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A Report from the
International Database on Energy Efficiency Programs (INDEEP) Project

INDEEP ANNUAL REPORT (1994-1995)

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April 1995

Prepared for the U.S. Department of Energy under Contract Number DE-AC03-76SF00098

DISCLAIMER

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This work was supported by the Assistant Secretary for Energy Efficiency and Renewable Energy, Office of Utility Technologies, of the U.S. Department of Energy under Contract No. DE-AC03-76SF0098; Energieverwertungsagentur (Austria); DEFU (Denmark); Commission of the European Union (Joint Research Center); RaCER (Korea); NOVEM (Netherlands); Red Electrica de España and UNESA (Spain); and NUTEK (Sweden).

Executive Summary

This report is the first Annual Report of the International Database on Energy Efficiency Programs (INDEEP), summarizing the activities of the first year (1994-1995). During this time period, we conducted the following activities: (1) reviewed existing international demand-side management (DSM) program data bases; (2) reviewed participating country's experience in DSM program evaluation;[1] (3) prepared case studies on 1-4 DSM programs per country; (4) tested the DEEP data collection instrument (DCI)[2] and prepared an INDEEP DCI; (5) contacted potential users of the INDEEP data base; and (6) organized an INDEEP workshop.

As a result of these activities, we accomplished more in the first year than what was expected, so that the work planned for five years (as proposed in the original research work plan) can be accomplished in a shorter period of time (by at least one year) and with a reduced budget (e.g., from $470,000 to $140,000 for the second year). The key findings from the first year are the following:

(1) Based on a review of the literature and discussions with DSM experts in the participating countries, we found the proposed INDEEP data base to be unique and not duplicative of other data bases.

(2) After intensive "field testing" of the INDEEP data collection instrument (DCI) on 14 European DSM programs, a four-page DCI was developed that INDEEP experts agreed to use for data collection in the second year of the project.

(3) Based on informal networking, DCI field testing, meetings with potential users of the INDEEP data base, and the INDEEP workshop, we found substantial interest in the INDEEP project, particularly from DSM program designers. Many of our contacts felt that the INDEEP data would be useful for obtaining new ideas, comparing programs, improving program design, and establishing contacts (networking). In addition, most people felt that the information covered in the INDEEP data base (e.g., energy savings, program costs, and program delivery approaches) was the "right information" for meeting their DSM needs.

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[1] The participating countries that are analyzed in this report are: Austria, Denmark, Netherlands, Spain, and Sweden. The Commission of the European Union, Korea, and the United States are also participating in this project, but their programs are not analyzed in this report.

[2] The DEEP DCI refers to the data collection instrument prepared for the Database on Energy Efficiency Programs (DEEP) project, a North American effort managed by Lawrence Berkeley Laboratory and the precursor to the INDEEP project.

(4) Discussions with DSM experts in the participating countries and at an INDEEP workshop attended by over 40 European DSM experts led to a consensus for the project to proceed for another year, focusing on: (a) additional data collection, (b) entering of data onto an Excel spreadsheet, and (c) close collaboration with potential users (e.g., individual country workshops), building upon the existing network established in the first year.

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1. INTRODUCTION

In the last decade, interest in energy efficiency has increased around the world. Countries are interested in energy efficiency because of its potential to ameliorate local and regional environmental problems, reduce the prospect of global climate changes associated with the greenhouse effect, provide the foundation for improved economic stability and development, and to reduce global risks and uncertainties associated with non-domestic oil supplies. Developing easily accessible information services and networks on energy efficiency technologies and programs is an important strategy that some countries are promoting in the pursuit of an energy-efficient society. While not all lessons are transferable, the sharing of experience in energy efficiency policies and programs will help all countries avoid mistakes that can waste scarce resources.

Recognizing these concerns and opportunities, the International Energy Agency (IEA) established a Demand-Side Management Program to clarify and promote opportunities for demand-side management (DSM). One of the five Tasks in the DSM Program is to establish an international data base on DSM, analyze the data collected, and disseminate the information which results from the analysis. Underlying this task is the assumption that if all of this information is in one place, the cost of obtaining such information is considerably reduced, and the potential for comparing programs and synthesizing program experience is facilitated: data on similar programs can be summarized by marketing and delivery approaches, incentive mechanisms, and other program features to identify indicators of successful programs. These analyses can be used to improve program effectiveness and to develop more reliable DSM resource planning estimates. Most importantly, by including a limited amount of information on the characteristics of the implementing utility or government agency, program planners can assess the transfer of the results to their own geographical areas. Thus, the overall goal of this international project is to lower the costs and increase effectiveness of utility and government implementation of end-use energy efficiency programs. Utilities and others will not have to "re-invent the wheel" with each new DSM program plan or program design, and can, hopefully, avoid costly mistakes by using the information in this international data base.

This report is the first Annual Report of the International Database on Energy Efficiency Programs (INDEEP), summarizing the activities of the first year (1994-1995). The report is organized as follows. In Section 2, IEA's DSM Program is described, and in Section 3, an overview of the INDEEP project is presented. In Section 4, the main activities and accomplishments of the first year are described, including the following: (1) a review of existing international DSM program data bases; (2) a review of each country's experience in DSM program evaluation; (3) a description of DSM program case studies

completed in the project; (4) the experience of field testing the project's data collection instruments; (5) the identification of potential users of the INDEEP data base and their information needs; (6) a discussion of the findings of the first INDEEP workshop and its impact on the project; (7) an assessment of the transfer of DSM program results and experience; (8) a description of the project's policies established to help guide this project; (9) a list of key meetings held; and (10) a list of project documents prepared in the first year. In Section 5, the activities of the second project year are presented.

2. IEA DSM PROGRAM

The International Energy Agency (IEA) Demand-Side Management Implementing Agreement is a new international collaboration with 14 IEA member countries, plus Korea and the European Union, working to clarify and promote opportunities for DSM. For the purposes of this program, DSM is defined to include load management, energy efficiency and related activities carried out by utilities. Through co-operative activities, participants collaborate to help DSM technologies reach their full market potential, thereby allowing energy systems to function more effectively and giving utility investments enhanced value for gas and electricity customers.

