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(Agenda Item 5b)

EAST-WEST ENERGY EFFICIENCY STANDARDS AND LABELS

Note by the secretariat 1/

1. At their third session held in December 1994, the Ad Hoc Group of Experts on Energy Efficiency Standards and Labels recommended that a comprehensive report on energy efficiency standards and labels be prepared with data on product technology performances, market evolution, patterns of use, energy supply management, manufacturing capacities, standards and existing certification (ENERGY/WP.4/AC.2/2). The Ad Hoc Group of Experts called for cooperation with the European Commission which launched the SACHA Project 2/ in February 1995. Progress was reviewed during the fourth session of the Ad Hoc Group of Experts held in May 1996 in Rome (ENERGY/WP.4/AC.2/4). The

1/ This summary and the final report of the SACHA Project were prepared by ISIS, Istituto di Studi per l'Informatica e I Sistemi, Via Flaminia 21, 00196 Rome, Italy, Tel. (39 6) 321 2655, E-mail: ISIS@MCLINK.IT

2/ European Commission Directorate General XVII ENERGY, Special Action Programme for Vigorous Energy Efficiency (SAVE) Project State of the Art of Cooling Household Appliances Standards Market and Technology in Central and Eastern European Countries for Energy Efficiency Programmes Implementation in ECE Member States (SACHA) developed within the framework of the UNECE Energy Efficiency 2000 Project.

results of the SACHA project were presented to the first International Conference on Energy Efficiency in Household Appliances held in Florence (Italy) on 10-12 November 1997 sponsored by the EC SAVE Programme.

2. The present paper is a summary of the final report of the SACHA project which is to be published by the United Nations. It provides information in all the categories for the comprehensive study in the cooling household appliances sector for the countries covered in the SACHA project Belarus, Bulgaria, Hungary and Ukraine. The intention of the SACHA project has been to increase current knowledge of circumstances in the counties studied and identify possible scenarios for the improvement of energy efficiency and therefore of environmental conditions.

3. The project was lead by the Italian firm ISIS (Istituto di Studi per l'Informatica e I Sistemi) in collaboration with the Italian National Agency for Energy, New Technology and Environment ENEA, the Italian Domestic Appliances Association ANIE and the German market research firm GfK. The counterparts in the economies in transition were the Energy Efficiency Committee in Belarus; the Bulgarian Foundation for Energy Efficiency (EnEffect) in Bulgaria; the Energy Information Agency in Hungary, and the Institute for Energy Saving Problems in Ukraine.

PROJECT IMPLEMENTATION AND OUTPUTS ACHIEVED

MARKET STRUCTURE.

4. Original data and information to portray the market structure were collected directly in the field, and complemented with market data previously available. Among the most significant descriptors is indeed the so-called apparent market, calculated as "national production + import - export". This, in fact, corresponds to the number of units available for purchasing on the national markets. For example, tables hereafter illustrate the historical evolution over the past 15 years, as well as average selling prices for type of appliance, classified along the EU categories. The representation of the market structure is further completed by the description of the distribution and sales mechanisms, through the identification of the dominant models and distribution channels, and the density and diversification of the sales networks .

Table 1: Apparent Market and Appliances Price in Belarus in 1995

EU appliance category (number)	Manufactured appliances (units)	Aver. selling price for new products (US $)	Second hand appliances (units)
01			
02			
03			
04			
05	30,000	265	
06			
07	123,200	344	
08	31,300	314	
09			
10			
TOTAL	184,500		

Table 2: Apparent Market and Appliances Price in Bulgaria in 1995

EU appliance category (number)	Manufactured appliances (units)	Aver. selling price for new products (US $)	Second hand appliances (units)
01	9,375 (*)	350	
02			
03			
04			
05			
06			
07		387	
08	4,308 (*)	340	
09			
10			
TOTAL			

