2E+

Procurement on very energy efficient white goods

Final Report (*2nd edition*) for SAVE project

Contract No: 4.1031/Z/01-033/2001

Sincom Ref: SI2.327137

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Submitted for the Directorate General for Transport and Energy of the Commission of the European Communities by SenterNovem.

Austria – EVA, the Austrian Energy Agency; **Belgium** – VITO, Flemish Institute for Technological Research; **Finland** – Motiva, Energy Information Centre for Energy Efficiency and Renewable Energy Sources; **France** – ADEME, French Agency for the Environment and Energy Management; **Germany** – Wuppertal Institut with support from the State of North Rhin-Westphalia and UBA, the Federal Environment Agency; **Greece** – CRES, Centre for Renewable Energy Sources; **Italy** – Politecnico di Milano, with support of Ministero dell'Ambiente e della Tutela del Territorio, Direzione per la Salvaguardia Ambientale; **The Netherlands** – SenterNovem, the Netherlands Agency for Energy and the Environment; **Norway** – Norwegian Water Resources and Energy Directorate and NEE, Norwegian Energy Efficiency and Energy Management Inc; **Portugal** – ADENE, the Portuguese Energy Agency; **Sweden** – STEM, the Swedish National Energy Administration; **Switzerland** – SwissEnergy, represented by the Swiss Agency for Efficient Energy Use (S.A.F.E.); **United Kingdom** – ECI, the Environmental Change Institute of the University of Oxford with support from the DEFRA.

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EXECUTIVE SUMMARY

The ***SAVE - 2E+ project on procurement of very energy efficient white goods*** has run from April 2002 until October 2004. It has been a follow-up to the first project (2000-2001) in which the feasibility of the energy+ approach for whitegoods has been tested on small scale in the internationally operating market of cold appliances market.

2E+ a project on international co-operative procurement, has brought together supply and demand side. On the supply side expanding the existing market by creating demand via retailers, wholesalers and many other supporting organisations that committed to the project for this purpose. On the other hand stimulating manufacturers to develop (mostly already available concepts for) more energy efficient, environmental friendly products.

A team of experts, organised in national teams and a central co-ordination team, has been active to this end. The 2E+ project on cold appliances has been partly funded by the EC and performed and co financed by 13 countries, adding up to a budget of € 750.000 and bringing together expertise from all these nations.

As a spin off of the first project and because of the possibility of changes in the label directive, manufacturers soon started to ask for expansion of energy+ categories to all EU label categories. After short consideration this wish was granted. Therefore the coordination team and all national teams decided to focus all attention to communication, marketing and support. During the project when the 'new label directive' had come in place, energy+ adapted their criteria also, and put forward the A+ and A++ categories, with energy+ as a supporting organisation on the background.

Within the project powerful instruments have been developed and employed:
- The already developed multilingual dedicated website, enhanced to become directly accessible to local teams adding recent news. Equipped with an online registration tool for manufacturers to add newly developed qualifying appliances.
- Informative semi-annual list-updates containing all newly qualified appliances and names of supporters, spread to all participants involved and press contacts.
- A palette of information material e.g.: newsletters (multilingual), brochures, update leaflets, posters, disseminated to support the exchange of information.
- Participation in all kind of local and international gatherings and participation in (dedicated) events of which some organised for this purpose by the team to exchange information and evaluate (improve) the process.
- Implementation of a second energy+ award competition to induce even more efficient appliances and highly successful marketing approaches at participant's side. This competition had its culmination at the final event at the 2004.Hometech fair, Cologne Germany.

The energy+ approach resulted in a major break through in using co operative procurement. The qualitative co-operation with all major manufacturers resulted in a permanent change in their product portfolio.

ENERGY+ (2000-2004), results in brief ***Spring 2004***

Launched in 2000
- **25 % - 45 %** more efficient than basic Class A models (highest ranking 64% more efficient)
- Number increased from **2 (*1999*) to nearly 900 (*2004*)** different models at European level
- **8** cold appliance categories
- **21** manufacturers
- **49** brands
- **50 retail groups** representing **+15,000** retail outlets in the Energy+ retailers network
- **+1 million** dwellings in Europe managed by 17 Energy+ institutional buyers
- **46** supporters Europe-wide
- **Multilingual website:** www.energy-plus.org **with online product database.**

On the national level, the process of market transformation has lead to the introduction of a large amount of new energy efficient cold appliances available in shops or other selling points (mail order companies). The rate of success has been depending on the local circumstances like policy, economy, financial incentives, market structure and co-operation of local distributors. Furthermore it can concluded that energy+ internationally has played an important role in the process to come to a new Label Directive, containing new more energy efficient categories (A+ and A++). The publication of this new directive has had a catalysing effect again on energy+, propelling the ongoing process of market transformation in the good direction. A vast amount of (free) publicity on local, regional, national and global level created much awareness and thus more trust in the approach.

Overall conclusion:

The 2E+ co operative procurement project, an extension to the successful energy+ project, focussing on the stimulation of the production and sales of very energy efficient cold appliances, has been a powerful tool to propel the ongoing process of market transformation forward in Europe (maybe even global), resulting in a high rate of availability of very energy efficient refrigerators and freezers for households.

Energy+ can be seen as the final phase of a successful process of market introduction in the sector of cold appliances, creating a sustainable supply and demand for very efficient appliances. The ‘ energy+ approach’ is thus replicable under a number of conditions including the following:
- the product is sold throughout Europe;
- a minimum of labelling(regulation) and testing procedures already exists;
- a thorough market study is undertaken before any public announcement, and
- the project is undertaken by motivated teams

At the end of 2004 some ideas have been generated to adopt the energy+ approach for other product market combinations targeting for further energy savings. A rough list of ‘candidates’ is tested on feasibility. Some institutions that participated in the project are now in the process of developing new project ideas. They have put forward the proposal “Energy+ pumps” to the EIE programme in March 2005.

1. INTRODUCTION

1.1 How to read this report

In this report we present the results of the 2E+ (2 energy+) project, the follow up of the first energy+ project. Energy+ stands for a way/concept to transform the market of cold appliances to one with very energy efficient appliances. Energy+ is a project on co-operative procurement. After an introduction on procurement, the energy+ concept in this chapter and the work plan in chapter 2, we will discuss the activities and results of the 5 phases (chapters 3,4,5,6 and 7). In chapter 8 we state conclusions, followed by recommendations (chapter 9) and brief thoughts for future projects(chapter 10). In the end we have added a complete list of appendices and relevant literature.

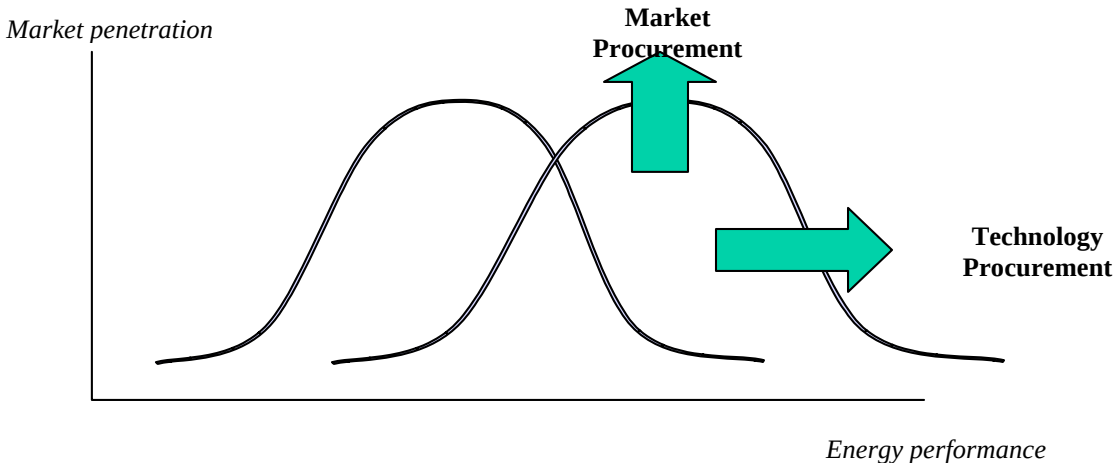

Figure 1. Two ways of co-operative procurement

1.2 Introduction on Co-operative Procurement

Basically there are two ways of co-operative procurement:

Technology procurement (original form of co-operative procurement (as developed in Sweden by NUTEK, later STEM): meeting specific functional – and particularly energy efficiency – requirements not fulfilled by existing products on the market
Market procurement: specify and aggregate demand (for energy efficiency) in technology for energy-efficient products that may already exist on the market.

The energy+ approach to Co-operative market procurement (on energy efficiency) is different from original Swedish technology procurement as there is:

- A minimal and very simple technical specification;
- No need to have capital to purchase the equipment;
- No need to assemble and retain a core group of buyers;
- A push both for higher market shares of high efficiency equipment and the development of more advanced products;
- A regular stimulation of competition on energy efficiency through the publication of lists of qualifying appliances ranked by energy performance;
- An European dimension with a centralised dialogue with manufacturers organised at European level, but activities implemented at national and local levels.

The energy+ approach is based on this concept of international co-operative procurement. International co-operative procurement can be successful if:

- There is similarity in product usage and level of standardisation;
- The market has international characteristics.

A barrier for pan-European procurement can be a lack of experience. Before energy+ this way of international procurement had not been tested.

1.3 The energy+ concept

The concept of co-operative procurement is developed within the EC sponsored SAVE project: *energy+*. Before the start of the project several product categories have been identified with potential energy savings. One of them was domestic refrigerators and freezers (cold appliances).
From January 2000 to August 2001 energy+ (see literature.1) ran. The project was meant to study the feasibility of the approach on small scale. The success has been overwhelming. It has obtained retailer and supporter commitments to promote energy efficient cold appliances. It has been able to incite manufacturers to introduce, at that time, the sixteen most efficient fridge-freezers (net volume of 200 – 300 l) ever available in Europe onto the market. All the listed products (March 2001) had an energy efficiency index (EEI) of 0.42 or less, with the best models having an EEI of 0.33 and 0.35. Products introduced within the energy+ procurement scheme were thus at least 25% more efficient than base Class A models. From the buyers' side, more than 100 supporting organisations from all over Europe have been involved, comprising retailers with over 15.000 retail outlets and institutional buyers with over 1 million dwellings. This active involvement and collaboration of all actors has been a key element to the success of Energy+. Important media resources like a website, special bulletins, Energy+ promotion CD, have been developed in support of this dialogue, including a strong Energy+ logo. All together Energy+ established a critical mass of interest within the white goods sector.
Energy+ has shown that given inspired objectives defined in line with European policy, markets actors can in a very short time (less than 12 months) develop and introduce marketable, highly efficient products. Co-operative procurement can thus be seen an effective policy tool which can influence a market. The final conclusion has been that a follow-up, a further step in the market transformation process seemed logical.

1.4 The 2E+ project

From the end of energy+ project until the official beginning of the 2E+ project there has been an 'intermediate period'. The co-ordination team has managed to maintain all instruments in this period. The 2 Energy+ project (abbreviated as "2E+ project ") as extension to energy+, has been done by 11 EU-countries, later on 13 in collaboration with the EC. It covered 30 months, starting in April 2002, finishing in October 2004.

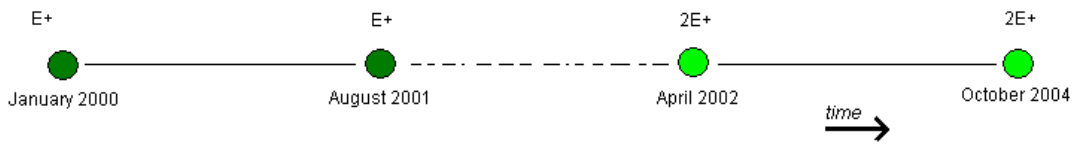

Figure 2. Planning of energy+

The objectives of 2E+ have been:

- **Expanding the scope**: expand the Energy+ scope to other categories of the domestic cold goods (for example freezers, tabletops, etc.) to increase the penetration of existing high efficient appliances.
- **Capitalise upon contacts**: Strengthen contacts with industry and enlarge contacts to other manufacturers that are important players within the scope of 2E+ appliances.
- **Promoting the Energy+ concept**: Develop the various media resources created within Energy+ and use them to further promote the concept. Use the results from 2E+ to update and supplement the information sources already available. The focus will be on the hardware side of the media sources (bulletin and website) rather than the software side (fairs). ”

In short: 2E+ stands for: ‘*Further bridging supply and demand and broadening the scope of the energy+ concept. ’*

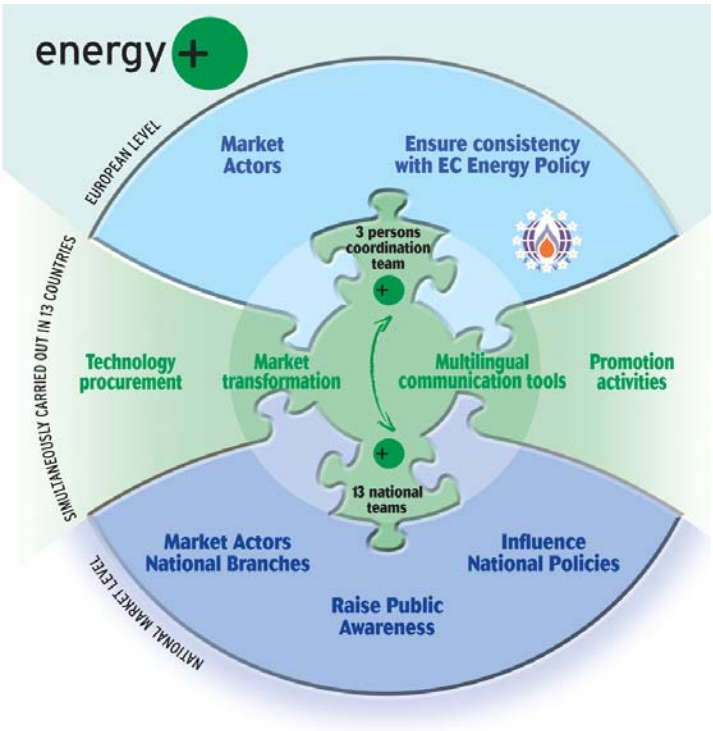

Figure 3. The energy+ approach

2. THE WORKPLAN

2.1 Introduction

The original workplan of the 2E+ project consists of 5 phases, *partly running in parallel.*

Phase 1	*Feasibility study*
Phase 2	*Communication, marketing and support*
Phase 3	*Identifying qualifying appliances*
Phase 4	*Energy+ Award competition 2002*
Phase 5	*Evaluation, analysis and final report*

The five phases of the workplan are summarised below with their planned activities, the role of the **participants** and expected results (deliverables):

2.2 Feasibility study

- In order to select the most suitable appliance(s) a targeted market analysis of the cold appliance sector in Europe will be performed. This analysis will be a co-operative effort of the **national representatives** and an **external expert** in the field of energy efficiency in cold appliances. Energy+ provided very valuable information regarding market characteristics, production and supply side features, policy and regulatory issues. The proposed feasibility study will strongly build upon this information to identify the "best category(ies)" of cold appliances; i.e. those which have most energy saving potential, and those which will be of most interest to the target groups.
- The first step within the feasibility study will be to update the list of potential appliances. For the **countries involved in Energy+** this really means updating the information, whereas for the new countries involved this information has to be gathered. The result will be a portfolio of Energy+ cold appliances, such as freezers, tabletops, etc. A **technical consultant** will carry out this study, resulting in a list with their specific characteristics.
- Partly in parallel with work on the technical issues, **national representatives** will review the market aspects, thus focussing on the (new) targets groups when widening the scope. The national representatives will therefore interview retailers (retail chains, kitchen suppliers, etc.), direct buyers (holiday parks, hotel and catering industry, etc.) and institutional buyers (housing companies, student houses, hospitals or elderly people's collectives, etc.).
- By bringing the results of the technical and national surveys together a final selection of the target appliance(s) will be made by the **co-ordination team for 2E+.** The feasibility study will also provide reference case information against which the extent of the resulting market transformation will be assessed during Phase 5.
- At the end of the study, the **co-ordination team** should define any organisational impact by the selected appliance on the actual workplan.

