International Energy Agency
IMPLEMENTING AGREEMENT ON
TECHNOLOGIES AND PROGRAMMES
FOR DEMAND-SIDE MANAGEMENT

ANNEX V
INVESTIGATION OF TECHNIQUES FOR
IMPLEMENTATION OF DEMAND-SIDE
MANAGEMENT TECHNOLOGY IN THE
MARKETPLACE

REPORT 6

Techniques for Implementation of Demand Side Management Technology in the Marketplace: **Final Report**

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IEA DSM PROGRAMME ANNEX V

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NETHERLANDS
(NUON)

NORWAY
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SPAIN
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1.- EXECUTIVE SUMMARY

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In October 1993, the Executive Committee of the Implementing Agreement, which began following an IEA Conference on DSM in Sorrento (Italy), put five Annexes into force. Then ANNEX V was established to deal with the marketing aspects of the implementation of DSM programmes in the market. The works for ANNEX V began in April 1994 and were scheduled for a duration of three years.

Six countries participated in the development of the Annex: Finland, the Netherlands, Norway, Spain, Sweden and Tanzania (sponsored by the World Bank).

The Operating Agent was Fuerzas Electricas de Cataluña (FECSA, member of the ENDESA Group) from Spain.

OBJECTIVE.

ANNEX V studied the development and improvement of Utilities and Governments marketing strategies for the implementation of DSM actions in the residential, small commercial and small industrial sectors of the market.

It was considered that the improvement of those marketing strategies depended on:

- An evaluation of the technological needs of the Customers.
- The information needs of Utilities and Governments.
- The attitudinal changes of the participants in the DSM programmes.

To fulfil these objectives, it was necessary to establish a common methodology broad enough to be able to contemplate the specific peculiarities of each market to optimise the DSM actions from a marketing point of view.

A set of analysis instruments were developed to identify, within the DSM programmes, the components which made marketing more effective.

The development of ANNEX V was carried out in an international co-operative atmosphere, sharing the experiences of DSM programmes implemented in the different participant countries. Due to the different situations of these countries in terms of market liberalisation, a special richness has arisen from the contribution of each participant.

As part of the work for the development of the Annex a more specific task was established: the implementation of DSM pilot programmes in each participant country following the agreed methodology.

Those programmes were implemented by segmenting the target groups in small units, or subgroups of customers with similar characteristics and interests. That way these subgroups could be reached in a more appropriate and accurate manner. This segmentation has allowed to get closer to a micromarketing approach towards the customers.

ACTIONS CARRIED OUT.

ANNEX V duration was three years and the actions carried out during these years were the following:

a) Identification of a common methodology for the development of DSM programmes, able to segment the target groups to adapt the action to apply to the specific groups of customers in order to achieve most effective results.

b) Design of a questionnaire aiming to show all differences between the actions to facilitate their analysis and to measure the degree of effectiveness of each one. This questionnaire was developed from ANNEX I questionnaire including a more in-depth set of relevant marketing areas.

c) Design of a glossary to explain the contents of the questionnaire and how to use it.

d) A compilation of DSM programmes implemented in each one of the participant countries. This compilation was made following the questionnaire scheme to a) evaluate the usefulness of it and b) to identify the most relevant marketing profiles of the actions carried out to establish a more direct comparison between the programmes. Thirty two programmes were compiled.

e) Analysis of the questionnaires from a marketing point of view to identify the differential characteristics of each one and compare them. The programmes were grouped by basic promotional concepts:

- Marketing of energy efficient products.
- Behavioural change.
- Utility image.

Practically all programmes covered those concepts in a way or another, but for this classification only the main objective of the programmes was considered.

f) DSM pilot programmes presentation by the participant countries following the requirements of ANNEX V.

g) Design of an Action Plan pattern to include in detail the tasks and subtasks needed for the development of the action.
The Action Plan content was agreed to be as follows:

- Actions/tasks
- Responsible for the action
- Target dates and reasons for possible deviations.
- Effect on the development of the programme
- Critical risk factor (CRF)

h) Design of a Final Evaluation system which allowed the analysis of final results of the programmes considering all actors participating in the action.

The contents of this system was:

- Background and documentation of the programmes.
- Customer attitude (participants and non-participants).
  - General evaluation of the programme
  - How they knew the programme
  - Promotional mechanics
  - Reasons for participation / non participation
  - Contribution of trade allies
  - Image of the Utility.
  - …
- Trade allies attitude.
  - General evaluation of the programme
  - Promotional mechanics
  - Acceptance barriers/opportunities.
  - Customers attitude.
  - Suggestions for future programmes.
  - …
- Utility's team evaluation:
  - Phases of the programme
  - Trade allies
  - Lessons learned
  - Suggestions for future programmes.

- …

I) From the fourth periodic meeting of ANNEX V development up to the end of it, each work session was complemented with a monographic workshop. Following the participants interests, different discussion areas emerged, from issues directly related to specific aspects of the particular pilot programmes of the host country, to others affecting the entire project like "DSM activities in liberalised markets". All this information has been analysed as an added value of the development of ANNEX V.

j) All participant countries implemented totally or partially the pilot programmes proposed during the development of the ANNEX V which were:

- **FINLAND:**
  - HÄME: "MARKETING TIME OF USE TARIFF"
  - SAVO: "AVOIDING NETWORK INVESTMENTS".
  - VATAJANKOSKI: "SERVICE CHAIN DEVELOPMENT"
- **NETHERLANDS:**
  - NUON: "BUY ENERGY EFFICIENT"
- **NORWAY:**
  - NVE AND STAVANGER: "USER FRIENDLY ENERGY BILL"
- **SPAIN:**
  - ENDESA: "EFFICIENT LIGHTING" (DOMOLUZ)
- **SWEDEN:**
  - HALMSTAD: "DEFINITIVE INVOICE"
  - NUTEK AND UTILITIES: "HOW CAN MARKETING OF ELECTRICALLY EFFICIENT WHITE GOODS BE STIMULATED"
- **TANZANIA:**
  - TANESCO: "POWER FACTOR CORRECTION IN DAR ES SALAAM"

CONCLUSIONS AND LESSONS LEARNED.

Here it follows a list of some important conclusions obtained in the Annex:

- Micromarketing is valuable when applied to the Domestic Sector of the Market.
- It is possible and positive to transfer marketing experiences from one country to another.
- The "workshop system" was considered of high value by participants in the development of their own DSM programmes.
- DSM actions should be carried out even in liberalised markets. If needed there should be some support given by Governments and Institutions acknowledging DSM contribution to social benefit.
- From a Utility's point of view, in a liberalised market DSM should be a part of the marketing activities to reach a more competitive position.

The final report of the Annex lists the lessons learned during the project, grouped according to the following items:

- Utilities, Governments and Institutions.
- The Customer.
- Consumption habits.
- Purchasing process.
- DSM as a service.
- TOU tariff as a service.

These are some examples of the lessons learned:

- Customers attitudes facing energy use are similar in all countries.
- The residential market problems are similar for all Utilities independently of their size.
- Marketing stimulus acts in a special way in the energetic market (communication media etc...) probably due to the fact that the benefits from an efficient use of the electricity are not, for the moment, so obvious to the customers.
- The Public Sector is always somehow connected with DSM programmes.
- The DSM campaigns produce a cumulative long term effect on customers that implies a lower effort for future actions.

Additionally the final report evaluates the methodology used in the Annex, the common tools and the use the Participants have made of them. Finally it makes suggestions for future work.

RESULTING PRODUCTS.

- Report on "Basic Methodology Documentation and Working Plans of Participating countries".
  - General Methodology
  - Questionnaire
  - Glossary.
  - Working plans
- Action plan guide.
- Evaluation Framework guide.
- Meeting summary reports.(12).
- Reports on "Marketing Analysis of DSM Programmes" (32 programmes in the first edition and 41 in the second).
- Report on "Questionnaire Analysis of Programmes developed in ANNEX V".
- "Reports Provided by Participants on Programmes developed in ANNEX V".
- Report on "Action Plans and Evaluation Areas of Programmes developed in ANNEX V".
- Report on "Techniques for Implementation of Demand Side Management Technology in the Marketplace: FINAL REPORT". (This report)

2.- TECHNIQUES FOR IMPLEMENTATION OF DEMAND - SIDE MANAGEMENT TECHNOLOGY IN THE MARKETPLACE: FINAL REPORT

2.0.-INTRODUCTION

2.0.- INTRODUCTION

Demand-Side Management (DSM) is a tool to be used when you want to change the demand of energy. The change might concern the amount of energy used or the pattern of its use. This can be executed in different ways but the aim for doing so is always the same; the wish for improved use of resources.

The DSM tool can be applied in two ways: (1) to change the operations within the energy systems or (2) to change the equipment in the energy systems.

- The most well-known and favoured case is the change of operations (variations of load shifting) since such a change can give the energy supply companies almost immediate results. These companies have an incentive of their own and it suits their traditional business organisation.
- Changing equipment to use less energy is less favoured since the incentive stays mostly with the customer/user and to some extent with the grid-companies. Today, this kind of DSM is turning more and more towards market transformation i.e. affecting the investment pattern and consumption habits in the markets.

Both cases of DSM rely on the use of market forces to improve efficiency and strengthens the market in terms of energy and economy. Both cases are also desirable for social purposes as they are strong instruments in the work for an improved environment. A kwh better used does not emit more substances and does not require more land for sitting of power plants or transmission lines and it does not require specific security activities in the case of crisis.

The IEA Demand-Side Management Programme is an international collaboration of IEA member countries which work to clarify and promote opportunities for demand-side management (DSM). For the purposes of this programme, DSM is defined to include load management, strategic conservation and related activities. Through co-operative activities, participants had been collaborating to help DSM technologies to reach their full market potential, thereby allowing energy systems to function more effectively and giving energy systems investments enhanced value for gas and electricity customers.

The shaping of the Implementation Agreement, began several years ago, following an IEA Conference on Demand-Side Management in Sorrento, Italy. During those years, experts met to define the work to be undertaken and to draft the Annexes to the Implementing Agreement which described that work and the resources required to accomplish it. In October 1993 the work under this Agreement began when the Executive Committee put five Annexes into force. At that time, the Executive Committee, composed of two representatives from each of the participating

countries also approved five Operating Agents to manage the five annexes to be done under the Implementation Agreement.

Note: This chapter 2.0 has been extracted from the articles of the chairman of the DSM Implementing Agreement, Mr. Hans Nilsson, in references (1) and (2).

2.1.- ANNEX V

2.1. - ANNEX V

2.2. - OBJECTIVE

The objective of this ANNEX has been to develop improved Utility and Government strategies for implementing demand-side management (DSM) technologies in residential, small commercial and small industrial markets. Improved strategies are assumed to depend on improved assessments of customer technology requirements, Utility and Government information needs, factors leading to DSM technology adoption, and behaviour of actors on the DSM technology market.

2.3. - ANNEX V DESCRIPTION

The purpose of ANNEX V has been to obtain knowledge about how to effectively implement DSM in the marketplace. This implies what was previously done in this field, together with an in-depth analysis and some new pilot programmes. This has been done in an international co-operative environment with the sharing of experiences on DSM implementation in different markets that have very different social and cultural backgrounds.

From this general objective a more specific goal was designed by agreement of the participants. The ANNEX most remarkable activity has been the actual implementation of pilot DSM programmes in the participating countries. These programmes acted on small economic units such as the customers in the residential, small commercial and small industrial segments. These segments allow a micromarketing approach in the methodology used to deal with them.

Before developing a pilot programme, a common reference framework based on a specific methodology was agreed by the participants. This methodology came from the latest development of micromarketing: modelling the market in small Basic Market Units (BMU) and mapping them based on equipment level, network development costs, income, values, sociocultural trends, etc.

To research and analyse past DSM programmes in the participating countries and new programmes that were not done following the agreed methodology, a data collection instrument or questionnaire was developed. This questionnaire established a frame that allows the comparison of the new and past DSM programmes.

Thus a set of pilot DSM programmes have been implemented under ANNEX V. Some of them followed the agreed methodology, others followed other approaches taken from previous experiences. The results have been compared; inside one country and between different countries. The comparison has been made with the

frame of the common methodology prepared for this project. The consequence has been a better knowledge of the best strategies to implement the DSM resource in the market.

