

# ***Are refrigerators energivorous ? Energy consumption : a subject ignored by the consumers<sup>1</sup>***

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## **1 - SYNOPSIS**

The introduction of the new European energy label regulation on refrigerators arrives in the french context of general consumers' unknowledge about energy consumption of this kind of appliance.

## **2 - ABSTRACT**

The energy efficiency regulation implies the general mobilization of all the different players : The manufacturers of refrigerators, distributors and consumers. Both their implication and awareness of the problem is the key to success of this measure. Unfortunately, the results of the study clearly show that neither manufacturers nor distributors had put their efforts to promote the label. As for the consumers, they did not show a strong reaction mainly because they had been given little information on the energy consumption of appliances and the energy label. Strong reservations expressed by the manufacturers can be explained by the fact that they do not approve of labels, that the « clandestine worker » which is the label questions their selling methods or that they are partisan of the wait-and-see policy when talking about changes in the customer's buying patterns. According to the manufacturers, they had not been informed of this new regulation nor had they been made aware of the energy-saving aspect of some appliances. They therefore did not pay much attention to the label ; less important compared to the other choice criterias.

## **3 - INTRODUCTION**

The introduction of the new European energy label regulation on refrigerators arrives in the french context of general consumers' unknowledge about energy consumption of this kind of appliance.

In september 1995, the European community agreed on a compulsory notification system of energy consumption for all household refrigerators. This system involves sticking labels on both refrigerators and freezers sold in France. The obligation to label energy performance comes under the sales information requirement which concerns all country members of the Community, applies to all distributors (mail-order selling included) and covers all products (either manufactured within the European Community or imported).

This label takes up some of the information about the general performance of the appliance such as the number of stars for its freezing capacity, the useful volume of each compartment, the noise level and the annual energy consumption expressed in Kwh. Each appliance will then be rated according to a seven level energy efficiency scale of « A » to « G ». « A » stands for high-performance whereas « G » stands for highly energivorous. The energy efficiency category compares the energy consumption to the performance of the appliance. The

consumer can therefore choose between two appliances ( both similar in size and number of compartments) going from the most energy-saving (« A ») to the least (« G »).

Moreover, the energy label is used as a public policy that acts at two levels :

1 / Firstly, through the introduction of a standardized comparison feature for refrigerators. This should have an effect on buying patterns and consumers would therefore purchase the best-rated refrigerators.

2 / By inducing customers to buy less energy-consuming appliances. This label should also have an effect on the technical aspects of the products. This does not mean that a technological revolution is expected but manufacturers would at least redirect their Research and Development budgets towards better energy efficiency<sup>3</sup>, and start to adapt their product mix, trying to sell more energy efficient appliance.

The energy label is thus intended to change the customer's buying patterns : thanks to the given information on energy performance of the different models on the market, he/she should opt for the most efficient appliance. Another positive aspect to the energy label is that the manufacturer would then have to keep up with this new demand by offering a different and better rated range of products.

#### **4 - THE SOCIAL INTEGRATION OF « THE ENERGY LABEL »**

The introduction of the new European energy label regulation on the « cold appliance » ( and especially on refrigerators) casts doubt over the different types of social regulation that the social actors have carried out to integrate a new parameter of action to their practices. Indeed, the energy label which is meant to make the public aware of the refrigerator's energy consumption and therefore influence the purchase (and perhaps the use of it) could also be perceived as an intruder (even if non-human and discreet) in the production / distribution/ purchase chain. This new player modifies the structuring methods of the collective action. Thus, in order to reach the objectives set by the European regulation, the programme of action (CALON, M, 1986 and LATOUR, B, 1993) of this new player must be part of the other players' programme of action.

Our problem, which is a matter for public policy and social regulation, has lead us to focus on the impact of such a regulation on the main players of the system. That is to say, the manufacturers, the distributors and especially the consumers. The field study was carried out in 1996 and 1997 that is, a little after the regulation became effective<sup>4</sup>

The first step was to observe the social integration phase of the energy label. After a phase of « intense manoeuvring and prophecy (SCARDIGLI, V, 1992)» (meaning negotiations and regulation elaboration) and right before the label was actually used by the players, the energy label went through what is called a first use and social experimentation phase. It was during this phase that the study was carried out. This is when « the other category of players comes in : The users. Workers, citizens and consumers either refuse or hasten the setting up of such a service by twisting instruction leaflets or coming up with an unexpected purpose. Those « small players » were preparing for the social future of innovation » (SCARDIGLI, V., 1992, p.105)

The interest of our study lies in the observation of the specific period when the programme of action (or of logic) directed towards the regulation came up against both the players responsible for putting the regulation in use (and therefore changing their patterns) and the French department of Midi-pyrénées where energy-saving concern and long-term development seems to be less important than in other areas, especially those in the northern or eastern part of France.