Each of the **national representatives** will be responsible for carrying out its country-specific surveys. The **co-ordinator** will be responsible for the work of the **co-ordination team**.

Deliverables

- New portfolio of categories of cold appliances within the scope of Energy+; **EN and other languages on the initiative of the partners**
- Updated list of energy-efficient conscious buyers group, retailers and manufacturers participating within Energy +; **EN and other languages on the initiative of the partners**

2.3 Communication, marketing and support

- In addition to more specific tasks explained below, a general communication approach will be worked as part of this phase to ensure effective knowledge transfer from the 2E+ project to the market and amongst **the participating countries**.

- The 2E+ project will also be presented at one or two fairs/seminars; the type of presentation will depend on the costs involved.

- Knowledge transfer amongst **the countries** will be significantly aided and facilitated by the meetings of the participating countries and through regular e-mail traffic.

- In the field of communication the 2E+ project will continue to use the successful media from Energy+, i.e. the website and bulletins. Updates (and if necessary, upgrading) will be carried out.

- Due to financial limitations participation at fairs will be limited (see phase 4).

- The aim of the information sources is not only to inform about the 2E+ project regarding results and participants, but also to influence the purchasing process of the target groups towards energy efficient appliances. This information will be partly provided on a central level (website) as well as at a national level (brochures).

- The dissemination of the results and measures for continued market penetration will be integrated into the different national energy efficiency programmes and promotion actions. This task is facilitated by the fact that most of the **national representatives** are also responsible for these national energy efficiency programmes. An **external consultant** in the field of communication will carry out activities in co-operation with the national representatives.

- In the field of support the main task lies in it supporting manufacturers in their tasks to develop new highly efficient appliances. It is recognised that they need a long-term support, which can not be achieved by 2E+ alone - this requires supplementary measures. Discussions with utilities, governments and the Commission to build up this supportive policy structure will also form part of the support activities. The contacts with the manufacturers will mainly be performed by the **2E+ co-ordinator**, thereby **assisted by the national representatives**.

The full impact of the activities as described above will not be seen until several years after the 2E+ project is finalised (for example, when sales statistics are available for several years to evaluate any shift in the market) and follow-up actions have been implemented. Pan European Market transformation programmes can be significantly reinforced by specific national parallel measures to speed up a continued penetration of the market for the procured units, e.g. the evolution of the Dutch rebate programme towards a bigger rebate for appliances reaching the efficiency levels of Energy+ appliances.

Deliverables

- Energy + promotion material for retailers and manufacturers and also to be used at fairs; **EN and other languages on the initiative of the partners or depending on the country were the fair will be held.**
- Updated Energy+ website containing background of the project, activities and results of the Energy+ project; EN, FR, DE, FI, PT, IT;
- 2 or 3 Energy+ bulletins for retailers, buyergroups and manufacturers. Number depending on the amount of news available; **EN and other languages on the initiative of the partners or depending on the country were the fair will be held.**

2.4 Identifying qualifying appliances

- The aim of this phase is to identify those appliances in the market, which meet existing or new criteria for the selected range of appliances as identified in Phase 1.

- The first step in this phase will be to set up criteria for any new selected appliance, by **the co-ordination team** and if required **assisted by a technical consultant**. This information will be announced to market operators by means of the 2E+ media sources, such as the website.

- The next step is to contact the manufacturers. Either they will be challenged by these criteria to develop new products, or they can provide information on existing products that already meet the criteria. This effort will take place both at the level of the individual country and with the international headquarters. The benefit of dealing with the national organisations as well as the central one is that this builds up an awareness of the breadth of the project, illustrating the strong European dimension, and also involves many of the major decision-makers.

- After receiving entries from the manufacturers a **technical consultant** will verify these entries before the products will be entitled to the Energy+ status. During this phase, the project team will enlarge and regularly update the "Energy+ lists" on the website and disseminate the results through 1 bulletin. The number of the lists updates will depend on the feasibility study results, the dialogue with manufacturers, the European Union policy developments, and the strictness of the specifications.

By the end of this phase, the range of Energy+ appliances as defined in 2E+ will have risen and thus very energy efficient appliances will be easier to market.

2.5 Energy+ Award Competition 2002

Based on the success of the Energy+ award competition in 2001, the 2E+ project also includes a competition.

- The **co-ordination team** will set the competition rules and the evaluation specifications for the 2E+ competition for discussion with manufacturers. The focus in the 2E+ competition will be on increasing sales volume of efficient appliances rather than on technology performance, though this feature will be included. The dialogue with the manufacturers will be transparent in order to meet to the extent of possible manufacturer demands, as was the case with Energy+. Their positions will be taken into account, anonymous questions may be asked and will be answered via the website at a given date. After the question and answer round the co-ordination team will publicise the final rules and the evaluation formulae, thereby encouraging manufacturers to participate and convince buyers to speak directly to manufacturers about this issue.

- To achieve an independent judgement **the co-ordination team** with support from **country representatives** will select a jury to judge the competition input and select a winning appliance.

- A special award ceremony will be arranged by **the co-ordination team** and the **communication consultant** at a important fair. This ceremony will present the winning appliances, and will also promote 2E+ to whatever extent is possible. The results of this competition and the fair will be disseminated through the Energy+ bulletin and the website, in seven languages.

Deliverables

- List of criteria and rules for the Energy+ Award competition; **All languages of partner countries**
- Award winner(s), depending on the cold appliances to be selected;
- Award ceremony in combination with an international fair; ; **EN and other languages on the initiative of the partners or depending on the country were the fair will be held.**

2.6 Evaluation, analysis and final report

- In this final phase the activities within the 2E+ project will be analysed and evaluated. This will result in a report presenting the activities as well as the results achieved. The latter includes the state of the market with the assessment undertaken in Phase 1 and expectations about how the market would have developed in the absence of 2E+. Where possible, this analysis will be based on sales data and any information that manufacturers and retailers are prepared to provide on sales and prices.

- Since this phase includes evaluation of all activities, **all participants** will be involved: **co-ordination team, consultants** and **national representatives**. By means of a final meeting with the participating countries the co-ordination teams will seek agreement for joint conclusions and recommendations. These will then be published in a final bulletin, and the website will be updated for the latest available information.

Deliverables

- Final report on the Energy+ activities as from 2002, including evaluation of these activities.; **EN and other languages on the initiative of the partners.**

In the coming chapters we will discuss activities and results of the 5 phases.

2.7 Participating countries

The participating countries of the first project have been: Austria, Finland, France, Germany, Italy, The Netherlands, Norway, Portugal, Sweden and the UK. In the second project: Belgium and Greece joined.
Soon after the start of the project, also Sweden and Switzerland joined the project, via a separate construction with SenterNovem[1]. Sweden joined the project as a partner supporting the activities of the project where possible in Sweden. The ‘ Schweizerische Agentur für Energieeffizienz (S.A.F.E.) from Switzerland, an organisation from a non EU country, acted on behalf of the ‘Bundesamt für Energie (BFE) ’ and became a full member of the group, joining in every activity, richly contributing to the results.

[1] In the beginning of 2004 Novem has merged with Senter. SenterNovem is an agency of the Ministry of Economic Affairs in the Netherlands.

3. FEASIBILITY STUDY - PHASE 1

3.1 Feasibility in the first energy+ project

3.1.1 Introduction

As mentioned in the work plan, the first project on very energy efficient cold appliances (energy+) provided very valuable information regarding market characteristics, production and supply side features, policy and regulatory issues.
At the beginning of the *first* project (2001) we learned that combined refrigerator-freezers were found to be the best candidate technology in order to yield the most relevant results in terms of potential savings, EU-wide market relevance and consumer impact. Refrigerator-freezers are the most common cold appliance sold in Europe, with approx. 45% of total the annual cold appliance sales of 18-19 million units. A typical type of refrigerator-freezer that is common for all participating countries (although some differences in national preferences exist) would be a free standing, two door refrigerator-freezer with a total net volume between 200 and 300 litres. The 200-300 litre model also has been judged to best be able to meet a typical household's need without the need for additional cold appliances. Further, production of such highly efficient units was not considered to imply any major technical problem for manufacturers. The main barrier to the large diffusion of already existing efficient units seemed to be the high sales price, which appeared to be the result more of branding and marketing policies than expensive technical components.

The specifications did not prescribe any technical solution: manufacturers were free to present any solution as long as its performance and functions met the specifications. The energy+ qualifications (first project): have been:

Must be 4-star refrigerator/freezers.
- Must have a total net volume of between 200 and 300 litres.
- Must have an energy efficiency index equal to or below 42%[2] (in accordance with Directive 94/2/EC and the EN 153 test procedure).
- Must be available on the European market (EU and Norway).

3.1.2 Findings about the market structure

In the first project it is found that a few large manufacturing companies (some 20 in number) dominate the European market. They are present, in one way or the other, on most national markets. Well over 100 different brands (2001) were found in the 10 countries studied: Appliances from the very same manufacturer are sold under different brands in different countries. This shows that, although cold appliances are fairly standardised units, strong national preferences prevail in regard to total volume, position of freezer vs refrigerator compartment (top or bottom) and volume of the freezer compartment, and above all branding and marketing. The brand and marketing strategy of different markets is consequently of high importance to the manufacturers, i.e. not every model can be sold in every country with any

[2] An energy efficiency index of 42% means that the unit may not consume more than 42% of the energy used by an average refrigerator-freezer of comparable size and type on the European market by the time the index was established. In order to qualify for the A-label, in the old directive, the EEI may not be higher than 55%

marketing argument and brand and in any price class. Even if most manufacturers would be able to participate in an international procurement from a *production* point of view, only the major ones have the commercial resources and the distribution network needed to widely deliver a winning or selected product throughout the Union.

3.1.3 The specific role of the retailer

One of the distinctive features of this procurement program is that the most important actors on the buyer-side were identified as being retailers that would not buy the product for their own use, as was the case with the so-called institutional buyers in earlier national experiences. This implied that certain issues had to be tackled. Retailers tend to prefer a product that attracts consumers through design or brand recognition, features that may be expensive and of less importance to other types of buyers, such as institutional ones. Retailers also favour top range products that permit them to put a high mark-up on the price, something that could counteract the aim of the project. They further showed themselves unwilling to co-operate in a buyers group with their direct competitors.

Retailers generally have yearly agreements with specific manufacturers. The price they pay to their supplier is often not set until the number of appliances sold (of all kinds, not only refrigerators-freezers) is known. Bargaining practices between supplier and retailer imply that the price for a cold appliance can be influenced by the number of washing machines of the same brand sold. The relations between retailer and supplier are often long-term and new brands will only be included in the range if they are expected to be fairly easy to sell. Therefore, retailers would not include the products conforming to the *energy+* specifications in their range if the brand in question is not in line with their business strategy or does not fit the national context. Retailers are for these reasons not able to place any firm orders and can not commit themselves to buy a certain number of units of a product, no matter how energy efficient and of good quality the unit may be.

3.2 Feasibility in 2E+

3.2.1 Introduction

The feasibility study in 2E+ strongly builds upon information of the first project in identifying the "best category(ies)" of cold appliances; i.e. those which have most energy saving potential, and those which are of most interest to the target groups.

Given the success of the first project and ongoing results in the intermediate phase, manufacturers and retailers frequently contacted the co-ordination team to motivate them to adapt the criteria to all EU categories of cold appliances. During the intermediate period and the start of the 2E+ project the energy+ team responded to these questions.

At the same time, in gatherings of the energy+ team the complying cold categories have been briefly evaluated. An specialised consultant in the field of energy efficient cold appliances, PW consulting(UK), has been consulted. International reports have been discussed and experts of the national teams added their own national material and experience.

It was found again that the market was reacting enthusiastically to the first project. The national teams and the co-ordination team (Netherlands and ICE-France) therefore decided to adapt to these changing circumstances and deviate a little from the original work programme. They decided that energy+ should be opened to all EU categories of cold appliances. Therefore less effort is put in an update of the feasibility study and more into communication, marketing and support and the other three phases of the project. In the evaluation period the effect on the market is evaluated and analysed.

3.2.2 New target groups

Parallel to the evaluation of categories national teams have interviewed many (new) retailers (retail chains, kitchen suppliers, etc.), direct buyers (holiday parks, hotel and catering industry, etc.) and institutional buyers (housing companies, student houses, hospitals or elderly people's collectives, etc.).