ANNEX V had a scheduled length of three years. It had three sequential subtasks, each of approximately one year duration. The first subtask was the development of the frame methodology and questionnaire. The second subtask was the implementation of the DSM pilot programmes. The third subtask evaluated the results and compared them between different countries and in the same country using different methodologies. A great wealth of results have arisen due to the diversity of countries participating and the different market segments addressed.

These three subtasks deal basically with marketing of DSM and they do that for both, the new deregulated electricity markets and for the monopoly electricity markets.

But some participants were concerned about doing something more specific and useful mostly for deregulated and restructured electricity markets. Consequently a fourth subtask was proposed about marketing DSM together with other energy efficient services or products in order to increase the marketing effectiveness of the whole process, thus strengthening the implementation of DSM. This corresponded to the fact that in deregulated countries many Utilities offer or want to offer energy related services to their customers to increase their loyalty. This fourth subtask was not actually implemented due to lack of resources from the interested parties.

2.4. - BENEFITS OF ANNEX V

The market uptake of DSM technologies can be accelerated by developing and testing new advanced methodologies to define what customers the programmes should be efficiently applied and how to communicate to them satisfactorily. In addition, an international project allows different regulatory, economic and sociocultural environments to be compared, and to determine what aspects produce additional value.

The benefits of ANNEX V are mainly for regulators, and Utility managers and marketing specialists. It will help regulators achieve conservation, design the regulatory framework, evaluate DSM programmes and their impact on environmental policies and to give advice to other actors in the energy business. Utilities will be helped with ideas for DSM programmes, with knowledge about how to satisfy market needs and how to influence people to accept DSM programmes, and with ideas about cost efficiency, business and profit strategies.

3.-PARTICIPATING COUNTRIES

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Initially three countries joined ANNEX V: The Netherlands, Spain and Sweden.

In The Netherlands, the project was led by the Utility of NUON.

In Spain, The ENDESA Group was responsible for the project.

The Swedish National Board for Industrial and Technical Development (NUTEK) acted as a co-ordinator for four participating Utilities: Borlänge Energi AB, Göteborg Energi AB, Energiverken i Halmstad and Malungs Elverk AB.

After one year as an observer , Finland joined the project in 1995 being led by the Association of Electric Utilities. Three Utilities: Hämeen Sähkö, Savon Voima and Vatajankosken Sähkö conducted the pilot programmes.

Also a Memorandum of Understanding (MOU), was signed between the World Bank and the Implementing Agreement. As a result of this, Tanzania also participated in ANNEX V.

Norway finally joined the project in March 1996 after attending several meetings as an observer.

ANNEX V had, at the end, six participating countries: FINLAND, THE NETHERLANDS, NORWAY, SPAIN, SWEDEN and TANZANIA.

A brief overview of those markets can give a better perspective of the start point of the participants in the project. The following paragraphs, except that for Tanzania, are extracted from reference (1) and were prepared in 1995 by the Executive Committee members of the involved countries. Important events that have happened since then, have modified the text.

3.1. - FINLAND

Electricity is generated by power companies, industry, and local distributors in Finland. Some vertical integration exists. The previous two transmission companies have merged their businesses into a single new company. The new company owns and operates the transmission lines as well as the ones connecting Finland to the networks of the neighbouring countries. There are over 100 distribution companies (many of which are municipally owned utilities), and electricity has historically been purchased with long-term contracts. Tariffs, investments, and profits are approved by the board of each utility or, in the case of municipals, by the city council. A new Electricity

Market Act that introduces free competition in generation, sales, and purchases of electricity was implemented June 1, 1995, with a transition period in place until January 1, 1997. Beginning June 1, 1995, customers over 500 kW in demand have been able to select their suppliers freely, and all transmission and distribution networks are open to all suppliers and customers on non-discriminatory terms. The network business will remain regulated and licensed as natural monopoly. As of November 1, 1995, network tariffs must have been public. Transmission, generation, and distribution must have been functionally separated (for accounting purposes) from January 1, 1996. Customers with 500 kW or less of demand have been given the same retail options as the larger users starting in 1997. The competition in small-customer market has not yet really started, because of the obligation of load hourly metering and its relatively high cost to customers. Finnish government has proposed a so called type curve method and that will be implemented on the second half of 1998. Finland will probably join the Norwegian-Swedish power exchange Nordpool during 1998 and that will mean a big step towards common Nordic electricity market.

3.2. - NETHERLANDS

The electric industry in the Netherlands consists of 4 production companies and 30 distribution Utilities. The production companies, with a Co-ordination Board that provides planning and dispatch, are responsible for power generation, the high voltage transmission grid and international connections. They are preparing a merging to one big production company. Most distribution companies possess some additional generation capacity. Distribution companies are unable to choose supply from specific production companies due to the pooling of production costs. The companies are obliged to buy excess electricity from customers, however. The distribution companies are partly owned by provinces and some municipalities , the production companies are owned by the distribution companies, and the Co-ordination Board is controlled by the production Utilities. The distribution companies are obliged to split transmission and selling of electricity. Customers are largely captive with little retail competition, although they are allowed to self-generate and large customers can import or buy directly from the Co-ordination Board. Cogeneration and private power development is allowed.

The degree of future competition is uncertain. Horizontal integration is likely in the distribution companies, and joint ventures with industry and/or distribution companies are possible for some future production company capacity additions. Although no formal decisions on retail competition have been made, informal discussions have taken place.

3.3. - NORWAY

The Norwegian electricity market is characterised by a large number of small generators and retail distributors. There are approximately 60 wholesale generating companies in Norway, but Statkraft (the largest generator, and state-owned) supplies 30% of the total power needs of the nation. Municipal generation accounts for 55% of the generation, with 15% in private hands. Before restructuring, the Norwegian government encouraged the electric supply industry to concentrate into about 20 vertically-integrated Utilities. However, problems with this policy led to the restructuring of the industry through the Energy Act of 1990.

The main objective of the Energy Act was to create a more flexible, competitive electricity market and to promote more rational production and use of electricity. Restructuring did not include measures to change Utility ownership, as it did in the UK. That is, privatisation did not occur. Statkraft, prior to restructuring also owned the majority of the transmission grid, remained in state hands. However, the grid has now been split off into a separate state-owned company, Statnett. The basic structure of the current industry is one in which bilateral trades and direct access are allowed. All customers are allowed to "shop" for power from producers. A power exchange (operated by a subsidiary of Statnett) continues to operate for short-term, spot transactions, but the majority of power supply is through contracts between producers and retail suppliers (distribution utilities or individual end-users). Only the transmission network remains under regulatory control, and it acts as a common carrier with regulated access fees and rates.

3.4. - SPAIN

The Spanish electric utility sector has four large company groups and more than 100 small distributors. The total electricity generation reached 188,814 Gwh in 1997, what is an increase of 7% over the previous year. Self-generation by customers reached 22,653 Gwh with an increase of 14.1% over 1996.

On 26 November 1997, the new Bill on the Electricity Sector was approved. It introduces deregulation and competition to give better quality of service and prices. Additionally the privatisation of electric utilities was completed in June 1998.

The main aspects of the new Bill are:

- The central operation of the electrical system in their technical and economical aspects is not a public service anymore. It is now the responsibility of two private companies.
- Generation: All agents can bid in the competitive market. The sequence of assignment depends on the offered price. The final price for each hourly period is based on the last bid required to match the demand during this period.
- Supply: All agents will be able to choose supplier. However there is a transition period. Since January 1998 for yearly consumptions over 15 Gwh; January 2000 for yearly consumptions over 9 Gwh; January 2002 for those over 5 Gwh; January 2004 for those over 1 Gwh and the whole market in January 2007.
- Transmission and Distribution continue being regulated activities with their fees being assigned by the Government.

3.5. - SWEDEN

Eight major power companies own more than 90% of the power generation in Sweden. Vattenfall, the Swedish State Power Board and the largest of the eight, was corporatized in January 1992. The transmission function of the company was converted into the Swedish National Grid, which owns and operates the bulk transmission system and international connections. The National Grid was instructed to promote competition, and more recent actions have been made to increase competitive forces. A bill that would increase competition in the industry was presented to the parliament in 1994, but the decision was postponed by the new government. In 1995 a new Electricity Act was accepted by the Parliament, establishing Third Party Access for all customers. Transmission and distribution networks are to be operated by separate companies and be open to all producers, suppliers, and traders at non-discriminatory prices. The largest generation companies have begun to buy municipal distribution Utilities to gain further access to end-use customers. Retail electric supply is provided by approximately 300 distributors, most of which are independent buyers of electricity, and the number is rapidly decreasing

In June 1997 a Government Bill on A Sustainable Energy Supply was approved by the Parliament. The goals for Sweden's energy policy are to secure the long-term and short-term supplies of electricity and other energy. The energy

policy shall create the necessary conditions for an efficient use of energy and a cost effective supply of energy with a low negative impact on health, environment and climate. The energy system has to be transformed to an ecologically sustainable system. Two nuclear reactors will be closed and the loss of electricity shall be compensated by more efficient use of electricity, conversion from electricity and supply from other energy sources. Grants are given for investments in wind power, small hydro power and biofuel CHP as well as for investments on the customer side for reduction in electricity use.

3.6. - TANZANIA

About 92% of total primary energy use is wood/charcoal, 7% is imported petroleum products and the balance (1%) is hydroelectricity.

Petroleum product imports account for about 50% of foreign exchange earnings in the country.

The country has more than 1.500 billion tons of coal reserves with 300 billion proven, some 120 million m^3 of natural gas, 4.5 GW potential of hydropower and fairly good sunlight insolation.

The energy policy encourages exploitation of indigenous resources in the country, pricing policies which reflect true costs of energy services, equity aspects and adoption of environmentally clean energy technologies.

The electricity industry in Tanzania consists of two public owned vertically integrated utilities, one in the mainland (TANESCO) and the other, smaller one, in Zanzibar island (State Fuel and Electricity Company). TANESCO generates, transmits, distributes and sells electricity. There is no regulatory body, the Ministry of Energy and Minerals plays the role of the regulator. However there are two small independent power producers who sell the electricity to TANESCO. Also there are many small private generators which produce electricity for own use (isolated systems).

The installed capacity is 392 MW of hydropower and 208 MW of diesel and gas turbines. Available capacity varies with climate and availability of spares and fuel for thermal plants.

The maximum demand is estimated at 400 MW and 1900 Gwh per year.

Seasonallity of demand is that the peak is experienced during October to December and the trough during April to June.

Tanzania is facing various problems to manage its electricity demand. These include high demand growths 9-13% per year, low tariffs, high inflation and associated falling exchange rate of the national currency, and inefficient end-

uses. The most notable effect from the above problems has been the on-going massive load shedding in the national grid system.

The ongoing Demand Side Management program is part of the ongoing efforts to solve the above mentioned problems. Power Factor Correction in Dar es Salaam is one important aspect of DSM, but there are other projects like TOU metering and tariffs and Load Management.

4.-GENERAL METHODOLOGY

4.- GENERAL METHODOLOGY

The following methodology was designed to be used as a common framework for all projects drawn up by the participants in their respective countries. Each participant was able to adapt and use the parts of the methodology that apply to their particular situation.

4.1. - OBJECTIVES

The objective of this methodology centres on the Market Analysis of the action areas that were determined for each one of the participants in ANNEX V. A conditioning for the development of a common methodology was to be broad enough to be able to contemplate the specific peculiarities of a chosen territory in each action area. Thus the most appropriate DSM actions for that territory could be drawn up.

This generic objective can be covered by the following areas:

- Analysis of the energy market in action areas and sectors as determined (housing, commercial, industrial and agricultural sectors). The foreseeable evolution of those.
- Forces present in the market and their potential consequences on the making of decisions regarding actions.
- Saturation levels in energy distribution lines in the possible action areas.
- Priority end uses/processes in sectors: competitive analysis. Client typology classified by sector and by applications; degree of acceptance of the generic DSM concept.
- Identification and analysis of business opportunities: areas and target public.
- Drawing up and development of specific actions for each market.
- Follow-up: analysis of results.

4.2. - PRELIMINARY CONSIDERATIONS

The present market environment is characterised by:

a) Progressive competitiveness.

b) A growing influence/pressure by any Associations, manufacturers, national and supranational energy policies, etc., which imply modifications in attitudes of the different sectors of the Demand. These conditions of the development of the commercial activity in a market that, until very recently, has been considered as composed by a captive demand.

