



**IEA Implementing Agreement on Demand-Side Management
Technologies and Programmes**

FINAL MANAGEMENT REPORT

**Annex III
Co-operative Procurement of Innovative Technologies
for Demand-Side Management**

May 2000

International Energy Agency
Implementing Agreement on Demand-Side Management Technologies
and Programmes

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for Demand-Side Management

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PREFACE

IEA Demand-Side Management Programme

The International Energy Agency (IEA) was established in 1974 as an autonomous agency within the framework of the Economic Co-operation and Development (OECD) to carry out a comprehensive programme of energy co-operation among its 25 Member countries and the Commission of the European Communities.

An important part of the Agency's programme involves collaboration in the research, development and demonstration of new energy technologies to reduce excessive reliance on imported oil, increase long-term energy security and reduce greenhouse gas emissions. The IEA's R&D activities are headed by the Committee on Energy Research and Technology (CERT) and supported by a small Secretariat staff, headquartered in Paris. In addition, three Working Parties are charged with monitoring the various collaborative energy agreements, identifying new areas for co-operation and advising the CERT on policy matters.

Collaborative programmes in the various energy technology areas are conducted under Implementing Agreements, which are signed by contracting parties (government agencies or entities designated by them). There are currently 40 Implementing Agreements covering fossil fuel technologies, renewable energy technologies, efficient energy end-use technologies, nuclear fusion science and technology and energy technology information centres.

The Demand-Side Management Programme is a new collaboration. Since 1993, the 17 Member countries and the European Commission have been working to clarify and promote opportunities for DSM.

Australia	European Commission	Japan	Sweden
Austria	Finland	Korea	United Kingdom
Belgium	France	Netherlands	United States
Canada	Greece	Norway	
Denmark	Italy	Spain	

A total of 9 Tasks have been initiated, 5 of which has been completed. Each Task is managed by an Operating Agent from one of the participating countries. Overall control of the programme rests with an Executive Committee comprised of one representative from each contracting party to the Implementing Agreement. In addition, a number of special ad hoc activities--conferences and workshops--have been organised. The Tasks of the IEA Demand-Side Management Programme, both current and completed, are as follows:

Tasks:

- Task I* International Database on Demand-Side Management
- Task II Communications Technologies for Demand-Side Management
- Task III* Co-operative Procurement of Innovative Technologies for Demand-Side Management
- Task IV* Development of Improved Methods for Integrating Demand-Side Management
- Task V* Investigation of Techniques for Implementation of Demand-Side Management Technology in the Marketplace
- Task VI* DSM and Energy Efficiency in Changing Electricity Business Environments

- Task VII International Collaboration on Market Transformation
Task VIII Demand Side Bidding in a Competitive Electricity Market
Task IX The Role of Municipalities in a Liberalized System

* completed Task

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I would like to pay particular thanks to the support, encouragement and dedicated hard work of all the Experts, Project Leaders and Specialists who have been involved in the Annex III work during the years: Mette Lundgren-Beck, Lene Nielsen, Eva Lembke, Jens Dandanell-Petersen, Preben Munter, Maria Rizzo, Rina Sapru, Paolo Bertoldi, Kwan-Hong Shin, Heikki Härkönen, Seppo Silvonen, Piet Heijnen, Ruud Trines, René Kemna, Hans-Paul Siderius, Enrique Brazis, Julio Peña, Carlos Gonzalez, Fernando Borbon, Hans Nilsson, Göran Bryntse, Egil Öfverholm, Anna Engleryd, Johanna Holmberg, Chris Baker, Paul Davidson, Peter Hill, Melanie Slade, Paul White, Marc La France, Jeffrey Harris, John Millhone, Bill Noel, Alison ten Cate, Rachel Schmeltz, Bernard Aebischer, Olof Molinder and Nils Borg. I wish to thank all the speakers and participants in the Paris 1994 Conference and the London 1999 Workshop on Lessons Learned, and in particular Anne Bengtson for her dedicated work in organising the Paris Conference and all persons at BRE and other UK organisations involved in the organising of the London Workshop. I also wish to thank the jury members of the Pilot Project Competitions and a number of persons and organisations mentioned in the report. My special thanks also go to Peter Lund and Marc Ledbetter for their reports and valuable contribution to the London 1999 Workshop. Finally I would like to thank Ann-Charlotte Hamvik for her excellent work with preparing the meetings and producing the documentation and reports.

Thanks to everyone who made it possible for me and the participants to work in this most inspiring project and who helped to make it a successful and memorable experience. Annex III has come up with very valuable findings which hopefully can be used in coming IEA and other international procurement and promotion projects.

Hans Westling
Annex III Operating Agent

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Annex III "Co-operative Procurement"

FINAL MANAGEMENT REPORT

1. EXECUTIVE SUMMARY

Annex III "Co-operative Procurement" within the IEA DSM Implementing Agreement with 8 countries and the European Commission as participants has been going on during 1994 – 1999. A procedure for collaborative procurement actions for introduction of innovative, more energy-efficient products has been developed and tested in a number of pilot projects. A clothes drier with the energy use cut by half (the first "Class A" drier), electric motors with losses reduced by 20-40% and a "copier of the future" where the energy use has been reduced down to 25% are concrete results. After evaluation of proposals and prototypes, the suppliers have received the "IEA DSM Award of Excellence". Two workshops have been organised during the years, each with about 80 participants. Formulation of performance criteria and creation of mechanisms for recognition are two important elements in technology procurement efforts.

2. ANNEX III AND THE IEA DSM AGREEMENT

Annex III "Co-operative Procurement" is one of nine different Tasks within the International Energy Agency (IEA) Demand-Side Management (DSM) Agreement, which has seventeen IEA member countries and collaboration with international organisations like the European Commission and The World Bank.