Table 3: Apparent Market and Appliances Price in Hungary in 1995

EU appliance category (number)	Manufactured appliances (units)	Aver. selling price for new products (US $)	Second hand appliances (units)
01	3,000	175	
02	--	--	
03	11,000	235	
04	1,000	210	
05	40,000	226	
06	40,000	247	
07	70,000	382	
08	33,300	300	
09	48,000	260	
10	2,000	792	
TOTAL	248,300		

Table 4 Apparent Market and Appliances Price in Ukraine in 1995

EU appliance category (number)	Manufactured appliances (units)	Aver. selling price for new products (US $)	Second hand appliances (units)
01	(*)		
02	--		
03	(*)		
04	8,850	150	
05	54,050	165	
06	371,500	250	
07	15,000	280	
08	71,000	300	
09	(*)		
10	(*)		
TOTAL	537,500		

LEGAL AND REGULATORY FRAMEWORK

5. The state of the art of laws and regulations was then analysed, based on information collected in each country through an ad hoc format, so as to appraise both the nature and contents of standards and norms currently in force in the four countries, as well as the organization and functional structure operating in each national context for the enforcement of the latter, including the identification of standardization bodies, national programmes and certification laboratories.

CONSUMERS' HABITS AND PURCHASE BEHAVIOUR

6. An extensive survey was conducted in the field: no less than 1000 households were interviewed in each national market, providing an original, widely documented picture of the currently installed stocks, as well as of consumers' behaviour and habits. Examples of the data thus gathered and the output elaborated therefrom are shown in the figures presented hereafter, illustrating and comparing the installed stock of the most common appliances and the corresponding levels of ownership. Stocks are described and broken down along a variety of parameters, e.g. origin, model, and age. A detailed analysis is carried out on the distribution of the stock according to the gross volume of refrigerators and freezers.

In Belarus the ownership level, in the households and by 1,000 people, is:

Table 5: Cooling household appliances ownership level in Belarus

Refrigerators + Freezers	1985	1990	1993	1994
% of equipped households	85	85	78	76
(by 1,000 people)	266	266	244	236

The ownership level, constant between 1985 and 1990, decreased of about 9% in the years between 1990 and 1994, from 85% to 76% of the households.

In Bulgaria the ownership level is:

Table 6: Cooling household appliances ownership level in Bulgaria

Appliances	1985	1989	1990	1991	1995
Refrigerators	94	96	97	96	93
Freezers	n.a.	n.a.	n.a.	n.a.	23

In Hungary, in 1995, about 98% of households own refrigerator or a refrigerator/freezer, while about 62% own a freezer.

In Ukraine the ownership level of refrigerators and freezers is:

Table 7: Cooling household appliances ownership level in Ukraine

Appliances	1993	1994	1996
Refrigerators	71	67	83.9
Freezers	n.a.	n.a.	4.6

n.a. = not available

A comparison of the 1995 values for ECE Countries gives the following results:

Table 8: Cooling household appliances ownership level in ECE Countries

Appliances	Belarus (1994)	Bulgaria (1995)	Hungary (1995)	Ukraine (1996)
Refrigerators	76	93	98	84
Freezers	--	23	62	5

MARKET SHARES

7. The market shares of the leading brands in each country were assessed and a ranking of the top 10 models for each national market was established. A detailed analysis of the technical features of the stock was then carried out, taking into account the star rating and its distribution according to the age of appliances, but also such features as insulation type, defrosting system, number of doors and thermostats, as well as positioning aspects (share of built-in, position of freezer compartments). This allowed in particular to draw a full outline of the characteristics of models considered to be representative for each examined country. Sample outputs are presented in figures 1 to 5.

TECHNICAL CHARACTERISTICS OF THE INSTALLED STOCK

8. A detailed description was carried out of the appliances available on the examined national markets from the point of view of their technical characteristics and performances. The information used to this end was gathered and organized by means of an ad hoc format, documented in close cooperation with the national institutions involved in SACHA.