In this situation, the most appropriate tool to design operational strategies, that will contribute to improve business results and build loyalty in the different sectors of the Demand is to know the markets, their trends and the opportunities that they offer.

Considering that the "family market" (residential and small industrial and commercial tertiary sectors) is the most influenced by external pressures that are not controllable from the electric sector, it seems obvious that it is necessary to develop medium and long term strategies able to demonstrate their effectiveness and successfully confront the present and foreseeable evolution of the market.

These strategies should include three market approaches in an integrated manner:

- **A TECHNICAL APPROACH**: that provides information related to present and potential use of the different choices of energy by end uses and processes in such a way that:
  - These consumptions/appliances can be used as segmenting variables in the different Sectors of the Demand.
  - Variables related to macroeconomics, equipment, physical infrastructure and typologies that correlate this consumption can be determined.
  - Opportunities for application of demand management policies can be identified, considering the extent of their application, measurement of result and profitability.

- **A MARKETING APPROACH**: that ensures, for each sector of demand, knowledge of:
  - Present awareness of the energy market, Electricity Utilities and their prescriptive capacities.

- The sensitivity of the aforementioned sectors to existing information/communication on DSM, new applications, etc.
- Emerging potential market.
- Profile, habits in the use of energy, and attitudes of the different target users.
- Access paths.

- **AN OPERATIONAL APPROACH**: that ensures the practical application of the collected information so that, the identified opportunities can be optimised and so that results obtained can be reassured.

4.3. - METHODOLOGY PROPOSAL

The methodology proposed corresponds to the scheme given herebelow.

STAGE 1: STRUCTURAL ANALYSIS OF THE SECTOR

1.1.- SOCIO-ECONOMIC ENVIRONMENT.
1.2.- FORCES PRESENT IN THE MARKET.
1.3.- COMPETITIVE ENVIRONMENT.

STAGE 2: STRUCTURAL MAP OF DEMAND

2.1.- GEOGRAPHICAL SEGMENTATION.
2.2.- TYPOLOGY VARIABLES.
2.3.- SATURATION AREAS.

STAGE 3: DETERMINATION OF PRIORITY AREAS OF INTEREST

STAGE 4: RESEARCH PROGRAMME

4.1.- INTERMEDIATION SYSTEMS.
4.2.- QUALITATIVE RESEARCH OF TARGET MARKETS.
4.3.- QUANTITATIVE RESEARCH OF TARGET MARKETS.

STAGE 5: VIABILITY CONTRASTING

STAGE 6: ACTION PLANS: FOLLOW-UP

The contents of the outlined stages will be determined in each case by the possibilities of obtaining the needed information and by the characteristics of the action areas that each participant considers appropriate.

The following is proposed for each stage:

* Objectives.
* Contents.
* Application of results.

STAGE 1: STRUCTURAL ANALYSIS OF THE SECTOR

1.1.- Socio-economic Environment.

Objectives

Knowledge of temporal, sectorial and geographic evolution of the different energy uses.

Determination of the socio-economic variables which influence energy use in general and electricity consumption in the considered geographic areas.

Contents

These analyses are initiated from existing secondary data taken from affordable external sources and from the Utilities with coverage in the determined area(s).

The information will be taken from various indicators depending on the specific objectives of each participant:

- Economic indicators: total and by sector (gross domestic product. purchasing powers, etc.).
- Energy indicators: evolution and market share (of energy/electric intensities).
- Social indicators: population, type of housing, etc.

Application Of Results

Based on those indicators definition of the reference framework in which the activity of the sector(s) is described, could be done along with the foreseeable total and partial evolution of the markets/sectors.

1.2.- Forces Present In The Market.

Objective

To estimate the potential influence of external factors in the evolution of the general energy market and/or the sector(s) of interest.

Contents

Revision of the legal framework, the evolutionary expectations of national and supranational energy policies and their foreseeable influence in the commercial development of the sector.

Possible influence of opinion groups (environmental and consumers associations), local authorities, the media, etc., in the activities of the different energy sectors, identifying existing attitudes related to:

* Beliefs.
* Values.
* Likes and dislikes,

Applications Of Results

Proposal of future action strategies that integrate the potential of the forces present in the market and supportable elements in the social perception of actions to be developed.

1.3.- Competitive Environment.

Objective

Identification of the composition and characteristics of the electric supply and that of the competition (other energies) in products and services, both in traditional applications and in those of high efficiency.

Contents

Exploration of present and foreseeable supply for interested sector(s) and of their competitive capacity.

Application Of Results

Delimitation/setting of priorities for the future commercial actions for products/applications/services with a higher foreseeable acceptance by the market.

STAGE 2: STRUCTURAL MAP OF DEMAND

The aim of this stage is to sectorize the total market by geographical areas, BMU (basic market units) that can be considered as homogeneous in terms of consumption (census units, postal areas, etc.), for the sectors that are determined. In that way it is possible to establish specific characteristics for each kind of BMUs and to use them for future actions with a higher degree of individuality.

2.1.- Geographical Segmentation.

Objective

To establish the geographic areas that make up the various BMUs.

Contents

The BMUs will be established according to the possibilities that they offer for obtaining operational information as population, number, composition and type of homes, NACE, consumption, type of end uses, etc.

Application Of Results

To have sufficient information to be able to act selectively in the BMUs that are considered the most attractive in meeting the final objectives.

2.2.- Typology Variables.

Objective

To establish what type of variables will constitute the basis for the classification by types of the BMU when considering consumption.

Contents

The following variables are suggested:

- Domestic sector.
  - No. of homes.
  - Composition.
  - Approx. surface area.
  - Equipment.
  - Type of home.
  - Consumption (real and/or theoretical).
  - Etc.

- Commercial and Industrial Sectors.
  - Type and number of NACE.
  - No. of employees/turnover/others.
  - Typical processes.
  - Consumption (real and/or theoretical).
  - Etc.

Application Of Results

Evaluation of the different BMUs in order to estimate if they are susceptible to:

- Consumption increase.
- Consumption decrease.
- Consumption modulation.

2.3.- Saturation Areas.

Objective

To establish saturation degree in power lines that currently feed the BMUs or groups of BMUs that have been established.

Contents

The saturation degree could condition the long and short term distribution investments. The aim is to determine the costs that would arise from adapting lines to foreseeable growth in the areas defined as BMU.

Application Of Results

A basic element in the priorization of future action areas, is the implication of the distribution costs resulting from the increase, decrease or modulation of consumption, depending on the degree of saturation of the distribution lines.

STAGE 3: DETERMINATION OF PRIORITY AREAS OF INTEREST

Using the information available in previous stages, the areas of interest are first established as a function of:

The present situation of consumption and foreseeable evolution in areas previously chosen according to:

- Indicators.
- Sector(s).
- End uses.
- BMus.
- Saturation levels.

Secondly, the aim of the following phases is to find out the most adequate ways of getting closer to the final customer.

STAGE 4: RESEARCH PROGRAMME

4.1.- Intermediation Systems.

The positive aspects of the electric energy, availability, versatility, etc., are only felt through a series of structures of intermediation that produce a distancing between the benefits offered by electric energy and its production source.

Objective

To determine the position and prescriptive capacity of the different groups of intermediation in the sector(s) of demand.

Contents

Identification and attitude of the different groups of intermediation (installers, maintenance, retailer, manufacturers / distributors, etc.) and possibilities of collaboration in specific market actions. The use of "in depth interviews" is proposed.

Application Of Results

Use of the prescriptive capacity of the most appropriate systems of intermediation for each specific action to bring the Electricity Utility closer to the final customer.

4.2.- QUALITATIVE RESEARCH OF TARGET MARKETS.

Objective

With regard to the different sector(s) of interest, to explore the attitudes towards the elements that will or should make up the actions to be carried out in the market.

Contents

- Uses and habits of the different energies.
- Comparative evaluation: energy and equipment.
- Perception of products/services received: ideal?
- Intermediation.

- Predisposition towards and barriers to changes.
- Acceptance of the Electricity Utilities as prescriptors of new products/services: barriers.
- Etc.

Application Of Results

Determination of the matters that will be incorporated in the quantitative phase based on their acceptance, viability and foreseeable profitability.

4.3.- Quantitative Research Of Target Markets.

Once the priority areas of research have been determined from results obtained in previous phases, the quantitative phase can then be considered.

Objectives

To contrast and quantify the results obtained in the qualitative phase.

To obtain sufficient information to evaluate the potential market size for possible actions.

In depth consideration of the sociocultural profiles of the different aspects of the demand to evaluate its attitudes, beliefs, values, etc.

Contents

The contents of the quantitative questionnaire will cover all the aspects that have appeared to be relevant in the qualitative phase and any other of interest for each particular participant. These aspects could also be considered from a sociocultural perspective for the different sectors to be analysed.

Application Of Results

Framework proposal of final segmentation for target public, opportunities for action, communication strategy, estimation of responses potential.

STAGE 5: VIABILITY CONTRASTING

Objective

To contrast the opportunities identified during the study with the available capacities according to the strategic objectives of each participant.

Contents

Viability analysis of the apparent opportunities following a typical SWOT scheme (strengths, weaknesses, opportunities, and threats).

Expected Results

Establishment of the opportunities that are shown as being relevant regarding:

- Priority criteria.
- Competitive positioning.
- Minimum requirements.

STAGE 6: ACTION PLANS: FOLLOW-UP

Objective

To establish specific action plans for sector(s), geographic areas, products/services or applications, etc., which have been determined as being the most attractive.

Contents

- **Business factors.**
- **External factors.**

  - Macroeconomics environment.
  - Conditioning factors.
  - Problems and opportunities: operative implications.

- ***Internal factors.***

  - Evolution of sales.
  - Segmentation.
  - Distribution.
  - Conditioning factors.
  - Problems and opportunities: operative implications.

- ***Analysis of the demand.***

  - Present/potential customers.
  - Definition.
  - Needs.
  - Estimated market.
  - Operative implications.

- ***Analysis of the offer.***

  - Products/services.
  - Costs/margins.
  - Comparison with competition.
  - Needed resources.
  - Advantages and disadvantages: operative implications.

- ***Selection of target customers.***

  - Operative implications.

- ***Strategy for action.***

  - Regarding the offer.
  - Regarding the demand.

- ***Action plans.(see chapter 5).***

  - Needed support.
  - Financial evaluation.
  - Timetable.
  - Responsibilities.

- ***Follow - up.***

- ***Expected results.***

  - To achieve the market positioning that has been established as an objective.

- ***Program evaluation.(see chapter 6)***

  - Design of the program: to assure a theoretical positive ratio costs/benefits (quantitative or qualitative depending on the type of objective).
  - Final results: to compare expected results vs. real results.
  - Learned lessons: to apply to future actions.

4.4. - DATA COLLECTION INSTRUMENT AND GLOSSARY.

As a common framework for the practical use of the methodology, a questionnaire and its glossary were developed.

They have these various objectives: a) to collect the available information on DSM programmes already implemented in the participating countries in a way that it is comparable between them, b) To serve as a guide for the elaboration of the working plans for the pilot programmes to establish as a part of ANNEX V, c) To check the methodology in order to improve it where it is appropriate.

The questionnaire was developed from ANNEX I questionnaire incorporating a more detailed set of relevant marketing areas.

5.-ACTION PLANS

5.- ACTION PLANS

The Action Plan is a very practical instrument for the preparation in detail of the different aspects which can influence the development of any marketing action.

5.1. - OBJECTIVE.

This Plan aims to put an order in terms of activities, responsibles etc... to establish priorities and realistic timings considering all the aspects involved in the action.

As the pilot programmes carried out by the six participating countries were beginning from different start points , it was seen as useful to have this common frame which can serve as a guide for the implementation of similar operations in other countries.

(An example of an A.P. is attached)

Probably the most useful value of the Action Plan is that to develop it implies to programme all the action in advance, linking the elements which compose it from the conception of the global operation itself to the promotional procedures, as well as the implications of the activities with other actors as: market allies, owners and all those responsible for each task.

The A.P. contents is divided into six parts:

a) Actions / Tasks
b) Responsible for the action.
c) Target dates.
d) Reasons for the deviations.
e) Effect on the development of the programme.
f) Critical risk factor (CRF)

a) Actions / tasks

Under this heading an attempt is made to present a detailed breakdown of all the tasks carried out in the development of the programme.