The DSM Program has five Tasks (the term Task is used to describe the work to be done under the contractual Annex to the Implementing Agreement on Demand-Side Management Technologies and Programs). The first Task will establish an international data base on demand-side management and is the sole subject of this report. The second Task will assess options for applying communications technologies to DSM programs. By conducting competitive procurement of more efficient DSM technologies, the third Task will accelerate the process of market penetration. Utilities and governments in participants' countries will be assisted in the fourth Task to develop and communicate improved methodologies for integrating DSM options in utility resource planning. The fifth Task is to develop improved utility and government strategies for implementing DSM technologies in the marketplace. A complete description of all five Tasks and of the expected results is found in Bengtson (1995).

3. INDEEP PROJECT DESCRIPTION

The objective of Task 1 is to establish an international data base on DSM, analyze the data collected, and disseminate the information which results from the analysis. The international data base on energy efficiency programs (INDEEP) will make available information on electric and gas utility DSM

programs as well as those carried out by others (e.g., government agencies and energy service companies). Initially, the data base will consist of programs implemented by the seven countries participating in this Task: Austria, Denmark, Korea, Netherlands, Spain, Sweden, and the United States. The other participant in this Task, the Commission of the European Union, will also contribute information on DSM programs funded by the Commission.

As outlined in the original workplan (Vine 1993), there are seven subtasks in this project:[3]

Subtask 1. Pilot Project to Explore the Feasibility and Nature of an International Data Base on DSM Programs (1994-1995)

Participants will assess the transfer of DSM program results, the usefulness of existing data collection instruments (DCIs) and data bases on DSM programs, and the level of interest among potential users of an international data base on DSM programs. Participants will review existing DSM program data bases and reports, conduct case studies on one to four DSM programs in each Participant's country, enter program information into DCIs, translate the DCIs into different countries' languages (at their option), and identify and contact potential users of an international DSM program data base.

Subtask 2. Identification of DSM Programs for the Data Base

Participants will identify candidate DSM programs for inclusion in an international data base on DSM programs and will obtain brief descriptors of energy-efficiency programs being implemented in each Participant's country. To do so, they will develop a questionnaire, identify a representative sample of utilities with DSM programs, distribute the questionnaire to the sample, collect responses to the questionnaire, and analyze the responses.

Subtask 3. Design of International Data Base on DSM Programs

Participants will develop DCIs, glossary of terms, and data base software for implementing an international data base on DSM programs, in order to ensure that the terms, units and measurements are highly similar or identical. Site visits will be

[3]The original plan has been revised since the start of the project, as described in Chapters 4 and 5.

conducted to ensure that the DCI and data base software are used in a consistent fashion in all of the Participants' countries.

Subtask 4. Collection and Entry of Data on DSM Programs

Participants will collect data on energy efficiency programs using the DCIs and software developed in the previous subtask and will create a repository for the data collected. In particular, Participants will distribute a survey, collect survey responses, conduct a quality review of the responses, and enter the responses into an international data base on DSM programs. To ensure accuracy, the data base will focus as much as possible on those programs with measured data, though some key programs with estimated data on energy savings, costs, and market penetration will also be included.

Subtask 5. Analysis and Dissemination of DSM Program Information

Participants will analyze information collected in the international data base on DSM programs, prepare reports that analyze and synthesize the collected data, and publish the reports to transfer knowledge gained within their countries. The reports will compare alternative program approaches in Participants' countries, in order to arrive at common judgments as to which approaches are most effective, which can be improved, and which are best avoided.

Subtask 6. Updating of International DSM Program Data Base

After the initial data collection, Participants will undertake annual updates of the data base to ensure that the data on new and existing programs remain current.

Subtask 7. Promotion of International DSM Program Data Base

Participants will promote the international DSM program data base project on a regular basis throughout the Task, in order to ensure that it is a current and useful resource. Literature describing the data base to potential users will be prepared, and the Operating Agent will work with users to help ensure that the data base is user friendly.

The results from this Task will include: (1) a report on the Pilot Project, (2) an international data base on DSM programs, (3) reports on DSM programs and program approaches, (4) updates to the data base, (5) promotional materials on the data base, and (6) annual progress reports.

INDEEP will focus on program descriptions and key summary data on program costs, participation rates, energy and demand savings, market delivery designs, and evaluation methodologies. Practical information, such as program contacts, will also be included in the data base. In addition, summaries of pertinent data will be provided periodically in order to present the lessons learned in particular types of programs (e.g., lighting programs in commercial buildings, or appliance rebate programs for energy-efficient refrigerators). As more energy efficiency programs are implemented, their experience will be transferred to the data base.

Two advisory groups provide guidance to INDEEP activities. The Executive Committee (composed of one representative from each of the participating countries) provides management oversight to the Task and provides advice at critical junctures during the process of designing and implementing the data base. The Experts Group (composed of government and utility representatives, data base specialists, and DSM professionals - see Appendix A) provides advice on data base design, data collection and data analysis activities, and the direction of the Task.

Task 1 officially began May 1, 1994. The pilot project (Subtask 1) was conducted in the first year and is the subject of this report. As discussed below, the work accomplished in the first year (May 1, 1994 to April 30, 1995) exceeded our expectations, so that the project subtasks can be completed in a shorter period of time (by at least one year) than envisioned in the original work plan.

4. INDEEP PILOT PROJECT

During 1994-1995, the pilot project focused on laying the foundation for the work to be conducted in the years ahead. We conducted the following activities during this time period:

(1) reviewed existing international DSM program data bases,
(2) reviewed each country's experience in DSM program evaluation,
(3) conducted case studies on 1-4 DSM programs per country,
(4) tested the DEEP data collection instrument (DCI) and prepare an INDEEP DCI,
(5) contacted potential users of the INDEEP data base,
(6) organized an INDEEP workshop, and
(7) prepared this report on the activities of the first year and their impact on the project in the years ahead.