9. The basis for this description is the classification of the models sold in 1995 in each country, by geographic origin and by category of the EU Directive 94/2. All major technical characteristics of Cooling Household Appliances (CHA) and their occurrence and distribution in the models sold in 1995 were then analysed. In particular, gross volume distribution by category was assessed and compared according to star rating and origin of production; refrigerating and insulating fluids were examined in the context of the CFC phase-out and other significant environment oriented international agreements, their distribution highlighted according to country of origin; volume ratio (i.e. External/Total Net) was evaluated as a measure of insulation thickness; distribution along climatic classes was computed; the incidence of no-frost devices was highlighted, and that of other positioning and design characteristics.

10. Finally, energy consumption was estimated for each national market in terms of the average value for sold models, and for each of the 10 categories. Both non-weighted and weighted (with market shares) averages were established Sample outputs are presented in figures 6 to 10.

CONCLUSIONS AND RECOMMENDATIONS

THE POTENTIAL IMPACT OF THE APPLICATION OF EU DIRECTIVES

11. A first set of significant conclusions on the situation of the current ECE stocks when analysed through the lens of the EU Directives could then be drawn, with particular regard to Directive 94/2 on energy labelling and Directive 96/57 on energy efficiency limits. A (theoretical) classification of the existing appliances into the A-G classes (94/2) was established to this effect, and subsequently with respect to the consumption limits set for each of the 10 categories (96/57). The conclusions amount to a hypothetical Pass-or-Fail verdict for each appliance, should the EU Directives be applied here and now to the examined ECE countries.

POSSIBLE OPTIONS FOR INTERVENTION

12. The wealth of information and data gathered and elaborated in the course of the project implementation also allowed the formulation of possible scenarios to describe and analyse the future evolution of the CHA sector in

the four ECE countries. Particular emphasis was put on the identification of recommended paths which could be followed and implemented by the national authorities, through the establishment and the enforcement of appropriate mixes of interventions, with standards and labels playing a prominent role. Four main categories of tools were considered to be available to the involved authorities who intend to steer the sector towards increased energy and environmental performances. Both mandatory and non-mandatory tools and programmes were obviously identified, classified and analysed:

- Consumer awareness options include standards, labels and advertising;

- product energy efficiency can be increased thanks to mandatory limits set by law, but also through agreements negotiated between manufacturers and authorities, or based on the effects of unilateral commitments of industry;

- consumer incentives can be drawn from a varied range of possible options, involving product prices, energy prices, fiscal and financial incentives, awards;

- finally, supply agreements may be targeted to yield structural changes in the market as a whole.

For each such typology, advantages and disadvantages were highlighted, thus contributing to a preliminary identification of the criteria to be used for the selection of the most appropriate mix of measures, to be defined according to the specificity of each socio-economic context.

COUNTRY SCENARIOS
BELARUS

Short Profile

13. Belarus or White Russia is a republic that became sovereign when the Soviet Union broke up. It lies between the Russian Federation and Poland; the capital (Minsk) is approximately half way between Moscow and Warsaw. Population is ten million.

14. From the economic point of view, Belarus is trying to enter a market economy but the inheritance of a planned economy left by the USSR is still very strong. The country still adopts this economy for many production aspects. The economy shows signs of great sluggishness if not of a real slump.

15. From the point of view of electricity, the country has many problems; production is almost exclusively thermoelectricity. For the household appliances under examination, in the context of the planned economy of the USSR, Belarus had a central role to play in the development and production of

cooling household appliances for the entire union. These days the market is conditioned by the strong presence of local producer ATLANT.

Current Outlook

16. Belarus has the most unusual features among the countries being examined, features typical of a young country that feels the strong inheritance of the planned economy. In detail:

- in the refrigerator industry the market is virtually a monopoly with a single producer that represents some 98% of the market and which is also the national compressors manufacturer;
- the consumer has very little choice: the eight main models produced locally represent 90% of the market. Furthermore, these few models are not similar to each other and are not in competition with each other: for every type of device (small, medium, large, with or without freezer and so on) there are generally no more than one or two models available;
- despite the current production being at a good level, most of the models installed are of old design and consequently of low energy efficiency;
- the dealer circuits are largely different from those in countries with a mature market economy: purchasing in large blocks by closed structures (such as stores organized by companies for their employees), or by suppliers of low-cost public housing that are building “turn key” apartments with refrigerators already installed. This does not give the consumer the ability to choose the model.