Annex III has been in force from 1993 up to and including 1999. The Work Plan fulfilled is the "Technology Procurement Work Programme", dated April 23, 1993. The Programme was the result of discussions at a meeting in Stockholm, Sweden, March/April 1993, when a number of tasks for starting the new IEA Implementing Agreement "Demand-Side Management" were formulated. Annex III was originally planned to be in force during five years, but it was later agreed to continue Annex III for one additional year, 1999.

3. OBJECTIVES

The objectives of Annex III have been to establish a co-operative demand-pull procedure to bring more energy-efficient and environmentally-adapted demand-side management technologies to the marketplace, to rank innovative candidate technologies for competitive procurement activities, and to procure key DSM technology options that have not yet reached the marketplace in order to demonstrate and test the procedure developed.

The following countries and organisations have taken part in Annex III: Denmark, Danish Energy Agency; Finland, Motiva; Korea, KEMCO; Netherlands, NOVEM; Spain, ENHER, ADEA and ENDESA; Sweden, Swedish National Energy Administration -STEM - (earlier NUTEK); United Kingdom, DETR, BRE and ETSU; United States, U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA); and the Commission of the European Union, DG XVII, Energy. The Operating Agent for Annex III has been Hans Westling, Promandat AB, acting on behalf of the Swedish National Energy Administration.

The Annex III Subtasks have been:

- Development of a process.
- Technology screening.
- Draft specification and pilot procurement for one or more projects.
- Market contacts.
- Further procurement projects.
- Evaluation and workshop on "lessons learned".

4. NEED FOR NEW MECHANISMS

IEA and the European Commission have stated in their programmes that it is urgent to follow up the Rio, Kyoto and Buenos Aires Climate Agreements with concrete actions. The member countries of the organisations have agreed to contribute to reducing the risks of climate change, to remove barriers to market deployment of effective energy technologies, and to create a real market transformation.

Many mechanisms have already been used in programmes for *energy-reduction* through development and diffusion of more energy-efficient solutions, through influence of habits, and through development of new *energy sources*.

Use of mandatory regulations, as well as large rebate programmes, will encounter increasing difficulties and opposition, and also, in many cases, lack of funding. Recent trends are towards more individual choices and privatisation, which will reduce the possibilities for government interventions using traditional methods. This will mean that fragmentation, as a whole, will increase, which can lead to limitations to achieve the climate convention goals and the environmental objectives.

In many areas, users and buyers are, in general, very fragmented. Joint actions within countries, and actions involving several countries, can give stronger signals to suppliers for further development work of new solutions. The actions can influence suppliers to accelerate the introduction into the marketplace of solutions that already exist in the laboratories, and to further refine products already marketed. Manufacturers are very concerned in reducing the risks involved in the development of their new products. They strive to come close to their customers in order to really understand their needs, when they develop and refine their products. Procurement activities with innovative purposes can offer a good alternative for governments, buyers and users, and also for manufacturers, to bring about reliable solutions that are quicker accepted on the market. While keeping up the competitive situation, technology and co-operative procurement can open up for fruitful collaborative work between buyers, and also between buyers and suppliers.

5. DEFINITIONS

Technology procurement may be characterised as an entire acquisition process aimed at directly stimulating innovation. It is not exclusively associated with any particular form of contract, though it is closest to design/build contracting with functional requirements/performance criteria and functional procurement. Technology procurement has been defined as¹:

“A process, through which a commodity, service or system is procured, and for which development of new technical solutions is essential in order to meet the requirements of the buyer. The technical development work, being part of the process, may concern application of advanced technology, but also minor stages of development as well as product modifications. The development work may concern the product, the system or the production process, for which it is developed.”

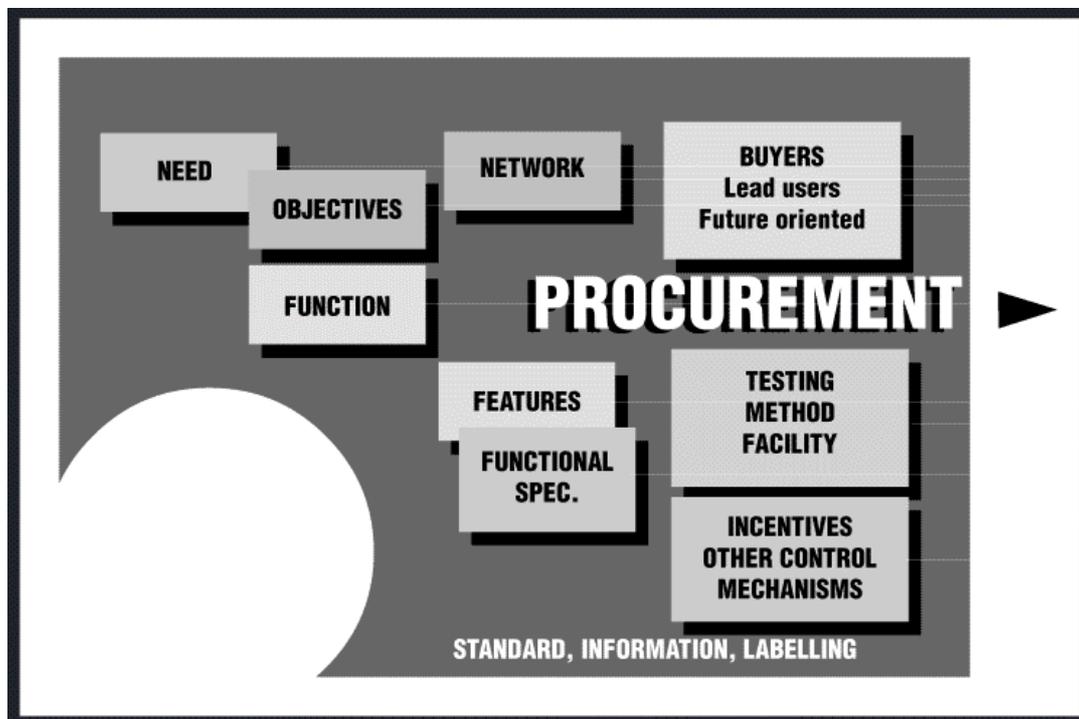


Figure 1. The technology procurement process – some important steps.²

Co-operative procurement (volume or bulk purchasing) includes both

- Technology procurement (of something not yet existing on the market) and
- Acquisition of existing products/systems in some organised ways (for instance among the 25% “best”, most energy-efficient, or best in some other aspects).