Still it has been hard to enlist new participants. One reason was that before the extension of 2E+ to all categories could have a measurable effect on the retail side, the A+ and A++ classes began to be discussed (CECED proposed that A+ and A++ classes be created instead of reviewing the whole energy label and some manufacturers were even using "A+" as a marketing tool)

During the first project(E+) many retailers signed the E+ declaration, but it was only during the second project(2E+) and A+ and A++ being promoted that they became active. This does not show in the numbers of participants but in the higher offer from manufacturers. (see national reports)

Although the number of retailers did not increase very much, it should be noted that the mail order retailers did not bring new retail outlets but high market shares in some countries:

In *Austria* retailers Redzac, Expert and Quelle became participant. *Belgium* as a new country assessed their market and contacted all relevant target groups (importers, retailers etcetera). 65% of the Belgian market is sold via small retailers, not very well organised. France focussed on holiday resorts, and regional student homes. In *Finland* no new participants were found. *Germany* introduced large mail order companies on the list: Otto, Neckermann, and Quelle, who also became active on the supply side! (Quelle alone has a market share for cold appliances of 25 % for freezers in Germany) Furthermore they attached Stadtwerke Aachen and the 'Climate Alliance of European Cities with Indigenous Rainforest Peoples' as supporter. *Greece* as new country assessed their market. Alike in Belgium, Greek retailers are difficult to reach. A list of 25 large ones has been made, that were contacted regularly, not ending in new participants at that moment. In *Italy* many organisations have been contacted and these investigations lead to a better knowledge of the market but no new participants on the buyer side, only new manufacturers e.g Haier. The *Netherlands* decided due to the impact of the EPR (Energy premium scheme using preliminary categories A+ and A++ from some point on) not to focus on new buyer groups but maintaining the contact with existing participants and supply side actors. In *Norway* 5 retail store chains control the market. These contacts were renewed, maintained and deepened.

In *Portugal* retailers and local contacts of manufacturers as well as housing companies have been contacted. This lead to activities with a large retail chain called Singer, but no new participants. *Switzerland* as a new partner (special status) added many new participants like WWF, Migros, utility ewz. In the *United Kingdom* except for retail chain Miller Brothers no new participants have been found. For a complete overview of listed participants(signing up) we refer to the energy+ lists and the national reports (for not listed ones). Detailed results can be found in the national reports (appendix 29)

It also has to be said that the number of participating manufacturers has increased to a high level (almost the whole market within 2E+). This did make the need to focus on the stakeholders a bit lesser in the end of the project.

3.2.3 New portfolio of categories of cold appliances

After the decision to go for all categories of cold appliances, in the beginning months of the project, the team worked out a new (draft) set of criteria. After several rounds of discussion with manufacturers and supporters these new criteria were published (see also phase 3)

(New) Energy+ specifications for Refrigerators and Freezers:

The units may:

- Be of any of the 10 categories of cold appliances as defined in the European Energy Labelling Directive 94/2/EC:

Category Description:

1. Refrigerator without low-temperature compartment
2. Refrigerator/chiller with compartment at 5°C and or 12°C
3. Refrigerator with 0-star low-temperature compartment
4. Refrigerator with 1-star frozen food compartment
5. Refrigerator with 2-star frozen food compartment
6. Refrigerator with 3-star frozen food compartment
7. Refrigerator/freezer with 4-star frozen food compartment
8. Upright freezer
9. Chest freezer
10. Refrigerator/freezer with more than two doors or other appliances not covered above

The units must:

- Have an energy efficiency index equal to or below 42% (in accordance with Directive 94/2/EC and the EN 153 test procedure).
- Have a maximum energy consumption of 280 kWh/year
- Be available on the European market (EU, Norway and Switzerland) by the relevant official Energy+ list update publication deadline.

The units can:

- Be static or frost-free.
- Be free standing or built in.
- Be SN, N, ST or T climate class or multiclass.

The energy efficiency index (EEI) is volume related. Hence a larger volume can bring a higher efficiency without taking into account the absolute energy usage. In the first project there has been a tendency at manufacturers side to produce larger and larger equipment. To stabilise the negative effect this had on energy savings, a 280 kWh limit on annual energy use for all qualifying appliances had been introduced. Based on average use of average volumes and technical possibilities at that time. Furthermore it was decided, in discussion with manufacturers, that a lower threshold for the EEI was not feasible at the moment. The market was not ready for such a new challenge at that time.

Deliverables:

- **New portfolio of categories of cold appliances within the scope of Energy+;** EN and other languages on the initiative of the partners.

A new portfolio has been produced : see chapter 3.2.3

- **Updated list of energy-efficient conscious buyers group, retailers and manufacturers participating within Energy+;** EN and other languages on the initiative of the partners.

In total 4 Energy+ lists have been presented and disseminated (appendices: 5,8,11,15). If we take into account the intermediate period between E+ and 2E+ there are five lists (adding appendix 3)

4. COMMUNICATION, MARKETING AND SUPPORT – PHASE 2

4.1 Introduction

4.1.1 planning of activities

All national teams and the co-ordination team focussed within 2E+ on ongoing communication, marketing and support from the start, building on the results of E+. Activities have been carried out, reaching for target groups, to speed up the process of market transformation of the domestic cold appliances market. These activities have been concentrated around semi-annual updates of the energy+ lists of energy-efficient cold appliances including an overview of supporting organisations. These lists have been announced, accompanied with the necessary communication material like leaflets, newsletters and sometimes posters, at events related to household- appliances/ energy efficiency. Below is a new planning of activities (Table 1.)

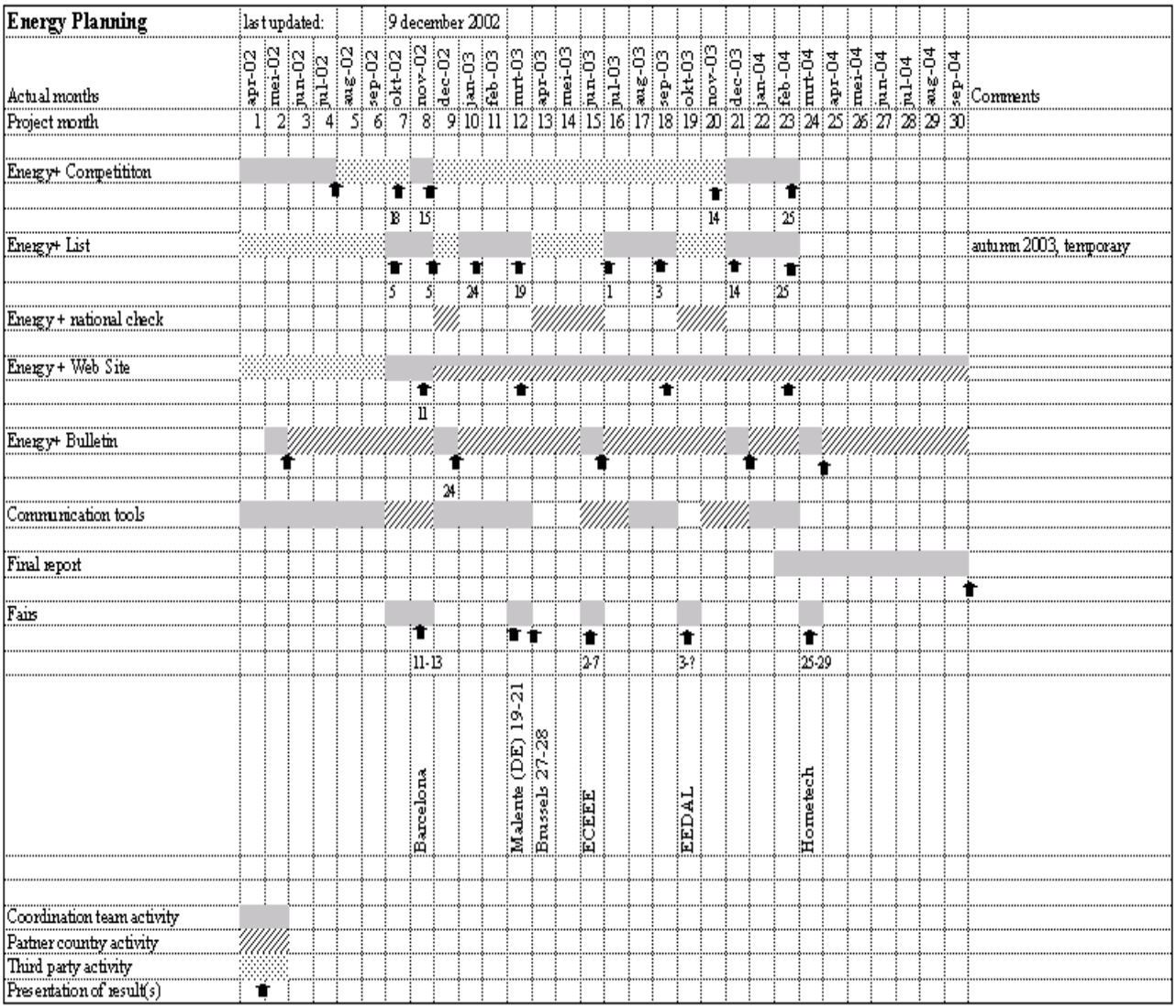

Table 1. Renewed planning of activities

4.1.2 Official start (first public activity)
The first public activity of the project, in close co-operation with the German team, took place at the Hometech 2002 fair, March 2002, in Berlin-Germany. The Spring 2002 Energy+ lists (78 cold appliances in 5 categories) have been presented in a special meeting. Many manufacturers were met during the three days of the fair.
On extra opening days for the public (not professional interested) visitors could win two energy+ fridge-freezers in an Energy+ quiz, kindly provided by Vestfrost and Bosch. A specific leaflet in English and German was produced.
From summer 2003 on, when the new label directive has been published, in communication, the energy-label classes A+ and A++ came to the foreground. Energy+ as special logo, marking very efficient appliances, went gradually to the background.
Energy+ has since been communicated as a supporting but not unimportant project on the background. The impact of the 2nd European Energy+ award competition for one and the other activities of 2E+ have supported manufacturers considerably to get ready for these new classes.

4.2. Activities of the energy+ participants network

Parallel to the evaluation of categories(Phase 1) national teams have interviewed (new) retailers (retail chains, kitchen suppliers, etc.), direct buyers (holiday parks, hotel and catering industry, etc.) and institutional buyers (housing companies, student houses, hospitals or elderly people's collectives, etc.).
The scope of the 2E+ project was also to intensify the contacts with the already existing supporters. This to increase their market operations in bulk buys and other procurement initiatives. In all countries attention has been given to the specific (local) sales channels containing manufacturers, retailers and sometimes wholesalers.

Specifically existing supporters were invited to become more active in changing their procurement schemes and bulk buy guidelines/specifications and initiate bulk buys. This lead to several initiatives. A large Swiss institutional owner of flats, the city of Zurich, furnishing their rental units with standard equipment, decided to give first priority to energy+ criteria in bulk buys and at the same time banish any appliance below class A. In France, supporter Hespul successfully organised small-scale bulk buys for visitors of local fairs. In the Netherlands and Germany (Aachen) energy+ criteria were adopted in rebate schemes (see e.g. national report Switzerland, France, Germany). Thus the number of supporters increased during the project.
With every publication of the Energy+ lists(see phase 3), an updated overview has been given of all the participating /supporting organisations. Table 2 shows the number of buyers and supporters.

	Retailers	*Number of Outlets*	*Institutional Buyers*	*Dwellings*	*Supporters*	*Participants TOTAL*
May 1999						0
February 2000						90
March 2001	49	15.000	17	1.409.000	40	106
December 2001						106
March 2002	49	15.000	17	1.409.000	43	109
December 2002	49	15.000	17	1.409.000	44	110
March 2003	53	15.000	17	1.409.000	44	114
October 2003	57	15.500	17	1.409.000	44	118
March 2004	57	15.500	17	1.409.000	44	118

Table 2: The number of energy+ supporters in time (energy+ and 2E+)

The total Energy+ listings have been sent to all the contacts of the national teams, to all central contacts and put online on the Energy+ website: www.energy-plus.org.

4.3 Exchange of information

4.3.1 Group meetings
During the project four group meetings (Minutes of meetings, see literature 7) have been organised and much informal contacts took place between the participating countries.

- Kick-off meeting, Utrecht – The Netherlands , April 2002
- Second meeting Lisbon-Portugal, November 2002
- Third meeting, Nice- France, November 2003
- Fourth and Final meeting / final event, Wuppertal-Germany, February 2004

These meetings have been used to exchange information on international level, to update the planning and to discuss the implementation of new activities and new tools.

4.3.2 Informal contact with other 'bodies'
Due to collaboration in other SAVE projects and membership of labelling organisations of participating countries, information has been exchanged with these bodies on regular basis. In 2002 the co-ordination attended a meeting of the labelling committee to present the project. Contacts have been established also with IEA DSM (Demand Side Management), task 7 on the theme of procurement. Other examples are: GEEA, European Commission Energy Star Board (ECESB) and SAVE – Homespeed / EADE.
The information exchange also lead usage of Energy+ criteria and other communication tools in the international Homespeed database www.homespeed.org and linked national databases like:

- www.energiesparende-geraete.de
- www.energielabel.nl
- www.topten.ch
- www.energieetikette.ch

4.4 Events at international level

During the project many events took place where Energy+ has been presented or taken a special role. To present the *Energy+ lists* several events have been visited where the co-ordination team has been active to promote Energy+ and energy efficient refrigerators/freezers:

- DG TREN annual meeting, Barcelona, November 2002, presenting the **'Autumn 2002 list';**
- BEST conference ("Bringing energy efficiency to the liberalised markets"), Brussels, March 2003, presenting the **'Spring 2003 list';**
- ECEEE summer study, "Time to turn down energy demand", June 2003, presenting a poster;
- ASEAN (south-east Asian countries) meeting, Paris, September 2003, presentation of the Energy+ concept;
- Swiss Appliance Summit, Zurich, October 2003 , presentation of the project;
- EEDAL (energy efficiency in domestic appliances and lighting) conference, Turin, October 2003, presenting the **'Autumn 2003 list'** and oral presentation about Energy+ project;
- Energy Globe Award, summer 2004; (see appendix 20)
- Hometech 2004, Cologne-Germany, February 2004, presenting the - final - **Spring 2004 list**, stand at fair and Award Ceremony of **2nd European Energy+ Awards Competition.**

All these activities have created a lot of publicity and attention towards consumers and at the supply side. Due to the success of the project, 2E+ has been awarded, in France, Italy and Germany:

- Italy (LEGAMBIENTE): in 2001 Energy+ won the environmental –friendly innovation award for it's potential effect on the diffusion of good environmental practises within the home appliances sector
- Germany (Agenda 21 NRW)": in 2003 the Energy+ project has been awarded as a best practice project in the initiative "Agenda 21 NRW" of the state North Rhine Westphalia! ***(see illustration 4)***
- France (ECEEE 2003): in 2003, Energy+ produced a winning poster in two categories: Most promising in terms of achieving substantial results in the short term, and: Best layout and overview.


