiency, on energy policy, on climate change) have been used, as well as major directives that have required EU member states to prepare energy efficiency action plans. This policy drive affects more than half of the participating countries. Some CIS countries have adopted new laws and policies, such as the Armenian Energy Saving and Renewables Law (adopted in 2004); others started to make more efforts in the implementation of previously adopted legislation.

10. Even if not all EU member states are giving energy efficiency the same policy priority, the EU requires a core policy that is significantly more rigorous than many of them have had in the past. Thus, the EU is an important driver in developing national energy efficiency strategies, even in countries that would not normally give it such attention.

From the European Bank for Reconstruction and Development

Progress in improving energy efficiency has been slow. Low tariffs, the slow pace of industrial re-structuring and more limited access to debt finance undermine the incentives for energy efficiency and push it down the priority list of investment options. Policy support is generally positive but this is rarely backed up with resources and targeted financial support for energy efficiency is extremely limited.

EBRD Energy Operations Policy on the early and intermediate transition economies

11. Overall in CIS countries, the policy developments have generally been less ambitious. While they refer to energy efficiency and often integrated it into energy laws, there is a less comprehensive approach taken in CIS countries than in most EU countries. The priority is lower and the approaches are less elaborated and often poorly resourced. According to the EBRD, progress in CIS countries has been impeded by a combination of low tariffs, scarce financing and an ageing industrial structure.

12. All EU member states have quantitative targets as a result of the recently approved Energy End-Use Efficiency and Energy Services Directive. Several of those countries had specific targets prior to this Directive. Under the Directive, member states will plan to achieve a minimum annual energy savings target of 9% by the ninth year in the period from 2008 to 2016. The energy savings targets are indicative rather than mandatory and therefore not legally binding. However, it is felt by many analysts that if the Directive is fully implemented, then the

target should be reached. For example, it estimates that if the 2006 Action Plan on Energy Efficiency is fully implemented, energy demand will decrease 13 % by 2030 from today's demand.[2]

13. Of non-EU transition countries, Belarus, Moldova, the Russian Federation and Ukraine have quantified targets. For example, in Belarus, the target in the current period (2006-2010) is to reduce energy intensity by 15-20% compared to 2005.

14. It has long been argued that energy efficiency, to be truly effective, needs to be integrated into other economic and social spheres of policy, from industrial development to transport to environment and, essentially, all spheres of responsibility under government. Major concentration has been on integration with environmental policy, particularly global climate change. Improved energy efficiency is seen as a major instrument in climate change strategies and all Annex 1 countries to the UNFCCC confirm its importance. Almost all national or regional energy efficiency strategies also make the direct link with climate change policy.

15. There has been progress on appropriate energy pricing that will encourage greater energy efficiency. Energy prices overall have come to the fore in the past years because of major price increases for petroleum products in particular. The world price of crude oil shot upwards, reaching record levels mid-2006 before lowering again. Prices are still at historically high levels that make it difficult for importing countries. The same has been true for natural gas prices. The EBRD, in its 2006 transition report[3], stated that there has been significant progress in the reform of energy pricing, and gave quite good marks to all transition economies in price liberalization.

V. THE INSTITUTIONAL SITUATION

16. Good delivery of energy efficiency measures at any level of government requires an effective delivery mechanism and the resources to undertake the implementation. Most participating countries have an implementing organization. Often this organization is closely affiliated with the ministry responsible for energy or for environment, either integrated within the ministry or as a body owned by the ministry.

17. There have been improvements in the institutional capability to implement programmes, but in many transition countries, it is still a slow process. Some countries, such as Ukraine, have recently established a new National Agency for Efficient Use of Energy Resources (in operation since 2006). There is a need to have institutional capabilities well developed at both national and local level, and this is important also for federal states.

18. For many countries, the question about adequate resources is vital and there is often a shortage of funding for the measures themselves, as well as for the organizations to deliver them. And there is a need for both stronger capacity and resources for enforcement. This is true in both transition and non-transition countries.

19. There are many non-governmental bodies that play a vital role in promoting energy efficiency, sometimes even in delivering programmes. Whether they are representing the

[2] *Ibid*., p. 11.
[3] EBRD, *Transition Report 2006*, London, 2006, pp.4-5.

various energy efficiency industries (insulation, control systems, lighting, district heating, cogeneration, etc.) or advocating certain positions to promote energy efficiency at the EU level or in IFIs, their voice has grown and they have been instrumental in improving the awareness of the importance of energy efficiency and the decisions made at the national, regional or the international levels.

VI. POLICY INSTRUMENTS

20. The full range of policy measures is being used to improve energy efficiency in all countries to varying degrees. The measures range from information/advice to financial instruments and regulatory measures (both mandatory and voluntary). What has proven most effective over the years is a judicious combination of mandatory measures combined with information or with financial incentives. There is a growing use of international approaches, such as the US-led "Energy Star" labelling scheme. And more and more frequently, governments are working together with the private sector to finance, promote or implement energy efficiency measures. In federal states (like the US) partnerships built between the federal level and the sate level can help addressing energy efficiency in key areas, like buildings, by promoting codes, training and technical assistance. Measures implemented on their own have proven less effective.

21. The choice of instruments or mix of instruments depends on the circumstances of the country. Information and awareness are always important. When designing more specific measures, attention is in general paid to the sectors with the highest energy saving potentials and to the type of instruments with greater impact. Energy audits can help many industries notably in their phase of restructuring. Targeted subsidies for low income households help addressing poverty while at the same time allowing energy prices to be based on real costs and in this way stopping environmental harmful subsidies. Market based energy prices give the right signal to all consumers (while low income households benefiting of specific targeted support, as explained above and seen in several OECD and non-OECD countries: UK, Romania, etc.). Voluntary agreements with manufacturers proved to be an effective instrument in several countries in the past, and now, with the new market conditions developing throughout the region they may be given another opportunity to show their effectiveness.