As more detailed this list is, the more information it will provide on the efforts required and on the methodology to use in each part of the programme.

In this way it helps to identify those tasks which must be completed before deciding the subsequent stages in the project's development.

b) Person responsible for the action

The identification of the person responsible for each action/task allows to know the people involved in the development of the programme.

At the same time the person in charge of the project has an exact programme schedule which allows him to follow progress easily.

c) Target dates and reasons for possible deviations

This information is an essential part of the schedule.

It allows the project supervisor to ensure that he will have the critical tasks (on which others depend) finished on time and it shows the duration of each action or task.

As it considers the deviations, the Action Plan provides information on the deadlines which have not been correctly accomplished and allows the reasons for these deviations to be identified.

These reasons are then examined to extract guidelines on the effort and time that are really needed to accomplish a given action, on the difficulties which were not considered and on the possible effects of delays on the performance of the overall programme.

d) Effect on the development of the programme

This section covers the consequences of normal and abnormal execution of the actions/tasks on the development of the programme.

e) Critical risk factor (CRF)

The CRFs provide prior information on those actions/tasks which have to be completed as an essential step in order to pass on to the subsequent tasks.

The modifications in the forecast shown by the Action Plan allow the effective implications of the risk factors on the actual development of the activity to be known for future actions.

As greater the degree of detail in the Action Plan is, greater will be the possibility of avoiding "surprises" which could negatively influence the duration of the programme or its different phases as well as the final results.

5.2.- ACTION PLAN: EXAMPLE

5.2. - ACTION PLAN: EXAMPLE.

Name of the Programme:

Objective of the Programme: Introduction of efficient products in the household.

ACTIONS/TASKS	Person in charge	DATES			Reason for the deviation	Effect on the development of the Programme	Critical risk factor
		Start	Finish	Deviation			
Provisional decision by Ministry of Industry calling for Demand Save Management Programmes			6/07/95			Final decision	CRF
Programme analysis	A.S./J.M./A.E.	12/07/95	28/07/95				
Feasibility study	A.S./J.M./A.E.	12/07/95	28/07/95				
Agreements with XXX participating companies	A.S./E.		28/07/95				
Suggestions from Ministry of Industry	A.S./J.M./E.		31/07/95				
Creation of Programme co-ordinating task-force	A.S./E		31/07/95				
Promotional concept						Concepts need to be approved	CRF
Summary of objectives	A.S./J.M./A.E./T.F.	1/08/95	8/09/95				
Final offer							
Basic contents of communication							
Media selection							
Redemption system							

ACTION PLAN: EXAMPLE.

ACTIONS/TASKS	Person in charge	DATES			Reason for the deviation	Effect on the development of the Programme	Critical risk factor
		Start	Finish	Deviation			
External support						August holidays	CRF
Installers agreements							
* C.F.L.	J.M.	1/08/95	29/09/95				
Types							
Sizes							
Watts							
Prices							
Agreements							
Point of sale communication							
Fulfilment Agency	J.M./A.E.	18/08/95	29/09/95			Delay in the launch of the action	CRF
* Contract conditions							
* Reception of offers							
* Final selection							
Target Group Definition							
Analysis of potential target figures	J.M./F.A./A.E.	2/10/95	13/10/95				
Sociocultural characteristics	J.M./A.E.						
Address selection	J.M./F.A./T.F.						

ACTION PLAN: EXAMPLE.

ACTIONS/TASKS	Person in charge	DATES			Reason for the deviation	Effect on the development of the Programme	Critical risk factor
		Start	Finish	Deviation			
Final decision by Ministry of Industry			21/09/95			Validity of work realised	CRF
Programme content review	A.S./J.M./E.	22/09/95	25/09/95				
Addition of new markets	A.S./J.M./E.		30/10/95				
Communication							
Provisional Briefing	J.M./T.F.	17/07/95	11/08/95				
Art-work approval	A.S./J.M./E.		22/09/95			Delay in communication launch	CRF
TV commercial production	A.	23/09/95	6/10/95				
Press material production	A.	23/09/95	6/10/95				
Mailing material production	A.	23/09/95	18/10/95				
Delivery to media	A.	2/10/95	6/10/95				
Delivery to F.A.	A./F.A.	6/10/95	18/10/95				
Delivery to point of sale	A.	6/10/95	18/10/95				
Media advertising	A.	15/10/95	30/11/95				
Mailing	F.A.	10/10/95	26/10/95				

ACTION PLAN: EXAMPLE.

ACTIONS/TASKS	Person in charge	DATES			Reason for the deviation	Effect on the development of the Programme	Critical risk factor
		Start	Finish	Deviation			
Follow up							
Telephone open line	F.A./T.F.	10/10/95	15/12/95				
Post Office box	F.A./T.F.	10/10/95	31/12/95				
Coupon cashing	F.A./T.F.	10/10/95	31/12/95			Risk for follow - up	CRF
Creation of order database	F.A.	10/10/95	10/01/96				
Weekly follow - up report	F.A.	weekly	weekly				
Results analysis							
C.F.L. sales appraisal survey	J.M./X./A.E.	11/12/95	30/12/95				
Participating satisfaction appraisal survey	J.M./E.B./A.E.	2/01/96	25/01/96				
Report Programme results		29/01/96	20/02/96	3/03/96	Data base		

6.- FRAMEWORK FOR EVALUATION AREAS

6.- FRAMEWORK FOR EVALUATION AREAS

One of the characteristics on which ANNEX V put a special emphasis was the detailed final evaluation of each programme.

For that, a follow-up mechanism was designed to establish a framework which allowed to segment and identify the basic operative aspects of the action carried out.

6.1. - OBJECTIVE

The Framework for Evaluation Areas (F.E.A.), aims to establish a basic format, both in the physical and the conceptual sense, which is ample enough to allow an analysis of the programmes results in a way that can accommodate the differences that exists between the participant countries.

The proposed system of evaluation is enough detailed to allow both the identification of the strengths and weaknesses of the implemented marketing actions and the transfer of the experiences to other countries with minimum difficulty.

6.2. - CONTENTS OF THE F.E.A.

6.2.1. Documentation on the implementation of the programme.

The theoretical plan of a DSM Programme is usually modified during its implementation by the factors introduced by the various agents present in the marketplace.

In the initial approximation of the results an attempt is made to identify this type of adjustment and the general framework in which the Programme is being developed.

Firstly the working hypothesis on which the Programme is based are examined together with the modifications due to any factors which exist in practice.

As a result of this examination the final content of the Programme is re-considered.

The participants are requested to supply information on the final development of the Programme:

- **Methods of selecting the target group.**
- **Planned actions.**
- **Involved personnel .**
- **Material that has been used.**

Based on the received replies, an attempt is made to reach an initial qualification of the public that has been contacted and its response.

- **Penetration of the Programme.**
- **Characteristics of the Programme.**
- **Characteristics of the participants.**
- **Characteristics of the non-participants.**

And, finally, an evaluation is requested of the achieved savings.

All this information attempts to provide the reader with a summary of the Programme which acts as a reference framework for the remaining information.

This part of the information requires only desk work in which the implementation of the Programme is reflected upon and the above mentioned aspects are documented.

6.2.2. Attitude of the target-group which accepted the Programme

This part of the evaluation of results focuses on the consideration of the opinions and attitudes of the public which has participated.

In this section their assessment of the action is studied:

- **How the action was learned about:**
  - Sources of information
  - Evaluation of these sources.
- **Effect of the action on the Utility's image:**
  - Assessment of its participation.
  - Assessment of the mechanism of the action.
- **Evaluation of the contribution of the other participants in the action:**
  - Manufacturers.
  - Retailers.
  - Installers.
  - Other entities.
- **Attitude to DSM actions:**
  - Prior knowledge.
  - Knowledge through the Programme.
  - Reasons for acceptance.
  - Relationship between the Programme and the attitude to DSM actions.
- **Assessment of the components of the Programme:**
  - Products or services.
  - Prices.
  - Installations.
- **Interference with future actions.**
- **Overall evaluation of the Programme.**

This type of survey is used to determine the perception of the Programme by the customer who has accepted it.

The objective is to perfect the procedure followed in other actions and thus increase the efficiency of the Programmes.

The habitual methodology used to collect this information is that of telephone interviews of a significant sample of the Programme participants.

6.2.3. Attitude of the target group that rejected the Programme

In the real market often more is learned from the failures than from the successes.

By knowing who they are and why they did not participate in the Programme, much effort and money can be saved in other actions.

The first thing to analyse is the **communication process.** That is, to see if the Programme content has reached the public it was destined for.

If the message did not arrive it will be necessary to examine the communication channels used to see if they are the most suitable or if there has been any form of inadequacy.

If the message reached the objective, it is necessary to check if it has been **understood** and, if so, if it was **accepted** and aroused **interest.**

There are occasions when there is no active response even though all the above conditions have been met. In these cases it is necessary to identify the **reasons for the rejection** of the Programme.

In some cases it is simply a question that the action has been proposed at a moment when it does not coincide with the current needs of the potential participant.

In other cases there may be financial reasons which interfere with the process of acceptance.

In all cases, although the penetration of the Programme accomplishes expectations, it is necessary to know the reasons of those who have not accepted the proposals.

It is also necessary to analyse **the opinion of the non-participants regarding the programme content:**

- The mechanism of the programme.
- Involved products or services.
- Prices.
- Incentives.
- The participation of the market partners.

- **Knowledge of the possibilities of carrying out DSM actions:**
  - Prior knowledge.

- Contribution of the programme.
- Previous DSM actions.
- Future intentions to carry out DSM actions.
- Decisive criteria in the purchase decision process.

- **Suggestions for future actions.**
- **Attitude towards the programme organisers:**
  - Utility.
  - Market partners.
  - Others.

As in the previous case the habitual methodology used is that of telephone interviews with a representative sample of the target group which did not participate in the programme.

6.2.4. Opinion of the market partners

The market partners also constitute an important source of information which can be used to perfect the programmes.

This category includes all those groups which have contributed to the development of the programme:

- Manufacturers.
- Retailers.
- Installers.
- Entities.
- Others.

It is necessary to know the opinion of these groups regarding the **implementation procedure** of the programme.

Another important aspect related to their future participation is to know if the **business generated** by the programme has met their expectations.

In addition we should investigate:

- **The changes in market trends which have been initiated by the programme.**
- **The perception of the existing barriers to the acceptance of the programme.**

- **The real differences between the market prices and conditions and those generated by the programme.**
- **The perception of the attitudes of the target group:**
  - To the programme.
  - To the programme partners.
  - To the need for new installations in the house.
  - etc.
- **Suggestions for the improvement of the programmes.**

The methodology used to collect this data is the non directive personal interview.

6.2.5. Opinions of the Utility task-force

All these programmes assume that a certain number of persons from the Utility are involved part-time or full-time in the design and development of the projects.

This experience must not be lost and should be documented for future actions.

The whole content of the programme should be reviewed in depth with the people who developed it in order to eliminate the components which do not add value, to refine the action and to adjust the proper elements.

The aspects that should be analysed with the Utility personnel are:

- **Internal evaluation of the different phases of the programme.**
- **Perception of the deliberation process followed to decide on the participation in a DSM action.**
- **Perception of the performance of the Utility team itself.**
- **Perception of the behaviour of the market allies.**
- **Perception of the financial results.**
- **Perception of the impact of the programme on:**
  - The target group.
  - The market allies.

- Others.

- **Aspects that would be modified if the programme was to be repeated.**
- **Suggestions for future programmes.**

As in the previous case, this survey is conducted by non directive personal interviews.

7.-MARKETING ANALYSIS OF PREVIOUS DSM PROGRAMMES

7.- MARKETING ANALYSIS OF PREVIOUS DSM PROGRAMMES

7.1. - OBJECTIVE

One of the steps in the development of ANNEX V was the analysis of DSM programmes that were already carried out by the participating countries.

The objective of this analysis was to extract all possible information concerning marketing strategies and developments, used in DSM programmes which had been carried out in the participating countries prior to their incorporation to ANNEX V.

These DSM programmes compilation was expected to offer various types of interesting information to be used for the development of the common project such as: a) starting situation of the different participants in terms of marketing procedures, b) all the richness of information that the actual implementation of different DSM programmes carried out by different Utilities and Institutions in different countries, aiming at different objectives could give, c) to show the possible lack of information that could be interesting to compare with future projects.