The first step of our study was to interview ten manufacturers (five refrigerator manufacturers<sup>5</sup> and the GIFAM<sup>7</sup>). The purpose was to have a better understanding of both the organizational and competitive stakes of the energy regulation and the logic developed. Two-thirds of the « cold appliances » sold in France in 1993 (ADEME, 1995) belonged to the E, F and G category. How did the manufacturers perceive the regulation and which commercial and technological strategy were they going to opt for in order to find a solution to the identified stakes ?

The second step was to question the distributors. We interviewed both managers and sellers working in 14 electrical goods stores (either small local shops or big supermarkets). We wanted to find out whether or not the label had influenced the commercial strategy (by opting for a different range of products) or selling arguments. Were they going to include this new aspect in their strategy in order to attract the customer's attention on energy consumption or would they simply ignore it by discrediting the data on the label in favour of the other aspects (price, use, aesthetic...).

Finally, the customer's buying patterns were the heart of our problem. How can the « energy-saving parameter » be linked to the other criterias taken into account when buying a refrigerator ? How did the label and the information given on it be integrated in the purchase action ? It is obvious that in order to answer all these questions, we had to carry out a thorough study on the image and use of the refrigerator, energy-saving representation and practice, purchasing criterias and logic as well as the perception and reading methods of the label.

Our study was divided in two parts and operated at two different levels :

- Forty-five qualitative interviews were performed on spot among potential refrigerator buyers. The questions asked were based on motivation, purchasing criterias of a « cold appliance », attitude towards energy saving (in general and for refrigerators) and their opinion on the energy label ;
- We asked 200 consumers to fill in a questionnaire. The population sample had been selected among the Haute-Garonne department. The questionnaire contained 57 questions on the use, the motivation and purchase criterias of electrical appliances and refrigerators, their attitudes towards energy and electricity saving, their attitudes towards environment and long-term developments and their opinion on the energy label. This of course included questions on the social status of the person.

## 5 - THE LOGIC OF THE PLAYERS

The energy efficiency regulation implies the general mobilization of all the different players : The manufacturers of refrigerators, distributors and consumers. Both their implication and awareness of the problem is the key to success of this measure. Unfortunately, the results of the study clearly show that neither manufacturers nor distributors had put their efforts to promote the label. As for the consumers, they did not show a strong reaction mainly because they had been given little information on the energy consumption of appliances and the energy label.

### 5.1. The manufacturers

Because of the European regulation which bans use of CFCs as from 1995, manufacturers were forced to change their production process and therefore did not receive the energy label favourably. According to them, the energy label brings in an additional constraint which would undoubtedly perturb an already low added value image and product such as the refrigerator.

Nevertheless, the label reinforced the strategy of brands and high quality products which were already using energy saving and « green » claims for advertising purposes. These brands feared to see the homogenization in the products which would mean that their product would lose out on both its competitive advantage and the « energy saving » label. However, the brands with a different market position thought that the additional cost for more energy efficient appliances may result in a repositioning of their products at a higher end of the market.

Moreover, the energy label brought about criticism among refrigerator manufacturers. They mainly criticized the way a product is factored in for the energy category as well as the conditions and instructions given to carry out the methods. The absence of control of the given information (both by manufacturers and retailers) brings in scepticism among some manufacturers : Is the data found for the energy category reliable ? Another remark is that manufacturers are not convinced of the importance of such energy saving arguments for French consumers.

Even if some manufacturers admit that the compulsory energy label will in a way help the sellers « sell their product » thanks to solid sales claims, they still have not accepted the intrusion of such a silent label. Basically, they did not feel concerned by energy saving awareness or by consumers and distributors.

