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

Task 1, INDEEP
Final Report

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Prepared by

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The following countries supported the INDEEP database:

Belgium
Denmark
France
Japan
Norway
Republic of Korea
The Netherlands
Spain
Sweden
USA

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This report is available at: http://dsm.iea.org

With thanks to all the persons and organisations that since 1994 supported the work to develop and maintain the INDEEP database.

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1. Introduction

This is the Final Management Report of Task 1, subtask 8 (INDEEP database) of the International Energy Agency Demand Side Management Programme. (An overview of the IEA and the DSM Programme is found in Appendix B).

This international co-operative project was initiated in May 1994. The development of the INDEEP database (subtask 1-7) was finalised in November 2000. The maintenance of the database was organised as a new subtask 8 that started in June 2001 and was completed in April 2004.
Eight countries participated in this subtask Belgium, Denmark, France, Japan, Korea, Norway, The Netherlands and Sweden. Three countries decided not to participate in the task sharing: Japan, Korea and Norway. Contact information for each country is found in Appendix C. Harry Vreuls of SenterNovem, The Netherlands served as Operating Agent. The objectives of the subtask ware:

- To enlarge the INDEEP database and update data;
- To continue to show the value of the information stored by publishing an analysis report and papers or giving presentations at national and international seminars and conferences.
- To improve the INDEEP Internet database software;
- To support the users of the INDEEP database;
- Prepare the transfer of the INDEEP database to an organisation after two years.

2. Background

The general objectives of the INDEEP project are to establish and maintain an international database on demand-side management (DSM), to analyse the data collected, and disseminate the information resulting from these analyses.

These activities should help utilities, government organisations and private consultants in the participating countries to design and evaluate demand-side management programmes. Using information from the INDEEP project it should be possible to evaluate and design programmes more appropriately and thus reach more customers and save more energy at lower costs.

During the development phase (subtask 1-7)[1] we collected information on over 200 programmes in 15 countries, in the standard format developed. The data are stored in a database that from November 2000 became available on a restricted subsite[2] of the IEA DSM website.
A database needs updates and maintenance to keep its value for users. This was the main reason why a group of participating countries in the IEA DSM Agreement decided to join efforts to keep the INDEEP database at life.

3. Organisation of the Subtask

3.1. Scope

The work is concentrated on the maintenance on the internet INDEEP database: collect data from approximately 50-100 demand-side management (DSM) and Energy Efficiency Services (EES) programmes per annum and to improve regularly the quality of existing data (by updating) in the database. At the end of the project the DSM programme data should be analysed and be published in an analysis report. During the project the Operating Agent should promoted the database by publishing or presenting papers at international forums and also user reactions to the database should be collected.

A major role was planned for the country experts: they should update the information in the database and collect new information. The amount of task sharing should be approximately 100 hours of experts' time per country per year.

Original the work plan covered the period May 2001 - December 2003. In October 2003 the Executive Committee approved a task extension till May 2004.

3.2. Participants

The following countries participated in the subtask:

- Belgium
- Denmark
- France
- Japan
- Norway
- Republic of Korea
- The Netherlands
- Sweden

Four countries nominated an expert:

[1] More information in: Final Report Developing INDEEP 1994-2000, Harry Vreuls, Novem November 2000
[2] At their meeting of 13 October 2000, the Executive Committee decided to restrict the INDEEP database and the analysis 2000 report to those countries participating in this specific task.

Denmark: Mr. Casper Kofod, an independent consult with a lot of experience in data analysis, modelling and electric appliances. He participated also for Denmark in subtask 1-7.
France: Mr. Hervé Lefebvre, employed by Ademe and involved in implementing DSM programmes in France
The Netherlands: Mr. Harry Vreuls, employed by SenterNovem and Operating Agent for Task 1. He is a specialist in montoring (governmental) DSM programmes.
Sweden: Ms. Tea Alopaeus-Sandberg (till September 2002) and Ms. Heini-Marja Suvilehto (from January 2003), both employed by the Swedish National Energy Administration (STEM) and involved in implementation and evaluation of DSM programmes.

The other countries nominated a contact person.

Appendix C holds the contact information for all this participants.

The small number of experts and the restricted amount of time available during the subtask reduced the capacity to collect information and discuss the improvements in the database. For that reason it was also decided not to discuss the draft analysis report 2004.