7.2. - ANALYSIS RESULTS

In order to simplify the marketing analysis of the collected programmes, the received information was arranged following the structure of the questionnaires first developed as a part of the ANNEX V methodology.

Thirty two programmes were received from participating countries.

- Two questionnaires from Finland.
- Fifteen from Netherlands. These questionnaires were part of a report including seven programmes corresponding to electricity DSM actions, seven concerning gas and one which concerned both gas and electricity.
- Twelve questionnaires from Sweden.
- Three questionnaires from Spain.

The analysis of the programmes was made by grouping it in basic promotional concepts:

- Marketing of energy efficient products.
- Behavioural change.

- Utility image.

Although the information was not complete, the grouping of the programmes permitted to obtain a batch of interesting conclusions.

7.3. - SUMMARY OF CONCLUSIONS

The conclusions from the various programmes have been grouped together according to topics as follows:

a) Change of energy behavioural habits:

- Customers education has turned out to be a more important issue than it was previously thought.
- The results of this type of project when carried out on a large scale depends on its ability to change customer mentality concerning energy efficiency and its proper use.

b) Products

- Product characteristics should correspond to those advertised, over promises only increase non confidence.
- Some electrical appliances have space requirements that simply do not exist in a high percentage of theoretical target houses.

c) Market.

- Promotional actions may produce cumulative favourable changes in the market.
- If all the interested parties are not included in the programme, those excluded may become a source of negative publicity.
- Natural occasions to renew equipment should be taken advantage of.
- Neighbourhood associations may be good mouthpieces though their level of representation should be checked.
- In order to introduce structural changes in the building concepts of housing, planners and constructors should be consulted from the start.

d) Retailers

- Retailers are a very important group for the success of most DSM campaigns.

- They are in favour of the customer-flow generated by the Utility.
- They need information in order to explain the product to the customer.
- The changing of attitudes among retailers requires patience.
- Conflicts of interest sometimes occur between intermediaries and the Utility.
- The Utility should not alter relations between manufactures and the retailers or distributors.
- They seem not to have any objection to handle coupons or even products.

e) Promotion process

- When the programme is aimed at different segments of the market it is necessary to offer specific solutions/services for each segment.
- System simplicity is often more important than details.
- The system should be easy to administer, user-friendly and flexible.
- The timing of the promotion is vital for its success. Attention should be focused on the period in which customers need and are able to replace their domestic appliances.
- The introduction of an "extra" element in the promotion helps to motivate the customer.
- Storage management is complicated and expensive for the Utility.
- Incentive payments through the energy bill is cheap for the Utility.
- When the promotion involves a high initial investment, audits are a good way for approaching customers.
- When a programme lasts for a long time, usually it becomes necessary to modify the process while the programme is still being developed.
- Direct marketing is more expensive than advertising when the target group is broad.

f) Communication and motivation

- It is necessary to contact the right target group.
- The customer needs time to assimilate the information and take decisions.
- In order for DSM programmes to succeed it is necessary to make public aware of the programmes beforehand.

- Greater response was obtained when it was the Utility that personally invited the customer to participate in energy saving programmes rather than the Manufacturer. People trusts the Utility's technical expertise and have confidence in their suggestions.
- Energy saving is not always sufficient motivation for a programme to be accepted.
- The consumer is drawn to an efficient product more for its price (if it is the case) than for its technical innovation.
- Caring for the environment is becoming an important motivating factor although it is not a universal motivator yet.
- Personal contact is critical for convincing people to accept new technologies when those involve high initial investments.
- Small businesses are prepared to pay higher prices than the households for efficient products.
- When a programme is carried out over a number of years and customer participation is required throughout, the customers tend to lose interest because they think they have increased their knowledge to a sufficient level, and that they have taken all reasonable measures to make their use of energy more efficient.

h) Personnel needed to carry out actions.

- Agreements with programme actors require a lot of time.
- Timetables for visiting customers usually do not coincide with office hours.
- DSM programmes need someone dedicated exclusively to their management.
- In many cases personnel are required to inform the end-customer.

i) Utility´s image.

- The image of the Utility seems to improve when it actively pushes energy saving programmes.

7.4.- PREVIOUSLY ANALYSED PROGRAMMES

7.4. - PREVIOUSLY ANALYSED PROGRAMMES.

Marketing of energy efficient products				
Groups	**Name of programme**	**Origin**	**Utility**	**Energy**
Lighting	• CFL • Efficient Lighting • Discover your new light	Netherlands Spain Sweden	Not specified Iberdrola Uppsala Energy AB	Electricity
Refrigerators and Freezers	• Efficient refrigerators (NL) • Efficient refrigerators (S)	Netherlands Sweden	Not specified Malmö Energi AB	Electricity
Hot water and central heating	• Night water heating • Efficient water heating • Collective water heating and space heating • Heat pump • Reduction of peak demand	Sweden Sweden Sweden Sweden Sweden	Nacha Energi Energiverk Halmstad Energiverk Halmstad Göteborg Energi AB Göteborg Energi AB	Electricity
Alternative energies	• Pellet stoves	Sweden	Kils Energi AB	Electricity
Low-flow showerheads	• Low-flow showerheads	Netherlands	Not specified	Electricity
Point of sales actions	• Point of sale advise • Energy saving advice for retailers	Netherlands Netherlands	Not specified Not specified	Electricity
Commercial Sector	• Commercial sector pilot project	Spain	ENDESA	Electricity
Service Sector	• Variable Speed drives project	Spain	Iberdrola	Electricity
Gas assessment	• Double glazing • Solar water heater I • Solar water heater II • Energy saving advice	Netherlands Netherlands Netherlands Netherlands	Not specified Not specified Not specified Not specified	Gas

Behavioural change (Electricity)				
Groups	**Name of programme**	**Origin**	**Utility**	**Energy**
Domestic sector	• Energy Audits • Energy saving reward experiment • Behavioural change • Energy Team (S)	Finland Netherlands Netherlands Sweden	Rovakaira Oy Not specified Not specified Jämtkraft AB	Electricity
Services sector	• Fire Department • Snow Tariff • Efficient Energy Management	Sweden Sweden Sweden	Energiverken i Halmstad Malungs Elverk Jämtkraft AB	Electricity
All Sectors	• Feed-back information	Finland	Helsinki Energy	Electricity

Behavioural change (Gas)				
Groups	**Name of programme**	**Origin**	**Utility**	**Energy**
Domestic sector	• Go easy	Netherlands	Not specified	Gas

Improving the Utility image				
Groups	**Name of programme**	**Origin**	**Utility**	**Energy**
Image	• Energy-team (NL) • School power diary • INFOBUS	Netherlands Netherlands Netherlands	Not specified Not specified Not specified	Gas Gas/Electricity Gas

8.-ANNEX V: PILOT PROGRAMMES

8.- PILOT PROGRAMMES :

A basic objective of ANNEX V was the implementation of a set of DSM pilot programmes by the participating countries, aiming to check practically the benefits provided by the use of a common methodology and the international collaboration.

These programmes were developed by the Utilities of the participating countries, distributed as follows:

Finland:

- HÄME: “Marketing time of use tariff”.
- SAVO: “Avoiding network investments”.
- VATAJANKOSKI: “Service chain Development”.

Netherlands:

- NUON: “Buy energy efficient”.

Norway:

-STAVANGER / N.V.E. : “User-friendly energy bill”.

Spain:

- ENDESA: “Efficient lighting”.(DOMOLUZ)

Sweden:

- HALMSTAD: “Definitive invoice”.
- GÖTEBORG, BORLÄNGE, MALUNGS/NUTEK: “How can marketing of electrically efficient white goods be stimulated”.

Tanzania:

-TANESCO: “Power factor correction in Dar Es Salaam”.

In this chapter, a brief summary of the pilot programmes is presented with the following structure:

- ***Name of the programme.***
- ***Objectives.***
- ***Background.***
- ***Action description.***

8.1.-FINLAND: HÄME PILOT

8.1. - FINLAND: HÄME PILOT

❑ NAME OF THE PROGRAMME:

- **"Marketing Time of Use Tariff"**

❑ OBJECTIVES OF THE PROGRAMME:

a) To promote the use of ToU tariff.

b) To improve company image and customer loyalty.

❑ BACKGROUND

The utility Hämeen Sähkö (HS) enlarged its service area some time ago by purchasing the distribution network of Nokia area. In the past, ToU rates have not been available and thus the ratio between day and night time electricity use in this new area differs remarkably from that of the traditional service areas of HS. This is a consequence of the Utility's deliberate use of ToU rates. Based on a comparison of these electricity use patterns it can be stated that the price has had a clear effect on the electricity demand in the long run.

The objective of the project was to use price as a means to influence electricity demand in such a way that customer benefits from cheaper night time electricity use and the supplier benefits from decreased power purchase costs.

The target group consisted of all customers in the new service area having direct resistance heating systems.

In the ToU rate marketing the aspects of environment were stressed. The point was to emphasise the fact that individual actions have impacts also on national and even global levels.

A full time responsible for implementing the project worked for it from the beginning of September until the end of the year, preparing for each customer an individual comparison of electricity costs between different tariff options.

❑ ACTION DESCRIPTION

To bring this change into the homes, different types of marketing activities were used.

The main activity was a mailing to all the customers in this area. They received at least two letters in which they were provided with an individual study of the economical benefits they could obtain by changing their current tariff.

Once the customers had received the letter, they could call the Utility or the Utility could get in touch with him.

Various external contractors were selected and trained especially for this programme. Their job was to visit the homes and plan the new installations in those cases where it was necessary.

In the majority of cases it was the Utility which got in contact with the customer after the letter was received.

The customers who participated in the programme not only achieved the change of tariff but were also eligible to receive a new meter.

At the same time as the programme was being carried out, two market research studies and one customer analysis study were also made.

8.2.-FINLAND: SAVO PILOT

8.2. - FINLAND: SAVO PILOT

❑ NAME OF THE PROGRAMME:

- **"Avoiding network investments".**

❑ OBJECTIVES OF THE PROGRAMME:

a) To postpone or avoid a network investment by using marketing methods.

b) To develop new energy services for household customers.

❑ BACKGROUND

At present the electricity demand of the target area can be met without problems but there could be not much room for increases in electricity consumption. In addition, the back-up connection to the area was not strong enough to meet the peak demand in case the normal main supply fails. The objective of the project was to outline those models of implementation that are in the Utility's disposal for carrying out a focused energy efficiency marketing to postpone a network investment. Utility: Savon Voima.

❑ ACTION DESCRIPTION

The market consisted of all the customers in the specific network area. The group divided naturally into two parts according to the amount of energy use: one large customer, and small customers belonging to household and agriculture sectors. For the large customer the Utility suggested a thorough energy audit to be carried out to find and assess all the relevant measures available to, firstly, reduce the customer's energy bill and, secondly, to address the supply security. For the small customers there were two different lines to go: In the farming sector the Utility planed to carry out a project, in co-operation with an insurance company, focusing both on security inspection of the electric appliances and energy in general. For the households a sauna stove program seemed an attractive project to start with.

After a thorough consideration of different possibilities to implement the project it was decided that concentrating on the large customer in the first phase would be the most promising way to strive for the project objectives. After finding out the outcome of this first part it was possible to set clearly defined goals for the changes in the local load curve for the DSM projects to be commenced in the farming and households sectors.

8.3.-FINLAND: VATAJANKOSKI PILOT

8.3. - FINLAND: VATAJANKOSKI PILOT

❑ NAME OF THE PROGRAMME:

- **" Service Chain Development".**

❑ OBJECTIVES OF THE PROGRAMME:

a) To develop energy efficiency services for household customers.

b) To give more information about energy efficiency.

c) To increase customer loyalty.

❑ BACKGROUND:

This programme was aimed at 100% of the homes in an area of the utility Vatajankosken Sähkö. In the main, these were homes in rural areas, of elderly people, middle class, conservative, traditional and critical with new ideas.

In general the programme was initially directed at all households in the area although, later, it concentrated on housewives with small children and other women who stayed at home with young children.

These were mainly single family houses because most of the people lived in this type of dwelling.