Agenda 21 NRW.
Gemeinsame Ideen mit Zukunft

Das Projekt

Energy+

initiiert und durchgeführt vom

Wuppertal Institut
für Klima, Umwelt, Energie GmbH

wird hiermit zum offiziellen
Agenda 21 NRW-Best Practice Beispiel
ernannt.

Mit dieser Urkunde zeichnet die Landesregierung von Nordrhein-Westfalen Aktivitäten mit Vorbildcharakter für praktizierte Nachhaltigkeit aus. Best Practice Beispiele leisten einen wichtigen Beitrag zur nachhaltigen Entwicklung in Nordrhein-Westfalen. Sie zeichnen sich durch einen hohen Innovationsgehalt aus und sind geeignet, zur Nachahmung anzuregen.

Düsseldorf im November 2003

Die Landesregierung Nordrhein-Westfalen

Peer Steinbrück
Ministerpräsident des Landes Nordrhein-Westfalen

Bärbel Höhn
Ministerin für Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz des Landes Nordrhein-Westfalen

Figure 4. facsimile of Agenda 21 NRW Award

4.5 Central Energy+ promotion

With every presentation of a new Energy+ list at a public event the co ordination team has centrally produced the following material:

- an update leaflet ***(Appendix 6, 9 and 12***);
- a press announcement ***(Appendix 4,10,14,18);***
- an update of the website, put online at the event (***Appendix 19***);
- and in some cases a special poster used for presentations.

The produced material has been spread amongst national teams, and disseminated to press and all other international contacts. All items were translated into national documents by the 12 national teams and were disseminated locally (national, regional, and local level) and put on the national pages of the website.
Shortly after the event the co-ordination team gathered national and international news. From this information an English newsletter was distilled and spread to all central and local contacts (and translated in French and German). These Energy+ bulletins were spread autumn 2002, autumn 2003 and summer 2004. (***Appendix7, 13,17***).

Other general PR material originally from the first project has been updated and used throughout the project for national and international purposes: stationary, general posters, fridge magnets, stickers and a general brochure ***(Appendix 2)***

4.6 Local promotion via energy+ teams - HIGHLIGHTS PER COUNTRY

(See also national reports and appendix 29)

4.6.1 Introduction and overview

The tempo and nature of market transformation has been slightly different in the participating countries. E.g. in the countries where energy labels are still not common practice to the public the impact has been different from other countries. The positioning of Energy+ has also been different in these countries. This is due to the national market situation (enthusiasm of local manufacturers, importers, retailers, supporters) national energy policies (energy prices, different energy sources, policy), the energy situation, existing procurement schemes, rebates / subsidies, national communication about relevant topics (energy saving, energy efficiency, environmental issues) black-outs and many other aspects. A summary of the intriguing details:
Based on centrally produced material and national communication plans the participating countries developed and disseminated their own promotional material. They organised mailings, following the central mailings presenting new listings at international events. They translated bulletins, letters and updated there national pages on the website. Some of them even made a translated national brochure based on the central one.
On top of following international milestones they followed a national schedule of promotion. National teams prepared communication plans based on national event calendars and national politics. They integrated activities into already planned events, created new ones and anticipated on actualities.
All this promotion induced a lot of local publicity. This publicity created new publicity because teams/persons were invited for radio- and TV interviews, articles in newspapers and professional as well as consumer magazines (appliance related like magazines about testing household appliances).

Some examples of national activities:
- Participation in fairs related to the subject,
- Participation in a promotional train (environmental issues),
- Organising or participating in congresses/summits/meetings for stakeholders on related issues,
- Integration of information in training courses for small and medium scale businesses. In Denmark e.g. (A-club logo) and England (Energy efficiency recommended) already distinguishing logo's/marks/labels had been developed to transform the market. Energy+ criteria have been discussed and (partly) incorporated here.

These promotions together with other work by the team's even stimulated/accelerated the introduction of rebate-subsidy schemes:
- Migros-ewz in Switzerland,
- EPR- the Netherlands,
- Stadtwerke Aachen-Germany,
- Norway (feasibility study).

In Italy a rebate programme in two or three cities has been discussed: a bonus of 100 Euros for E+ appliances (the rebate is based on E+ lists), and a campaign. Foreseen: 8600 appliances should be sold, that is 20% of A class appliances sold in these cities. However modest, this number is really attractive to manufacturers who are eager to join. The scheme has not been implemented due to several reasons.
The most important activities per country are summarised below (see also national reports)

4.6.2 Austria
The Austrian team for one has been active in direct mailings disseminating and translating printed materials. Their information was highly appreciated by the national consumer organisation, Verein für Kunsumenteninformation. There has been a good co-operation with the German team in implementating German pages on the central website. Contact with local retail chains Mediamarkt, Saturn and Quelle were extensive. One chain even used its own energy efficiency brand, which could have been confusing for consumers

4.6.3 Belgium
Interesting detail of the Belgium activities have been presentations for
- the ENOVER group, a consultative body for national and international Energy policy in Belgium
- and for Members of the Federation of Electricity and Electronics (FEE)

On the background of their activities a premium scheme of Belgian utilities alike the Dutch EPR, for A labelled domestic appliances stirred the market. Alike Austria, Belgium has had regular contacts with a major consumer organisation 'Test aankoop' (350.000 members). This contact lead to several published tests on energy-efficient cold appliances. 'Test aankoop' concluded that the Belgian consumers have clearly noticed the energy+ label.

4.6.4 Finland
Amongst others the Finnish team has introduced energy+ as a theme in the 'National Energy awareness weeks' of Motiva. They met with important organisations (consumer organisation, and others). The created publicity induced a large amount of free publicity like articles in consumer magazines and professional magazines. The team has gained extra popularity because of several interviews for Finnish Radio and TV.

4.6.5 France

Interesting parts of the activities of the French team have been:

- A didactic mailing with basic facts to all institutional buyers "how to save money with energy+ "
- An information note for the French Network of Energy Information offices
- A presentation at local EU energy label training event organised by ADEME and EDF

Worthwhile to mention here is also the unique approach of the French supporter Hespul, a French NGO promoting renewable energy sources and energy saving. On small scale they very successfully introduced central buying on small scale at local fairs. They induced sales of 50-100 appliances with a big rebate. France tried to put extra effort in stimulating new supporters like hotels, holiday resorts and regional student homes to join or influence their bulk buys. It was noticed that these kinds of organisations, bulk-buy domestic cold appliances especially table top models.

4.6.6 Germany

Due to the fact that several central energy+ activities were planned at fairs in 'fair land Germany ' the assisting role of the very active team was obvious. They played their part very good by organising:

- An energy+ quiz during the 2002 Hometech fair. Two visitors could win an energy+ fridge-freezer in this quiz (kindly given by BSH and Vestfrost!);
- They supported activities at Hometech 2004 and invited Dr.Heinz Baues of the Ministry of transport, energy and infrastructure, State of North Rhine-Westphalia.

Furthermore they organised or assisted with:

- A meeting at German Environmental Agency(UBA) with stakeholders;
- Energy+ appliances have been highlighted in the national Energy-Efficiency campaign of the German Energy Agency (DENA): "*Initiative Energie Effizienz*" ;
- Motivating mail order companies: Quelle, Neckermann, and Otto. In the end all of them had their own brand in the list!! Neckermann (retailer-mail order company) produced a special brochure on energy+ appliances and launched it with radiocommercials;
- Radio interviews and interviews for newspapers (after Hometech 2004).

They also attracted the utility of the city of Aachen(STAWAG) to the project. Stawag launched a rebate program for energy+ appliances. For their work the German team has been granted an award as Best Practice example (Agenda 21 NRW best Practice Beispiel) in 2003.

4.6.7 Greece

From the beginning Greece has been very active in getting products, actually in the shops. Due to the slow market reaction and relatively low awareness of energy labels. They have been very active in stimulating retailers (25 selected), manufacturers and others involved. Until the end this has been a very breath taking business with a good result: 21 appliances on the list and partly in the shops.

4.6.8 Italy

Interesting in Italy is how power blackouts have influence on politics. A number of powerdowns in the electricity grid induced a peak in interest on energy saving. Due to that fact a lot of additional presentations at conferences on this theme were made possible. This on

top of already planned presentations on: sustainability, rational energy use, energy saving, climate change, and others (13 in total)
In 2003 Legambiente, assisted by the team, hosted an Energy+ model within the initiative called: “Green train”. About one million visitors saw the exhibitions or visited the conferences and debates. The Unioni Nazionale Consumatori (consumer organisation) assisted by the team undertook a promotion campaign using their monthly magazine and a questionnaire. The team participated in an incentive campaign/call for tender in large Italian cities funded by the ministry of Environment. Winning Electric Utilities would have started incentive campaigns for Energy+ models amongst others. Due to circumstances no campaigns were launched. The team also incorporated Energy+ in training modules for retailers.

Figure 5. The interior of ‘Il treno verde’(the green train) -Italy

4.6.9 The Netherlands
At the end of 2000, a high percentage of cold appliances was A-labeled. Inspired by Energy+, by local premium schemes of utilities to enforce their environmental action plans, and international efforts to update the categories in the label directive (1995-2000) for cold appliances, the Dutch government, advised by Novem, decided to give premiums. For the label category A (starting 2000), A+ (starting 2001) and A++ (starting 2003). They used a preliminary draft proposal for adoption of the label directive. In this draft one of the energy efficiency criteria of Energy+ (E.E = < 0.42) was used. Starting in 2001 manufacturers could enlist a very efficient (<0,42) cold appliance. To enlist manufacturers simply filled out a form. This has been checked by TNO, a well-known test institute. The product (type) than could be put on the dedicated website and could be given a premium when bought by a consumer.
The Dutch team held a presentation at the National appliance day, a meeting to inform retailers, manufacturers and related organisations about news on the energy aspect of the appliances where they showed the award winners of the 1st competition.

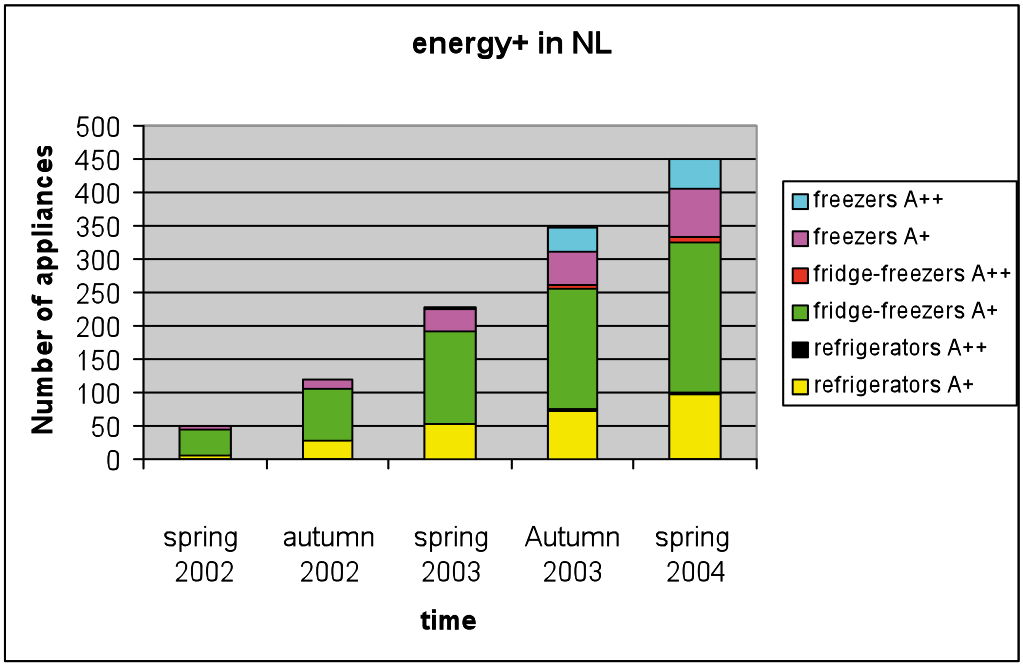

Figure 6.. Energy+ (A+ and A++) appliances(models) in the Netherlands.

4.6.10 Norway

The Norwegian team has had several conversations with national retail stores as well as distributors of white goods in the Norwegian market. The purpose of these conversations has been two folded.

Most importantly to establish an understanding of the price sensitivity in the market and to understand consumer preferences when purchasing the products. Conclusions from these conversations indicated that the cost difference between A and A+ appliances were about €100, whereas low volumes made the distributors charge a premium of as much as €150 to €250 more. Armed with this knowledge, the team kept the core team informed about the Norwegian market factors and prepared for possible incentive schemes.

Secondly, the team also promoted the labelling regime and promoted EU legislation when E+ became A+. The message was reinforced by sending newsletters and following up with written information about the E+/A+ shift as well as other relevant news.

Furthermore, the team participated with energy+ in “energy efficiency home fair” via Enova 2003-2004, held in 10 major cities in Norway. See http://www.boligmesse.no/. A part of the exhibition efforts was an energy efficiency quiz, testing the participants their knowledge of energy saving in the domestic sector. One of these questions addressed the issue of labelling on white goods. Around 4000 individuals were asked. The knowledge of energy labels is low. A majority of the visitors could not indicate which labelling indicated the most efficient appliance when choosing from three labelling options. Results indicated therefore that awareness is lower in Norway than other partnering countries. The quiz can be provided upon request.

After the project duration, the team counted 10 A+ appliances in the market, only a few of those made their way to the shops.

From interviews with retailers, it was found that A+ appliances were thought to be too expensive and energy efficiency was not a high level interest variable in the purchasing process. Other factors, such as volume, gadget factor, and design were stronger predictors of behaviour.