17. Furthermore, many of the refrigerators in use are fairly old. Around 75% of the refrigerators installed are more than five years old and around 50% are at least ten years old. Owing to both the average age of refrigerators and the technologies adopted in the last few years, it is reckoned that energy efficiency is fairly low. The need for energy saving is made even more urgent by Belarus’s electricity deficit made worse by the fact that thermoelectric stations are mostly of conventional conception. In addition, where the consumer can make a choice, this is usually made on the basis of price since money is in very short supply.

18. In conclusion it is worth noticing that sales are declining heavily and the process of replacement has been blocked. The hoped-for recovery must be directed not towards the use of second hand products or the repair market, that will not bring any benefit with it, but the purchase of new models.

Impact of the Various Solutions

19. Seeing the characteristics of the economic structure of Belarus and, more specifically, seeing the conditions of production (good in terms of quality and export) and the refrigerator market (the domestic market in recession) it is highly unlikely that measures based on fixing minimum energy efficiency

thresholds and information to the customer will have results of any importance.

20. The setting of a minimum energy efficiency threshold will in fact have a highly depressive effect on the market, since it will force technological innovation to be adopted in the production process and the cost of this would be reflected in the price the product is sold at. An increase in list prices would accentuate the forecast sluggishness of sales even further; that would become even greater, made worse in a country where these products only account for 3% of national consumption.

21. A similar low level of success would be achieved with the introduction of instruments based on information to the consumer: on one hand, the lack of competing models does not give the consumer terms of comparison or choice; on the other hand, the prevalence of the price factor in the choices reduces the extent of the consumers' responsible involvement.

22. Furthermore, instruments based on the minimum levels of efficiency and on information to the consumer need a system of market control based on inspection and checks for these measures to be effective and to ensure that they have a high profile. Against the background of Belarus's sluggish economy, the purchase of modern concept products such as those produced locally must be stimulated rather than the resort to the second-hand market currently being made.

Proposals for Future Action

23. Measures pinpointed are largely of two types: financial incentives for the purchase of new products so as to speed up the replacement of the more obsolete models and a promotion of organized purchasing that involves higher specific techniques. Incentives given the scarcity of national resources could be part of international aid to Belarus programmes, for example programmes like the upgrading of electrical power plants. In detail:

- in the short term : introduction of generalized but concrete incentives to the consumers (a minimum discount of 15 - 20% on the purchase price or low constitution tax are possible) if possible as part of an international aid programme. This would encourage a rapid replacement of very old and inefficient models with recently produced models that are usually more efficient because they are new, with a benefit even if technological improvements have not been made to the refrigerators currently offered for sale;
- in the short term : it is also worth considering tax breaks, if possible as part of an international aid programme, offered to purchase more efficient equipment; self-certification or an energy consumption certificate will be required and will be checked;

- in the mid term : further, energy saving can be obtained by promoting the adoption of common purchasing specifications (supply agreements) by the large sales points in the sector. This requires a minimum energy efficiency threshold for refrigerators and freezers; a high percentage of sales in Belarus are in this type of shops;
- additional measures : to improve the results of these actions, an advertising campaign to make consumers aware of the opportunity offered by the incentives, would be a good idea.

BULGARIA

Short Profile

24. Bulgaria (Bulgarija) has been a sovereign state for over a century. It is located between Romania, Yugoslavia, Greece and European Turkey. It borders on the Black Sea. The capital is Sofia. It has some nine million inhabitants. From the economic point of view, the country is quickly entering a market economy but is still influenced heavily by the planned economy that characterized the country between 1945 and 1990. As for electricity, the country is in deficit; there are a large number of hydroelectric plants (6%) and nuclear plants (41%).