22. Financing energy efficiency measures remains a major concern. Many transition countries are finding it difficult to provide adequate financial resources and they are being aided by various global funds and other financing mechanisms by International Financial Institutions. The flexible mechanisms developed in relation to climate change open some opportunity, but they have so far failed to finance many energy efficiency projects and thus have not lived up to their expectations. Public Private Partnerships organized with the support of various International Organisations are also an important tool to catalyze the financing of energy efficiency projects, and there are good examples initiated by the EBRD, World Bank and others planed also in the framework of the UN-ECE.

A joint EBRD and EIB climate change initiative

The EBRD and the European Investment Bank (EIB) established the Multilateral Carbon Credit Fund (MCCF) as a key instrument in their strategy for combating climate change. Fully subscribed, with € 165 million in commitments, the MCCF is one of the few carbon funds dedicated specifically to countries from Central Europe to Central Asia.

Shareholder countries can purchase carbon credits from emission reduction projects financed by EIB or EBRD to meet their mandatory or voluntary GHG emission reduction targets. Countries can also participate via the MCCF in green investment schemes. This is an innovative way to facilitate government-to-government trade in carbon credits, whereby the selling country uses the revenue from the sale of carbon credits to support investments in climate-friendly projects.

Carbon credits can be generated from a large variety of project types, all of which reduce or avoid GHG emissions and are of interest to the MCCF including, *inter alia*, energy efficiency in industry (co-generation) and larger projects in the residential sector (double glazing, insulation).

Source: www.ebrd.com

23. Many transition countries, however, depend on only a few instruments and do not maximize the potential available in, for example, mandatory minimum energy performance standards, appliance labelling and voluntary programmes.

VII. SECTORAL ISSUES

24. Apart from transportation, the sector that has received the single greatest policy attention has been buildings. This has been a priority for almost all participating countries. The potential for energy savings is high and buildings and appliances account for about 24 % of total CO_2 emissions reductions to 2050 according to a recent IEA study[4]. Countries from the CIS region have also made efforts and progress in addressing the potential for energy efficiency in buildings, mainly by developing and starting to implement new building codes, such as is the case in the Russian Federation and Ukraine.

25. Recent analysis shows that there is significant potential to reduce the energy consumption in lighting. Australia has announced its intention to ban incandescent light bulbs and now the EU is considering the same. An IEA study states that the emissions from lighting globally is 1,900 Mt of CO_2, which is 70% of the emissions of global passenger cars and more than the emissions from aviation[5].

26. The industrial sector is important for energy savings and emissions reductions. Large industry in the EU is participating in the EU Emissions Trading Scheme (ETS) and there are plans to expand the trading system to more sub-sectors within the industrial sector. In countries such as the Russian Federation with many heavy industries, energy efficiency improvements represent a priority also from the perspective of increasing economic competitiveness. The contribution of international financing institutions, such as recently the EBRD in the steel production in Ukraine, can catalyze the investment process.

[4] IEA, *Energy Technology Perspectives*, OECD, Paris, 2006, p. 144.
[5] IEA, *Light's Labour's Lost, Policies for Energy-efficient Lighting*, OECD, Paris, 2006, p. 31.

27. Transport is gaining in priority for many reasons, including the increasing effect it is having on GHG emissions and its high dependence on fossil fuels. This has been a challenge for government for decades, due to the lack of many cost-effective alternatives. Both the CO_2 limitations per Km in the EU and the revised fuel efficiency standards in the US are expected to help curbing the energy demand in the transport sector. Other measures like labeling of cars, eco-driving (such as in Japan), introduction of biofuels, use of taxation (such as in Switzerland), modal shifts and introduction of an energy-efficient fleet and improvements in the organization of transportation (such as adopted in the Russian Federation) are contributing to improving the overall efficiency of the transport sector, but it is slow to make any significant headway.

VIII. FINAL REMARKS

28. There have been many accomplishments over the last few years. There is a better policy and legislative foundation that will produce good results in the future. There is momentum and the policy drivers of climate change and energy security are putting energy efficiency higher up the political agenda. Both energy and environment policymakers should feel confident that there will be strong improvements in energy efficiency in this region. Nevertheless, while there are encouraging signs, governments need to devote adequate resources and political commitment in order to ensure that those results are forthcoming. For more results to be delivered in a timely and cost-effective manner, however, there are still many areas of policy, regulation and implementation that need to be improved by all participating countries, both through national efforts and through international cooperation.

29. In order to achieve higher levels of energy efficiency improvements it appears important to use the whole range of instruments (information, awareness, labels and standards, financial and fiscal incentives, voluntary agreements and RD&D), in a combination that takes into account the national economic and environmental circumstances. At the same time, energy efficiency cannot be improved in isolation and it requires governments to work together with a wide range of actors in all end-use sectors, to develop partnerships with the energy supply industries and the financial sector. All countries need to ensure they have good monitoring and evaluation systems set up in order to regularly assess the progress being made in their energy efficiency policies and programmes, and to better exploit the benefits that improving energy efficiency brings to the environment.

30. International co-operation is very important in promoting energy efficiency. The international community provides valuable policy momentum, the comparative analytical foundation, capacity development, technology development and financing. It also allows countries to learn from each other, as is the case in peer reviews for the Energy Charter. International co-operation can be developed in forms suitable for the entire region (or even global) or for sub-regions, in some cases supporting the capacity building in countries with less experience and expertise in this area.

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