4.6.11 Portugal

The Portuguese team has established contacts with major importers and big retailers like Singer, housing companies and other big buyers. It seemed that retailers became more committed when A-G changed officially to A+ and A++ to G. This seemed to be 'the missing link' with 2E+ . The team has also tried to add e.g. the Oeiras Energy Agency as supporter. Some activities have been integrated with publicity schemes to create more knowledge about energy labelling in general in the market (supply and demand side). A special brochure (consumers) containing a chapter on ENERGY+ is published and disseminated.
This resulted in 12 appliances (1 A++, 11 A+) on the lists, though not yet available in the shops.

4.6.12 Sweden

Although Sweden has not been an official partner in the project, they have been active to promote energy efficient appliances via regional energy offices.

4.6.13 Switzerland

The Swiss team has integrated activities with the powerful very well known website www.topten.ch, an online search tool (database) for consumers and professionals. The team also motivated supporter WWF-CH to promote energy+ in their magazine (edition: 200.000). It was decided not to promote Energy+ as a consumer label.
The Swiss team organised the "Appliance Summit", to bring together researchers, policy makers and industry. The focus was on exchange of views for the further enhancement of product quality and energy efficiency in Europe over the next decade. The energy+ co-ordination team held a prominent presentation.
Award winners: ewz and Migros have been motivated and assisted by the Swiss team in energy+ related matters. This lead to the rearrangement of the assortment of Migros and a campaign on Eco products with discounts on energy+ products. Energy+ has been highly profiled in their brochures, newsletter (2.1 million readers) and other media. In the area of Zurich, ewz co-operated very successfully with Migros. Training's for sellers and (internal)ewz people have been organised and a local competition. Both organisations have been very proud receiving the prestigious energy+ award and they keep profiling energy+ in the coming years!

Figure 7. Poster of the rebate scheme of electric utility ewz - Switzerland

4.6.14 United Kingdom

The UK team has been active in relating more to supporters and governmental organisations. The team has put energy+ forward in talks with governmental organisations (e.g UK Market Transformation Programme). Supporters have been kept informed, leaflets and flyers were sent to all local contacts. This lead e.g. to a new supporter: Miller Bros, a retailer with several shops.

Regular interaction with the team of the 'Energy Efficiency recommended' endorsement label at the Energy Saving Trust (EST) in July 2004 lead to adoption of the energy+ (A+) criteria in the Energy efficiency recommended scheme (label) from February. Until that time the A label criteria was valid for cold appliances. The EST has plans to start a rebate scheme for cold appliances (status unknown).

Figure 8. The Energy efficiency recommended label

4.7 Promotion by manufacturers

Manufactures were also stimulated to use the energy+ logo and information. To prevent market distortion and misuse the use of energy+ material has been bound to rules, put down in a manual (***Appendix 25).***

Manufacturers put the logo (before the shift to A+ and A++) in their local/international brochures, on their websites, mentioned it in collaboration with retailers or mentioned the project in staff meetings. A negative side effect of energy labelling is that manufacturers created own logo's to draw the attention to their brands.

4.8 Promotion by other supporters

Other supporters like institutional builders put energy+ criteria in their procurement guidelines (Switzerland), published articles (WWF), tests('Test Aankoop') and questionnaires inducing indirect publicity (e.g.UNC- questionnaire-Italy).

4.9 Website development

4.9.1 Introduction

During the project the design and contents of the energy+ website has been updated regularly and translated into national pages by national teams on the same website **(Appendix 19).**

The Energy+ website has been updated mostly after a list update. The national teams could track the changes made on the English pages and change them on their pages. (Appendix 19)

Pages in other languages have been the responsibility of the national teams. French, Italian and German pages have been implemented. The Finnish- Portuguese- , Greek- and Dutch team decided not to activate their pages due to technical problems, fast changing national policies, the many priorities in the national communication strategy and other reasons. These countries have put more effort in other communication activities.

In the case of The Netherlands there were websites supporting the Energy premium scheme relating already to A+ and A++ so promoting Energy+ in the same intensity would not be efficient. The Dutch website energielabel.nl had most of the energy+ appliances on it, and it referred to the English energy+ website. So the Dutch team put effort in displaying the results of energy+ e.g Nationale Apparatendag (meeting) and stimulation of sales and promotion via the already available means of communication.

There has been a trial work to translate the website to Finnish. But the amount of work and problems with continuous update versions ended up with no translation. The added value of having website pages in Finnish was generally seen low, and the English version was enough for most contact. In parallel, communicating with market actors Finland, Motiva got the feedback that market actors did not need all the extra material translated to Finnish. They were happy with the English website. Motiva integrated all the important parts of the project message in their existing media. (the high impact can be seen in their national report)
Greece has encountered many technical difficulties in uploading the Greek version of the website. After numerous attempts, CRES decided to use the English version. Apart from the technical problems, the need for a Greek site was not high as there were no energy+ products available during most of the project. Still CRES used all the available energy+ material in their communication. They used the logo, maid energy+ - newsletters, - brochures, press announcements etcetera(see national report)
In Portugal the English energy+ material was mainly used and the English website. The same reason applies here as in the case of Finland. ADENE's supporting information material in Portuguese covered the most important parts of the project message. Portugal e.g. focussed on energy efficiency meetings in communication.

One major moment of changes was the adoption to the new energy labelling directive and categories: A+ and A++. To simplify the process of collecting data for the list a new tool - the product online interactive database - has been developed (***see Phase 3 identification of qualifying appliances***). This to make it possible for manufacturers to fill in appliances themselves. During 2E+ the system has been tested and put online. A manual has been added for manufacturers. The co-ordination team could process this data to produce a new list that came on-line at chosen events. After some starting problems this tool worked properly and to satisfaction of manufacturers!
Another development was the tool to make it possible for national teams to enter directly the web pages in their own language and follow the changes made in the English pages. They could easily adopt their language (country) pages. The number of visitors has not been monitored.

4.9.2 Contacts via E-mail
At the website a letterbox has been created: contact@energy-plus.org, questions could be send here, that were automatically relayed to the co-ordination team. Several people addressed general and specific technical questions to this address during and after the project. All these questions were answered within 2-3 (working) days. Even after the project had been closed manufacturers as well as interested consumers kept on asking general or specific questions and made remarks about subjects: labelling in general, criteria, were to find an appliance, mistakes on the list, opening of the database, labels on household products,

national contacts of manufacturers etcetera. Some 150 questions have been answered (locally also many questions have been handled).

Deliverables:

- **Updated list of energy-efficient conscious buyers group, retailers and manufacturers participating within Energy+;** EN and other languages on the initiative of the partners.

In total 4 Energy+ lists have been presented and disseminated (appendices: 5,8,11,15). If we take into account the intermediate period between E+ and 2E+ there are five lists (adding appendix 3)

- other languages on the initiative of the partners or depending on the country were the fair will be held.

Within the 2E+ project: 3 update leaflets (appendices6, 9,12), 4 press announcements (appendices4, 10,14,18), a general poster, 3 posters for special purposes like conferences (Brussel conf, ECEEE, EEDAL), a general brochure (appendix 2), a final project brochure (appendix 16), stationary, fridge magnets, stickers and a Energy+ promotion manual-version 2003(appendix 25) including a license agreement has been produced. The national teams have translated some of this material and added their own.

- **Updated Energy+ website containing background of the project, activities and results of the Energy+ project; EN, FR, DE, FI, PT, IT**

The Energy+ website has been updated regularly, mostly after a list update. The national teams could track the changes made on the English pages and change them on their pages. (Appendix 19)
Pages in other languages have been the responsibility of the national teams. French, Italian and German pages have been implemented. The Finnish- Portuguese- , Greek- and Dutch team decided not to activate their pages due to technical problems, fast changing national policies, the many priorities in the national communication strategy and other reasons. These countries put more effort in other communication activities.

In the case of The Netherlands there were websites supporting the Energy premium scheme relating already to A+ and A++ so promoting Energy+ in the same intensity would not be efficient. The Dutch website energielabel.nl had most of the energy+ appliances on it, and it referred to the English energy+ website. So the Dutch team put effort in displaying the results of energy+ e.g Nationale Apparatendag (meeting) and stimulation of sales and promotion via the already available means of communication.

There has been a trial work to translate the website to Finnish. But the amount of work and problems with continuous update versions ended up with no translation. The added value of having website pages in Finnish was generally seen low, and the English version was enough for most contact
In parallel, communicating with market actors Finland, Motiva got the feedback that market actors did not need all the extra material translated to Finnish. They were happy with the English website. Motiva integrated all the important parts of the project message in their existing media. (the high impact can be seen in their national report)

Greece has encountered many technical difficulties in uploading the Greek version of the website. After numerous attempts, CRES decided to use the English version. Apart from the technical problems, the need for a Greek site was not high as there were no energy+ products available during most of the project. Still CRES used all the available energy+ material in their communication. They used the logo, maid energy+ - newsletters, - brochures, press announcements etcetera(see national report)

In Portugal the English energy+ material was mainly used and the English website. The same reason applies here as in the case of Finland. ADENE's supporting information material in Portuguese covered the most important parts of the project message. Portugal e.g. focussed on energy efficiency meetings in communication.

- **2 or 3 Energy+ bulletins for retailers, buyer groups and manufacturers. Number depending on the amount of news available;** EN and other languages when the bulletin needs to be translated (DE, FR, IT, GR, PT)

Within the project 3 energy+ bulletins have been made in the English language (appendix 7,13 and 17) and translated into a German, French, Italian and a Greek version.

5. IDENTIFYING QUALIFYING APPLIANCES – PHASE 3

5.1 Introduction

The criteria for appliances complying with energy+ (2E+) have been established in Phase 1, at the start of the project (see below).

Energy+ specifications for Refrigerators and Freezers:

The units may:

- Be of any of the 10 categories of cold appliances as defined in the European Energy Labelling Directive 94/2/EC:

Category Description:

1. Refrigerator without low-temperature compartment
2. Refrigerator/chiller with compartment at 5°C and or 12°C
3. Refrigerator with 0-star low-temperature compartment
4. Refrigerator with 1-star frozen food compartment
5. Refrigerator with 2-star frozen food compartment
6. Refrigerator with 3-star frozen food compartment
7. Refrigerator/freezer with 4-star frozen food compartment
8. Upright freezer
9. Chest freezer
10. Refrigerator/freezer with more than two doors or other appliances not covered above

The units must:

- Have an energy efficiency index equal to or below 42% (in accordance with Directive 94/2/EC and the EN 153 test procedure).
- Have a maximum energy consumption of 280 kWh/year
- Be available on the European market (EU, Norway and Switzerland) by the relevant official Energy+ list update publication deadline.

The units can:

- Be static or frost-free.
- Be free standing or built in.
- Be SN, N, ST or T climate class or multiclass.

5.2 Shifting to A+ and A++, a milestone

During the project the energy+ team had to change the energy+ criteria. This change was initiated by changes in the EU legislation. The old label directive (94/2/EC), implemented in 1994, had become outdated because of its success. There was room for energy efficiency improvement because a large part of the EU cold market had shifted to A label. A revision of the EU label directive was decided for. So negotiations and discussions about the revision of the EU label directive were underway when Energy+ started. The project thus stood on the forefront of major changes in the label criteria. One could also say that Energy+ has been a catalyser in the process.

Note: Due to the fear that new categories might interfere national policies making things even more complicated for consumers some countries only liked to change the EEI criteria of the existing A to G label, other countries preferred to add new A+ and A++ categories.

In June 2003 the new directive came in place, introducing A+ and A++, granting countries and industry enough time to ratify and implement these criteria.

What changed?
In the old EU directive (94/2/EC) the **A-G** label had been defined in a way that A is a category with an EEI of < 55 and no distinction between appliances with an EEI < 42 or > 42 (as energy+ did distinguish on the level of 0,42)
In the 'new' directive **A** to **G** is defined as EEI >= 0.42, and added are A+ and A++ categories is defined as: 0.3 = < **A+** < 0.42 and **A++** <0.3.

Old Energy efficiency index (I)	New Energy efficiency index (I)	"Energy efficiency class"
NA	30 > I	A++
NA	42 > I >= 30	A+
I < 55	55 > I >= 42	A
I >= 55	I >= 55	B to G

NA = not applicable

Table 3. Comparison of EEI in old and new label directive

The Energy+ team adapted their specifications in the summer of 2003 in line with the new label directive.

Energy+ specifications for Refrigerators and Freezers (*from July 2003 on*):

The units may:

- Be of any of the 10 categories of cold appliances as defined in the European Energy Labelling Directive **2003/66/EC**:

Category Description:
1.Refrigerator without low-temperature compartment
1. Refrigerator/chiller with compartment at 5°C and or 12°C
2. Refrigerator with 0-star low-temperature compartment
3. Refrigerator with 1-star frozen food compartment
4. Refrigerator with 2-star frozen food compartment
5. Refrigerator with 3-star frozen food compartment
6. Refrigerator/freezer with 4-star frozen food compartment
7. Upright freezer
8. Chest freezer
9. Refrigerator/freezer with more than two doors or other appliances not covered above

The units must:

- Have an energy efficiency index below 42% (in accordance with Directive **2003/66/EC** and the EN 153 test procedure).
- Have a maximum energy consumption of 280 kWh/year
- Be available on the European market (EU, Norway and Switzerland) by the relevant official Energy+ list update publication deadline.

The units can:

- Be static or frost free.
- Be free standing or built in.
- Be SN, N, ST or T climate class or multiclass.

It took some time before manufacturers and others were used to all these changes resulting from the new labelling directive. The teams have operated as an additional information point, for questions on changes in EU rules as well as in energy+ criteria.

The publication of the new EU label directive (2003/66/EC) has also been the moment to adjust the competition criteria and implement other changes in the project.

5. 3 Energy+ lists

5.3.1 Introduction

Product list updates have been generated twice a year listing the most energy efficient cold appliances.(in the paper version of these listings also the list of active participants has been integrated) The data for these lists have been composed in close co-operation with manufacturers amongst others. To obtain the required data and guard the process of data collecting a manual and compliance forms have been produced.

In the beginning of 2E+ the process of collecting actual data of compliant appliances was more time consuming. Manufactures contacted us(or we contacted them) about new appliances. The first step for them was to sign the compliance form. (***Appendix.21***) After signing they received an electronic Excel form to fill in necessary data. This data was processed after a certain deadline for entries. After a check, the data and questions were sent back to the manufacturers. They answered questions and thus made their entries final. At the chosen event the list than was put online after composing the final and approved list.