4. Work Performed

4.1. Enlarge the INDEEP database and update data

Due to budget problems the participating by the Danish expert had to stop during the project. As a result no updated data could be included in the database. No new programmes from Sweden are collected.
For the Netherlands in total 13 new programme data are collected and for the majority of the older programmes the programme managers are contacted to update the information. In only 18 cases this resulted in updated information. Early March 2004 the French expert sent two programmes to the Operating Agent, to include in the INDEEP database. The Operating Agent also collected information on six utilities DSM programmes in the USA.

The update of the contact information started in 2002. Hundred and seven persons out the 119 that ware included in the database were contacted. So only 12 persons could not be traced. The majority of the persons (61) were contacted by e-mail and tot 46 a fax was sent. This action resulted in 34 updated contact persons.
The INDEEP database now holds two options for contact information: the (original) contact person and the actual contact person in case the original contact person (often the manager for the included programme) is no longer at the company or changed position. This actual contact person can be a 'real' person, or the general information point of the company.

A quality control for the 220 programme collected till early 2003 was conducted, to bring the information on a more common quality level. The experts agreed on six elements to control. In the case the quality should be improved, this is possible using experience from the former

subtasks, knowledge of DSM and EE programme in general and from evaluations more specific. This quality control was finalised in September 2003 and the improved information stored in the INDEEP database. The summary fields now also holds keywords. This should make it easier for users to get a quick overview on the programme. Additional a new list of programmes in the database, including the keywords is produced and available at the dsm.iea.org site.

Direct contacts with programme managers and evaluators in several countries (e.g. EST in the UK, KEMCO in Korea, CEA in the Czech Republic and Motiva in Finland) resulted in no additional programmes. Also the option at the Internet for users to input a programme directly on line was not used.

The INDEEP database itself was changed for contact information: apart from the (original) contact person it is now possible to include an actual contact person in case the original contact person (often the manager for the included programme) is no longer at the company or changed position. This actual contact person can be a 'real' person, or the general information point of the company. This update DCI form is included in Appendix A.

4.2. Software update and maintenance

The update of the software and the maintenance were minor activities. Less then 10 (smaller) bugs needed to be repaired during the period and two times minor changes were needed related to updates in internet browsers (Explorer and Netscape).

The change in the DCI related to contact information resulted in an updated DCI form on the Internet and to download. The number of languages supported in the database was reduced to four: English, Spanish, French and Dutch.

4.3. Transfer of the database

Several options and strategies were discussed with the experts. The following options were researched:

- to combine the database with CADETT/GREENTIE database and so transfer it to an other IEA Agreement;
- to combine the database on European Union level with the MURE database and/or the Odyssee database;
- to transfer the database to the ECEEE organisation that could use it as a new product;
- to transfer the database to the IEA secretariat as a hosting organisation.

The most promising option was the transfer to the ECEEE. Several contacts resulted in a specification of actions needed for the ECEEE to continue the database. The board decided that this was too much workload for the organisation and decided not to accept to offer to transfer the database for free. All the other option had also no success.

At the Executive Committee meeting April 2004 the members decided that:

- INDEEP database will be hosted at the dsm.iea Site till January 2006 and after that archived, unless an other option would be found;
- The Operating Agent will give all support to users till January 2005

5. Deliverables and Information Dissemination

5.1. Task Products

All products produced during the project are available at the dsm.iea.org site.

At their meeting October 2002 the Executive committee decided in general to disseminate more information that becomes available in the tasks. It decided that also the INDEEP database and the two main reports for subtask 1-7, The INDEEP Analysis Report 2000 and the report developing INDEEP 1994-2000, should be general available.

Additional to the database INDEEP the following products were produced:

- INDEEP Analysis 2004
- Manual "How to use INDEEP"
- Summary list of programmes in the INDEEP database
- Two flyers and a newsletter

5.2. Information Dissemination.

To inform the targeted audiences three times a flyer was produced. This flyer is distributed at international workshop, conferences and seminars. The flyer holds general information on the subtask, how to participate and available products and contact persons.

In November 2002 the first INDEEP newsletter was produced and distributed. At the end of that month a press release on the public available INDEEP database was distributed to 557 persons/organisations. For the public version of the database the opening screen was changed, including a reference to the countries that made the development of INDEEP possible.