## **5.2. The distributors**

At the time of the study (march 1996), none of the stores we went to see had properly put the energy label on the demonstration models : The label was either not put at all or could simply not be seen by the customers (it had for example been left inside the appliance). We also noted that in many of the cases, the information on energy consumption had been mixed with some other information. In fact, both distributors and sellers (especially those working directly with the public) thought the label to be confusing and saw it as « the clandestine worker of the cold appliance department ».

According to the interviewed distributors, the energy label was going to improve their products and this because of the competition between manufacturers. Thanks to the energy efficiency grades, some of the products ( category F or G) saw the label as an alarm. But even so, there were no plans to modify this range of products in order to fulfil the customer's requirement for a more energy-saving appliance. They put forward the same selling propositions as the sellers : price, size, volume of the appliance, how practical it is to use, how easy it is to find a spot in the house for it, the after-sales service, reliability and finally the aesthetic and noise. The energy-saving selling proposition is hardly used to convince the customer and in many cases far from « the fridge seller's culture ».

The energy label does not seem to be sufficient. Salespeople must give additional information on the category and what it represents : how to work out the energy value (and how much the customer is saving in Francs). This obviously requires the seller to spend more time with the customer and causes a strong resentment towards « the other seller » which is the label. On one hand, the energy label is said to have better sales results but on the other hand, they also stressed on the fact that « too much information kills information ».The latter shows that any obligation to inform is regarded as suspicious. Sellers limit themselves to their scope which is to be able to sell « low »category appliances.

The compulsory energy label is seen as additional information for the consumers but non-relevant for the seller's current business practice. At the time of the study and because the distributors had not seen any changes in the consumer's buying patterns, the energy efficiency aspect and the energy category were not used as selling propositions. This can be explained by the fact that distributors had not been made aware or kept informed of the problem and therefore felt that it was not their responsibility to put energy information forward. Quite the opposite, in many of the times, we noted that the energy label was either ignored, twisted or discredited. The label is taken into account only when the potential consumer clearly asks for it.

In the absence of a complete set of measures to control and sanction, the distributors do not feel in the least inclined to apply the regulation. Even when the subject of changing the consumer's behaviour towards a more « energy-saving lifestyle » came up, they were reluctant to take the initiative for this action.

The introduction of the energy label failed to integrate an efficiency into the range of sales arguments.

## **5.3. The consumers**

Apart from the insert ads and some comparative studies published in specialized consumer magazines, the consumer cannot find technical literature or magazines (such as car or audiovisual magazines) on appliances. The consumer is given little information and is thus very often confused when buying a refrigerator. In many of the cases, the image of his future refrigerator is established according to the way his previous refrigerator had been used and according to experiences of friends and family. Changing refrigerator is also the opportunity to increase or reduce the size in volume, to update the design, to opt for a freezing compartment and/or the auto-defrost. Some of these requirements may change, he/she may have a better idea of what they want after they visit the shops. Moreover, if the consumer is not aware of the technical evolution of the appliances, the seller will rarely keep the potential client informed (if not totally hidden from him) of the technical advance and especially of the energy consumption progress.

The introduction of the energy label on electrical appliances raises the question about the changes in the customer's buying patterns. Even if the electrical appliance holds an important place in everyday life, why does the consumer only take into account the services rendered of the machine and not its energy consumption ? Nevertheless, the criterias for purchase are always the same : the bulk and size, the brand and the cost. Of course, the potential customer may also be attracted by the after-sales service and the aesthetic of the appliance

(the inside of the appliance, its rounded door, its glass/metal or plastic shelves and its curved outline). However, the French consumer is still not sensitive to the operating costs of the electrical appliance.

Thus, our study focused on the importance of « energy consumption » for the consumers ever since the introduction of the energy label. How would the « energy efficiency » parameter influence on the consumer's choice and what would have happened if the subject had not been mentioned ?

#### **\* The refrigerator, an object both ordinary and unusual**

According to the consumers, the refrigerator is both ordinary and unusual (PIDOUX, E and NOGUES, E, ZELEM M-C, 1998 and 1999) This appliance is found in almost all of the French households. 85 % of the people interviewed described the refrigerator as « essential ». Moreover, 57 % of the sample population considered the refrigerator as a safe, easy to use and everyday object. In 93 % of the cases, children use the refrigerator by themselves whereas only 36 % for the freezers, 57 % for the video recorder, 64 % for the hi-fi and only 88 % for television. However, only one person out of 100 thought of the refrigerator when asked which appliance has most technically advanced in the last years.