5.3.2 Online registering

The process to produce a new list became easier when the team introduced the, at that time, advanced principle of on-line registration of appliances (see also website development). The team together with a website specialist developed a 'database collection tool' (based on easy publisher software from the Zope © corporation). They tested this tool with manufacturers. Spring 2003 it came on-line.
The renewed data collection process thus involved the following steps:

1. *Manufacturers asked for or received a compliance form, that had to be signed and sent back;*
2. *They received a password and username;*
3. *They filled in their appliances; the team received an automatically generated e-mail if appliances were added;*
4. *At the deadline the energy+ team 'closed registration'(disabled the possibility to enter new appliances) and sorted out the entries by manufacturer;*
5. *Listings of each manufacturer were prepared (Excel spreadsheet) with remarks, questions, mistakes and suggestions. In these periods there have been frequent contact with them about all kind of details.*
6. *Manufacturers sent back the listings, answering to all questions raised. This has been a time consuming activity because they not always responded immediately or even at reminders. Manufacturers themselves changed their entries being the appliance data per type; They also stated if there were so called master appliances and referred to technical identical types;*
7. *Final listings were sent to manufacturers for a last check;*
8. *The final total 'electronic listings'(off-line database) and a paper version were prepared;*
9. *On a chosen event the list was put 'on-line' ;*
10. *After a certain lapse of time the database was opened to new appliances for the upcoming list.(step 1)*

5.3.3 The energy+ lists of complying appliances

The overview below (table 2) shows the progress in the number of participating manufacturers, the number of brands marketed by these manufacturers and the number of models listed. All together 4 lists were published within the 2E+ project (***Appendix 1,2,3,4***). It also represents the progress made in the market of energy efficient cold appliances.

	Types of Appliances	*Manufacturers*	*Brands*	*Models*	*Remarks*
May 1999				2	
Feb 2000		1		2+7	7 available on market dec. 2000
March 2001	2	4	8	16	
Dec 2001		5		23	
March 2002	5	8	18	78	
Dec 2002	8	12	24	188	2E+
March 2003	8	13	33	438	2E+
October 2003	8	19	39	597	1st list incl. new label dir.
March 2004	8	21	49	866	Final result 2E+

Table 4. Energy+, progress in numbers of energy efficient cold appliances and manufacturers

Deliverables:

- **Updated list of energy-efficient conscious buyers group, retailers and manufacturers participating within Energy+;** EN and other languages on the initiative of the partners.

In total 4 Energy+ lists have been presented and disseminated (appendices: 5,8,11,15). If we take into account the intermediate period between E+ and 2E+ there are five lists (adding appendix 3)

6. ENERGY+ AWARDS COMPETITION (2003-2004) – PHASE 4

6.1 Introduction

To increase the process of market transformation, a 2nd Energy+ Awards competition has been organised as follow up of the very successful first energy+ competition. This 2nd competition, **The 2nd European Energy+ Awards Competition,** opened from 10-2002 till 10-2003 and has been split into two separate parts: the appliance award competition and the participants award competition.

6.2 Appliance Award Competition

The **European Energy+ Appliance Award** (2nd round, with adapted rules) is given to the most advanced refrigerators and freezers on the European market.

The feasibility phase (Phase 1) brought a new portfolio of categories of cold appliances with new criteria. Based on this portfolio the categories and criteria of the competition have been changed, The number of categories expanded to five(there were two in 2001):

- Table-top refrigerators
- One-door refrigerator-freezers
- Two-door refrigerator-freezers
- Upright freezers
- Chest freezers

The new requirements have been thoroughly discussed with manufacturers, institutional buyers and retailers before being published and have been intended to guide manufacturers toward the development of products having high-energy efficiency and low environmental impact. The final Appliance Awards Competition Rules took the **NEW** European Energy Labelling Directive (2003/66/EC) into account.
(Final Regulations and Application Form, see Appendix 23)

The mandatory specifications have been basically the same as those for inclusion in the Energy+ lists. All submitted appliances had to be available on the European market (EU + Norway & Switzerland) by the end of March 2004.
A few specifications regarding appliance categories, dimensions and the requirement that participating units must be constructed from materials with an ozone depleting potential of zero (i.e.CFC and HCFC free) have been added.

Besides mandatory specifications there are ‘optional’ requirements, sharpening the competition between the competing manufacturers.

Optional requirements:

- Energy Efficiency: The energy efficiency index (expressed as a percentage), as defined in the energy labelling Directive 2003/66/EC and measured according to norm EN 153, should be as low as possible
- Environmental Friendliness: Appliances should have a low direct GWP (Global Warming Potential) impact associated with the choice of refrigerant and foaming agent

- Noise: The appliance should emit a low airborne noise according to Council Directive 86/594/EEC tested according to norm EN 28960
- Temperature display: The appliance should have a freezer-compartment temperature display. The temperature display may be placed within the appliance, provided it is immediately visible and easy to read once the door has been opened. The display should have marking to clearly indicate the correct temperature level setting (-18 C) and an easy to use control to set the temperature at the correct level. The user instructions should explain how to regulate the appliance to obtain the desired freezer temperature setting.
- Price: The appliance should have a fair consumer price to allow for a large diffusion of the appliance.
- Utility: The appliance should be easy and practical to use with clear user instructions. Entering manufacturers could fill in a form and add information like user manuals, photo's or even actual models.

Manufacturers had to supply a full description of the relevant parameters for the product to be included in the competition through an application form.

The physical award is an artistically designed glass sculpture made in Sweden.

Figure 9. The 2004 energy+ award in 3d design and as finished glass sculpture

An international jury has evaluated the received entries in December 2003. This jury consisted of five professionals with knowledge on energy efficiency, technological aspects and consumer issues.

The appliance award jury:
- **Mr. Van Hoof (The Netherlands),** Manager Built Environment Department, SenterNovem
- **Mr. Denruyter (Belgium),** WWF- European Policy Office
- **Mr. Kestner(UK),** European Commission - DGTREN-Directorate CEC
- **Ms. Valota (Italy)**, Designer - Directory member of the Italian consumer association: ACU-Onlus
- **Mr. Van Der Sluis (The Netherlands**), Head of the Refrigeration and Heat Pump Technology Department, TNO

After the deadline an expert (Paul Waide) checked and evaluated the entries (technical details). A scoring system evaluating the entries of manufacturers had been defined to do so. The expert made a first report that showed calculations of the scores on different elements. The jury checked these calculations. In addition, the jury took each manufacturer's submitted

information regarding marketing and availability into consideration ('utilities'). Entries could thus receive a scoring bonus based on their fulfilment of the mandatory and optional criteria. The appliance, in each of the five categories, that best fulfilled all requirements became the winner.

Award winners:
On the supply side 5 Appliance Award winners were chosen:

- Table top refrigerator: **Electrolux,** Electrolux - ERT 1677 - EEI = 29,68% and 131 kWh per year;
- 1 Door refrigerator freezer: **Electrolux**, Electrolux - ERC 2735 - EEI = 27,98% and 157 kWh per year;
- 2 Door refrigerator freezer: **Arçelik**, Blomberg - CT 1300A - EEI = 19,81% and 137 kWh per year;
- Chest freezer: Electrolux, **Electrolux** - ECS 2346 - EEI = 27,44% and 153 kWh per year;
- Upright freezer: Electrolux, **Electrolux** - EUC 2200 - EEI = 29,8% and 172 kWh.

Note: In 2001, European Energy+ Award Competition singled out the best two door Energy+ fridge-freezer – Electrolux ER8100B, with an energy efficiency index of 33% - and the best one door Energy+ fridge freezer – Whirlpool ART 599/H with an energy efficiency index of 35%.

The jury found the achievement of **Arçelik (Turkey)** for presenting the "Most Efficient Energy+ Model" worthwhile an extra mentioning. High ranked officials of the winning manufacturers were selected and successfully invited to receive the prestigious energy+ awards, at a special event (Hometech 2004):

- **Mr. Dr. Heinz Fischer (Germany)**, Managing Director of Blomberg received the Energy+ Award in the 2-door refrigerator-freezer category
- **Mr.Wolfgang König (Belgium)**, CEO - Europe of Electrolux was presented successively with 4 best appliance awards, for the categories: table top refrigerator, 1 door refrigerator freezer, chest freezer and upright freezer
- **Mr.Turgut Soysal (Turkey)**, Production and Technology group Director of **Arçelik** was presented with the Jury's special mention for "Most efficient Energy+ model".

Figure 10. Heinz Fisher and Ahmet Dinçer (Arçelik) posing in front of their awarded two door fridge-freezer.

Figure 11. Wolfgang König (Electrolux) posing with Gonzalo Molina Iquartua (EU) with one of their four awards.

6.3 Participant Award Competition

The (first) European Energy+ Participant Award has been open to organisations on the demand side that have signed the Energy+ Declaration. The aim of this part of the competition has been to stimulate creative activities around the theme of energy efficiency and energy+ appliances. An award could be given to the most original, innovative and effective campaigns implemented by energy+ participants between October 2002 and November 2003.

The jury for this part of the competition has been the energy+ Steering group, due to their hands-on experience with communication and marketing. The selection of winner(s) has been based on the information provided by the candidates. In order to participate in this Award competition, minimum information was required, that has been compiled with the support of the correspondent national energy+ team. Supplementary information was invited for to help the jury in better understanding the scope of the promotion campaigns undertaken.

The process has been simpler than in the appliance award competition. All entries were discussed and put into categories like: retail, NGO, consumer organisations. A voting by the Energy+ team has determined the winner. The jury has, based on the presented material, chosen to rank the entries by their quality. The jury looked at the following aspects: originality, clear targets, effects on the market, scale of activity, repeatability and relevance for Energy+.

Award winners on the demand side:

The European Energy+ Participant Award for the Most Creative promotion Campaign is being shared by:

- **Migros**, a major Swiss retail chain;
- and **ewz**, utility for the city of Zurich, Switzerland.

Ewz has been awarded for " the most comprehensive promotion campaign" in the category: utility and **Migros** for "the most effective retailer's campaign" in the category: retailer.

- **Mr. Sacha Wägeli (Switzerland)**, product manager of Migros
- **Mr. Bruno Hürlimann (Switzerland)**, head of marketing and sales division of ewz

received the participant award. Migros and ewz, Both major Swiss actors in the market place launched complementary public awareness campaigns on the theme of energy efficiency, and promoted Energy+ listed A+ cold domestic appliances through rebate programmes in the Zurich City. The co-winning campaign's achievements in Zurich homes results from the effective association of ewz's public information effort to support the city's general environmental commitments with a strategic commercial focus inline with Migros' corporate global policy.

Figure 12. Bruno Hürlimann(ewz) and Sacha Wägeli(Migros), winners of the energy+ participant award.

The jury also decided to give a number of special mentions:

- **Unione Nazionale Consumatori (Italy)**, an Italian consumer organisation, for its "*Outstanding large scale informative campaign*"
- **Stawag (Germany)**, the utility of the city of Aachen, for its "*Unique citizen rebate policy*"
- **Hespul (France)**, a French NGO promoting renewable energy sources and energy savings, for its "*Cost-effective one-to-one initiatives*"

6.4 The Final Event (Award Ceremony)

Final communication activities have been concentrated around the 'final event', held at the Hometech fair, February 25-27, 2004, Cologne, Germany. These activities comprise of the 2004 award ceremony, an Energy+ booth at the fair, the final Energy+ list update, the final Energy+ brochure and the final website update.
Long before the event high officials of winning manufacturers/supporters, the EC, regional government, supporters and industry have been invited via special mailing for the final event. Short before the event press has been invited with an embargo on the press release.
The final event took place in a conference room at the exhibition halls. After an introduction and a presentation of the project the wards were given by high officials the EC and regional government:

- **Mr. Molina**, *Head of Unit Demand Management, DG Transport and Energy of the European Commission,* presented the 2004 Energy+ Appliance Award trophies.
- **Dr. Heinz Baues**, *Ministry for Transport, Energy and Regional Planning of North Rhine-Westphalia,* presented the 2004 Energy+ Participant Award trophy.

Press and winners were given time for questions and a brief reaction. Immediately following the ceremony, attendees and people participating in the HomeTech fair have been invited to a

lunch (kindly provided by Electrolux) to view the 5 winning appliances displayed "live" on the special Energy+ HomeTech booth. Next to the winning objects the booth carried a lot of background information and a very visible give away in the shape of a bottle of mineral water branded energy+. The booth has been visited by several hundreds of people during the fair.

After the final event, summer 2004, a final update of the website was put online and the last Energy+ bulletin including the final news and the final brochure has been disseminated. After the final bulletin more project information has been disseminated on request and this report has been prepared.

Figure 13. The Energy+ stand at the 2004 Hometech fair

Deliverables:

- **List of criteria and rules for the Energy+ Award competition;** Basically EN, due to possible legal problems with translation

An updated list of criteria and rules for the 2nd award competition has been produced (appendix 23,24 and chapter 6.2 and 6.3)

- **Award winner(s), depending on the cold appliances to be selected;**

Within the 2nd energy+ award competition, 3 award-winning manufacturers, one special mention and 2 award winning supporters have been selected by acknowledged juries (see chapter 6.2 and 6.)

- **Award ceremony in combination with an international fair;** EN and other languages on the initiative of the partners or depending on the country where the fair will be held

An award ceremony is held at the 2004 Hometech fair in Cologne-Germany, combined with a special Energy+ stand furnished with the award winning objects.(see chapter 6.4)

7. EVALUATION, ANALYSIS AND REPORT - PHASE 5

7.1 EVALUATION

7.1.1 Introduction

The co-operative procurement process to transform the market of cold appliances propelled further by the 2E+ project (starting with energy+) has induced many quantitative and qualitative results as can be seen by various indicators. On of the indicators is the availability of very energy efficient appliances.