1 Industridepartementet Ds I 19823:4. *De små och medelstora företagen – Nuläge och utvecklingsbetingelser. En rapport upprättad inom struktursekretariatet.* /Small and medium-size companies – Present situation and development conditions. A report from the Secretariat for Structural Changes, Ministry of Industry./ Stockholm, 1982.

2 Westling, H. *Buyer Co-operation for Energy Efficient Appliances. Creative Buyer Groups with Goal and LCC Orientation – New Project Management Area.* Paper for the Project Management Institute Conference, Vancouver, October 1994.

The most influential buyer, or a number of *buyers* in combined efforts, formulate the requirements and evaluate the products. The market transformation is further influenced by support activities (rebates, information, labelling, awards, etc).

In some cases, the buyers represent only public organisations. In other cases, they may include private companies, individuals, or combinations of public and private organisations.

The importance of the *government in two different roles* has lately been pointed out in a report³: one as the traditional, large, *long-term buyer*, (for the defence establishment, infrastructure, etc.), and the other as an *intermediator, facilitating the building-up of networks and the creation of nodes, or joint organisations, for procurement* (similar to the Consortium for Energy Efficiency and the State Collaboratives in the United States, or the housing organisations HLM in France and HBV in Sweden).

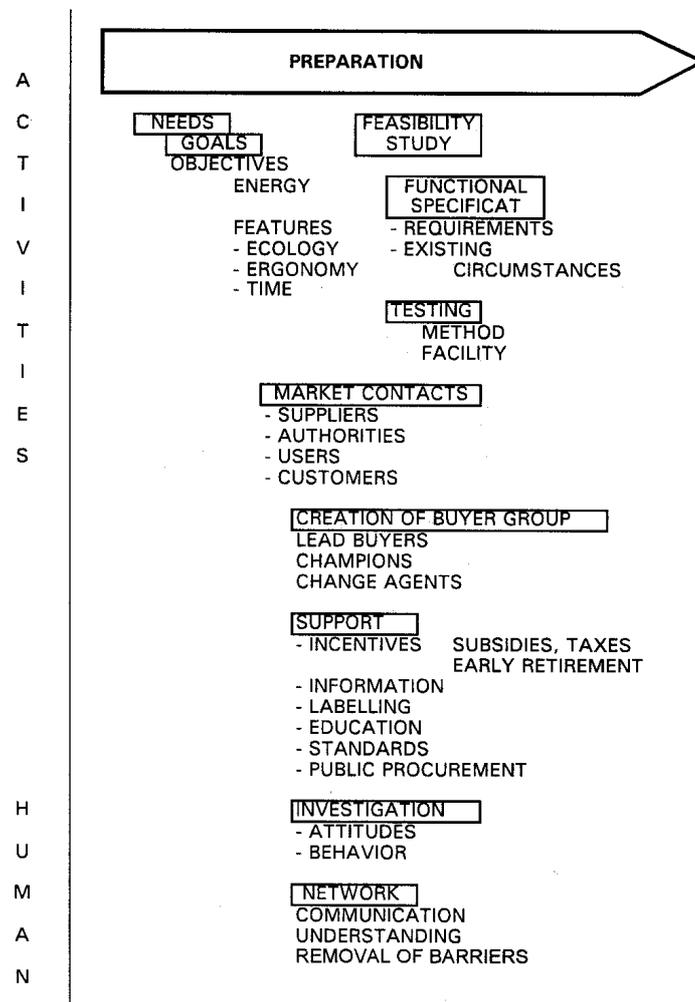


Figure 2. Co-operative and technology procurement. Preparatory activities.⁴

3 EC DG XII, Report in the EC DG XII TSER Programme by Lundvall, B.Å. & Borrás, S, *The Globalizing Learning Economy: Implications for Innovation Policy*. Luxembourg, 1998.

4 Westling, H. *Co-operative Procurement. Market Acceptance for Innovative Energy-Efficient Technologies*. IEA/NUTEK B1996:3. Stockholm

6. ACCOMPLISHMENTS AND UNIQUE CONTRIBUTIONS

The Operating Agent and the Experts in Annex III have developed a preliminary process, which has been documented in the report "Co-operative Procurement. Market Acceptance for Innovative Energy-Efficient Technologies". The report includes a broad background of achievements obtained using demand-side mechanisms similar to procurement in a number of countries, analysis of findings from cases where they have been practised and definition of a process (Figure 1) with many details (Figure 2). The level of engagement from different countries during different phases of a project has also been illustrated (Figure 3). It also points out the problems and barriers to handle during the projects. Important issues are the need to combine procurement with other support actions and to start work in pilot areas that are not too complicated (Figure 4). It is judged to be much easier to work with single components, or single systems, than with complicated systems, or whole building facilities, especially when different climatic conditions and cultural factors may have a large influence on the project.

COUNTRY	X = Full active participation 0 = Supportive participation		
	A	B	C
NEEDS	X	X	X
OBJECTIVES Energy	X	X	0
BUYER GROUP	X	X	-
FEATURES	X	X	-
TESTING	0	X	-
SUPPORT Economy	X	-	X
Information	X	X	X
CO-ORDINATING BODY PROJECT MANAGEMENT	X	-	-

Figure 3. Level of engagement from different countries. Example.