25. For cooling household appliances, the market is characterized by imports, particularly from Italy and by a large number of goods from Eastern Europe; it should be noted that North Africa has an albeit small share of the market. MRAZ is the national manufacturer.

Current Outlook

26. Bulgaria is in a lively, though recently initiated, transition phase from a planned economy to market economy. This obviously applies to the refrigerator sector as well. The production of the major company, MRAZ, is still largely traditional in concept and consumers prefer imported articles. Thus, refrigerators already installed can be divided into two large categories: those purchased over the last decade are almost exclusively made in Bulgaria while those purchased more recently are almost always foreign.

27. The range available is sufficiently wide: from the point of view of the sales structure organized forms and the most modern production live side by side. Furthermore, Bulgaria is approaching the features characterizing Western Europe in terms of consumer life style and in terms of commercial and technological standards. In detail:

- national plants are going through a very difficult stage. Their production in a market system no longer seems sustainable economically, if not subsidized by the Government:
- MRAZ the main local producer represents 66% of household appliances already installed but only 7.7% of the refrigerators sold in 1995;

- Bulgarian production is still suffering because of the lack of national compressor manufacturers;
- the high number of imported products assures the consumer of a wide range of different brands and models;
- local production is also directed towards Western standards and, at present, Bulgarian standards are coming into line with ISO standards.

28. A high number of refrigerators already installed (40-45%) have been in operation for over ten years. However, the modernization process is also changing purchasing behaviour: many of the new products (as a rough guide 35% of those less than five years old) have high functional performance (four stars).

Impact of the Different Solutions

29. Bulgaria's socio-economic condition is very close to that of EU countries and the sales of refrigerators show an interesting growing trend. Nevertheless the market economy is still young and a number of undertakings that would otherwise be applicable in countries with a more mature market economy could have depressive effects in Bulgaria. This is the case, for example, in fixing minimum energy efficiency limits: the technological and productive innovation that would thus be imposed, especially on national products, would cause an increase in the sales prices, reducing most of the growth of the last few years and consequently the replacement of all the equipment installed.

Proposals for Future Action

30. The most effective instruments seem to be those that emphasize competitiveness between manufacturers and appeal to the consumers' awareness without setting up barriers. Already today the presence of EU products (some 65%) and, therefore, of products characterized by advanced quality standards on a market offering a suitable wide range of alternatives is a spur to locally-manufactured products that are already coming into line with Western standards. At the same time, the most advanced standards must be assumed by non-EU manufacturers (other countries in Eastern Europe or Northern Africa). The main measure identified is the energy label that must, however, be introduced after integration with EU energy efficiency legislation and harmonization with ISO standards (and corresponding EN standards), processes which must be followed by a suitable control of the market.
In detail:

- in the short term : introduction of the product energy label;
- in the medium to long term : voluntary agreement negotiated among producers for minimum energy efficiency limits with different stages of application;
- additional intervention : a system of inspection and check-based market control is necessary. This system of control could be encouraged through international financial contributions, e.g. through EU programmes.

HUNGARY

Short Profile

31. Hungary (Màgyarorszàg) has been an autonomous country for a very long time. It is located between Yugoslavia and Slovakia, between Austria and Romania. The capital, Budapest, is by far the largest city. Hungary has around 10.5 million inhabitants. From the economic point of view, Hungary has a long market-economy tradition that managed to co-exist with the planned economy during the period between 1945 and 1990. Today it is in lively expansion. For electricity, the country has a large deficit; production is divided almost equally between thermoelectric power plants (currently being extended) and nuclear power plants (being scaled down).
In the household appliance sector, the market sees a strong presence of locally produced goods by ZANUSSI-ELECTROLUX (through LEHEL) and numerous imports.