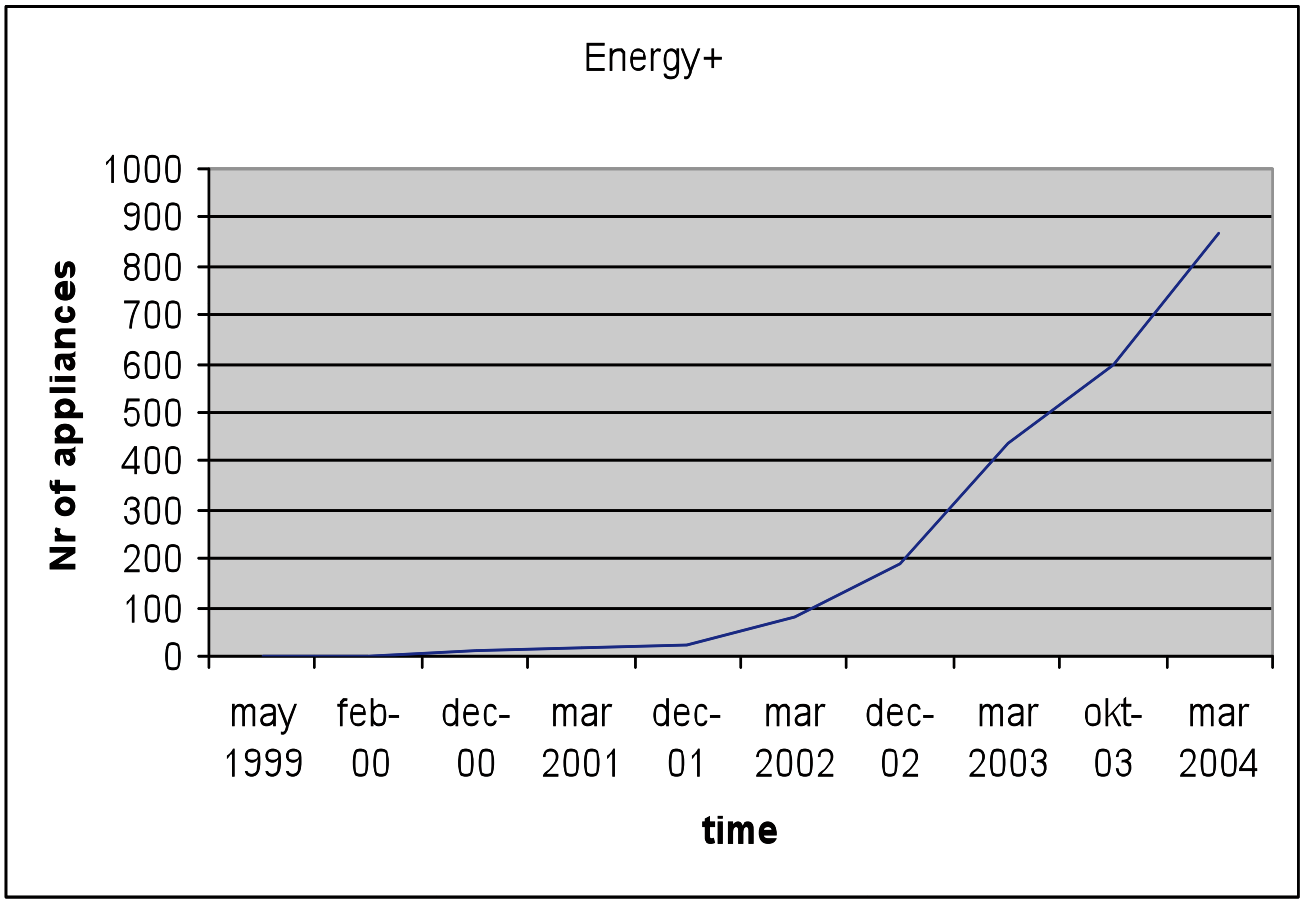

Figure 14. Energy+, the number of qualified appliances(models) in the period 1999-2004

The growing number of appliances declared to the Energy+ project and offered on the market show a very positive figure. Studies at European level have shown that sales tend to follow the supply figures - with the restriction that Energy+ models should have sales figures corresponding the high range models, i.e. not the bulk of appliances sold but appliances with a very high added value - So we can say that that sales of very efficient old appliances have increased rapidly during the 2E+ project.

Not only the availability, but also the enthusiasm on the supply side (manufacturers, wholesale and branch associations) has largely increased, as has the awareness at the demand side (retailers, branch associations, buyers, buyer groups, supporters, consumers). On the government side (local, regional, national, EU wide, global) effects can be an improvement of the label directive, influence on temperature legislation, legislation on Eco design. A more detailed sketch of the impact and significance result with figures, examples, and statements is given in the next paragraphs.

7.1.2 IMPACT AT SUPPLY AND DEMAND SIDE

7.1.2.1 Manufacturers & the cold appliance market

(Spring 2004: 21 energy+ manufactures in number with 49 brands)

Interviewing Electrolux France, they indicated for the French market that in 2002, 15 % of the sales were models in class A and there were few Energy+ models actually sold. In 2004, A-class models represent 51,4 % of the global sales, whereas A+ and A++ models together represent 7,8 % of the refrigerators' sales and 5,2 % of the freezers' sales – a continuously growing market.
According to a actual study (CECED, literature 4) these figures seem to be roughly the same for the whole market: some 50 % is A and some 7% is A+/A++(2003).

Opinions of manufacturers

The enthusiasm of manufacturers has grown during the project and did not change after the new directive had come in place. For example some representatives state that energy+ enables R&D departments of the companies to convince their marketing department to actually commercialise the very energy efficient models that are waiting in their laboratories (this is confirmed by several personal communications with manufacturers).
These assumptions are supported by the results of telephone interviews held in 2004 with representatives of important manufacturers. They are summarised below in short ‘testimonials’:

1. Electrolux (341 appliances on the list, 2001 and 2004 award winner)

“ Meeting our consumers needs is a key priority for Electrolux in the 21st century. The Energy+ programme has helped drive the company’s ambition to boost environmentally sound products and reduce consumer energy costs during an appliance’s life cycle. As industry leader, we will continue to challenge the current boundaries of environmentally sound appliances to meet tomorrow’s needs today”.

2. BSH Bosch und Siemens Hausgeräte GmbH (92 appliances on the list)
"Considers low energy use one of the unique selling points of cold appliances. We want to stay 'Best in Class' in environmental aspects of our products. Development and sales of energy efficient appliances have always been a part of our mission statement. Energy+ stimulates us to keep innovating ".

3. Arçelik (13 appliances on the list, 2004 award winner and Special Mention: most energy efficient model)
"When Arçelik joined energy+ in 2003, the objective was clear: anticipate the European market transformation regarding energy efficiency, by integrating design for efficiency into our global commercial strategy. Winning the 2004 energy+ award demonstrates the force of our environmental policy, based on technological excellence".

4. Whirlpool (87 appliances on the list and 2001 award winner)
" Whirlpool is the first global European manufacturer, and the number-one brand selling in Europe, being at the forefront of energy+ leveraged our commitment to enhance consumers' environmental awareness. As a result of exceptional technical development strategy, whirlpool has provided numerous super-efficient appliances, of which the first 2001 European Energy+ Award winner".

7.1.2.2 Participating retailers

(More than 50 in number)
Most retailer(-groups) in participating EU countries have reacted slowly on the energy+ message. Stimulated and in some cases assisted through informative events by the national teams, some retailers became supporters. Local representatives of manufacturers sought a task to stimulate their contacts on the retailer side. Rebate schemes have involved other retailers. Those choosing to put forward Energy+ have done so mostly to reinforce their (green) image and induce additional sales or accelerate latent sales.
In several countries the change to A+ and A++ was a milestone in their commitment, before that they were less active. The national enforcement of the new directive has in any case been a major push to label their appliances accordingly. In some countries where the old directive had little meaning to the retailers, the effect has even been greater.

One of the most enthusiastic retail groups, supporter, is Migros-Switzerland *(more than 500 outlets, 2 appliances with special brand on the list, produced by a major EU manufacturer).* Migros has rearranged their assortment, set out a major publicity campaign, combined forces with utility *ewz* in the city of Zurich. Ewz has given a rebate and Migros has provided an additional discount on the product. They have stated both that they will continue their support in the coming years!

	Institutional buyers	Private consumers	Total
Cooling A++	1	0	1
Cooling A+	514	317	831
Subtotal Cooling	**515**	**317**	**832**
Freezing A++	0	9	9
Freezing A+	7	436	443
Subtotal Freezing	**7**	**445**	**452**
Total Cold appliances	**522**	**762**	**1284**

Table 5. Number of ewz /Migros supported appliances until October 2004

A statement of Migros:
" Our commitment to A+ refrigerators is part of our strategy for ecological and ethical products, that give the consumer added value. Thanks to appropriate communication and promotion, Migros company has made its mark by the early launch of A+ Miostar equipment "

Another example of an active retailer is French retailer *la Camif*, has dedicated several pages to Energy+ and Energy+ models in many issues of its catalogues (space on a commercial catalogue is very expensive, quantified and expected to bring in a minimum order).

7.1.2.3 Institutional buyers
In the participating countries institutional buyers, housing organisations / -associations and holiday parks listened to the energy+ message. This lead to an increasing interest. Some 20 organisations became supporter. Some passed the information on; some even changed their central buying guidelines (if they existed). Reasons to do so could be a green image, energy savings, cost savings and environmental protection commitments.
Again a Swiss example of willingness: *The city of Zurich (approx. 10.000 dwellings, one of the largest institutional owners of flats).* Zurich has decided to buy in first priority household appliances in accordance with www.topten.ch (energy+). Additionally Zurich decided not to buy appliances, which do not meet the class A. This recommendation, has also found entrance into the procurement guidelines for kitchen equipment. In 2003, the city actually procured already 40% Topten appliances and 98% were A-classified.
This decision of Zurich has influenced the group of co-ordinations of ecological building - a union of 30 cantonal and urban building in Switzerland.

7.1.2.4 Other supporters
Other types of organisations like environmental organisation, agencies promoting energy savings / renewables and consumer organisations have become very active in relaying the energy+ message. They have been stimulated contacted, and enlisted as supporter. They integrated the message in their addresses to the public and politics, nationally and internationally (e.g. WWF) by every means available.

Supporter *Hespul* (*NGO(France), part of the French Information network about energy savings*) has actively supported the energy+ product lists from the start, on public events and via a consumer information hotline. As spontaneous requests flowed in, the team decided to set up a series of bulk buys in partnership with Whirlpool for their 2001 Energy+ Award winning appliance at local fairs. They calculated that this simple but very satisfying local scheme saved 10,000 kWh/year.

7.1.2.5 Consumers
Although consumers have not been a specific target group of energy+ we want to mention them here as they are a key factor in transforming a market. There are only a few listed opinions here, because consumers are mostly stimulated and manufacturers, retailers and supporters. We will try to summarise experiences in some observations:

New products and new markets carry risks for producers. They bring investments. From some countries (e.g. the Netherlands) we learn that on the average these appliances tend to be more expensive than comparable appliances from a lower class. This is due to economical reasons like the market penetration of A+ and A++ cold appliances as well as technical choices like using only a better compressor or changing the whole design.

Consumers are confronted with the price of the appliance in the shop. If no extra stimulus is given they do not often tend to buy the more expensive appliance. Generally speaking, price, brand, size, design, user friendliness, features and colour are way ahead of the aspect energy in the process of buying (cold) appliances & whitegoods.

Renewal of the EU-energy label introducing A+ and A++ categories can be seen as a big step forward. It is said by retailers that consumers tend to see energy labels sometimes as a quality label, while A, A+ and A++ are mostly technical equal only differing in energy usage by (simple) technical measures. Retailers (manufacturers) therefore hesitate to put energy labels forward very explicit and visible.

Availability is another important aspect. The more appliances on the market, in the shop, the more consideration in the buying process.

Yet when enough communication for several years is set out in good co-operation by industry, retail and government energy efficient appliances are awarded a better place. A rebate scheme, a promotional action or likewise and well visible label information are very helpful to bring a consumer to a positive decision for an energy efficient appliance. If they can choose from a number of appliances that are equal in quality, a rebate can bring them to choose for the energy efficient one. If sold enough this can transform the market towards more energy efficient appliances, which do not necessarily have to stay more expensive.

Surveys in the Netherlands during the active period of the energy premium scheme (rebates for efficient appliances including campaigning 2000-2003) showed an increased awareness: from 40% in 200 to 85 % in 2003. It we look at factual results we see that some 1,5 million households, this is some 22% of all Dutch households, applied for a rebate for efficient cold appliances.
Note: The share of A+/A++ in the Netherlands already reached 14 % in 2003 and 21 % in 2004. This is much higher than in any other EU country and the average in EU.

An Italian survey (500 people, 2003) showed promising results, as more than 80% knew energy+ appliances and answered positive to the question in trust about the effectiveness of the project itself and even admitted to have seen them in shops or catalogues.

7.2 ANALYSIS

7.2.1 Introduction

In analysing the impact of the project on the market we will look at availability of energy saving cold appliances, calculated energy savings and the impact from financial point of view. We will also try to analyse the role of participants (not directly involved in selling and buying). In the end of this chapter we will briefly discuss the effect of legislation.

7.2.2 Money well spent

An aspect of analysing the impact and significance is to look at multipliers in the investment. The total budget of 2E+ is 750.000 €, brought together by 13 countries and the EU. The EU share counts for 32% of the total. So this shows a multiplier of 3 on EU scale.
If we look at the overall effect this amount of many has induced many of millions € of investments by manufacturers, retailers and others. Actual numbers are unknown, fact is that it stands for a big multiplier.
Note: Budget energy+: 1 million €, 10 member countries.

7.2.3 The availability of very energy efficient appliances.
At the end of energy+ (the first project - 2001) there were 16 energy efficient models of 4 manufacturers, this represents 0-5 % of the market.
The European market for cold appliances counts some 150 brands with more than 10.000 models(CECED 2003, literature 4). If compared with the number of energy+ manufacturers in 2004, energy+ manufacturers account for a rough 90 % of the EU market. Most of the European manufacturers have become an active participant energy+. There are a few exceptions. One is the *Elco Brandt group (Fagor group*), with major brands on the French market, although they do carry energy efficient types according to our information.

Therefore we might conclude that the availability has increased drastically during 2E+. The final 2E+ lists reflect " the total market " in very energy efficient cold appliances.

7.2.4 Impact in energy saving terms
In the beginning of 2E+ a forecast is projected on energy consumption of cold appliances.