The Utility wanted to offer the maximum possible information to the maximum number of customers. It was believed that, for this purpose, a good approach would be the use of Open Doors sessions. These were in fact used as the principal mean of communication in the programme. Open Doors sessions were held in six different locations in the area served by the Utility. The customers were personally invited by means of a letter.

They were also offered the chance to have a PC programme for consumption analysis as well as the possibility of a kwh meter installed in their homes.

A copy of the Utility Annual Report was also sent to the customer containing articles which mention the new services.

As part of this policy of receptivity, all the primary schools in the area were visited. Such visits were also used in another Finnish Programme that has been analysed ("Marketing Time of Use Tariff"). This activity was important because the children were trained and taught about the efficient use of energy and the different forms of achieving energy conservation.

The Utility played the main role in this programme although the contractors, a market research company and an advertising agency also participated.

The Government provided some financial help through VTT not directly through the Utility.

❑ ACTION DESCRIPTION:

The structure of the service chain was as it follows:

- Implement analysis of energy use. Immediate answer (typically during a telephone call) for a customer based on only a few questions and a computer programme. This stage intended to classify the customer's energy use into one of the three classes: less than, about the same as or more than the average consumption of the consumer group the customer belongs to .
- More thorough analysis of energy use. This analysis was based on more detailed and numerous questions proposed to the customer in a questionnaire. The analysis was carried out by a special computer program.
- Deep and detailed discussions on available options to increase energy efficiency. Possibly also metered data acquisition.
- Energy audit.
- An implementation plan for increasing energy efficiency.
- Monitoring.

After each stage the possibilities and motivation of the customer to go on to the next stage of the analysis were contemplated.

During the campaign two market surveys were carried out simultaneously.

8.4.-NETHERLANDS: NUON PILOT.

8.4. - NETHERLANDS: NUON PILOT

❑ NAME OF THE PROGRAMME:

- **"Buy energy efficient"**

❑ OBJECTIVES OF THE PROGRAMME:

a) To increase the percentage of efficient energy appliances sold.

b) To increase awareness about tariff choices.

❑ BACKGROUND:

The reason why NUON decided to carry out this action was that all the programmes they had implemented in recent years had been aimed at educating the customer to conserve energy, and to use it more efficiently. This objective had been practically achieved. That is, the behaviour and attitude of the consumers with respect to the efficient use and conservation of energy was positive at the time of the decision. Therefore it was then necessary to concentrate on the point of sale of the appliances to make the retailers take part actively in the customers efficient white goods purchasing action. Households that buy white goods make their choice based on design and functional criterion and the retailers have no incentive to sell appliances that are more energy efficient. For practical reasons, NUON decided to limit the action to the Domestic Sector only.

The Dutch programme covered by this analysis was carried out by the NUON Utility. It was a pilot programme limited to the area supplied by this Utility (14% of the national total). The rest of the Netherlands was used as the control area.

❑ ACTION DESCRIPTION

To start, different workshops were organised for the retailers who wanted to participate in the programme. The objective was to inform and train them and thus achieve their most active participation. In this way, retailers became fully involved in the programme. Logically, the success of the programme depended completely on the participation of the retailers and so, this initial step was of great importance.

As a promotional incentive people who purchased A and B appliances received a card. If they sent the card they could participate in a lottery which prize was the price of the appliances they bought.

Informative brochures were prepared and placed on the counters at the points of sale so that the customers could pick them up.

A T.V. national campaign was carried out and financed by the National Association of Electric Utilities. This consisted of a TV entertainment show involving candid cameras, retailers, known people, etc. with the aim of increasing awareness of energy efficiency labels.

8.5.-NORWAY: STAVANGER / N.V.E. PILOT

8.5. - NORWAY: STAVANGER / N.V.E. PILOT

❑ NAME OF THE PROGRAMME:

- **"User - friendly energy bill".**

❑ OBJECTIVES OF THE PROGRAMME:

a) To provide more accurate information on electricity consumption.

b) To establish and maintain better relations with customers

c) To reduce energy use.

❑ BACKGROUND

This programme starts from the results achieved by a three year project carried out by Ressurskonsult (1989) on a large sample of households in Oslo and Helsinki.

Results from this project, revealed that a properly developed new bill in terms of consumption information and in costs, could produce average savings of up to 10% of electricity per household, in the domestic sector.

In 1995, NVE decided to offer the sponsoring and led a project aiming to implement in the market the lessons learned from this "user-friendly bill" experience, to all Utilities interested on it.

The project was based on that a better informed consumer will be more likely to conserve energy when appropriate.

In Norway, the "invoice" type billing systems still predominate. The most common system is to invoice three times a year for an amount corresponding to one fourth of the previous year consumption, then send a fourth bill which corrects for differences between the total invoiced sum and actual costs for the year. That way, consumers are only confronted with their actual consumption and costs once a year. The project aims for introducing feedback information within the bills by including a) greater frequency of billing for actual consumption, (every 60 days), b) a graphical presentation which provides trends in consumption in the previous and current years, c) clear messages on energy conservation, tariffs, and the new electricity market.

❑ ACTION DESCRIPTION

The project was carried out in three phases.

During the period going from March to June of 1995, routines for 60 days billing of actual consumption were developed.

This consisted of a self-reading card, and information for customers on how to use it. In parallel, a questionnaire was sent to a sample of participating households in order to establish a prior baseline of their attitudes towards billing and energy conservation, as well as the level of awareness surrounding energy use and costs.

In a second phase (July 1995-1996), participants were receiving bills every 60 days for actual consumption. Routines were developed for producing the monthly comparative consumption graphics and the design and lay out of the new bill were developed.

From August to December 1996 the selected sample of participant households received their new 60 day bills with the electricity consumption comparative graphic. After two billing periods, the previous questionnaire was sent again to measure changes in attitudes produced by the new billing system.

Although initially this programme was subscribed by four Utilities, three of them were withdrawn from the project being Stavanger the only one completing it up to the end.

8.6.-SPAIN: ENDESA PILOT

8.6. - SPAIN: ENDESA PILOT

❑ NAME OF THE PROGRAMME:

- **" Efficient lighting (DOMOLUZ) ".**

❑ OBJECTIVES OF THE PROGRAMME:

a) To measure the acceptance of the Utilities as efficiency prescriptors.

b) To check the response rate of different end-users typologies.

c) To test different marketing approaches to various residential market segments.

❑ BACKGROUND:

The development of this programme was based on the results of various end-user surveys made by the ENDESA Group. These revealed a lack of knowledge regarding the possibility of reducing electricity consumption without sacrificing comfort or quality of life, as well as indifference to energy conservation. For this reason the companies of the ENDESA Group, when they were considering the management of the Energy Conservation programme promoted by the Ministry of Industry and Energy (MINER) , looked for an approach which would provide both information and heighten awareness, in order to ensure the achievement of the general efficiency goals that were established.

The programme was implemented in such a way that the consumer reaction to different methods of contact could be compared.

Consequently the information gathered could permit to optimise the design of future DSM programmes.

❑ ACTION DESCRIPTION

The DOMOLUZ programme was aimed to introduce electronic CFLs to domestic customers.

The customers were first divided into types based on their propensity to consume. The results obtained in an earlier pre-test were considered to verify the different behaviour patterns of the various Typologies.

An advertising campaign was carried out, aimed at all the domestic customers. At the same time a specific mailing was sent to the concrete Typologies which

emerged as target group in the previous pre-test and to a significant sample of the rest of the domestic customers.

This selection criteria aimed to give priority to those segments of the population which were likely to have a better response rate based on their acceptance of the product and their purchasing power.

There were two types of results expected from the communication campaign:

- A request for information received from the domestic customers who were motivated by the advertising campaign. A mailing was sent to these customers.
- Some request for additional information coming from the customers who had already received the mailing or the flyer.

The promotional action consisted in offering the customer an amount of cash as a subside for the purchase of the CFLs within the allowed period of time.

The subside was paid after the purchase , against presentation of the corresponding receipt as proof of purchase.

The cash value of this subside was chosen to be interesting enough to act as a suitable incentive for the purchase decision by the customer.

8.7.-SWEDEN: HALMSTAD PILOT.

8.7. - SWEDEN: HALMSTAD PILOT

❑ NAME OF THE PROGRAMME:

- **"Definitive invoice".**

❑ OBJECTIVES OF THE PROGRAMME:

a) To increase the frequency of meter reading.

b) To reduce energy use.

❑ BACKGROUND:

This programme increases the frequency of meter reading in homes. This is a pilot programme carried out in a district of a town located in the south of Sweden called Halmstad. The district represents 1% (in kwh) of the Utility total market.

Traditionally, in Sweden, the consumption of electricity is estimated up to eleven times a year and real values are only read once a year. Thus, customers cannot see the results of their energy efficiency in less than a year. This project arranges for the customer to be billed six times a year with 4 real readings. The customer reads the meter and then sends the reading in by phone (free call).

They receive a self-reading card as a reminder.

One of the reason for this project was the positive results of a similar project carried out in Norway (on a bigger scale) because of the consumer behaviours in Sweden and Norway are quite similar. In the Norwegian case, the results of this project was that the customers saved 10% of energy per year on average.

❑ ACTION DESCRIPTION

The Utility selected a district in Halmstad with houses that were heated with electricity. These houses were built in the sixties and many of them have an alternative way of heating such as a stove. In many cases, only two people live in these houses because children have moved out, and the size of them were approximately 120 square meters.

Once the Utility chose the district in which it would offer the "Definitive invoice" service, a personalised letter was sent to all customers living in the area. These letters contained an explanation of the action, the self-reading card and the procedure to use it. A specific calculation on how much they could save in terms

of money and energy was included to encourage the customers to follow the programme.

Statistics from customer information systems, with current consumption and prices were also included in the mailing.

The utility sent 313 letters and out of them 126 customers (40%) accepted the offer. During the project period none of the customers quitted the project.

The project which started in September 1995 was expected to be finished by December 1997.

8.8.-SWEDEN: GÖTEBORG, BORLÄNGE, MALUNGS AND NUTEK PILOT

8.8. - SWEDEN: GÖTEBORG, BORLÄNGE, MALUNGS AND NUTEK PILOT

❑ NAME OF THE PROGRAMME:

- **" How can marketing of electrically efficient white goods be stimulated ".**

❑ OBJECTIVES OF THE PROGRAMME:

a) To increase the market share of energy efficient white goods in the apartment building sector.

b) To increase the single-family house owners acceptance of electrically efficient white goods.

❑ BACKGROUND

NUTEK'S Department of Energy Efficiency promotes for reducing the electricity use in Sweden.

The Residential and Service sectors accounts for a 51% of the total country's electricity use. Of this, the Domestic sector amounts a 24%.

Within this sector, it is food storage which offers the greatest potential for saving because , in Sweden, this end-use accounts for a 24% of the total Domestic electricity use.

In April 1990 NUTEK , together with the Swedish National Board for Consumer Policies, and representatives for 25% of apartment block administrators, formed a purchase group and announced a tender competition for manufacturers of combined refrigerator/freezer units based on the following conditions: a) Only those units which used less than 1.0 kwh/litre and year would qualify to be evaluated b) An additional reward was promised to the manufacturers which could go below 0.9 kwh/ /litre and year c) Other requirements, for environmental features, primarily in the replacement of freon in insulation and as a cooling agent.

The winner manufacturer was allowed to sell the first delivery batch to the purchase group.

By the end of 1993 NUTEK initiated a campaign for marketing energy efficient products under the name of El Off Strömsnål. The objective was to help

consumers to find the most energy efficient products in the market by establishing certain specification in terms of efficiency, environment care etc. to be fulfilled by the products which wanted to be in the El Off list. This list was a voluntary marketing instrument at a free cost for manufacturers and retailers.

All these actions resulted in new models, with greatly improved electrical efficiencies appearing in the market. Such models make up 34% of those available, but their market share was only 8.5% . The reason of that seemed to be the higher price and the lower internal volume of these efficient models in comparison with the "ordinary" ones.

The objective of this programme has been to obtain a picture of the procedures and paths for the purchase of white goods for apartment building and owners of single-family houses, to make them to increase their acceptance of electrically efficient white goods.

❑ ACTION DESCRIPTION

The action intended to continue with the on going programme in order to achieve a higher level of knowledge and a greater acceptance in the market of the efficient appliances.

