

## **IEA DSM Annex II Final Management Report**

Task II started in 1993 and has concluded in 2003. In consequence it has been carrying out work over the whole period of transition of utility businesses in many countries from utilities with a single product offering to full commercial companies. New utilities businesses are now competitive entities seeking to offer a range of products to meet customer and market requirements. Task II was initially conceived to study the issue of providing cost effective communication for energy management services in a utility environment. Over the period of its existence it developed, through input of participating countries, into a project to deliver cost effective energy management and energy efficiency improvement services, as well as a range of services which were perceived as meeting potential market and customer requirements. These services included remote diagnostics of energy consuming appliances, remote CHP and embedded generation management, as well as security and medical assistance provision. The bundling of multiple and diverse services was shown to be the most effective way of meeting financial viability requirements. Techno-economic studies were carried out to determine these issues.

In order to deliver the service requirements as defined by participating countries, barriers were overcome through the shared development of specific technologies and household, service access architectures. Demonstration of these technologies and system architectures implemented in real applications has been carried out. The route to market for the technology and systems is initially via Field Trials in individual countries. These Field Trials would be funded by countries on an individual basis, although sharing of Trial results would be possible. The Field Trial Stage is the start

of the market and competitive stages of the delivery of bundled services on a commercial basis and, as such, is probably not suited to being carried out within an IEA Agreement.

Task II's achievements start with the definition of energy related services which can be made viable by the provision of cost effective communications. These services range from micro generation management to feedback of end use energy consumption. A business architecture has been developed which demonstrates the route for ESCO's to deliver services cost effectively. A communication gateway has been developed which overcomes many of the difficulties of providing wide ranging services. Definitions of Field Trials of energy related services have been carried out. Implementation of Field Trials is to be carried out to demonstrate the services and prime the market for wide scale delivery.

### **Activities carried out**

Activities have been carried out as Subtasks within the Task, each with defined objectives and deliverables. Where appropriate, workshops have been held to more widely disseminate the results. Subtasks 1 to 4 dealt with the collection, processing and analysis of participating country information regarding their DSM and EE expectations and strategies and how and to what extent communications played a part in it. In this regard, three reports were completed:-

“Development and Analysis of Customer/Utility Functional Needs and Communication Technologies”, August 1995.

Workshop report on “Customer/Utility Communications for DSM and Related Functions”, November 1995.

“Evaluation of Communications to meet Customer/Utility Requirements for DSM and Related Functions”, January 1996.

“International Standards Activity for Customer/Utility Communications”, October 1996.

“Assessment of Research, Development and Demonstration Priorities for DSM and Services”, October 1996.

Barriers report

Assessment of Communication media for DSM required the quantification of data flows needed for specific functions and services applied to large populations of customers. A software model, eaCOMMS, was specified and developed by participating Experts in order to model the implementation of DSM communications to large populations. The model was used in the assessment of real implementations and studies and on final release was licensed to participating countries.

Reports “User Interface for Services and Communication Evaluation and Costing Model”, October 1996 and “eaCOMMS Model Evaluation of DSM and Customer Service Field Trials”, September 1997, were completed by country Experts.

The results of the studies carried out and model evaluations of real implementations identified a critical requirement for a low cost, multi media and protocol gateway through which to deliver communication based services on a wide scale basis. From the services and communication technologies quantified in previous Subtasks, the flexible gateway was specified and a prototype produced and demonstrated. The demonstrations linked together services to extend to the building Service Providers using a range of different communication media and protocols. It was also evident from the studies that consideration had to be seriously given to the development of broadband communication access technologies for the cost effective delivery of narrowband services. A study was carried out to quantify the migration of narrowband services from narrowband access communication media to broadband media. Economic issues were included.

Reports produced:-

“Definition and Specification of Residential Customer Gateway for DSM Services”, September 1998.

“Migration of Customer/Utility Services to Wideband Communication Media”, April 1999.

The route to premarket demonstration of the cost effective implementation of DSM and EE applications in households required Field Trials of the technology and systems to be implemented. A Subtask to define services, service providers, technical and

business architectures and Field Trial implementation partners in participating countries was established. A report, “Definition of Field Trials of Bundled Services in Finland, Netherlands and the UK”, October 2002, was produced.

#### Activity time schedule

Task II was entered into force on 1 October 1993 and was extended by the addition of two new Subtasks to a total duration of three and a half years, i.e. 31 March 1997. A new Subtask commenced in January 1998, to specify a Customer Gateway for delivering value added services. An additional Subtask to implement the design of a flexible customer gateway, specified earlier, started in July 1999. A business evaluation of the provision of customer services was completed in 2001. A project to define a field trial of customer services provision commenced in November 2001.

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#### **Benefits of Task II Results**

Task II has delivered a full understanding and analysis of the role communications is likely to play in the delivery of energy management and efficiency, particularly in the new competitive energy market. It is vital in order to achieve energy savings that the role of accurate and well targeted information on energy use is presented to energy consumers. It is also vital that optimisation processes for using energy most effectively using communications are employed in future measures to complement

other approaches. The integration of local, electricity generation into existing energy distribution systems using microCHP and renewable technologies can be greatly assisted through communications. All these issues have been included in Task II which demonstrates the route to implementation as bundles of services through cost effective technology and systems.

The growth of communications for household services, including energy, will be rapid over the next 5 years. The potential is large for using these services via ESCOs and other organisations to assist energy efficiency and savings improvements. Task II is delivering the cost effective systems and operational infrastructure for these services. Governments are very interested in the energy-saving potential of ESCO services.

### **Country Participation in Task II**

Participation in the Task II project by supporting countries has been through the EXCO committee in terms of overall direction and management and through the Experts' group for technical content and deliverables. Over the period of existence of Task II, different countries have participated at different times. This participation has ranged from a maximum of 10 countries (Australia, Finland, France, Italy, Japan, Netherlands, Norway, Spain, Switzerland and UK) to 3 countries (Finland, Netherlands and UK). Experts' groups have generally met 4 times per year but continuous electronic exchanges have taken place between meetings. The Task II project has been funded on a sequential basis for each Subtask. This has required that each agreed Subtask has to be completed before another proposal is considered for

support. A mix of cost and task shared work has been carried out by the Operating Agent and Experts.

### **Manufacturer Participation in Task II**

Participation in Task II by manufacturing companies in participating countries has been significant, particularly in the latter Subtasks. As the Task has moved from the data collection, analysis and definition of what needed to be done to the specification, building and demonstration of technology, manufacturer involvement has increased. A total of 30 manufacturing companies, some of them international, participated in some Sub Tasks via the Experts' groups. This participation was both technical and financial.

### **Information Dissemination**

Information dissemination has been carried out through the provision of reports, literature, conference and seminar presentations and meetings in participating countries. Internationally, dissemination has been carried out via the DSM Agreement, Annual Report, Spotlight Magazine and the Website. In order to form consortia of companies in participating countries, promotional drives have been carried out, targeted at potentially interested organisations. This has been through specially prepared brochures and seminars and Website information.

### **Degree to which Objectives were achieved**

The mid term evaluation of Task II carried out by the EXCO and Experts in 2001 considered the complete project from the perspective of the objectives set and delivered, milestones delivered and the quality of work and management. The result of this evaluation was that the objectives set were appropriate and that they had a high probability of being achieved. Over the complete project, the Subtask objectives have generally been well delivered by the Operating Agent and Experts. Participation of Experts has generally been excellent.

The clarity and delivery of milestones were reported as being well stated and accomplished. The quality and management of the work was reported by participating Experts and EXCO members as generally excellent.

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