4.1 Existing International DSM Program Data Bases

We reviewed existing data bases containing information on DSM programs (Table 1, and see Vine et al. 1993). None of the data bases contained all of the information that was needed for the INDEEP data base, especially at an international level. In general, most participating countries in Europe have not developed a comprehensive data base on DSM programs and evaluation results; most of the existing data bases focus on technologies (rather than programs). All of the European participants expect the INDEEP data base to serve as the repository for information on their DSM programs. Although not a data base per se, UNIPEDE (International Union of Producers and Distributors of Electrical Energy) recently compiled data on 57 DSM projects from 12 countries, containing information similar to the data needed for the INDEEP data base (UNIPEDE 1994). However, this UNIPEDE activity has ended (personal communication from Casper Kofod, Task Leader for this UNIPEDE project, DEFU, January 12, 1995). In conclusion, based on review of the literature and discussions with experts in the field, we found that our proposed data base was unique and not duplicative of other data bases.

4.2 DSM Program Evaluation Experience

In order to provide a context for the work that was to be conducted in this project, each expert reviewed their country's experience in the following areas: (1) existing and future DSM data collection activities; (2) methods used (or planned) to evaluate DSM programs; and (3) available evaluation technical assistance. Highlights of this experience are summarized in Table 1, and a more detailed description on some of these areas is found in Vine (1995). In general, the types of DSM data collected in these European countries are varied, ranging from market sales data on specific equipment to monitoring data of government and utility programs. And the experience of DSM program evaluation is relatively recent and limited, when compared to the efforts undertaken in the United States. Some governments have developed their own evaluation and monitoring guidelines and handbooks (e.g., Netherlands and Sweden). And the DSM projects funded by the Commission of the European Union (under the SAVE program) offer the possibility of providing more evaluation tools for evaluators in Europe.[4]

[4] The Commission of the European Union started the SAVE program in 1991 to re-establish energy efficiency as a priority for both the public and private sectors. In 1992, the Commission's first DSM pilot project was established under the SAVE program. Approximately 30 DSM/IRP projects are being implemented, although many of these are feasibility studies.

Table 1. Overview of DSM Program Experience

Country	DSM Data Bases	DSM Data Collection Activities	DSM Program Evaluation Experience
Austria	(1) Residential appliance data base. (2) Energy consulting service data base for all sectors. (3) Data base for public funding of energy efficiency measures.	(1) Data on energy consulting services of utilities, governments, and private organizations. (2) Data on public funding of energy efficiency measures.	(1) Little but growing experience with program evaluation. (2) Current research of the Austrian Association of Power Utilities on the creation of a monitoring system for DSM programs.
Denmark	(1) Residential appliance data base. (2) Energy consulting service data base for industry & tertiary sector.	(1) Energy consulting service data in industry & tertiary sector. (2) Load research data for all large consumers, and for representative panels in main sectors (residential, commercial, industrial, and agricultural). (3) Time-of-day tariff data for all sectors.	(1) Extensive evaluation experience by utilities and distribution companies. (2) Methods for evaluating DSM and supply-side options being developed in a SAVE project.
Commission of the European Union	None.	EU-funded SAVE program data may be collected.	Unclear on extent of evaluation of SAVE programs.
Netherlands	Technology data base.	(1) Government and utility program monitoring data. (2) Data on government and university demonstration and R&D projects, and subsidy programs.	(1) Extensive evaluations conducted by distribution companies and their branch organizations, and by government. (2) Program monitoring system and handbook developed by government.
Spain	Appliance and building consumption data base for all sectors.	Appliance and building consumption data for a sample of customers from different sectors.	Very little.
Sweden	Program and audit data base for commercial sector.	Equipment sales data.	(1) All governmental programs evaluated; utility evaluations done but most are confidential. (2) Government has its own evaluation planning process.
United States	Many program and technology data bases (see Vine et al. 1993).	Extensive data collection efforts by government and industry organizations (see Vine et al. 1993).	(1) Extensive evaluation experience by utilities and government. (2) Evaluation guidelines and protocols developed for some states. (3) Large consulting industry in evaluation.

4.3 DSM Program Case Studies

Each expert conducted a few (1-4) case studies to "test" the INDEEP data collection instrument (see Appendix B). The selection process was left to each expert, and, therefore, the 14 programs may not be representative of other DSM programs being conducted in these countries: e.g., all of the programs have "post-program evaluation" data (such as, audit information or measured consumption data) and may also be more successful compared to programs that have been terminated or were otherwise not reported. The number of case studies per country reflects to a certain degree the amount of DSM activity within each country (as described in the previous section). As seen in Table 2, the diversity of programs is large, as reflected in the type of program, the motivations for implementing the program, and the methods used to market the program. The programs are briefly described below; a preliminary assessment of the cost and performance of these programs is described in Vine (1995). The experience of using the INDEEP data collection instrument is presented in Section 4.4.

4.3.1 Austria: District Heating and Fuel Switching Program

Since 1992, the municipal utility of Salzburg (Salzburger Stadtwerke AG) has offered a service package to contractors and heating system operation authorities to promote the use of district heating and the conversion of fuels from oil and coal to gas. The service package provides heat delivery with measuring and billing per dwelling, annual service of the complete heating system, control engineering and hydraulic optimization, and/or implementation of repair and redevelopment measures, as well as a 24-hour repair service. The program is targeted to multi-family housing (existing and new) that uses oil or coal-based energy. To reduce the barrier of high investment costs, service connection costs were calculated as if all multifamily occupants were participating (even if not all were willing to switch to district heating or gas).