At the dsm.iea Site information on the project is updated on a regular base. The project is also promoted by contributions in the Annual report on the IEA DSM Agreement, the Spotlight newsletter, the IEA open newsletter etc.

On request (and additional to downloads) 15 copies of the Analysis report 2002 are distributed. Four users of the database got support by phone and 8 by e-mail.

An updated analysis report (INDEEP Analysis 2004) is produced and free available at the site.

The statistical overviews on the INDEEP database (see figure 1 and 2) show a high interest early 2003 after the database was general accessible, a decrease end of 2003 and a slight increase in

2004. In the period January 2003- April 2004 54.000 hits are counted for the database. The highest score was reached in February 2003 with about 6 000 hits.

Figure 1: Hits INDEEP database

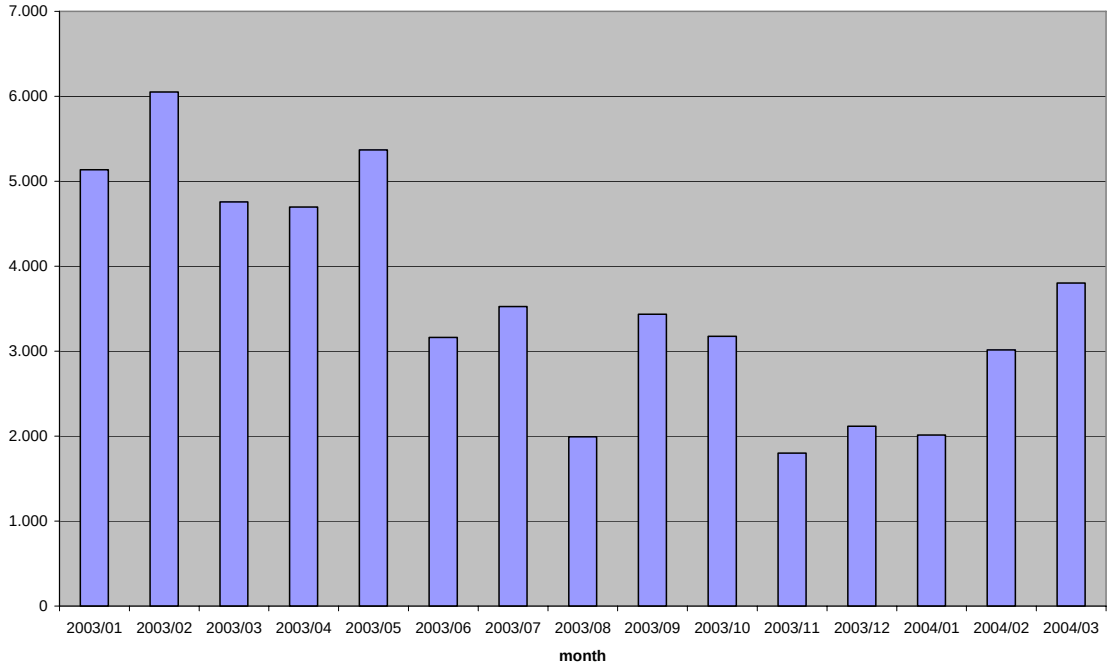
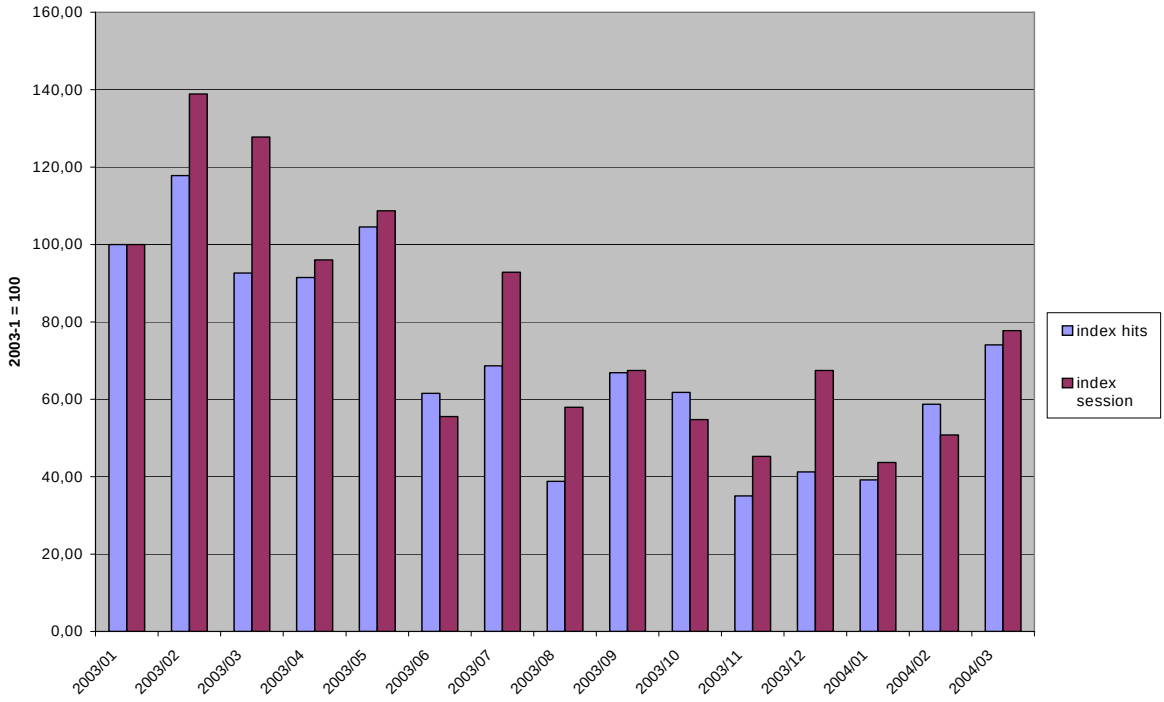