Current Outlook

32. While not being part of the EU, Hungary has a situation that is not so different from that of a small/medium sized EU country. There is a traditional widespread sales network: the models range present in the market is reasonably extended (around 200 considering refrigerators and freezers); the main national producer is part of an EU multinational and, therefore, uses technologies, production standards and types of product that can be compared to those in the EU. In detail:

- the local ZANUSSI-LEHEL plants, owned by Swedish ELECTROLUX, represent more than 70% of the refrigerators sold in 1997;
- more than 95% of the market, as a whole, (counting LEHEL products made by an EU industrial group) consists of EU products;
- there are two local compressor producers;
- almost 60% of the equipment currently in use is less than ten years old and about 38% is less than 5 years old (including many new devices);
- there are many brands and many models: consumers have a wide choice available to them;

Impact of the Different Solutions

33. Substantially, in Hungary the social-economic conditions of the market are very close to those of a small/medium sized country in the EU and like other similar countries it has a strong local refrigerator manufacturer well integrated in the European system. Therefore, instruments suitable for a market economy could be used. Refrigerator sales are following an upward trend. Nevertheless, since Hungary has a relatively compact consumer basin (ten million inhabitants) and its market economy is not yet fully evolved, there do not seem to be suitable instruments with a large incidence on price levels.

34. Consequently imposing a minimum energy efficiency threshold would have an adverse effect on the market, because of the presence of a dominant manufacturer but, more importantly, because it would force the use of innovative technology in the production process, whose cost would be reflected in the price that the consumer pays. An increase in price-list would lead to sluggish sales, slowing down the modernization of the refrigerators already installed rather than speeding it up. Furthermore, the positive effect would be much smaller as the refrigerators already installed are quite new and the models available are largely similar to EU types.

Proposals for Future Action

35. Hungary's approach to the European Union area will, in the short term, ensure that products sold will be modified in line with European legislation regarding the energy labelling and the energy efficiency limits adopted in the EU. The most effective solution seems to be based on the information to the consumer strategy and spurring competition between producers. In detail:

- in the short term : widespread implementing of the energy label for cooling household appliances (which is already in force);
- in the short to medium term : voluntary agreement, negotiated between manufacturers for minimum energy efficiency limits with different stages of application;
- additional measures : the bringing of Hungary in line with EU rules and harmonisation with the ISO standards, in any case, implies the introduction of a system of market control based on inspection and checks. This system of control, applied to the energy label, could be encouraged by international financial contributions, e.g., through the EU programmes.

UKRAINE

Short Profile

36. Ukraine (Ukraina) otherwise known as Little Russia, is a republic that became sovereign when the Soviet Union broke up. It is located in the south of Belarus between Russia, to the east, and the central and east European countries (especially Poland and Romania). The capital, Kiev, lies inland while another large city, Odessa, is one of the main ports on the Black Sea. Ukraine boasts a population of some 52 million. From the economic point of view, Ukraine is trying to enter a market economy but the planned economy inheritance left behind by the Soviet Union is still very strong and in many production-related respects the economy is still integrated with the old style. Economic conditions are not too bad, certainly better than those in other adjacent countries.

37. From the point of view of electricity, the country is self-sufficient and is also a fairly large exporter of energy to bordering countries; production is balanced between the different sources of energy but with a large emphasis

on nuclear energy (no less than 45.3%) left behind by the USSR. The Chernobyl power station is in the North of the Ukraine. The household appliances market is heavily influenced by the presence of two large national producers.