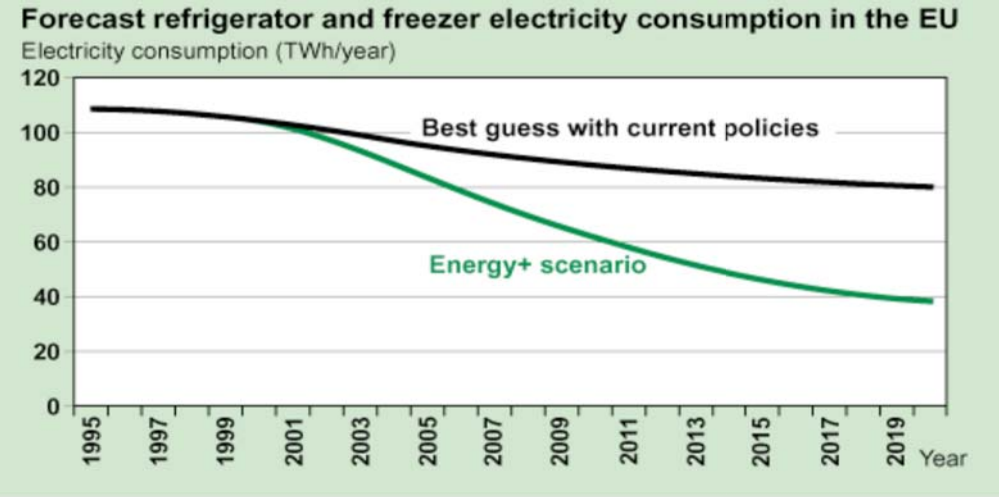

Figure 15. The energy+ scenario, forecast on energy savings 1995-2020, derived from Cold II (lit.5)

From the cold II study (lit. 5) we learn that estimated sales of cold appliances are 16,9 million in 1994 and 18,7 in 1999. If we extrapolate these numbers to the year 2004, this number reaches 20 million units. This is roughly in line with recent CECED figures that cover 95% of the market.

The average use per appliance A to G is: (100 - 700 kWh) / 2 so this is 400 kWh/year.

A rough indication of sales of A+, A++ appliances according to available Gfk data is 2,5% in the year 2003.

For A+ appliances the average use is: 190 kWh/year(energy+)
For A++ appliances the average use is: 175 kWh/year (energy+)

All together: more than 200 kWh savings x 2,5% x 20 million = 100 GWh /yr.

If we compare this with prognoses in the original workplan:

" The fridge-freezers from Energy+ show an average annual energy consumption of 200 kWh. Given the number of appliances sold yearly (approx. 6.2 million) and an expected market share of 5 %, these fridge-freezers will result in yearly energy savings of 62 GWh. With a growing market share, these savings could be as high as TWh. "

Thus, we can conclude that the planned savings are within reach. And this saving will continue for 15 years. Further savings will be achieved in the years to come. It has to be said that it is not proven that only the energy+ project has accelerated the market introduction and thus the market uptake of A+ and A++ appliances. Besides that can the effect of only energy+ not be determined separate from other effects like the new directive, CECED activities, and other economical and market influences. Fact is that the numbers mentioned before draw a positive picture of a rapidly transforming market.

7.2.5 The effect of legislation

It can be said that EU regulation had a large effect on the market. It seems that manufacturers and CECED have been most active and the mostly nationally orientated retailers followed these results when pushed to do so by their government and manufacturers.
When CECED started to push for the new label categories they followed the ideas of 2^{E}+ and they also started to collect data themselves (not always with success).
We can also say that energy+ 'set the standard' for the new label categories and after we followed the new label criteria the market transformation process went on very well.

Yet it is hard to distinguish the effect of 2E+ from that of the new label directive.

If there had been no 2E+(or E+), there would have been no neutral platform to collect and disseminate data of very energy efficient cold appliances. This would have slowed the label renewal process considerably. It took some time to find the trust of manufacturers, but after they all joined energy+, they were very happy with our initiatives, even when the project finished and they kept on asking for updates.

If on the other hand the label revision process had not taken place, this could have slowed the market transformation process. Energy+ could have been adopted by the Commission as a temporarily instrument distinguishing best appliances, allowing the Commission to think of a system to update the labelling scheme without creating A+ and A++ categories.

Energy+ could also have chosen at the appropriate moment to go for lower threshold creating two classes alike A+ and A++, since manufacturers would have been ready for that change than, as it shows e.g. in the second competition. It would have been even more necessary than to start a 3E+ project to finish the market transformation process inducing the label change process (at EU level).

The ECO design rules have had no effect on the market during the project, it has not been approved by the EU parliament (is approved in 2005). The 2E+ project has no direct connection to the aspects in this directive. Manufacturers did ask questions about it. Thus energy+ has played an information role here.
It has to be said also that these design rules are meant for the low end of the market (cheapest appliances with worst design conditions).

7.2.6 The effect of activities of participants

If we look at participants we can roughly divide them into two groups: supply side and demand side.

The supply side, manufacturers, retailers, and in some cases utilities and housing organisations and institutional buyers were to a high level influenced by 2E+. Manufacturers and retailers started to develop, produce and distribute very efficient appliances. The 2E+ competition drove them to strive for new market niches. This would not have been the case, or only many years later on a lesser scale, if 2E+ (the central team and national teams) had not been there. Some housing corporations and some utilities also became active in selling with subsidy or demanding a minimum level of energy efficiency (green purchasing).

On the demands side – being environmental organisations, consumer organisations and other NGO's - the effects are mostly seen on a national level. Due to local circumstances the effect is different in the different countries. In some countries the penetration of E+ appliances was higher than in other countries, due to subsidies, regulation, promotion. In some countries NGO's had a important role in spreading the news (creating and raising awareness) via all kind of promotional activities. Some of them even tried for small bulk buys.

7.2.7 The effect on consumers
2E+ did not focus on consumers directly, leaving this largely for the market (they should be the experts in doing so), yet national tams, depending on the local situation and communication strategy involved consumers in their activities. In some countries the effect is measured. It can be said that the consumers are willing to buy energy efficient appliances even if they are more expensive. But they have to have a good availability and visibility(Energy+ logo and EU label), subsidies or other promotion/stimulation do help to decide. They start asking for more efficient appliances.
It is also stated that they still confuse energy efficiency with overall quality (retailers and manufacturers are not very happy with that, e.g. because this keeps the sales of more expensive appliances low)

The above national effects strengthened the trust of the internationally organised industry that there was a market for these appliances.

Deliverables:

- **Final report on the Energy+ activities as from 2002, including evaluation of these activities;** EN and other languages on the initiative of the partners

This report *integrates the results of all national activities and the central activities. Separate national reports are available. A final bulletin and an final update of the website has been used to disseminate the results.(see also phase 2 and 3)*

8. CONCLUSIONS

From the activities, results and analysis of the 2E+ project the following conclusions are drawn:

If we look from the *industry perspective* we see:

- The number of very energy efficient cold appliances has grown significantly since the start of the project, from 16 appliances (energy+) to 866 appliances (2E+); growth factor of 54 times.

- The energy efficiency of energy+ appliances index is 25-45% better than basic A class appliances. If we take the most efficient appliance into account: (Arçelik CT 1300A) this number is even higher: 64%!

- It can be seen as very successful because almost all major manufacturers have participated.

- Energy+ enables R&D departments of manufacturers to convince their marketing department to actually commercialise the very energy efficient models that are waiting in their laboratories (this is confirmed by several personal communications with manufacturers).

- Industry has a prominent role in convincing retailers to accept new products.

- This project has shown, that given realistic objectives defined in line with European policy, manufacturers can in a short timeframe (12 months) improve and expand the range and efficiency of their already developed and introduce marketable, high efficient products.

- 'On line tool to add new appliances': It shows that manufacturers (their organisations) are not always up to date to all label requirements and other issues connected with them. Yet they showed interest for our remarks and answered our questions;

From the *country perspective* we see that:

- Co operative international procurement on this scale (more than 10 countries working together on the same goals) is a very effective and not too expensive and time-consuming way of market transformation in case of (cold) appliances. Compared to other international projects we see that this scale is needed to implement these kinds of changes. Simply: If one country wants to change nothing happens, three countries are listened to and if more countries work together the market has no choice but to react.

- The process of market transformation takes up a different speed in different countries even if manufacturers work international (global). The speed of the process is influenced by:
  - existence of local manufacturers
  - enthusiasm of representatives of international industries
  - interest of retailers
  - local energy policy, activities of government
  - additional measures like e.g. energy+ activities
  - the penetration of the EU energy label on white goods and a controlling body
  - enough willing consumers (early adopters, innovators)

- Local rebate schemes (Germany, Belgium, Netherlands, and Switzerland) help readily to shift the (even international) markets.

From the *consumer* perspective we see:

- The vast amount of (free) publicity on local, regional, national and global level created much awareness and thus more trust in the approach.

And from *EU perspective*:

- The official publication of the new label directive and the process to come to this change has been catalysed by energy+ and after the publication the results of energy+ have also been enhanced. From this perspective it can be said that the opening to all cold categories has been a wise choice supported by all market actors.
- Even though the project has stopped, award winners in manufacturers and supporters still spread the energy+ news to the market.

All together these findings can be summarised to one final statement:

The 2E+ co operative procurement project, an extension to the successful energy+ project, focussing on stimulating the production and sales of very energy efficient cold appliances, has been a powerful tool to propel the ongoing process of market transformation forward in Europe (maybe even global), resulting in a high rate of availability of very energy efficient refrigerators and freezers for households.

9. RECOMMENDATIONS

During the project suggestions have been made and ideas have been generated to further enhance the outcome of the project. Yet it has been impossible to follow up all these leads during the compact time period. Some recommendations will be listed here for possible future activities or projects.

- The process of market transformation is not finished. To complete this process would take a longer period of support and maintenance, publication, dissemination of the energy+ lists amongst others.

- The 'Hespul approach' for collective buying (see national highlights, France), if scaled up can work very well locally or even on a larger scale. It brings advantages for consumers as well as manufacturers. A similar approach has been used in the Netherlands and other countries to propel the market for Solar Domestic Hot Water systems forward. In the Netherlands municipalities, a utility, manufactures, installers and the government combined forces to do so. This also lead to a special IEA task for this product market combination.
- The Swiss '*top-ten* approach'(see national highlights, Switzerland) based on an on-line search tool, is a successful consumer orientated way to promote sales of energy efficient appliances. It will, if scaled up to an international level, bring a lot of additional results!

10. FUTURE PROJECTS USING THE ENERGY+ APPROACH (3^E+)

The energy+ approach identifies highlights and helps in marketing the most efficient appliances available on the European market at any given moment (true both before and after the EU label revision process). It also provides assistance to market actors investing in energy efficiency, by increasing the profile of participants, especially manufacturers achieving high product efficiency (generating publicity and thus incentive for manufacturers to comply with new stringent labelling requirements).

We believe therefore that the approach is replicable under certain conditions, for instance:

- the product is sold throughout Europe;
- a minimum of labelling(regulation) and testing procedures already exists;
- a thorough market study is undertaken before any public announcement, and
- the project is undertaken by motivated teams

The policy could be implemented with “plug in appliances” (to avoid major local preferences). For instance, in the commercial cold sector, an Energy+ scheme could focus on direct buyers, interested in energy efficiency.

Energy+ has demonstrated the real benefits that flow from facilitating the exchange of information between manufacturers and retailers. It has provided a strong market pull for energy efficient cold appliances, with the numbers of models growing significantly, over four years. While the traditional market does not provide clear signals to manufacturers of the attributes valued by society and policy makers, Energy+ provides that direction.

At the end of 2004 some ideas have been generated to adopt the energy+ approach for other product market combinations targeting for further energy savings. A rough list of ‘candidates’ is tested on feasibility. Some institutions that participated in the project are now in the process of developing new project ideas. They have put forward the proposal “Energy+ pumps” to the EIE programme in March 2005.

Appendices

1. *Energy+ second round lists: Participating organisations and Qualifying Refrigerators- Freezers , 7 March 2001(first project).*

2. General brochure.

3. Energy+ lists March 2002: Participating Org. and Qualifying Refr.- Freezers , 28/02/2002.
4. Press release Hometech Fair Berlin 28/02/02.

5. Energy+ lists Nov 2002 Part. Org. and Qualifying Refrigerators-Freezers, 11/11/ 2002.
6. Update leaflet autumn 2002.
7. Energy+ bulletin autumn 2002.

8. Energy+ March 2003 lists.
9. Update leaflet spring 2003.
10. Press release BEST conference Brussels 28/03/03.

11. Energy+ October 2003 lists.
12. Update leaflet autumn 2003.
13. Energy+ bulletin autumn 2003.
14. Press releases EEDAL conference 3/10/2003.

15. Energy+ March 2004 lists.
16. Final brochure including information on update spring 2004.
17. Energy+ bulletin summer 2004.
18. Press release Hometech fair 2004 28/02/04.

19. Energy website pages (English).

20. Copy of award document NRW 21 initiative.

21. Energy+ lists: compliance declaration for manufacturers (importers).

22. Participants' declaration forms for supporters (retailer, institutional buyer, other).

23. *2nd European Energy+ Appliance Awards competition*: competition rules, submission form July 2003, jury report draft.

24. European Energy+ Participant Award for the Most Creative Promotion Campaign: Invitation to participate, application form, and jury report draft.

25. Energy+ promotion manual including licence agreement (version 2003).

26. Intermediate report 2E+ EU-SAVE project and reaction from EU with answers.

27. *The impact of Energy+*, presentation at EEDAL 2003 conference, Torino, Italy.

28. *Energy+ cold appliances beyond the A label thanks to pan-European procurement* poster presentation 4.107 at the ECEEE summer study.

29. National reports: Austria, Belgium, Finland, France, Germany, Greece, Italy, Norway, the Netherlands, Portugal, Switzerland and United Kingdom.

Literature

1. Energy+, aggregated purchase of energy efficient refrigerator-freezers at European level final report, contract no XVII/4.1031/Z/98-273, 10 countries, august 2001.
2. Commission Directive 94/2/EC implementing Council Directive 92/75/EEC with regard to energy labelling of household electric refrigerators, freezers and combinations.
3. Commission Directive 2003/66/EC, 3 July 2003, amending: directive Commission Directive 94/2/EC implementing Council Directive 92/75/EEC with regard to energy labelling of household electric refrigerators, freezers and combinations.
4. CECED Unilateral Commitment on reducing energy consumption of household refrigerators and freezers, 1st annual report for 2003 to the commission of the European Communities, October 2004.
5. Monitoring of energy efficiency trends for refrigerators, freezers, washing machines, washer-dryers and household lamps sold in the EU, ADEME-PW consulting,GfK marketing services, 1999.
6. Minutes of meetings of 2E+.

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