Figure 2: Hits and Session INDEEP



In the same periode the number of session was total 1.500. The number of sessions had its maximum also in February 2003, 175 sessions. In figure 2 we present the development of the use of the INDEEP database at the site over time, where Januar 2003 is sent at 100.00. It shows that both the hits and the sessions had the same development.

6. Accomplishments

The INDEEP database holds updated information and is used by an increasing group of researchers, evaluators en programme developers. A clear example of this is the reference given in the draft EU directive on energy end-use efficiency and energy services (December 2003), more specific the annex dealing with guidelines for measurement and verification of energy savings.

With about 54.000 hits in about a year the database became know in the targeted audience.

An Analysis report 2004 is available for free and as a download at the dsm.iea Site that provides the users with an overview on the available programmes, reasons to select specific programmes, targets and realised programme results and most successful programmes by participation rate.

7. Recommendations for Further Work

In time the use of the INDEEP database will decrease as information is outdating. It is important that one continues to try to find a way to update at least within two years the programme information. One of the options is still to find another organisation that wants to continue, as a situation can change. For example in 2004 ManagEnergy started an EU project "ManagEnergy Good practise" in that case examples for energy efficiency programmes are collected.

8. Lessons Learned and Conclusions

Information on **new programmes** does not show up from itself. Not a single user of the database during the last three years used the option at the Internet to provide programme information. Also the requests within existing networks experts hold to provide programme information was no success. Collecting new programmes seems only to work if experts spent time to contact programme managers and control the input information and the sources.

Update information for **programmes included in the database** should be at least every two years for the information on the programme as long as a programme is still running and an evaluation not finalised. An efficient procedure to update ongoing programmes in the INDEEP database by using e-mail was tested. In this procedure the contact person receives an e-mail with an Internet link. After clicking on this link, the programme information is directly available for an update. This procedure works good, but only if the contact information is still actual, and that was in too many cases not.
So, if possible, the *contact information* should be updated every year. This should prevent that when one starts updating after two (or three) years one faces the problem that a vast majority of people could not give information for a number of reasons as changed e-mail address, changed position, no longer at the company etc.
As time goes on often the original programme manager is no longer available for information. To maintain the contact option we introduced a new, actual contact information point for a programme. This is the contact information at the moment of programme update and this ensures the users of the database that he can get (at least at company level) in contact if he wants additional information.