In order to explain the fact that the refrigerator has become a feature of everyday life, let us look at the acquisition mode. Unlike the other electrical appliances, which are more often replaced, the refrigerator seems to have a human life cycle (whether for its acquisition mode, its volume, its aspect ...). More than a quarter of the people (28%) who own a refrigerator have bought it secondhand. In 20 % of these cases, the refrigerator was either a gift or was already in the house when they moved in (this is mostly for the 20-29 age group). For the 40 + age group, the refrigerator is generally bought new. As for the 30-39 age group, only one third claimed to have bought their refrigerator secondhand. The refrigerator is passed on from generation to generation until a new one could be afforded.

Not only is the refrigerator an everyday object but it also plays an important part in our homes. Unlike the other appliances, the refrigerator owes its strong image to its multiple use. Apart from food requiring cold conservation, the study noted the following uses : medicine (62 %), beauty products (7%), rolls of film (6%) and even pieces of clothing (4%). In fact, only one household out of 3 uses the refrigerator for its primary use. In more than half of the cases (53%), the refrigerator is used as storage shelves or even as a wardrobe when hooks are put up (7%). Moreover, the refrigerator is also a mean of communication between the members of a family : post-it (38%), shopping lists (22%) and things to do (15%). Finally, the refrigerator is also decorated : magnets (48%), stickers (17%) and children's drawings (14%).

This explains why the refrigerator has become an ordinary and unusual piece of furniture and lost its initial role as an electrical appliance.

#### **\* A technical and discrete object**

Used daily and even several times a day, the refrigerator does not turn itself on or off (Sciences Humaines, 1998). Moreover, it cannot be seen, smelt or heard. The refrigerator is a discreet object. However, when the refrigerator is compared to the other electrical appliances, it comes out as an uncommon object. Indeed, the consumer can notice the technological improvement for the other appliances (electrolysis and induction ovens, ceramic hotplates, microwave ovens, dryers ...) but not for the refrigerator. Apart from the size and volume characteristic, there is not much difference within the ranges of products. Basically, the refrigerator is not considered as an attractive product because of its standardization.

#### **\* A technical piece of furniture**

The consumers tend to put both the technical aspect and progress aside when talking about the refrigerator. The latter seems to have been devoided of its technical characteristics. Moreover, with the increase of fitted kitchens, the refrigerator (as well as the other appliances) can no longer be seen because of its covered doors.

The refrigerator looks like another kitchen cupboard. Even with the dishwasher, the person can still see its doorknob and switches. As a conclusion, we can say that the refrigerator has lost its initial role as an electrical appliance to become an ordinary piece of furniture part of fitted kitchens.

**\* A lack of knowledge in the operating costs**

Because the refrigerator is both a discreet and familiar object, there is lack of knowledge in the refrigerator's operating costs. More than half (58%) of the people interviewed admitted not paying attention to the annual consumption of their refrigerator. According to 76 % of the sample population, the refrigerator does not consume much energy. These statistics obviously show the lack of interest of the consumers.

As for the other 19% who think otherwise, we noted that they all had purchased their refrigerators less than one year before (after the regulation became effective). We can therefore say that some of these consumers may have been influenced by the energy label and energy consumption.

We can also note that most of the population, and especially women, do not connect energy consumption to household expenses. Many reasons account for the latter. Firstly, because the refrigerator is considered as an essential appliance making its electrical consumption and costs unavoidable. Secondly, because there is no alternative energy suggested for the functioning of most of the electrical appliances. Thirdly, since the electricity bill does not dissociate the consumption of each appliance, it is impossible to know what the real cost is. Finally, electricity is a sort of discreet variable (meaning that electrical power is invisible and unreal) (DESJEUX, D et alii, 1996) which even if used on a daily basis, remains a virtual entity. The fact that electricity is both « accessible » and relatively affordable gets in the way of all economic reasoning.

**\* Energy costs and functioning of refrigerators : an ignored problem**

Either knowingly or not, the consumers understand that their refrigeration is an « energy-eater » but for the majority of them, this subject is simply not given enough attention. They consider the energy consumption of their refrigerators as being necessary but minor and do not feel pressured to change their practices.