Table 2. Overview of European DSM Case Studies

Country	Primary Implementing Agent (1)	Program Name	Program Lifetime	Program Type (2)	Motivations (3)	Marketing Methods (4)
Austria	U	District Heating and Fuel Switching	1992-ongoing	A, M, O&M	BD, EE, EQ, FS, PI, QS	B, DCU, SW
Austria	U	Electric Appliance Exchange	1989-1992	I, M	EE, PI	B, BI, DCT, DCU, DM
Austria	U	Heat Pump	1980- ongoing	A, M, O&M	EE, EQ, FS, LT, PI	DCT, DCU, N, NA, SE, SW, TD
Austria	U	Commercial Load Management	1992-1994	I, LC, M	EE, LM, PI, QS	DCU, SW
Denmark	U	Low-Energy Freezers	1993-1994	I, M	EE	B, NA, RA
Denmark	U	Industrial Audit	1987-ongoing	A	BD, EE	DM
Denmark	U	Trade and Public Sector Audit	1987-ongoing	A	BD, EE	DM
Denmark	U	Residential Lighting	1993-ongoing	I	EE	B, NA. RA. TD
Netherlands	N & U	Compact Fluorescent Lamp	1993-1994	M	EE, EQ	GA, NA. RA. SE
Netherlands	N & U	Energy-Efficient Refrigerator and Freezer	1993-1994	M	EE, EQ, LM, PI	B, N
Netherlands	N & U	Solar Domestic Hot Water System	1991-ongoing	M	EQ, FS, LT	DCT, DCU, GA, NA, RA, SW, TD
Spain	U	Efficient Air Conditioning	1988-1990	I, M	EE, LM, QS	B, DCT, DCU, DM, GA, NA, RA, SE
Spain	U	Night Tariff	1989-1991	I, LC	EE, LG, LM, QS	B, DCT, DCU, DM, GA, N, NA, RA, SE, SW, T, TD
Sweden	G	Market Transformation of High-Frequency Ballasts	1990-ongoing	I, M	LL, PR	B, DCU, DM, N, SE, SW, TD

(1) Primary implementing agent: G = Government; N = National organization of energy distributors; U = Utility

(2) Program type: A = Audits; I = Information; LC = Load control; M = Installation of energy-efficiency measures; O&M = Operations and maintenance

(3) Motivations: BD = Business development; EE = Energy efficiency; EQ = Environmental quality; FS = Fuel switching; IC = Increase comfort and quality of life; LG = Legislated/mandated; LL = Lighting level and quality improvements; LM = Load management; LT = Long-term resource benefits; PI = Public image; PR = Price reduction of equipment; QS = Quality service

(4) Marketing methods: B = Brochures; BI = Bill inserts; DCT - Direct contact by trade ally; DCU = Direct contact by utility; DM = Direct mail; GA = General advertising; N = Newsletters; NA = Newspaper advertising; RA = Radio/TV advertising; SE = Shows/exhibits; SW = Seminars/workshops; T = Telemarketing; TD = Tests/demonstrations

4.3.2 Austria: Electric Appliance Exchange Program

In 1989, the Austrian utility SAFE (Salzburger AG für Energiewirtschaft) launched a rebate program for the exchange of electric household appliances (Haas 1995). The objective of the program was to replace as many inefficient household appliances as possible in the Austrian federal state of Salisbury, in order to save energy and to examine how much energy efficiency could contribute to future electricity supply security. The program consisted of two major elements: a rebate for investments and a bounty (reward) for conserved energy (kWh). The rebate was either 20% of the initial electricity bill or 20% of the price of the new appliance. Each participant got a rebate for only one appliance. The rebate was subject to the condition that the old unit was given to SAFE for disposing the appliances to a licensed local recycling company. The bounty was an additional amount of half the electricity price for each kWh saved, up to a maximum of 5% of the initial electricity bill, for three years following the program.

4.3.3 Austria: Heat Pump Program

In 1980, Upper Austria's Provincial Government and the Upper Austrian Electric Power Company Ltd. (OKA) implemented a program to promote the use of heat pumps to further the goal of replacing fossil fuels in the residential sector. The program targets people living in one- to three-family houses with certain income limits. In addition to homeowners, the program targets manufacturers of heat pumps, plumbers, and retailers. The program is marketed through newspaper advertising, newsletters, seminars and workshops, and rebates (370 ECU ($440) for heat pumps for water heating, and 1,480 ECU ($168) or 2,220 ECU ($2,664) for heat pumps for space heating (depending on the chosen technology)).[5]

4.3.4 Austria: Commercial Load Management Program

In 1992, the Viennese utility (Wiener Stadtwerke WIENSTROM) launched a pilot load management program for commercial customers. The primary program objectives are peak clipping and load shifting. Seminars for trade allies about the advantages of load management have been used to provide examples of load management in enterprises that are typical for their trade. Since September 1994, the program has been implemented as a full-scale program to all commercial customers.

[5]ECUs are converted to 1994 U.S. dollars: $1 = 0.80 ECU, or 1 ECU = $1.20.

4.3.5 Denmark: Low-Energy Freezers Program

In 1993, a Danish electric utility promoted low-energy freezers in the residential market. In addition to media advertising (newspapers, radio, and television), the utility offered rebates to homeowners for replacing existing freezers with energy-efficient freezers. The utility was responsible for making sure that the old appliances were properly disposed. At the end of 1994, a national campaign was created to promote low-energy freezers.

4.3.6 Denmark: Industrial Audit Program

ELSAM (one of two power pools in Denmark and jointly owned by six generating companies) reported on how Danish electric utilities offer free audits to industrial customers. Since 1987, the program has targeted industrial customers with electricity consumption above 200,000 kWh per year. All of these customers (1700) have been contacted, 90% have received an audit, and 30% of the audited customers have implemented some of the recommended measures.

4.3.7 Denmark: Trade and Public Sector Audit Program

The third Danish program is the national program of free audits to the trades and public sector. The program targets customers with electricity consumption above 200,000 kWh per year. All of these customers (3700) have been contacted, 95% have received an audit, and 30% of the audited customers have implemented some of the recommended measures.

4.3.8 Denmark: Residential Lighting Program

The utilities in Denmark have conducted several programs to promote efficient lighting in the residential sector. ELSAM reported on a national program in 1993 which relied on newspaper, radio, and television advertisements to encourage people to use compact fluorescent lamps (CFLs). Now, the total sale in Denmark of compact fluorescent lamps is the same as the number of people in Denmark: 5 million CFLs, or 2.2 CFLs per home on average.

4.3.9 Netherlands: Compact Fluorescent Lamp Program

Between Sept. 1993 and Feb. 1994, the Dutch energy distribution companies implemented a national campaign to promote the use of CFLs . The energy distribution companies were assisted by EnergieNed, CFL manufacturers, and the Ministry of Economic Affairs. The mass media (e.g., radio and television)

was used extensively to advertise the program. In addition, a lottery with prizes was offered to those who submitted bar codes from the CFLs on special coupons. A television show (*Voila's Voltshow)* had energy-saving quizzes and announced the lottery winners. The special coupons were distributed door-to-door and inserted in the utility magazine (*Energy and Water*). During the national campaign, 2.9 million CFLs were sold and the numbers of households with at least one CFL increased from 49% to 56%. Most of the participants in the program bought an average of 2 CFLs per household.