Current Outlook

38. Ukraine has features that are not very different from the other countries under examination (such as nearby Belarus). These characteristics are typical of a young country that feels the strong inheritance of the planned economy. Nevertheless, unlike the other countries in question, the Ukraine has a market that is in reasonably good condition, a sales network that is quite widespread and a range of products with a certain degree of variety (some hundred refrigerator and freezer models). In detail:

- in the refrigerator sector, the market is largely divided between three national producers (NORD, DNEPR and VASILKOV), which account as a whole for more than 95% of the Ukraine market. NORD in particular has 75% of the market. A considerable part of the market is absorbed by imports from Belarus (ATLANT) There are two large national compressor manufacturers, NORD and ORION;
- imports from the EU account for just 1.1% of the market;
- the national lines of production are of obsolete conception;
- Installed refrigerators, taken as a whole, are also fairly obsolete. It is reckoned that 70% of equipment currently in use is over ten years old;
- the equipment's length of active life, its technology and operation and, finally, production line process technologies allow the assumption that the energy efficiency of the equipment currently in use is very low. From technical comparisons made with comparable equipment it can be seen that the efficiency of the household appliances manufactured in Ukraine is lower (in one case 50%) than the corresponding models produced in the EU;
- the average price of a new locally manufactured product is at least 30% lower (slightly less for freezers) than prices in the other countries;
- the internal market is sluggish;
- consumer choices generally revolve around the price factor.

Impact of the Different Solutions

39. Certainly Ukraine, that has an electricity surplus typical of largely nuclear countries, for the moment does not feel a pressing need to save energy. Nevertheless, it is a good idea to improve energy efficiency for a number of reasons including the programme of reconverting to coal or oil fired thermoelectric technologies (with a large increase in carbon dioxide emissions) for one of the main nuclear power plants in the country located at Chernobyl.

40. This suggests making every effort, even in marginal fields such as refrigerators and freezers for domestic use (which represent only 1.1% of total energy consumption), to reduce electricity consumption and the emission

of carbon dioxide. Given the features of the economic set-up in the Ukraine, and more specifically in the light of the production and market conditions for refrigerators, it is highly unlikely that measures based on fixing minimum energy efficiency thresholds and information to the customer will have results of any importance.

41. The setting of a minimum energy efficiency threshold will in fact have a highly depressive effect on the market, since it will force technological innovation to be adopted in the production process and its cost would be reflected in the product price. An increase in price-list would accentuate the forecast sluggishness of sales even further in a country where these products account for 3.5% of domestic consumption.

42. A similar low level of success would be achieved with the introduction of instruments based on information to the consumer: on the one hand, the still small variety in the market (mainly for nationally manufactured models) reduces the consumer's choice to compare and choose between products of a similar type; on the other hand, the prevalence in the choices of the price factor reduces the extent of the consumers' responsible involvement.

43. Furthermore, instruments based on the minimum levels of efficiency and on information to the consumer need a system of market control based on inspection and checks to ensure that these measures are effective and that they have a high profile. It does not exist in a system of this type and its implementation would cost time and money.

44. The consumer would not be very involved by the energy label because, even today, their purchasing decisions are directed almost exclusively by the price factor. Moreover, the still reduced variety in the market (due to the small number of models, brands and technologies offered) drastically reduces the promotional effect of the label for products with enhanced energy efficiency.

Proposals for Future Action

45. Measures pinpointed are largely of two types: financial incentives for the purchase of new products so as to speed up the replacement of the more obsolete models and a programme of technology transfer and know how from EU manufacturers to Ukraine manufactures. Such a programme could be part of the international aid programmes to improve the electricity situation of the country and convert the Chernobyl power plant. In detail:

- in the short term : introduction of generalized but concrete incentives to the consumers (a minimum discount of 15-20% on the purchase price or low constitution tax are possible) if possible as part of an international aid programme. This would encourage a rapid replacement of very old (and inefficient) models with recently produced models that are usually more

efficient because they are new, with a benefit even if technological improvements have not been made to refrigerators.

. additional measures : to improve the results of these actions, an advertising campaign should be introduced to make consumers aware of the opportunity offered by the incentives.

* * *

The complete publication East West Energy Efficiency Standards and Labels, to be available shortly, may be obtained from:

The Sales and Marketing Section, LPD/DPI
United Nations
Palais des Nations
CH - 1211 Geneva l0
Switzerland

Telephone: +41 22 917 26 06
Telefax: +41 22 917 00 27
E-Mail: unpubli@unog.ch