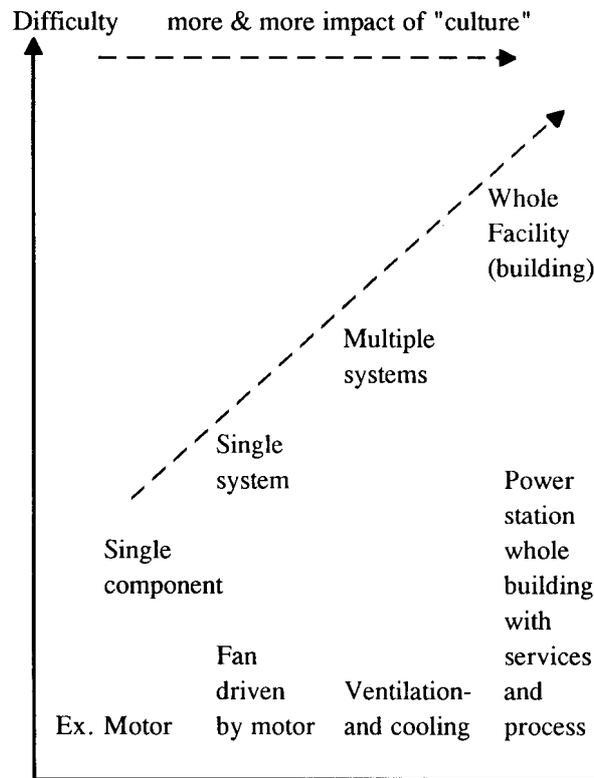


Figure 4. Product complexity "ladder".

A Workshop was held in November/December 1994 in Paris, France, with about 80 participants. Already then, three possible areas for pilot procurement were discussed during separate meetings. These areas were "Wet Appliances" (clothes washers and driers), "Lighting" and "Copiers". From a whole range of different possible areas, seven areas were later identified for joint actions. During the preparations, the process was more oriented towards a combination of procurement and promotion, and also towards introduction of alternative ways of recognising successful new products, not necessarily through guaranteed large-volume purchasing. An award - the "IEA DSM Award of Excellence" - was introduced. This award has been presented in three project areas: "Wet Appliances" for a drier with energy consumption reduced to 50%, which is the first "Class A" heat-pump drier on the European market; "High-Efficiency Motors" for two motors of different sizes where losses have been reduced by between 20 and 40%; and "Copier of the Future" for a copier which shows possibilities for energy reductions down to 25%, see [Table 1](#).

The drier is promoted by the participating countries through rebate campaigns with varying degrees of subsidy (The Netherlands, Denmark, Sweden and Spain) and through information activities (Finland). In Spain, electricity meters have been installed with the driers and measurement of the electricity consumption in real use will be made during some months. A questionnaire has been produced to get responses from the final clients about the functionality of the drier and their opinion of the new product. The results from the metering and the responses will be summarised in a report. After joint actions by all the participating countries, the supplier AEG/Electrolux decided to extend their introductory efforts, keeping the reduced price for the whole of 2000 and accelerating the efforts to industrialise production, thereby reducing the costs.

Pilot Projects	Project Manager	Energy Reduction Goal	Results	Main Lessons *
<i>Wet Appliances:</i> IEA DSM Drier Promotion Competition	The Netherlands	50%	Entry fulfilling all criteria	Market plans should be a condition for submitting an Award
<i>Lighting:</i> Replacement Incandescent Lamp – Future Bulb – Competition	United Kingdom	30%	One entry, not fulfilling all criteria. Subsequent one-off prototype produced which apparently meets criteria.	Competing with other important development projects among manufacturers, as CFLs
<i>Copiers:</i> Copier of the Future Competition	United States	By 70-75% down to 25%	Entry and prototype fulfilling all criteria	Receipt of the <u>Award</u> was the real challenge which was the driving force
<i>Industrial Motors:</i> IEA Hi-Motors Competition	Finland	20-40% reduction of losses	2 prototypes fulfilling all criteria	The Award was the real challenge. Most motors bought by systems suppliers, low initial purchase price important.
<i>LED Traffic Signals</i>	Sweden in collaboration with The Netherlands	Reduction of: energy costs 35-90%, maintenance costs 50-75%	In starting phase	Different interest in different countries concerning individual lamps or whole signal heads
* 60 different lessons identified by Project Managers in London Workshop Report				

Table 1. Overview of Annex III Pilot Projects.

The creation of buyer groups, the working out of performance specifications and the combination with different support activities have been stressed. It is especially important to include dominant, future-oriented buyers or users and, in many fragmented areas, to create a new network, where trust will be built up between the participants. Efforts should be made to include as many stakeholders as possible in the process.

The different pilot projects are summarised in Appendix 1. In addition to the five initial areas identified, the “Hi-Motors” and “LED Traffic Lights” areas have also been included.

During the years, a number of Experts Meetings have been held in Annex III. Comprehensive documentation has been produced before each meeting, and minutes with a lot of enclosed material have been drawn up after the meetings.

The Annex III Workshop, “Accelerate innovation and market transformation of energy-efficient products”, was held in London, United Kingdom, February 24-25, 1999. It had about 75 participants from 15 countries. The Project Managers, Experts and others involved had formulated 60 lessons learned from the pilot projects, which were compared to lessons learned from a number of U.S. projects and the findings of an External Evaluator (Figure 5).