Generally speaking, the refrigerator is thought to consume little energy and to be less « energivorous » than the other bulky electrical appliances. According to the interviewed population, the refrigerator comes last in the list after the freezer, the dishwasher, the washing machine and the oven which is considered having the highest energy consumption. Indeed, in many of the cases, we noted that the notion of « cold » is associated to « low energy consumption » whereas the notion of « heat » (symbol of fire) which is perceptible to the users, is believed to have a propensity to use up more energy. The latter image was similar for all socio-professional groups, education standard or level of income.

Moreover, the study pointed out that the users do not see the connection between the energy costs and closing/opening of the refrigerator doors. Because the refrigerator is used on a daily basis, it has become « part of the furniture ». Some consumers even forgot that it worked on electricity. This explains why the door is so often left open when the refrigerator is being filled up or during the preparation of a meal. As a conclusion, the user does not know how many times he opened the door or for how long it had been left opened.

**\* The purchase of a refrigerator : a well-thought-out action which omits energy consumption**

The purchase of a new refrigerator is not an individual action. The decision is collective and made between family members. It generally takes one to two months to decide on the right one : several visits to the shops, comparison of both the prices and appliances, advice from relatives. In many of the cases, the purchase of a new refrigerator stems from either a family reorganization or marital status rather than from a fault in the former refrigerator. The families admit having a cautious, wise and careful approach when buying a refrigerator. They refuse to spend too much money or making an impulse purchase (BIPE Conseil, 1995).

When choosing a new appliance, most customers favour the price and often buy their refrigerator when on special offer. Then comes the other practical criterias such as the size or the « easy-to-use » aspect. The technical characteristics or the inside fitting is less taken into account during the purchase. As for energy consumption, only 7% of the people surveyed said that they took this factor into account. We can therefore say that it is the financial reasoning (at the time of purchase) and not the operating reasoning that prevails during the purchase.

Schematically, the purchasing of a refrigerator can be illustrated in four main cases : The refrigerator is either bought when a couple moves in a new apartment and therefore needs to buy their own refrigerator or needs to get rid of their old one. In this specific case, we noted that the refrigerator was often bought by another person such as a parent or the husband. In the case of an exchange for a new refrigerator, we noted that the substitution stemmed from a change in the family needs : the choice of a bigger refrigerator with a freezing compartment for a family with lots of children and vice versa when in case of divorce, separation, death in the family or when the children leave home. In the third case, the decision of purchasing a new refrigerator comes from a failure in the former one. This purchase has to be quick and effective. Thus, the consumer has not time to go looking around the shops in order to compare the different products on sale and often cannot waste a minute.

Finally, the last case analyzes the consumer who has no good reason to change refrigerator apart from the fact that his refrigerator is not made to last and therefore may break down very soon. It is for this reason that the purchase is necessary<sup>8</sup>.

**\* The reduction of energy consumption does not justify the purchase of a new refrigerator**

Generally speaking, we can say that even if the consumer is kept informed of the consumption costs, he will not accept to change refrigerator for the following reasons :

Firstly because people doesn't change an appliance which is still working. Secondly, because it would be unwise to spend money in that way.

Thirdly, because the consumer believes that the electricity consumption of this type of appliance is of secondary importance.

The purchase of a new « energy-saving » refrigerator is conceivable only if the price for the new refrigerator is similar (or even a little higher) to the price for a « regular » one. The significance given to the service rendered by the appliance is just as important as the budget allowed for the purchase of the new refrigerator. On the other hand, the consumer considers the refrigerator as a costly investment that has to have a long-term use in order to recoup the cost of the appliance. Even the day-to-day savings generated by the « energy » refrigerators does not seem to be a convincing enough reason to change. In fact, two representations keep popping up :

The « energy efficient» appliance is automatically associated to a more expensive appliance.

Appliances which consume less are surely on trial. This innovative refrigerator makes it different from the others on the market and therefore has not yet proved its worth.

The hereinabove representations clearly show the consumer's reluctance to purchase new products such as « energy-saving » refrigerators.

**\* The unnoticed label**

At the time of the study, the energy label had been unnoticed by the consumers. More than 80 % of the people interviewed said that they had never seen the label before. Among those who had recently purchased a refrigerator, only half of the consumers remembered seeing the label but most of them admitted not knowing what the label meant. One reason can be the lack of interest in the energy consumption of refrigerators. Another reason is the opinion that consumers have about the label and its characteristics.