4.3.10 Netherlands: Energy Efficient Refrigerator and Freezer Program

This program promotes "green" refrigerators and freezers: these appliances are energy efficient and meet certain environmental conditions, as discussed below. Customers who buy an energy-efficient refrigerator or freezer receive a 23 ECU ($28) discount from the retailer who can then apply for a rebate at the participating utility. The price discount is only offered for appliances on a "green list" that shows CFC-free models that meet accepted energy usage and environmental criteria. The retailer is responsible for making sure that the old appliance is properly disposed: either reused or recycled by a certified recycling company. The program was successful in meeting its goal: e.g., shifting the market share of green refrigerators and freezers from 20% to 40% in the first four months of the program (Sept. 1, 1993 to Dec. 31, 1993). The average difference in energy consumption between "green" and "non-green" models was found to be 110 kWh/year.

4.3.11 Netherlands: Solar Domestic Hot Water Systems Program

The national solar boiler campaign targeted new solar boilers in the residential and commercial sectors. Using the media (newspaper, radio and television advertising), the campaign tried to create awareness about the benefits of using solar energy. About 14,000 units were installed, representing about 5% of the eligible market.

4.3.12 Spain: Efficient Air Conditioning Program

From 1988-90, a Spanish utility implemented an air conditioning program in the residential and commercial new construction sectors. Rebates were offered to customers to install high-efficiency air conditioners, and the utility promoted the program through newspaper, radio, and television advertising, as well as through brochures, direct mail, shows and exhibits.

4.3.13 Spain: Night Tariff Program

From 1989-91, a Spanish utility implemented a night tariff program in the residential and commercial sectors by offering rebates to customers to use more electricity at night. In addition to publicizing the program through newspaper, radio, and television advertising, the utility promoted the program through brochures, direct mail, shows and exhibits.

4.3.14 Sweden: Market Transformation of High-Frequency Ballasts

Since April 1990, NUTEK has been trying to influence the market of high-frequency ballasts in the commercial and industrial sectors (in both existing and new buildings), by using technology procurement, bulk purchasing, rebates, and services, and by working with purchasers, consultants, and electrical contractors (Göransson and Faugert 1994).

4.4 Field Testing of Data Collection Instruments

One of the principal activities conducted in the first year of Task 1 was to "test" the data collection instrument (DCI) prepared for the DEEP data base in the United States, to see if it could be used for collecting program data in Task 1.[6] At the beginning of the project, a few changes were made to the DEEP DCI to find out which data would be available in the participating countries, resulting in the development of the INDEEP DCI, the forms describing the sponsors of the DSM program (Utility and Provider Profiles), instructions for completing the DCI and the forms, and a glossary of terms for assisting the completion of this material (Appendix B). The main changes made to the DEEP DCI which were reflected in the original INDEEP DCI were the addition of information on the motivations for implementing a particular program and the environmental impacts of the program.

During the field testing stage, the experts tried to complete the original INDEEP DCI for the case studies mentioned above by reviewing program evaluation reports (where available) and other published material. In addition, the experts contacted program managers and evaluators by telephone

[6]In order to address concerns regarding the cost-effectiveness of DSM activities, the U.S. Department of Energy and other sponsors initiated the Database on Energy Efficiency Programs (DEEP) project at the Lawrence Berkeley Laboratory in Berkeley, California (Vine et al. 1993). The goal of the DEEP project is to provide information that systematically compares measured DSM program performance and costs. By providing this information, the DEEP team is helping to identify successful DSM practices and thereby contribute to the successful maturation of the DSM industry.

and/or through in-person interviews. In many cases, extensive discussions with utility staff members were required. The contacts were generally cooperative in providing information on their DSM activities, although it was clear (from both the experts and utility contacts' point of view) that the INDEEP DCI was too long and weighted too heavily on evaluation questions. Because the experience in evaluating European DSM programs is limited (see above) and because INDEEP data providers were reluctant to spend a lot of time on completing the forms, the INDEEP DCI was shortened to four pages (instead of 19) and modified to reflect a balance among program design, implementation, and evaluation questions (Appendix C). For example, many of the questions regarding process and market evaluation and environmental impacts were eliminated. The revised INDEEP DCI was reviewed extensively at the Task 1 workshop (see below). After much discussion, the workshop participants agreed that the four-page length of the DCI was reasonable and should be used (with some modifications) for data collection in the second year of the project. At the end of the second year, the DCI and instructions will be reviewed to see if further modifications are warranted and to make sure the data have been collected consistently.

4.5 Potential Users of INDEEP Data Base and Their Information Needs

Another main activity conducted during the first year of this project was to identify potential users of the INDEEP data base and to ascertain their information needs. Each expert was responsible for contacting utilities within their country to assess general DSM information needs and the specific need for and usefulness of an international data base on energy efficiency programs. As noted above, experts worked with utility staff in obtaining data on DSM programs, and, in a few cases, experts held special meetings with utility staff to discuss the value of the INDEEP project: e.g., EnergieNed in The Netherlands and Danish utility integrated resource planning experts. A representative of the Commission of the European Union also surveyed 26 utilities having a contract with the EU's SAVE program to assess their DSM information needs and capabilities, and investigate their interest and willingness to participate in INDEEP.

On behalf of the Dutch energy agency NOVEM, KEMA (an independent service organization, jointly owned by Dutch electricity producers and the electricity distributors) interviewed representatives of various Dutch energy companies and completed six INDEEP case studies (Hutting 1995). KEMA found that for evaluated programs most of the data needed in the original DCI was available, and that evaluators participating in the KEMA study were interested in an international comparison of program design, implementation, and evaluation results. KEMA noted that there was sufficient interest among the participants for future international collaboration within an IEA framework.