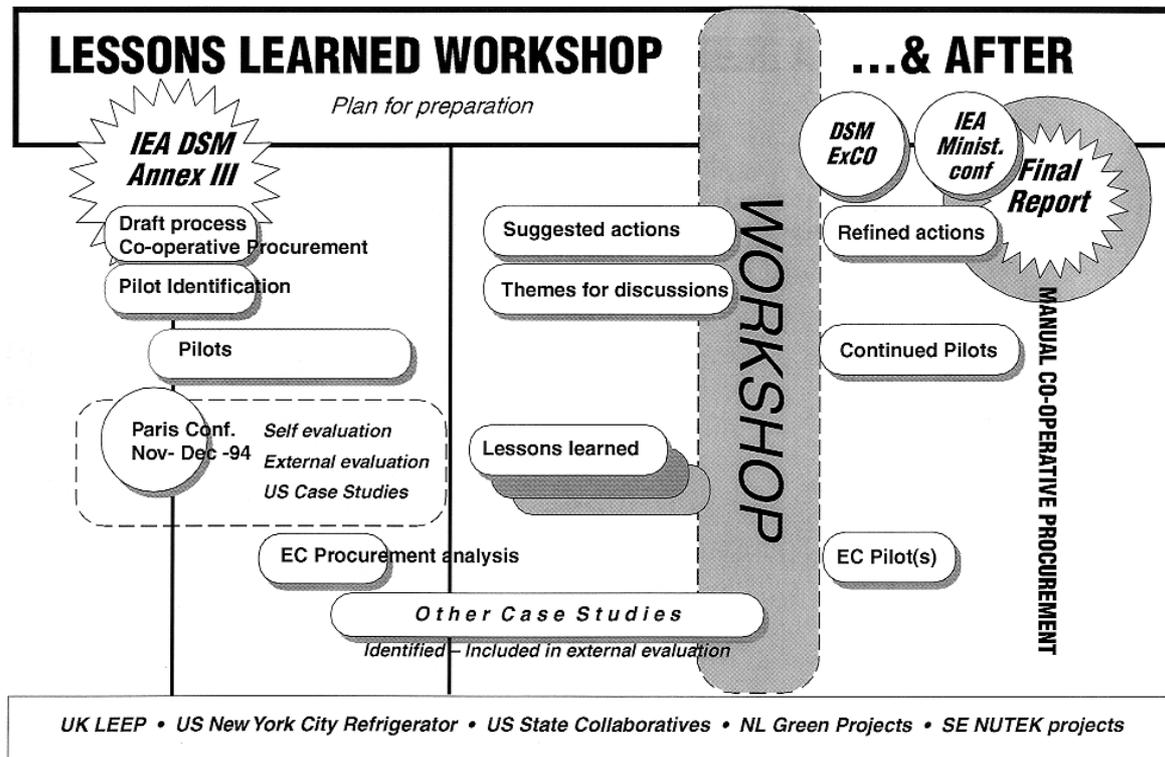


Figure 5. Lessons Learned Workshop ... & After.

For the “End of Term Report” of the whole DSM Agreement a few years ago, efforts were made to sum up how many persons had been involved in the Annex III work and how many person-days had been spent, see [Appendix 2](#). An assessment of the value of Annex III was also made.

Two of the Annex III pilot projects were mentioned as successful examples of IEA projects at a presentation in connection with the IEA 25th Anniversary in May 1999, and two of the pilot products – the drier and one of the motors – were also on show on that occasion.⁵

7. INVOLVEMENT OF INDUSTRY AND END-USERS

The market, including manufacturers and others, was informed about the planned activities through *announcements in official journals*, such as the “Official Journal of the European Communities”, on a number of occasions, see the timetable “Annex III – Procurement Projects” ([Appendix 3](#)). In addition, seminars were held and information given at important events, like

⁵ Westling, H. *Success Stories from the IEA DSM Technology Procurement Program*. Paper for the International Conference on Energy Efficiency in Distribution and Usage of Electricity, Ankara, Turkey, April 2000.

international conferences and fairs, where many manufacturers would, at any rate, be present. Such events include for example the “Domotechnica” in Cologne, the Hanover Fair and meetings organised by DOE, EPA and the Consortium for Energy Efficiency (CEE) in the United States.

In many areas, it is important to know the usage pattern for the different products. Already existing investigations have, in some cases, been updated with additional findings, as for example in the copier area. Through contacts with leading *buyers and users*, many important problems have been identified, and the needs, not only for less use of energy, but also for other issues, like lower noise level and reduction of the impact of different environmental factors, have been pointed out. As concerns the drier project, representatives of the Consumers’ Testing Association in the United Kingdom and the Swedish Consumer Agency were also involved. Life-cycle costs, instead of only initial costs, have been stressed.

During the meetings mentioned above, *manufacturers* were invited to submit comments to early versions of the specifications. Many valuable remarks have been received and have influenced the refinement of the specifications in the areas.

For the preparation of the “LED Traffic Lights” projects, it has been important to get more information on how *human beings react* in different situations where these new traffic lights are used. This means that situations with full daylight, full sun, sunset, dawn and night have been studied. A number of users, like professional and common drivers, have been involved in the tests.

Industry and other private organisations have been involved as future buyers, especially in the “Copier of the Future” and the “Hi-Motors” project.

At the Workshops in Paris 1994 and London 1999⁶, presentations were made by industry representatives, from Electrolux and General Electric, among others. A number of representatives of office equipment manufacturers were present and took an active part in the Paris Workshop.

Efforts were also made to include chains of buyers working internationally in the work on the different national markets. There were some possibilities with hotel chains in the “Consumer Electronics” area. This project has not yet been fulfilled as a procurement project, but there is still an interest to decide about actions in this area. There have recently been two international workshops in this area, in January 1999 in Paris and in January 2000 in Brussels.

8. INFORMATION AND DISSEMINATION

The spreading of information about Annex III has been extensive. A summary of the Annex III procurement activities has been presented in a brochure, “The Challenge”, with leaflets for each technological area and for the process. The brochure was printed in two editions with 4,000 copies altogether and it has been widely distributed.

Participation in different conferences, workshops and seminars has been encouraged. The

⁶ Annex III London Proceedings: *Proceedings from the Annex III International Workshop ‘Accelerate Innovation and Market Transformation of Energy-Efficient Products’*, London 24-25 February 1999, compiled by Westling, H, Promandat AB, Stockholm 1999. Will be placed on www.stem.se/IEAProcure.