The energy label has never been promoted by an advertizing campaign nor has it ever been backed up on television. Therefore, the consumer does not see the « energy label » as innovative or important for appliances which are considered as basic.

This explains why when asked about the label, the consumer did not have a clear idea of what it was : was it the price tag ? ...the technical sheet given by the manufacturer ? .... In many of the cases, even those types of labels are read only after the choice of product has been made.

Moreover, consumers feel that the label is difficult to understand : « *it's too technical* », « *we don't understand the directions for use* », « *we are not used to reading this type of document* ». The latter reasons are additional obstacles encountered by the future customer.

The consumers therefore lack interest in all types of communication (including labels) and feel inundated with « selling » information.

The label is not committed to memory. According to the consumers, the energy label is just another label. The choice of a refrigerator is made prior to the shop's visit. The consumers however admit either not reading the label or misunderstanding it.

**\* A label that requires translating**

According to the consumers, it is difficult to see what the label treats of when being read for the first time. The consumer can remember some of the data from the «competing» labels but because there are so many of them, everything seems to become muddled in his mind. Too much information kills information ! Most of the time, the consumer either did not see the label or just read part of it (the most visible points). The consumer tends to give up trying to understand the label because some of its points may seem to be a little complicated. Understanding the label therefore requires an effort of concentration. They will look at the more understandable labels. Their memory screens out the unfamiliar and difficult to understand information.

**\* The colour code : a successful impact effect**

Thanks to its coloured arrows on a white background which improves both visibility and readability, the energy label (generally stuck on the refrigerator's door) had a successful effect on consumers. However, the label was sometimes found inside the appliance.

At first, the colours attract the consumers who are just browsing. The consumer is therefore curious to find out more. Nevertheless, the customer tends to memorize the «image» of the label more than the brand or the number of stars (or letter) given to the product.

The colour code has a successful impact effect on the consumers and has the role of a visual aid for potential customer. Thus, the colour red can warn the customer and he may end up choosing a different brand.

**\* A text not easy to understand**

Subsequently, the consumer will pay more attention to the label and the written information. But because of the great amount of information (especially for the information in small characters), the consumers tend to get discouraged and stop reading the label. According to the people interviewed, the information concerning the level of energy consumption is quite clear when represented with the colour code but gets more difficult to understand when in KW per year. It is therefore difficult to put the « energy-saving » message across. Only 10 % of the people surveyed remembered that the energy consumption was indicated in KWH per year and that this referred to the high or low graded appliance. Of course, after some attention given to the label (and a short explanation), the consumer has a better understanding of its content.

For consumers, the unit of measure (KWH/year) is both difficult to decipher and not significant. Moreover, the conversion of KWH/year into francs (more economically speaking) is not an easy sum to do for most people. In fact, only 13 % know how much the KWH represents in francs... « *talking in francs is perfectly clear and goes straight to the point* », « *we understand the notion of money...but not of KWH* ».

Finally, we can say that the lack of interest in the energy label simply refers to the lack of relevant information given to the potential customer. The consumer who is not made aware of the environmental impact of energy reduction and therefore the reduction of costs for his electricity bill will obviously lack interest in the energy consumption of his own refrigerator. Moreover, because the consumer is so used to using the refrigerator on a daily basis, he is not inclined to estimate or look into the actual operating cost of his appliance. The reduction of electricity costs does not justify a preference for another brand nor does it justify the purchase of a new refrigerator. The savings made on electricity with a « less consuming » appliance compared to the other criteria of choice do not account for the cost of a new refrigerator or its symbolic value.



Because the consumer has never been made aware of the electricity consumption and its long-term effects, there is a gap between the purposes of the energy label and its results. The energy label was not in line with the expectations of most consumers. The label however proved to be efficient for the other well-informed consumers. The refrigerator may not have been the best medium to promote the energy label especially with a non-existing information or public awareness campaign.

## 6 - CONCLUSION

This study clearly shows that a public policy has strong chances of being socially accepted and therefore respected when the target players have been associated to the setting up of the advocated measures and when backed up with a communication campaign organized for the concerned players.