Appendix A: INDEEP 4 page DCI

DCI Number	**Country**	**Primary Programme Implementing Agent** Electric or Gas Utility Central Government Regional Government Local Government Local Organisation ESCo (Energy Service Company) Other (specify)
Name of INDEEP Expert		
First Data Submittal [ ] Date of submittal	Data Update [ ] Date of update	

Original Contact Information	**Actual Contact Information**
Name:	Name:
Company:	Company:
Address:	Address:
City/Town:	City/Town:
Zip Code:	Zip Code:
Phone:	Phone:
Fax:	Fax:
Email:	Email:
Date:	Date:

Programme Name:	
Project ID	Programme Implementing Agent
Programme Summary	

Programme Start Date	Ongoing
End Date	Terminated

Programme Status	**Evaluation Status**
Pilot (Demonstration)	Completed
Full Scale at National Level	In-progress
Full Scale Regional level	Planned
Phase out	
Energy Objectives	**Programme Goals**
Energy Efficiency	Number of participants
Load Optimisation	Energy savings
Fuel Switching	Demand savings
	Fuel savings
	Appliance #1 sales
	Appliance #2 sales
	Other (specify)

Reasons for Selecting this DSM Activity (Choose 1-5 reasons)	**Eligible Markets**
Regulatory Incentive	New Construction
Legislated / Mandated	Replacement/Retrofit
Political Pressure	
Public Image	
Result of Screening Process	
Result of Other Competitive Analysis	
Economic Development	
Business Opportunity	**Energy Source Affected**
Long-term Resource Option	
Market Penetration	Electricity
Quality of Service	Gas
Customer Retention	Fuel Oil
Cost of Service	District Heating
Reduction of Global Warming	
Reduction of Local Emissions	
Market Transformation	
Other (specify)	

Programme Type	**Alternative rates**
General Information (Brochures, etc.)	Time-of-Use
Site-Specific Information (Audits, etc.)	Interruptible/Curtailable
Installation of Conservation Measures	Other (specify)
Operations and Maintenance	
Load Control	
Hook-up Fees	
Education/Training	
Research and Development	
Building Standards and Labels	
Appliance Standards and Labels	
Market Transformation	
Other (specify)	

Customers Targeted by Programme Residential	**Non-customers Targeted by Programme**
All 1-2 Family Houses With Electric Space Heating 1-2 Family Houses Non Electric Space Heating Multifamily Houses/Apartments Central Heating Multifamily Houses/Apartments Indiv. Elec. Space Heating Multifamily Houses/Apartments Indiv. Non-Electric Heating Multifamily Houses/Apartments District Heating Other (specify)	Building Owners Retailers Wholesalers Appliance manufacturers Builders Realtors and developers Architects and engineers Bldg. mgrs. and administrators Bldg. and equipment operators Energy service companies Leasors and renters Other (specify)

Commercial [ ]	All Others (specify 6-digit NACE code(s))
Industry [ ]	All Others (specify 6-digit NACE code(s))
Agricultural [ ]	All Others (specify 6-digit NACE code(s))

Technologies	
Technology Code (see DCI Instructions)	Payback time in years

Marketing instruments	**Marketing methods**
Rebates and Cash Awards Financing, Loans, and Leasing Direct Installation Tariff reduction Bulk Purchasing Gifts and Merchandise Other (specify)	Direct mail Advertising Energy Audits Personal Contact Other (specify)

Participation Summary			
		Cumulative	Units
Participants			
Eligible Customers			
Participation Rate			

Programme Costs, Energy Savings, and Appliance Sales			
		Most Recent Year	Cumulative
Costs in Euro	Total Utility/Organiser Costs Total Non-Utility/Organiser Costs Total Programme Costs Incentive Costs (%) Non-Incentive Costs (%)		
Energy Savings	Electricity savings (MWh) System peak demand savings Fuel savings (TeraJoule)		
Appliance Sales (# units)	#1 Specify units #2 Specify units		

Data used to calculate savings	**Life-Cycle Programme Costs**
Engineering data Utility billing data Spot metering Whole-buildings load data End Use load data Equipment specifications Site-specific data Appliance sales data Other (specify)	Average measure lifetime: Real societal discount rate: Real utility discount rate:

Lessons Learned

Appendix B: Overview of the International Energy Agency (IEA) and the IEA Demand-Side Management Programme

The International Energy Agency

The International Energy Agency (IEA), established in 1974, is an intergovernmental body committed to advancing security of energy supply, economic growth, and environmental sustainability. The policy goals of the IEA include:

- diversity, efficiency, and flexibility within the energy sector,
- the ability to respond promptly and flexibly to energy emergencies,
- environmentally-sustainable provision and use of energy
- development and use of more environmentally-acceptable energy sources,
- improved energy-efficiency,
- research, development and market deployment of new and improved energy technologies, and
- undistorted energy prices
- free and open trade
- cooperation among all energy market participants.