Operating Agents and the Experts have participated actively in about 50-100 conferences over the years with papers informing about Annex III and the pilot projects. Examples of papers are given in [Appendix 4](#).

As already mentioned, advertisements have been inserted in the “Official Journal of the European Communities” and similar official journals.

All the Experts were inspired to give information about projects in their countries and about other international activities of interest. Such information has been included in the documentation before and after the Experts Meetings.

An *Annex III homepage* (www.stem.se/IEAprocure) with links to the homepages of IEA DSM Programme (<http://dsm.iea.org>) and the IEA Secretariat has been used and has been regularly updated with information about the pilot projects. From the start of the “Hi-Motors” project, a special *web site* (<http://info.lut.fi/ente/sahko/Hi-Motors/Intro.htm>) was used for this project and the draft and the final specifications were presented there, as well as the decision of the jury as a background for the Award Ceremony. A special web site was also used for the “Copier of the Future” project (<http://www.epa.gov/appdstar/esoe/techpro.html>). Press information has also been published on the Annex III homepage and on the different web sites.

As mentioned earlier, two of the projects – the drier and the electric motor - were included in the IEA publication on “Success Stories” and they were also on show as prototypes at the IEA 25th Anniversary and Ministerial Meeting.



Illustration 1. The winning AEG heat-pump drier – the first European “Class A” drier.

A large number of invitations were distributed both for the introductory Paris workshop and for the London workshop on lessons learned.

There are plans for a short *brochure* about the Annex III programme and the lessons learned. This brochure will be produced later this year provided that financing be allocated.

9. ACTIVITIES COMPLETED AND ACTIVITIES YET TO BE COMPLETED

The activities concerning formulation of a process, identification of technologies and fulfilment of pilot procurements and promotions have been accomplished. Three technological areas have been completed and have included an “IEA DSM Award of Excellence” ceremony – the “Drier Promotion Competition” ([Illustration 1](#)), the “IEA Hi-Motors Competition” ([Illustration 2](#)) and the “Copier of the Future Competition” ([Illustrations 3 and 4](#)).

The Annex III objectives have, on the whole, been fulfilled according to the External Evaluator, Professor Peter Lund (see further below). The process has been adjusted in accordance with findings made during the work. Some suggestions for future work have been given, see below under item 10.

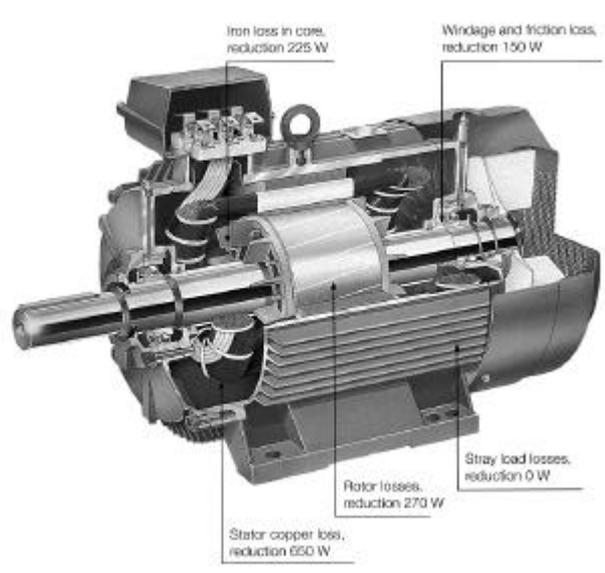


Illustration 2. Longer lifetime through reduced losses – ABB winning motor M2BA280.

The main proposal in the Market Acceptance Process to have one country as project manager for a project area has been applied, see [Table 2](#).

One area, the “LED Traffic Lights”, is still in the preparatory stage. Different subtasks are now considered: replacing individual lamps in existing signal heads and complete signal systems. There are plans to launch activities and to have concrete results in the year 2001.

Project area	Project Manager	
	Country	Person
Wet Appliances	The Netherlands	René Kemna
Lighting	United Kingdom	Paul Davidson
Copiers	United States	Alison ten Cate; Rachel Schmeltz (Bernard Aebischer during preparatory stage)
Motors	Finland	Heikki Härkönen
LED Traffic Lights	Sweden	Nils Borg

Table 2. Overview of Annex III technological areas and Project Managers

Two additional rounds are still to be fulfilled in the “Copier of the Future” competition, with application deadlines April 1 and October 1, 2000.

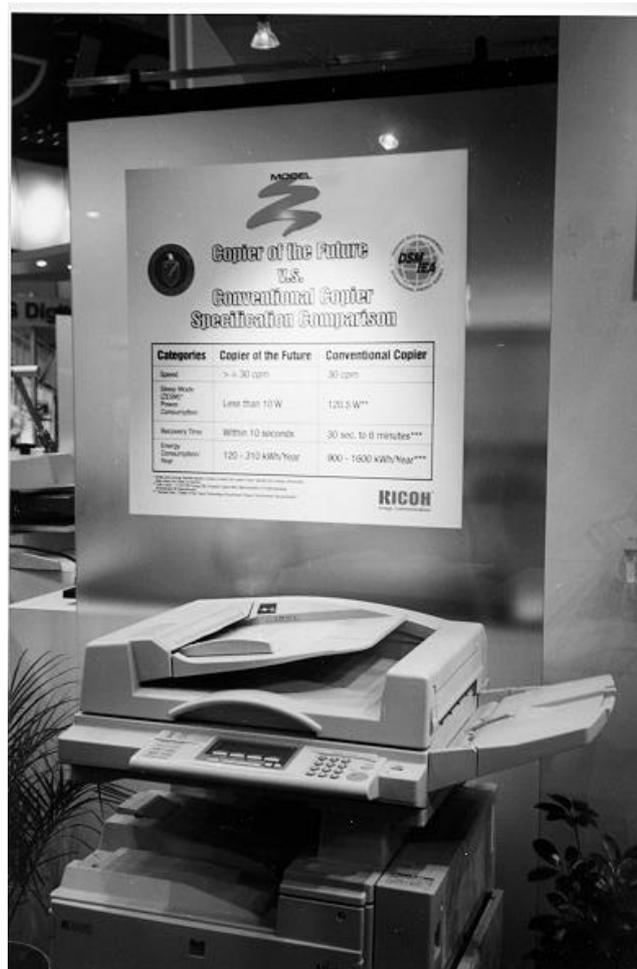


Illustration 3. “Copier of the Future” – The winning Ricoh copier.