In order to counteract the price difference problems, incentive agreements were developed. The agreements were a decentralised way of technology procurement agreed between NUTEK and industrial companies, property companies and energy utilities.

Those signing these agreements undertook to purchase equipment and services in accordance with the performance requirements. If such a purchase was more expensive than would otherwise have been the case, NUTEK would give a certain predetermined subsidy towards the difference.

Due to the fact that retailers are probably the main source of information for consumers thinking of buying white goods, a plan was developed aimed at ensuring that the retailers personnel who sell these products, were fully aware of all facts related to energy use.

The sales staff of the El Off Strömsnål retailers group, had to attend a brief training session where they were told about energy, environment and how information on the most electrically efficient products can be used as sales arguments. The shops were given free display materials showing they sold the most efficient white goods available in the market.

Other important support measures related to the programme were media output, exhibitions and trade fairs, seminars and information in different printed forms.

Various surveys were conducted on retailers, consumers and actors from the apartment sector in order to clarify on which factors the different groups gave

priority to when purchasing white products, when they look for information prior to purchasing, and to measure familiarity with the El Off Strömsnål campaign and the obligatory EU labelling system.

8.9.-TANZANIA: TANESCO PILOT

8.9. - TANZANIA: TANESCO PILOT

❑ NAME OF THE PROGRAMME:

- **"Power factor correction in Dar Es Salaam".**

❑ OBJECTIVES OF THE PROGRAMME:

a) Rejuvenate power factor penalty.

b) Improve power factor of large customer premises.

c) Reduce load demand and load shedding.

❑ BACKGROUND

This is the only participant who established a pilot for the Commercial, Industrial and Agricultural Sectors. This pilot project aimed to reduce load demand and load shedding and to improve the power factor of large consumer premises. There was a test in Dar Es Salaam city and it was also extended to the Dar Es Salaam region. The main problems of Tanesco, the national utility in Tanzania, were, a) capacity shortage responsible for load shedding, b) some of the distribution network was overloaded and c) cost of servicing peak power was very expensive. It was important to promote load shifting to get peak clipping.

Other reasons for implementing the programme were to increase Tanesco public image and to provide better quality of service.

The quantitative objective was to get a power factor of large consumers better than 0.9 so it was necessary to rejuvenate the power factor penalty to raise interest in investing in power factor correction equipment.

❑ ACTION DESCRIPTION

To start the programme it was very important to know the actual condition of the consumer premises and their power factor, to establish the best strategy in terms of tariffs reforms and credit facilities.

For it several actions were executed:

- Initially (May-December 1993) a questionnaire to promote interest in power factor correction among large consumers in Dar Es Salaam was distributed. The questionnaire required consumers to fill in their monthly capacity and

energy use in the previous 2 years. Many of them had to be assisted in filling in the questionnaires.

- Energy audits of selected 25 consumers was done during February 1994 to March 1995. The energy conservation opportunities identified could produce savings of the order of 37 Gwh per year and capacity savings of 12 Mw. Power factor correction was responsible for 50% of the capacity savings alone.
- A one day seminar was held in March 1995 to discuss the findings of the energy audits with various customers. The seminar stimulated a lot of interest for energy conservation, including power factor correction amongst the 110 customers who attended it.
- During July through December 1996 walk through audits were done to 50 large consumers in Dar Es Salaam. The findings were that 17 customers had high power factor and the rest had poor power factor.
- A simple questionnaire was given to all of them seeking their written commitment to implement power factor correction with credit facilities from a proposed revolving fund.
- In general , awareness has considerably improved following the seminar and there are arrangements for the establishment of a revolving fund with the World Bank support.
- Tanesco played the main role in the project but it was also helped by manufactures, consultants, contractors and customers associations (Confederation of Industries and Trades) which also participated in the programme as well as the Government through the Department of Energy and Industry.

9.- LESSONS LEARNED AND CONCLUSIONS

9.- LESSONS LEARNED AND CONCLUSIONS

This section summarises the different aspects referring to Suppliers, Markets, and Consumers identified during the development of ANNEX V, which has brought the opportunity of analysing, 41 DSM programmes from a marketing point of view.

During the period of development of the activities of ANNEX V , several workshops were held.

The objective was to establish discussions on various aspects related to the possible implications of the pilot programmes of each participant in the market, consumers, trade allies, communication etc., aiming to overturn all expertise of the group in the implementation of the programmes.

This summary includes also the main issues which arose from these workshops.

The lessons learned aim to be a worthy help for the implementation of future DSM actions in the market.

For an easier understanding of the topics, information has been parcelled by areas, following the different aspects of the marketing chain:

- **- UTILITIES, GOVERNMENTS AND INSTITUTIONS.**
- **- CUSTOMER.**
- **- CONSUMPTION HABITS**
- **- PURCHASING PROCESS**
- **- DSM AS A SERVICE.**
- **- T.O.U. TARIFF AS A SERVICE.**

9.1. - UTILITIES, GOVERNMENTS AND INSTITUTIONS

- In a deregulated market, prices may drop but there is a point at which no relevant reductions can occur unless there is a technological advance. Prices of the different Utilities gradually come closer. At that moment, services will make the difference.
- The customer reactions encountered in the roll-on of the DSM programmes in the different countries had been basically the same by Utilities and by sectors, products and services. It is therefore of value to follow and learn from other's experiences.

- Marketing stimuli act in a special way in the energetic market (communication media etc.) probably due to the fact that benefits from an efficient use of the electricity are not currently so obvious for customers.
- A programme should be in the market long enough to ensure the message is well known by all target customers and they have sufficient time to make decisions on it.
- The DSM campaigns produce a cumulative long term effect that can imply a need for less intense communication in the future.
- An accurate selection of the target groups is basic for the success of the programme in terms of response rate and in terms of internal and external costs.
- A correct selection of the implementation period of an action, has a very important weight in the response rate of target groups.
- The design of clear layouts and simple presentation for all printed communication to customers is a very important element to consider regarding the success.
- Mailing response increases when the strategy considers the profile of the target group and when the mail is personalised.
- The description of the programme follow-up systems and the establishment of clear final results, should constitute a must as the end of the evaluation process.
- Quantitative and Qualitative objectives should be established before carrying out the programmes in order to be able to measure results. These may be saved Gwh, sold units, reached customers, attitude changes etc.
- When a programme which involves economic incentives has been prepared, special attention should be given to the payment method of those incentives. It should be very simple from the point of view of customers and also for the Utility analysis of results.
- Although some qualitative aspects are difficult to evaluate, the ratio cost/effectiveness of the programmes should be analysed in detail.
- It is important to distinguish between trade allies (intermediaries used to carry out the programme) and co-sponsors (people or Institutions that provide funds to carry out the programme). In the case of trade allies, it is necessary to have an agreement of participation defined in detail.
- To build and to make a continuos update of the customer database, provides interesting information to define present and clonic target groups for future actions in the market.

9.2. - THE CUSTOMER

- Most customers seem to be very interested in energy efficiency programmes when they are talked about them, but the reality is they do not act like that when needed.
- The majority of the customers do not have a clear idea of their consumption patterns or trends compared to previous years or months.
- A better informed consumer will be more likely to conserve energy when appropriate.
- In general the cost of electricity is a rather small item in the budget for the majority of households, with the exception of households with electric space heating. This implies that the economic incentives are relatively weak. Environmental factors and resource conservation seem to start being important incentives.
- For customers the basic aspect is not the price of electricity but the cost of use.
- The problem of cost depends on the specific way in which energy is used as there are always more efficient applications. If customers are aware of this, they behave in a more efficient way in order to reduce cost.
- Electricity users are not clearly aware of their consumption and also how it should be possible to get a clear idea of what they are using.
- Saving opportunities deriving from a more adequate use of household electrical appliances are not sufficiently known.
- Small customers should not be considered less important. As individual customers may form groups to gain weight in the system.
- Household customers prefer individualised information. The closer the activity is to the customer, the higher is his interest in participating.
- The image of the Utility increases among the customers that participate in efficiency programmes led by the Utility. This situation is not the same with the rest of customers that knew about the programme.

9.3. - CONSUMPTION HABITS

- Consumption habits are not so conditioned by the appliance as by general life-style habits. In other words, these general habits condition the habits of using the electrical appliances.
- This approach requires knowledge of the clients general behavioural habits.
- It is thought that it will be easier to change these habits by acting on customers that are in the process of a new appliance purchase, than doing so among those who have already acquired such habits through the use of a particular appliance.
- Thus it is considered that programmes concerning new families, families changing houses or growing families can get better results.
- When considering how to modify the purchase process, a distinction should be made between replacement purchases and those purchases that imply some kind of novelty.

9.4. - THE PURCHASING PROCESS

- Firstly, an attempt should be made to affect the purchase decision process to consider energy efficiency. Secondly, the objective would be to achieve behavioural changes in the use of appliances, in order to get a positive result in the customer electricity bill reduction.
- The energy label can give information about the appliances' degree of efficiency and how to achieve it. This additional information, makes the user aware that there are two options of use for each reference. These will allow the user to choose the option that best suits him.
- In some occasions, the manufacturer does not inform the client correctly on product efficiency characteristics, and the latter is confused by the new method of operation and believes that this is incorrect.
- In this sense it would be necessary to consider automatic appliances which would help to change habits and which would make a change in behaviour extremely simple.
- It is important to point out that if efficient products do not give a larger commercial margin, then manufacturers and/or retailers will not be specially interested in selling them.

- The question is who influences more the purchasing process, whether it is the manufacturer or the distributor. It has been pointed out that, the process from the manufacturer to the sale lies in the hands of the distribution chain.
- The retailer is a vital part of the purchase decision process. The customer does not always find what he has in mind at the point-of-sale. From this point on, it is the retailer who assumes the major role in the decision process. Thus it will be vital to include the retailer in programmes dealing with efficient appliances in order to modify purchasers' behaviour.
- In principle retailers do not believe they will obtain any additional short-term benefit by promoting electrical efficient appliances. Through specific training they realise that expertise in efficiency increases the confidence of their own clients and through it, their sales.
- When retailers are invited to collaborate as market allies in a promotional programme, they accept in the majority of cases.
- Innovative credit facilities and implementation arrangements may be catalytic in the DSM of less advantaged markets/economies in the World.

9.5. - DSM AS A SERVICE

- Competition will produce a transparent market in the short or medium term.
- Utilities which only generate energy are less concerned about DSM than those which also provide the distribution. The latter have a closer relationship with their customers and want to offer them help and assistance to keep their share in the market.
- If utilities do not work with DSM, someone in the market will. DSM may be carried out based on public structures or on other market agents.
- Only when the price is the same, other services can determine customer choice.
- If other services such as DSM are added to the market, what reduces the amount of electrical energy necessary to obtain the same level of comfort, to some extent the action is also being applied to the price.
- At the end, DSM and price are aspects of a single solution: lowering costs.
- DSM actions can be taken but they either have to generate profits for the Utility to support the investment, or the money has to be provided by market allies. Otherwise it would be the customers that have to foot the bill.

- This means that perhaps only the least expensive DSM actions can be taken by Utilities and this would only lead to small energy savings.
- There are another series of values that can be added to efficiency. One, such as social health, can be related to environmental aspects.

9.6. - T.O.U. TARIFF AS A SERVICE

- It is thought that transmitting the T.O.U. message to individuals who are familiarising themselves with an appliance for the first time and who do not have previously acquired habits, is an especially appropriate opportunity to make them aware of the low tariff. In this case, it does not mean a change of habit.
- Thus, the idea should be to inform all buyers of a new appliance of the advantages of using the low tariff.
- The appliances label which include additional information of energy cost during peak and valley hours gives the retailer the opportunity to explain the client the advantages of changing habits.
- Other point of view is that what is important is to underline the cost difference when using appliances at different times, and that it is not necessary to link this information with the efficiency label.

10.- DEREGULATION AND DSM

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10.1. - THE DEREGULATION.

The "deregulation movement" that is affecting all participant markets, although in a different way, has been a fructiferous element of discussion which has repeatedly appeared as a background during the development work of ANNEX V.

It is clear that deregulation has had, is having and will have implications in the DSM strategies.

The way to take advantages of it, and who is responsible for DSM implementation within a competitive market is something that provokes agreements and differences, although it has not affected the selection and development of the pilot programmes of the project.