The Task 1 workshop (see below) also held special sessions on identifying potential users of the data base and their needs. Based on the above research, we found substantial interest in the INDEEP data base, particularly from DSM program designers. Many of our contacts felt that the INDEEP data would be useful for obtaining new ideas, comparing programs, improving program design, and establishing contacts (networking). Most people felt that the primary information products from this project should be the data base and 1-2 page fact sheets. The information covered in the INDEEP data base (e.g., energy savings, program costs, and program delivery approaches) were identified by our contacts as the "right information" for meeting their DSM needs. Based on this positive experience, we plan to work with the potential users in the second year to confirm the utility of the INDEEP project.

4.6 INDEEP Workshop

Over 40 participants attended the first INDEEP workshop, held in Vienna on January 26-27, 1995. The agenda for the workshop and a list of participants are found in Appendix D. The purpose of the workshop was the following: (1) assess the usefulness of the INDEEP project; (2) determine potential users of INDEEP products; (3) evaluate DSM information needs of potential users; (4) assess the relative value of INDEEP products; (5) evaluate the transfer of DSM program results and experience; and (6) review the INDEEP work plan for future years and suggest modifications.

The workshop was structured into two sessions. In the first session, small discussion groups addressed the following issues (reflecting a "macro perspective"): (1) what are the appropriate measures of program success or failure? (2) who will use the data? (3) how will the data be used? (4) what data are confidential? and (5) what kinds of information products are needed (e.g., database, reports, 1-2 page fact sheets)? We concluded the following:

(1) the measures of program success will vary by utility, DSM program, and user of the INDEEP database - however, the INDEEP project appears to have considered the key measures, but should also compare program goals with program results;

(2) the primary users of the INDEEP database will be program designers;

(3) the data from the database will be used for obtaining new ideas, comparing programs, improving program design, and establishing contacts (networking);

(4) confidential information is not an issue at this time; and

(5) the primary information products from this project are the database and 1-2 page fact sheets (the project should also consider electronic access to the data base, perhaps through the Worldwide Web).

In the second session, the groups focused on the shortened DCI and addressed the following issues (reflecting a "micro perspective"): (1) is the form too large or too small? (2) what additional information is needed? (3) what kinds of programs should be evaluated? (4) how should technologies be listed in the DCI? (5) how should the data be collected? and (6) who should collect the data? We concluded the following:

(1) the 4-page length of the DCI is reasonable and should be used (with some modifications) for the second year (the DCI could be extended later, if necessary, based on the experience of the second year);

(2) additional information is needed on: (a) background information (e.g., energy prices, market barriers, market description, and utility deregulation) - this information should be incorporated in the DCI where possible (otherwise, review the information outside of the DCI, or reconsider its incorporation at the end of the second year); and (b) DCI instructions (definitions) so that data can be collected consistently by different people;

(3) governmental programs are to be included in the database (the amount of overlap with the IEA's proposed program database was considered to be minor), while programs that are in the planning stage are to be excluded;

(4) a more detailed list of technologies is necessary and could be included in the DCI by using codes for technologies (the codes would be included in the instructions to the DCI);

(5) users should provide the "raw data" (e.g., costs and savings), and conversion to common units (e.g., ECUs) will be done later by the national expert; and

(6) the national experts should have the following responsibilities: (a) determine how the data will be collected in their country; (b) coordinate (or integrate) their data collection efforts with other reporting requirements in their country; and (c) be responsible for quality control (e.g., make sure the correct data are collected and avoid double counting of energy savings).

Regarding future directions for the INDEEP project, we concluded that the work plan for the second year of the project would contain the following activities: (1) revise the shortened DCI; (2) prepare instructions (definitions) for the DCI; (3) collect data on as many programs as possible; (4) develop an Excel spreadsheet for entering the data; (5) enter the data onto the spreadsheet and merge the spreadsheets; (6) summarize the data; and (7) present the results of the analysis in a report. We agreed that the budget for the second year would be closer to the first year's budget than to the budget that was envisioned in Task 1's original five year work plan.

Manfred Heindler (Director of Energieverwertungsagentur (the Austrian Energy Agency)) also provided the following summary comments: (1) there are benefits in pursuing international collaboration; (2) there are constraints (in terms of time and money), so that the data base software development effort should be small; (3) there should be a close collaboration with potential users, building upon the existing network that was established in the first year; (4) the project must show clear, added value, compared to existing, competing efforts by other organizations, such as the International Energy Agency and UNIPEDE; (5) the project must stay unique and not duplicate other efforts; and (6) the project should aim to make this database a "living tool" that goes beyond five years.

In summary, the workshop participants and Task 1 experts found the workshop to be very productive and instrumental in guiding the development of Task 1 in future years. As noted below, the work plan for the second year reflects the consensus of the workshop.

4.7 The Transfer of DSM Program Results and Experiences

One of the objectives of the first year's work was to assess whether the results and experiences of DSM programs can be transferred from one utility to another and from one country to another. Because of the limited number of case studies, it is premature to provide a comprehensive and definitive assessment of this issue, although a preliminary comparison of the case studies has been conducted (Vine 1995). The preparation of the DSM case studies and the participants' experience in working with the INDEEP data collection instrument indicated that the DSM program results and experience might be transferred from one location to another, if at least two provisions are fulfilled:

> First, a set of **definitions** (instructions) must accompany the DCI so that the data are collected and reported consistently. Inconsistent definitions for key parameters (e.g., participation rates) will preclude meaningful cross-utility comparisons of program performance. The INDEEP project is committed to developing standardized, consistent

information, so that a clear and systematic comparison of DSM practices and program impacts can be conducted.

Second, the information on the cost and performance of DSM programs must be placed in a broader context of the **utility and customer environments** in each country: e.g., energy prices and rates, market barriers, market saturations and penetration rates, regulatory incentives and disincentives, the market for energy efficiency, and the extent of privatization and regulation of the power industry. The INDEEP project will examine these features in the second year, building upon similar information collected in Tasks 4 and 5.

In the second year, we will assess the transfer of the results and experiences of DSM programs to see if they can be transferred from one location to another.

4.8 INDEEP Policy Issues

In the first year, the Experts Group developed a set of policy statements for guiding this particular task, some of which may be revised in the coming years. These policies concern the definition of DSM, the participation of new participants, access to Task 1 information, confidentiality of information collected in Task 1, and publication review procedures.