These two projects will now be carried out within a subtask under the new IEA DSM “Market Transformation Task”, Task VII. In the Task, also other measures for market transformation will be treated, such as market research and a Market Forum. It will be possible for two or more countries to agree on concrete procurement and promotion projects and work under the umbrella of the new Task VII. It is important that the promotion activities can continue in order to facilitate dissemination of the results and the acceptance of the new solutions.



Illustration 4. An “IEA DSM Award of Excellence” ceremony - The “Copier of the Future”, COMDEX/Fall, Las Vegas, USA, November 1999. Mr. Sakurai, President of Ricoh.

10. UNRESOLVED ISSUES AND RECOMMENDATIONS FOR FUTURE WORK

Before the London Workshop in February 1999, the Annex III Project Managers and Experts had identified about 60 lessons learned. In addition, the External Evaluator, Professor Peter Lund, Helsinki University of Technology, also came up with some main lessons and recommendations. In his Evaluation Report, he stresses the importance of understanding the market as a whole, and that not only the technology aspects but also the marketing and cost aspects are important. He also stresses the importance of making the technology procurement method more known among policy makers, manufacturers and buyers and to consider different procurement models, for instance a 2-stage procurement. Furthermore long-term support is needed, as this is a long-term, dynamic and learning process where it takes many years before the final outcome can be measured. He also suggests that an international forum for exchange of ideas and use be considered.

Some preliminary conclusions and actions were formulated at the Workshop, see section 11. In the findings from the London Workshop, it is stressed that procurement is an important mechanism for innovation. However, a combination of many mechanisms is essential if a market transformation should be possible. [Figure 6](#) illustrates this use of different instruments. It is also suggested to work further on the prestige of the “IEA DSM Award of Excellence” as a valuable

instrument for stimulation of innovation. It is further recommended to suggest clarifications in the existing public procurement rules, for example the EC Directives, in order to facilitate procurement efforts with innovation purpose.

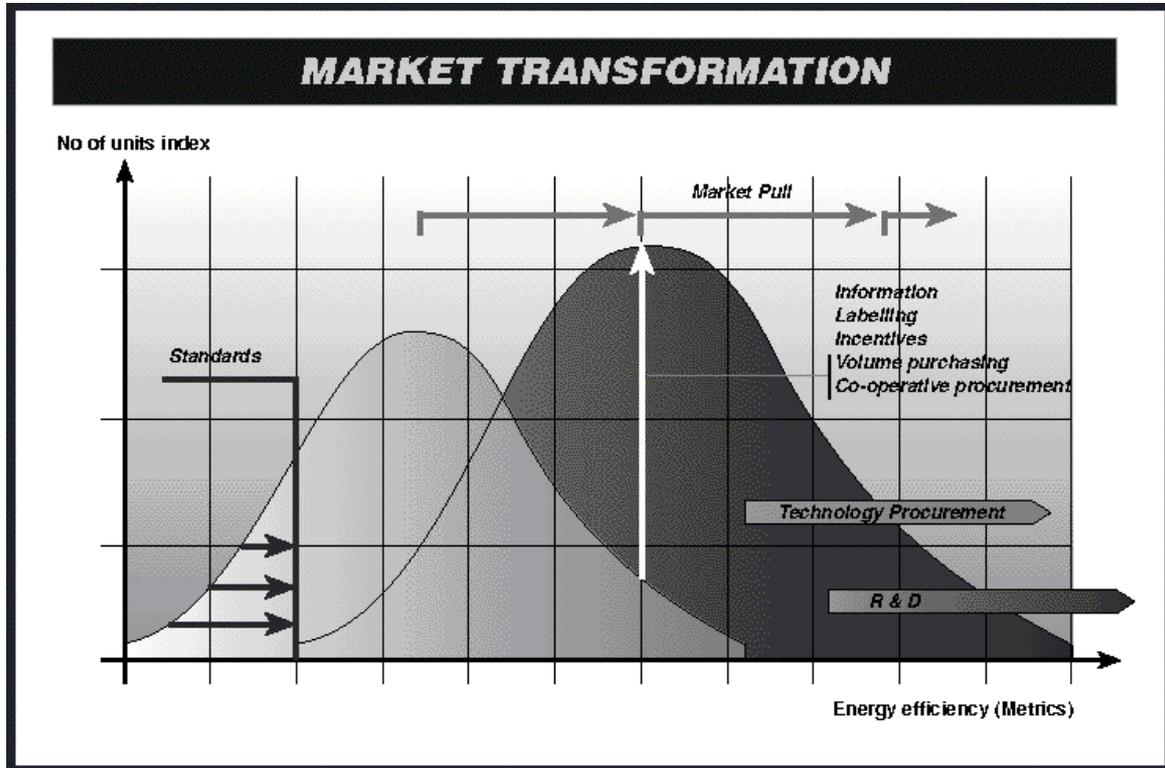


Figure 6. Use of many different instruments is essential to get a market transformation. (Adaption by H. Westling after John Millhone, DOE, USA)

11. MANAGERIAL RECOMMENDATIONS

It is difficult to discern between very general recommendations for all future Tasks and recommendations that actually emanated from the experiences in Annex III pilot projects. The recommendations are therefore of most value for future project-oriented Tasks on the *demand* side. An overview of the recommendations is shown in [Table 3](#).