During the introductory phase of the energy label, we noted that the manufacturers reacted cautiously (they may not have been implicated enough in the elaboration of the European regulation) and wanted to see how the demand of the market would progress. These strong reservations expressed by the manufacturers can be explained by the fact that they do not approve of labels, that the « clandestine worker » which is the label questions their selling methods or that they are partisan of the wait-and-see policy when talking about changes in the customer's buying patterns. According to the manufacturers, they had not been informed of this new regulation nor had they been made aware of the energy-saving aspect of some appliances. They therefore did not pay much attention to the label ; less important compared to the other choice criterias.

A survey carried out by the European Commission (WINWARD, J., SCHIELLERUP, P, BOARDMAN, B, 1998) showed that even two years after the obligation to label became legally effective, it still was not totally applied.

In the face of such problems, the public authorities (ADEME) have organized a support campaign for distributors. This campaign is based on a « charter » to follow ; the distributor must therefore stick the label on all refrigerators , offer a wide range of energy-saving appliances to his customer, supply the customer with clear and precise information on energy consumption and finally, train and motivate their sales team. In return, the public authorities offer direct support (advertising, leaflets...) for the shops in addition to a communication campaign for the large public in order to keep the consumers informed on the energy label and what the energy stakes are for electrical appliances.

## 7 - ENDNOTES

- (1) This paper is the result of a study conducted within the framework of the national research programme « ARC Ecodif » from the CNRS. The objective of this programme is to promote innovations as regards energy conservation. Research was carried out by a team of students from the I.U.P. of applied sociology of the Toulouse-le Mirail University under the supervision of C.Beslay, F. Cochoy, M.C. Zelem. This research lead to the following publications : C. BESLAY, F. COCHOY, M-C ZELEM with the participation of the I.U.P SA3, « Le vendeur clandestin du rayon froid : affichage énergétique et logique d'acteurs dans l'électroménager « éco-protecteur » », Toulouse, CERTOP-CNRS-PIR-ECOTECH, december 1996, 120 p. C. BESLAY, M-C ZELEM with the participation of the I.U.P SA3 , « L'étiquette en quête d'identité », Toulouse, CERTOP-CNRS, january 1999.
- (2) CERTOP-CNRS (URA 4054), Toulouse-le Mirail University, Maison de la Recherche, 5 allées Antonio Machado, 31058 Toulouse cedex 1, France. Zelem@univ-tlse2.fr ;
- (3) The improvement can be directed towards the performance of insulation, sophisticated control systems, sealing of joints and compressor efficiency
- (4) M. Callon. « Eléments pour une sociologie de la traduction, » *L'Année sociologique*, n° 36, 1986. B. Latour, Petites leçons de sociologie des sciences, Points Seuil, 1993.
- (5) The European directive of application n° 94/2/CE defined the informative label. The framework European directive n° 92/75 was re-used in French law in decree n° 94-566 dating of july 7<sup>th</sup> 1994. The energy label became compulsory as from on all refrigerators and freezers as from october 1995.
- (6) V. Scardigli, *Le sens de la technique*, P.U.F, 1992.
- (7) Ibid, p. 105.
- (8) In fact, essentially in the commercial department of these manufacturers, one of them being the only manufacturer in France.
- (9) Interprofessional association of electrical goods and appliances manufacturing.
- (10) ADEME, control of the electricity demand ; Palais des congrès, 18/1/1995, Paris.

- (11) E.PIDOUX, S.NOGUES, M-C ZELEM « Le réfrigérateur un objet pratique ? » ARC-ECODIF- University of Toulouse Le Mirail, june 1998, ronéo, 89 p + appendix. E. PIDOUX, S. NOGUES, M-C ZELEM « Les usages dérivés des réfrigérateurs », European Council for an Energy Efficiency Economy. ECEEE Summer Study 1999, « Energy Efficiency and CO2 reduction : The dimensions of the social challenge » Mandelieu (France) May 31- June 4, 1999.
- (12) « Anatomie de la vie quotidienne », *Sciences Humaines* (88), 1998, pp. 19-29.
- (13) D. DESJEUX et alii, *Anthropologie de l'électricité*. Paris, L'Harmattan, coll : Logiques sociales, 1996.
- (14) BIPE Conseil survey « star conso » of 1995.
- (15) The refrigerators described as « *a little overworked* » have often been bought 20 years before.
- (16) J. WINWARD, P. SCHIELLERUP, B.BOARDMAN, CO1 Labels. Environmental Change Unit, Energy and Environmental Change Program, University of Oxford, 1998.

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