(1) Definition of DSM:

DSM is a set of customer-focused activities that are intended to affect the amount and timing of customer energy use cost-effectively. DSM programs include load management and energy efficiency (which may include fuel substitution) activities, along with an evaluation of results. For purposes of Task 1, DSM includes programs by utilities and government with a primary focus on energy efficiency. Supply-side programs for energy efficiency (e.g., combined heat/power production and use of renewable energy) are not included.

(2) New Participants:

The Task experts should encourage all countries to participate in the Task , and they should not be required to pay for those years in which they did not participate. The specific amount to be paid is described in the Implementing Agreement.

(3) Access to Information:

The information in the INDEEP data base should be limited to participating countries and, perhaps, Operating Agents of the other Tasks (if they share their data). Publications that synthesize the data collected in Task 1 should be distributed widely, at a cost that covers publishing and distribution costs.

(4) Confidentiality of Information:

Confidential information should not be collected. If a utility or government agency has information that they deem to be confidential, each country expert should explore options for making this information non-confidential and available to users of the INDEEP data base.

(5) Publication Review Procedures:

All publications based on work conducted in Task 1 should be reviewed by the Operating Agent of Task 1. The Operating Agent will distribute draft copies to Experts for review and approval prior to publication.

4.9 INDEEP Meetings

Four Experts meetings were held in the first year of the project (May 1, 1994 to April 30, 1995):[7]

October 11, 1994: Washington, D.C., United States
January 12, 1995: Utrecht, Netherlands
January 25, 1995: Vienna, Austria
January 27, 1995: Vienna, Austria

In addition, the Task experts met with a select group of American evaluation experts in Washington, D.C. prior to their October meeting.

[7]Before the project officially started, the experts previously met at the following locations: Stockholm, Sweden (March 31, 1993), Kerkrade, Netherlands (October 27, 1993), and Madrid, Spain (March 22, 1994).

4.10 INDEEP Documents

In addition to this report and two task status reports to the Executive Committee, the following internal working documents were prepared in the first year:

1. The **INDEEP Data Collection Instrument** (DCI) that serves as a tool for collecting DSM program design, implementation, and evaluation data in a consistent and systematic fashion (Appendices B and C).

2. The **INDEEP Utility and Provider Profiles** that complement the DCI and provide information on key characteristics of sponsors of DSM programs that are included in the data base (Appendix B).

3. The **INDEEP Glossary** that provides a common set of definitions for terms used in DSM program design, implementation, and evaluation (Appendix B).

4. A document describing the **INDEEP Policy Issues** concerning the definition of DSM, the participation of new participants, access to Task 1 information, confidentiality of information collected in Task 1, and publication review procedures (see Section 4.8).

5. A report on **DSM Program Evaluation: Country Experience** that describes the experience of participating countries in the following areas: (1) existing and future DSM program data bases; (2) existing and future DSM data collection activities; (3) methods used (or planned) to evaluate DSM programs; and (4) available evaluation technical assistance (see Section 4.2).

6. A **Research Work Plan for Second Year** (March 1995); the activities planned for the second year are described in Section 5.

7. A paper prepared for the 1995 European Council for an Energy-Efficient Economy (ECEEE) Conference which summarizes some of the work in the first year and a preliminary assessment of the cost and performance of selected DSM programs (Vine 1995).

5. SUMMARY AND FUTURE DIRECTIONS

This report is the first Annual Report of the International Database on Energy Efficiency Programs (INDEEP), summarizing the activities of the first year (1994-1995). During this time period, we conducted the following activities: (1) reviewed existing international demand-side management (DSM) program data bases; (2) reviewed participating country's experience in DSM program evaluation; (3) prepared case studies on 1-4 DSM programs per country; (4) tested the DEEP data collection instrument (DCI) and prepared an INDEEP DCI; (5) contacted potential users of the INDEEP data base; and (6) organized an INDEEP workshop.

As a result of these activities, we accomplished more in the first year than what was expected, so that the work planned for five years (as proposed in the original research work plan) can be accomplished in a shorter period of time (by at least one year) and with a reduced budget (e.g., from $470,000 to $140,000 for the second year). The key findings from the first year are the following:

(1) Based on a review of the literature and discussions with DSM experts in the participating countries, we found the proposed INDEEP data base to be unique and not duplicative of other data bases.

(2) After intensive "field testing" of the INDEEP data collection instrument (DCI) on 14 European DSM programs, a four-page DCI was developed that INDEEP experts agreed to use for extensive data collection in the second year of the project.

(3) Based on informal networking, DCI field testing, meetings with potential users of the INDEEP data base, and the INDEEP workshop, we found substantial interest in the INDEEP project, particularly from DSM program designers. Many of our contacts felt that the INDEEP data would be useful for obtaining new ideas, comparing programs, improving program design, and establishing contacts (networking). In addition, most people felt that the information covered in the INDEEP data base (e.g., energy savings, program costs, and program delivery approaches) was the "right information" for meeting their DSM needs.

(4) Discussions with DSM experts in the participating countries and at an INDEEP workshop attended by over 40 European DSM experts led to a consensus for the project to proceed for another year, focusing on: (a) additional data collection, (b) entering of data onto an Excel spreadsheet, and (c) close collaboration with

potential users (e.g., individual country workshops), building upon the existing network established in the first year.

The Task 1 experts agreed to conduct the following activities in the second year of Task 1:

(1) finalize a data collection instrument (DCI) and DCI instructions,
(2) develop the contents of an Excel spreadsheet,
(3) collect demand-side management (DSM) program data on as many programs as possible,
(4) enter DSM program data onto the Excel spreadsheet,
(5) merge Excel spreadsheets,
(6) analyze DSM program data for all countries,
(7) organize a second workshop, and
(8) prepare a report on the activities of the second year.

The workshop in the second year will address the following issues: (1) assess the transfer of DSM program results and experiences found in case studies, and assess reasons for success or failure; (2) assess usefulness of the INDEEP DCI, data base, and analyses: (3) review the Task 1 work plan for the third year and suggest modifications; and (4) provide guidance for future years.