1. It is recommended that the countries in future similar activities try from the initial stage to *set aside sufficient efforts* for facilitating the fulfilment of actions *during a long period of time*. *Continuity of high-level support*, including financing and personnel, is essential, since co-operative procurement is really a learning process. It is realistic to count with three to five years in many cases in order to identify the problem, agree on performance criteria, establish a network, set up buyer groups and fulfil procurement and promotion activities.
2. It is important to see to it early that the Experts in an Annex have *pronounced high-level support* in the different countries. This is an issue that was also raised at one of the Executive Committee Meetings.

Organisation	<ul style="list-style-type: none"> - Goal agreement - High-level support - OA appointment decided in full agreement - Dialogue Operating Agent – ExCo about suitable background of Experts - Continuity of Experts - Involvement of all stakeholders - Market contacts early and repeatedly - Information specialists
Funding	<ul style="list-style-type: none"> - Sufficient amount during long time - Availability (fiscal years)
Time	<ul style="list-style-type: none"> - Too optimistic in beginning - Try to find “short-cuts” - Accelerated process
Process	<ul style="list-style-type: none"> - Technology procurement – not traditional, linear development process - Rather a circular, spiral, parallel learning process. - Every participating country active in at least one project. - Start with components and smaller systems. - Involve international chains of buyers/retailers. - Stress formulation of performance specification and recognition mechanism. - Collaboration with green purchasing initiatives.

Table 3. Lessons learned and recommendations after Annex III.

3. In this Task, as in many other projects and activities, it is very important *to agree on the goals early* in the projects. Sufficient time should be allocated to these pre-investigations (feasibility studies) and discussions how to formulate and understand the goals, and how every stakeholder can identify what they can benefit from participating in the project.
4. The nomination of *National Project Managers and Experts* is an issue that should be done in dialogue with the Operating Agent.
5. By maintaining the continuity of persons, the countries can draw the most valuable experiences from the joint activities.

6. More work on *marketing activities* is needed early in the project, and involvement of all important stakeholders and systematic identification of existing barriers in the different markets should facilitate a market transformation.
7. *Information and dissemination* could involve *special experts* in this area, like the CADDET and others.
8. The level of collaboration has of course been influenced by the actual situation in the countries with changes of organisations, promotion of people to other areas and changed financial situations. The impression is that in some countries the work has really inspired to further national and international activities in the field of procurement and promotion. In other countries, perhaps for institutional and personal reasons, it may have taken a longer time to include these activities in their programmes.
9. The availability of money varies because of different *fiscal years* which has also an influence on when the Operating Agent actually can receive the contribution.
10. The *timetables* were initially drawn up *too optimistically*, which is a very common experience in development projects. Timetables often have the purpose of inspiring to early fulfilment of different activities. If placing the key events too far away, it would not give the same inspiration. It has been expressed a need to identify a quicker process - technology procurement with "short cuts".
11. It should also be stated that *innovation* very often is a *circular, or spiral process*, and not a linear one. Many areas and specialists will be included and technology procurement facilitates this work.
12. It should be more clearly stated that work in a co-operative procurement project really *is a process and a learning process*. It is important that the Experts and Specialists have a suitable background and sufficient time to spend on the work. It is also important to maintain continuity.
13. The different participants should be asked more outright to take *an active part at least in one concrete project* in order really to get value for money.
14. For international work it may be wise to *start the work with components and smaller systems*, which are less dependent on existing infrastructure and variations in culture and climate conditions. For more complicated systems it is necessary to have very firmly pronounced high-level support and long-term commitment in order to be successful.
15. The use of *international chains of users*, like retailers with chains of organisations in several countries, hotel chains and other international groups would facilitate the international work in this area.
16. Work also on *parts of the process* only, such as the formulation of *specifications* and the use of competitions with *recognition and awards*, can lead to important results in future projects.

17. In the future, work could have more as a starting-point *the risk of climate change* and also the interest in “*green purchasing*” in general. A number of different networks have been created already and a collaborative effort would be fruitful. With a combination of many instruments (mandatory standards, labelling, information, rebates, etc.) the penetration may be speeded up. These issues and inspiration from other successful areas will be handled in the new market Transformation Task.

It takes a very long time to see new solutions penetrate the market. This is also the case as regards energy-efficient products. Refinements, development of efficient production methods for the new products, imitations and alternative solution developments by competing suppliers will take place.

12. BUDGET FOLLOW-UP

For the years 1994 – 1999, the cost-sharing part has been nearly 900,000 USD. In addition, voluntary contributions with approx. 100,000 USD have been made for the two workshops. However, the largest part has been the task-sharing efforts. A very rough estimation based only on the figure for 1997 of 33 person-months or 550,000 USD (see [Appendix 2](#)) indicates a total task-sharing effort of nearly 3 million USD for the whole duration of Annex III. Further information is given in [Appendix 5:1-3](#).

13. PARTICIPATING EXPERTS

Experts from 8 countries and the European Commission have taken part in Annex III. A list of their names is included in [Appendix 6](#).

14. MEETINGS

During the years, a large number of Experts meetings, national and international workshops and seminars have been held in Annex III. A compilation can be seen in [Appendix 7](#).

15. REPORTS AND OTHER MATERIAL

Extensive documentation has been compiled in Annex III during the years. This has included documentation before each Experts meeting, minutes from each Experts meeting, Task Status and Annual Reports, technical specifications, competition documentation, jury reports, information material, papers on technology procurement in general and the IEA DSM Annex III activities. The Market Acceptance Process, Annex III and its different technological areas and the procurement competitions have also been presented on the Internet on the Annex III homepage and on other web sites. Examples of the documentation are mentioned in [Appendix 4](#).

Annex III Archives will be kept and include all the Task Status Reports, documentation before Experts Meetings, minutes and documentation after Experts Meetings and the material produced for the two Workshops. These archives will be kept by the Swedish National Energy Administration as well as by the acting Operating Agent, Hans Westling, Promandat AB.