To achieve those goals, the IEA carries out a comprehensive program of energy cooperation and serves as an energy forum for its 26 member counties.

Based in Paris, the IEA is an autonomous entity linked with the Organization for Economic Cooperation and Development (OECD). The main decision-making body is the Governing Board, composed of senior energy officials from each Member Country. A Secretariat, with a staff of energy experts drawn from Member countries and headed by an Executive Director, supports the work of the Governing Board and subordinate bodies.

As part of its program, the IEA provides a framework for more than 40 international collaborative energy research, development and demonstration projects, known as Implementing Agreements, of which the DSM Programme is one. These operate under the IEA's Energy Technolgy Collaboration Programme which is guided by the Committee on Energy Research and Technology (CERT). In addition, five Working Parties (in Energy Efficiency, End Use, Fossil Fuels, Renewable Energy and Fusion Power) monitor the various collaborative energy agreements, identify new areas for cooperation and advise the CERT on policy matters.

IEA Demand Side Management Programme

The Demand-Side Management (DSM) Programme, which was initiated in 1993, deals with a variety of strategies to reduce energy demand. The following 17 member countries and the European Commission have been working to identify and promote opportunities for DSM:

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

Programme Vision: In order to create more reliable and more sustainable energy systems and markets, demand side measures should be the first considered and actively incorporated into energy policies and business strategies.

Programme Mission: To deliver to our stakeholders useful information and effective guidance for crafting and implementing DSM policies and measures, as well as technologies and applications that facilitate energy system operations or needed market transformations.

The Programme's work is organised into two clusters:

- The load shape cluster, and
- The load level cluster.

The 'load shape" cluster includes Tasks that seek to impact the shape of the load curve over very short (minutes-hours-day) to longer (days-week-season) time periods. The "load level" cluster includes Tasks that seek to shift the load curve to lower demand levels or shift loads from one energy system to another.

A total of 15 projects or "Tasks" have been initiated since the beginning of the DSM Programme. The overall program is monitored by an Executive Committee consisting of representatives from each contracting party to the Implementing Agreement. The leadership and management of the individual Tasks are the responsibility of Operating Agents. These Tasks and their respective Operating Agents are:

Task 1 International Database on Demand-Side Management &
Evaluation Guidebook on the Impact of DSM and EE for Kyoto's GHG Targets
Harry Vreuls, NOVEM, the Netherlands

Task 2 Communications Technologies for Demand-Side Management - *Completed*
Richard Formby, EA Technology, United Kingdom

Task 3 Cooperative Procurement of Innovative Technologies for Demand-Side Management – *Completed*
Dr. Hans Westling, Promandat AB, Sweden

Task 4 Development of Improved Methods for Integrating Demand-Side Management into Resource Planning - *Completed*
Grayson Heffner, EPRI, United States

Task 5 Techniques for Implementation of Demand-Side Management Technology in the Marketplace - *Completed*
Juan Comas, FECSA, Spain

Task 6 DSM and Energy Efficiency in Changing Electricity Business Environments – *Completed*
David Crossley, Energy Futures, Australia Pty. Ltd., Australia

Task 7 International Collaboration on Market Transformation
Verney Ryan, BRE, United Kingdom

Task 8 Demand-Side Bidding in a Competitive Electricity Market - *Completed*
Linda Hull, EA Technology Ltd, United Kingdom

Task 9 The Role of Municipalities in a Liberalised System
Martin Cahn, Energie Cites, France

Task 10 Performance Contracting
Dr. Hans Westling, Promandat AB, Sweden

Task 11 Time of Use Pricing and Energy Use for Demand Management Delivery
Richard Formby, EA Technology Ltd, United Kingdom

Task 12 Energy Standards
Frank Pool, New Zealand

Task 13 Demand Response Resources
Ross Malme, Retx, United States

Task 14 White Certificates
Antonio Capozza, CESI, Italy

Task 15 Network Driven DSM
David Crossley, Energy Futures Australia Pty Ltd, Australia

For additional information, see the DSM website: http://dsm.iea.org

Appendix C: Contact information

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