Here the ideas presented by some Participants on this subject are compiled. Mostly they have been taken from the Working Plans for Annex V presented by Finland and Sweden in 1995. Reference (4).

10.2. - DSM IN A COMPETITIVE MARKET: A GENERAL VIEW

Since Governments are committed to introduce competition in the electricity sector, in order to achieve a more efficient electric Utility industry, there is much ambiguity surrounding how to take advantage of cost effective customer DSM and energy efficiency services options that exist in the marketplace. Establishing a more competitive electric Utility industry and introducing DSM and energy efficiency services in the market need not be mutually exclusive objectives. A clarification of this issue can prevent a potential delay of the growth of a whole new energy service industry.

The conditions for DSM, in the sense of making energy use more efficient, changes completely as a result of the transition to a competitive market. During the monopolistic era, public own and even private Utilities were able to promote

DSM as a part of a social responsibility and the cost for different DSM activities could easily be covered by increased tariff rates.

Various regulation types have altered the balance between public policy and Utility corporate objectives, by creating incentives and options for Utilities to recover costs involved with performing customers DSM and energy efficiency services programmes.

In a competitive energy market, Utilities should not be the actors to take on the whole social responsibility.

Experience with similar restructuring markets elsewhere has indicated that Utilities need to have a competitive unit electricity price (per kwh), and reduce own costs to best possible meet this price. In a transition towards a mature competitive market, most attention will be paid towards offering a low price per kwh, and it is assumed that price is the most important (or only) component when customers are selecting between different suppliers. In a mature energy market it is likely that customers will demand a larger spectre of services, in addition to a competitive price of electricity (kwh).

In particular, it is necessary to separate between the following two main objectives for doing DSM and energy efficiency services programmes.

- **Public policy objectives:** DSM and energy efficiency services programmes performed to achieve public policy objectives. Such objectives can be: reducing environmental damage, increase overall energy system efficiency, etc.

- **Corporate competitive strategy:** DSM and energy efficiency services programmes performed to achieve Utility competitive corporate objectives. These can include decrease of cost of supply, increase the utilisation of assets, market positioning, capturing/retaining customers, establish profits from new business area (energy services), public relations, etc.

Where Governments have chosen to restructure the industry and to use competitive forces to achieve an economically efficient Utility industry, it is no longer clear that the Utility industry should be the choice for implementing DSM and energy efficiency services as a public policy. There will be a strong commercial profit motive within the industry, broad social objectives are likely to have less influence, and non-commercial involvement in promoting end-use efficiency is unlikely to be sustained.

It is therefore critical to establish a clear understanding, of why DSM and energy efficiency services programmes are performed, as well as discussing

how and by whom these programs best should be performed. Without establishing such an understanding, potential efficiency gains from the restructuring process can be lost.

Over the last decades we have seen a number of markets such as telecommunications, banking, air transportation, energy, etc. experience a transition from a regulated environment to a less regulated or competitive environment. A common feature has been the evolution of value adding services as a means for the competing actors to strengthen their position and increase their market share.

For suppliers who want to survive on a competitive electricity market, the main goal must be to keep all customers who contribute to the profit and, if possible, to increase the market share if it improves the profit. Energy suppliers are in an opportune position to accomplish this task. They have an ongoing business relationship with customers in a way that can enhance the customer's competitive position.

In a competitive market, electricity conservation and DSM activities should become a purely commercial venture, without subsides from society. Exceptions can be justified for information and advice to customers if the competitiveness does not permit these efforts to be financed collectively through tariffs. Probably, there also must be some incentives to stimulate the DSM evolution and push the conservation process forward administratively. Innovative procurement of energy efficient appliances and equipment as a means to accelerate the development may require a social support as well.

One way and probably the best way to promote DSM under these conditions can be to make DSM an integrated part of energy service . It involves an opportunity for the service supplier to take the initiative and make an offer to the customer on taking DSM measures in his facility.

The key to success for individual suppliers may be their ability to find and introduce customer demanded energy services which e.g. may imply offers of efficient lighting, indoor climate, hot water etc., apart from advising and electricity. Within the framework for such energy service, it is possible to accomplish energy efficiency improvements in co-operation between customer and supplier. Of course there will still be customers in the market who want low priced energy and nothing else.

From a utility business point of view, profit reduction from reduced energy sales could be compensated by a marginal profit coming from the offered energy services (directly or in collaboration with trade allies) or by some kind of official support (i.e. a small part of the energy tax funds) designed and developed by a neutral fashion so as not to influence the competition.

11.- CONCLUSIONS ON THE PROJECT METHODOLOGIES

11.- CONCLUSIONS ON THE PROJECT METHODOLOGIES

11.1. - PROJECT METHODOLOGY

As a general conclusion it can be said that it is possible and efficient to transfer experiences from a country to another within the DSM marketing. Through the development and use of a common methodology, it was easier to share knowledge and experiences because all members of ANNEX V were referring to the same when a specific matter was under discussion.

One of the most remarkable features of the project has been that Participants put their projects on the table for discussion. They did that before, during and after project implementation. Participants discussed each other's project. Eventually this led to modifications in the pilots.

This live interchange of information has been richer due to the diversity of the Participants. As they came from different socio-economic, cultural and regulatory environments they approached the problems and discussions from different backgrounds what produced an additional wealth of results.

Of course this is a feature of all international co-operative projects. However in this case there had been expressed some doubts about diversity being an advantage for a marketing project. As marketing tries to influence people, and people react so differently in different places, it was said, it is very difficult or even useless to compare methods and results in different places. Annex V has mostly worked with residential customers and it has shown that these assertions are the consequence of a light analysis: at the end all customers react alike if one makes abstraction of the effects of the particular items of their environment.

Participants liked the way of working and of exchanging information. They think that this methodology is worth while to be pursued in the future.

However there is a consideration that has to be made. The sharing of information in the Annex has included data about customers, about marketing actions and about their results. Of course, all these are items that are very important to have good marketing results, but they are also items that companies hide carefully in a competitive environment. During the development of the Annex some Participants joined the competitive market and others were about to join it. Some of them showed concern about their competitors in their country to know about the results of Annex V, but, apparently, they did not care about other utilities from other countries to know such results. If international electricity competition continues developing, there may happen that another project similar to Annex V cannot be developed in the future.

Anyway, this does not mean that an international co-operative project about DSM marketing cannot be done in the future, even with international competition. Other very competitive markets, like automobiles or white-goods, do marketing co-operative projects in the field of market research. In these cases the rules-of-the game for information exchange are well established since the beginning. That was not the case in Annex V when it started in 1993 and most Participants still had their minds in the old monopolistic market.

11.2. - MARKETING METHODOLOGY

ANNEX V marketing methodology was developed in a way that permitted to go deep into the different phases of a promotional activity up to the level that each participant country considered necessary or appropriate given their particular circumstances.

Basically all programmes had followed the structure of the agreed methodology. The markets have been analysed, from this a set of problems/opportunities emerged, implications to or from a customer point of view were studied and based on all that, promotional mechanics were developed and results were obtained from running the actions in the market.

The differences between the way different participants have followed the methodology had more to do with the degree of fulfilment of the stages proposed in the methodology, than with the global concept itself, which has been in fact, the programme guidelines for all participants.

Diverse reasons made unequal the implication of the participant countries with the strict application of the agreed methodology:

- The methodology was designed to contemplate a wide range of possibilities to cover almost all possible activities that participants could propose. The reality has shown that with some exceptions, the pilot programmes were somehow the follow-up of prior experiences with their own marketing strategy which was adapted, when possible, to the common methodology.
- The personnel, financial and timing needs for the complete development of the methodology, were difficult to satisfy considering that not all participants joined the project at the beginning. Also the size of some market of the participant Utilities probably does not justify a high marketing investment for their efficiency programmes.
- The situation of the markets in terms of progress to liberalisation affected to some extent the particular strategic priorities of some of the participants Utilities from the point of view of a short term keeping of current customers.

- The BMU market segmentation is appropriated when the promotional action is directed to a large number of heterogeneous customers and there is not enough individual information. Actions targeting limited groups of customers do not need any kind of additional segmentation when the knowledge about the customer shows a clear coincidence between the objective of the programme and the expected receptivity of the individuals.

11.3. - PROJECT COMMON TOOLS

At different moments of the Annex development, several items were agreed by the Participants to be used as common tools for all their pilot projects. They are the Questionnaire, the Action Plans and the Framework for Evaluation Areas.

They have been three very useful tools which allowed an easy homogenisation and comparison of the actions resulting data, being used as a unique reference for the analysis of the different programmes and their final evaluation.

At some time, some Participants considered that the Questionnaire was too detailed and perhaps too complicated to fill in. That could be true for very simple projects or for old projects for which data is seldom available. But the fact is that it is a very comprehensive element that can analyse very different types of programmes and includes marketing and economic items that are forgotten by other data collection instruments. It is an easy guideline for evaluation data and even to describe or present a programme.

The other two tools: the Action Plan and the Framework for Evaluation Areas are mainly dedicated to the programme development itself.

The Action Plan should be used as a working book during the process development.

Of course, all pilot projects developed in Annex V had an Action Plan before the start of them. What is not so evident is that these action plans were being updated real time when the deviations happened or a risk was apparent. Project managers care more about correcting problems than about analysing and documenting all actions and possible risks.

The consequence was that the Action Plans were updated with some delay and the tasks and identified risks were somehow simplified.

Anyway the Action Plans have been useful to detect some risks that can affect any market action like:

- Market unforeseen reactions.

- Permit delays.
- Delays in communication campaigns.
- Programme changes.
- Materials availability.
- Contingencies with programme personnel.

Of course, this is not a complete list of possible contingencies but it shows that any effort to identify and document the unforeseen events in a process helps to avoid them in future actions.

This underlines the importance of maintaining an alive Action Plan. In a market like the electricity where competition is new, it could look that a tool that allows to control a process to reach the goal at the proper time is not necessary. In other very competitive markets, like automobiles, this is a very used tool.

The Framework for Evaluation Areas was designed to complement the evaluation data from the Questionnaire in those areas that require an investment additional to the programme itself. Thus one cannot know the opinion of programme participants, or non-participants, or market allies, without an additional research.

The cost of this research is very small compared with the cost of the DSM programme, but the results are very helpful for future actions.

For example when one of the evaluations in Annex V, points out that the usual typification variables do not differentiate between users and non-users and that the attitudes and financial availability are capital for accepting a programme that requires some investment, actually it is giving guidelines for future actions.

The same happens with other evaluations that indicate that specific customer segmentations give higher redemption rates, or with some evaluation of the communication process.

About the use that Annex V Participants have made of the three project common tools, it has been uneven. The Questionnaire is the one that has been best fulfilled, the Framework for Evaluation Areas has been poorly fulfilled in several cases.

This is not surprising because the Questionnaire is easy to answer, but the Framework is not straight-forward to fulfill, requires some reflexion, some time and some significant (but small) cost. Additionally it is very common in marketing teams that they are very action-oriented and after finishing one campaign they go to prepare the next, without analysing why they got the results they obtained.

This attitude is usual in many economic sectors not only in electric Utilities. In this sector competition is a newcomer but, as it settles, marketing costs will get larger and it will be realised that to spend some resources in analysing the reason of the results, will make marketing more efficient.

The follow-up and evaluation of the developed actions is the most reliable source of information towards future actions. As the Action Plans are a reflection about the implementation process, the Evaluation Areas allow to know the opinion of the participating agents in order to improve the following actions.

11.4. - SUGGESTIONS FOR FUTURE WORK

Although ANNEX V international collaboration experience has been unanimously judged as very positive by all participants, the development of some aspects of the project and even the contents of the different phases of the programmes, could suggest new ways to enhance the obtained results for future similar projects.

One of the most valuable conclusions of ANNEX V has been the countries homogeneity on the qualitative and quantitative level of response of both trade allies and customers, to energy efficiency stimulus. This lesson learned should be an interesting start point for the development of future international collaboration programmes.

Probably it would be worthy, if that were possible in the future, to establish an ambitious unique common programme for all participating countries and, following the basic methodology, to agree different alternatives of actions and tasks to reach the programme objectives.

Each participating country, could apply one of the agreed development possibilities to their own market.

An attentive follow-up of the development and final results of the action and its intermediate steps, could provide a more efficient evaluation of the entire project to find the best procedure to achieve the objectives aimed by the programme.

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