ENERGY EFFICIENCY AND KYOTO PROTOCOL'S FLEXIBILTY MECHANISM

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Climate changes and the Kyoto protocol

According to numerous researches' results, as a consequence of the greenhouse gases' concentration increase, there is a change of the climate. The greenhouse gases are carbone dioxide (CO_2), methane (CH_4), nitrogen oxide (N_2O), halogenous hydrocarbons (CFC, HCFC, PFC) and other gases, remaining for a long time in the atmosphere (sulphur fluoride SF_6). The objective of the UN Framework convention on climate change, applicable from 1994, is to stabilize the greenhouse gases' concentration in the atmosphere at the level not causing dangerous antropogenic interference to the climate system. The convention determines some basic principles such as prevention principle, principle of common, nevertheless different responsibility and so on. In 1997, the Kyoto Protocol to this convention was signed. In the framework of the Kyoto protocol, the developed countries (including Slovakia) undertook to general decrease of the greenhouse gases' emissions of at least 5%. This collective objective has to be achieved by different decrease in individual countries: for Slovakia, the aim is 8%, as well as for Switzerland, majority of countries of Central and Eastern Europe and European Union. In view of energy consumption's projections and related greenhouse gases emissions, the actual needed reduction exceeds by far the 5% mentioned above; in average it is 10% and for the most developed countries, it is about 20%. These are the reasons why, among others, the Kyoto protocol introduces so called Flexible instruments.

What are the flexible instruments?

The flexibility instruments are stated in the Kyoto protocol (as the executive document of the UN Framework Convention on the climate change) in the paragraphs 6, 12 and 17.

- Joint Implementation – JI – paragraph 6
- Emission Trading – ET – paragraph 17
- Clean Development Mechanism – CDM – paragraph 12

These instruments allow the countries to achieve the needed reduction not only by the measures in their own jurisdiction, but also through the “exchanges”, or transfer of reduction reached in other country.

Joint Implementation:

These are the projects, where a country with the reduction obligation, so the country of the Annex I of the Kyoto protocol, implements in other Annex I’s country a project, whose aim is the emissions’ reduction. The achieved reduction is then divided, according to their agreement, either to investing country, or to both countries - the investing and the receiving – both countries receiving given ratio of reduction. The achieved reduction is compared to the “baseline”, the situation taking place without investment in greenhouse gas emissions’ reduction. During the implementation of the whole project, the emissions of CO_2 are studied, the results are verified and then mailed in requisite form to the Framework Convention Secretariat. Therefore, the transaction costs of the Joint Implementation are so high, namely for the smaller projects.

Emission Trading:

In Emission Trading, the Annex I’s country that has “redundant” (in surplus of the Kyoto commitment) reductions, can transfer these reduction to the other countries of the Annex I. The transefrs can take place at the individual companies’ level, if the system allows this possibility. The prerequisite of the intercompany transfers is the allocation of quotas for the CO_2 emissions and the institutionalisation of the international system registrating the transfers. The European Union has prepared a Directive proposal for the CO_2 emissions trading and Slovakia is being preparing such a system.

The greatest producer of the greenhouse gas emissions, or the CO_2, is the energy sector – incineration of the fossile fuels. According to the International Energy

Outlook 2000, the global energy consumption will increase of 63% by 2020, comparing to 1997. Thus, the greatest attention in flexible instruments in the central Europe is paid in the energy sector. It is obvious that for Slovakia, as a potential source of reduction, the flexible instruments' use is an attractive opportunity. The results of the analysis of the emissions projections after the instruments for the greenhouse gas reductions' implementation and the Strategy of achieving the commitments under Kyoto protocol state, that in the commitment period, there could be about 10 million tos of reduced CO_2. This quantity can be even higher if the projects of energy savings are implemented more than it is projected in the scenario.
The transfer of the reduction units can be enforced on one hand by Joint Implementation mechanism (on the basis of the project), on the other hand by Emissions Trading. In case of Emission Trading, two other cases can take place: 1) trading at the intergovernmental level and 2) trading at the intercompany level. The Ministry of Environment inclines to the second possibility – trading at the intercompany level – either in the country (domestic system of trading), either between the companies from different countries. For the energy sector, the main potential for the CO_2 emission redction are the following measures:
a) the fuel substitution (coal's substitution to the natural gas represents a reduction of 50% per unit of generated energy)
b) improvement of the energy efficiency (new technologies – BAT – for the heat and power generation have their energy efficiency higher of 10 – 20% than present technologies in Slovakia);
c) Introduction of the combined heat and power generation (increase of the energy efficiency by 40 – 60%);
d) Renewable energy sources use – substitution of the fossile fuels by the biomass, geothermal and solar energy.

All these measures, in general, contribute to the reduction of the emissions of other polluting substances, too.

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