ACKNOWLEDGMENTS

This work was supported by the Assistance Secretary for Energy Efficiency and Renewable Energy, Office of Utility Technologies, of the U.S. Department of Energy under Contract No. DE-AC03-76SF00098. The following organizations also supported this work: Energieverwertungsagentur (Austria), DEFU (Denmark), Commission of the European Union [Joint Research Center], RaCER (Korea), NOVEM (Netherlands), Red Electrica de España and UNESA (Spain), and NUTEK (Sweden). The author is especially grateful for the assistance and review comments provided by the following INDEEP project experts: Flavio Conti, Changseob Kim, Casper Kofod, Sibe Koster, Anders Lewald, Felix Martinez, Jan Möller, Mariana Ortiz, Waltraud Schmid, and Harry Vreuls. Special thanks are also due to the individuals who reviewed earlier versions of this report: Joe Eto, Chuck Goldman, Reinhard Haas, Niels Haase, Stale Johansen, Nathan Martin, Tim McIntosh, Alan Meier, Fred Morse, Diane Pirkey, David Rubin, and Hans Westling.

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APPENDIX A

List of Participants in Task 1

Annex I Experts

(March 1, 1995)

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APPENDIX B

Original INDEEP DCI

Utility and Provider Profiles

DCI and Profile Instructions

Glossary

DCI #: INDEEP-2

INDEEP DATA COLLECTION INSTRUMENT

Refer to the instructions for a description of terms

INDEEP Expert: _____

Date Submitted: _____

Data Collection Phase: ❒ First Data Submittal ❒ Data Update

Primary Program Implementing Agent

- ❒ Electricity or Gas Utility **Name:** _____
- ❒ Central Government **Name:** _____
- ❒ Regional Government **Name:** _____
- ❒ Local Government **Name:** _____
- ❒ Local Organization **Name:** _____
- ❒ Energy Service Company **Name:** _____
- ❒ Other **Name:** _____

Program Name: _____

Program Start Date: _____ ❒ **Ongoing**

❒ **Terminated - Program End Date:** _____

Program Status

- ❒ Planned
- ❒ Pilot (Demonstration)
- ❒ Full Scale (National level)
- ❒ Full Scale (Regional level)
- ❒ Phase Out

Evaluation Status

- ❒ Completed
- ❒ In-progress
- ❒ Planned

Start Date: _____

Energy Objectives

- ❒ Energy Efficiency
- ❒ Load Shifting
- ❒ Valley Filling
- ❒ Peak Clipping
- ❒ Load Building
- ❒ Fuel Switching (from _____ to _____)
- ❒ Other (specify): _____

Motivations for Implementing Program

- ❒ Regulatory Incentive
- ❒ Legislated/Mandated
- ❒ Environmental Quality
- ❒ Public Image
- ❒ Business Development
- ❒ Energy Efficiency
- ❒ Peak Load Management
- ❒ Fuel Substitution
- ❒ Electrification
- ❒ Long-term Resource Option
- ❒ Quality of Service
- ❒ Cost of Service
- ❒ Business Opportunity
- ❒ Customer Retention
- ❒ Other (specify):

Eligible Markets

- ❒ New Construction

Existing:

- ❒ Replacement
- ❒ Retrofit
- ❒ Retirement

Program Type

- ❒ General Information (Brochures, etc.)
- ❒ Site-Specific Information (Audits, etc.)
- ❒ Installation of Conservation Measures
- ❒ Operations and Maintenance
- ❒ Load Control
- ❒ Hook-Up Fees
- ❒ Research and Development
- ❒ Building Standards

Alternative rates:

- ❒ Time-of-Use
- ❒ Interruptible/Curtailable
- ❒ Other (specify): _____

Program Participation: Customer Applications

Residential

- ☐ All
- ☐ Single-Family
- ☐ Multi-Family
- ☐ Mobile Home
- ☐ Low-Income
- ☐ Elderly/Seniors
- ☐ Public Housing
- ☐ Other (specify): _____

Industrial

- ☐ All
- ☐ Other (specify 6-digit NACE code(s)): _____

Agricultural

- ☐ All
- ☐ Other (specify): _____

Commercial

- ☐ All
- ☐ Offices
- ☐ Retail
- ☐ Restaurant
- ☐ Public (govt.) Facilities
- ☐ Grocery Store
- ☐ Health Care
- ☐ Education
- ☐ Lodging (Hotels/Motels)
- ☐ Warehouses
- ☐ Other (specify): _____

☐ **Other** (specify): _____

End Use and End Use Technologies

☐ **All Measures**

☐ **HVAC**
- ☐ High Efficiency
- ☐ Multi-Stage Compressors
- ☐ Economizers
- ☐ Control Systems
- ☐ Variable Air Volume
- ☐ Variable Speed Drives
- ☐ Load Control (Cycling)
- ☐ Gas Air Conditioning
- ☐ Thermal Storage
- ☐ Heat Pump
- ☐ Heat Recovery
- ☐ Occupancy Sensors
- ☐ Duct Sealing and Balancing
- ☐ Operations and Maintenance
- ☐ Other (specify: _____)

☐ **Water Heating**
- ☐ Load Control (Cycling)
- ☐ High Efficiency
- ☐ Heat Pump
- ☐ Insulation Blankets
- ☐ Low-Flow Showerheads
- ☐ Low-Flow Aerators
- ☐ Solar Assisted
- ☐ Operations and Maintenance
- ☐ Other (specify: _____)

☐ **Motors**
- ☐ High Efficiency
- ☐ Variable Speed Drives
- ☐ Operations and Maintenance)
- ☐ Other (specify: _____)

☐ **Demand Control**
- ☐ Direct Load Control
- ☐ Distributed Load Control
- ☐ Energy Management System
- ☐ Other (specify: _____)

☐ **Lighting**
- ☐ Compact Fluorescents
- ☐ Electronic Ballasts
- ☐ High Efficiency Magnetic Ballasts
- ☐ Reflector Systems
- ☐ Efficient Fluorescent Lamps (T-8 etc.)
- ☐ Lighting Controls
- ☐ Occupancy Sensors
- ☐ High Intensity Discharge
- ☐ Operations and Maintenance
- ☐ Other (specify: _____)

☐ **Building Envelope**
- ☐ Insulation
- ☐ Infiltration Control
- ☐ Glazing and Glazing Control
- ☐ Operations and Maintenance
- ☐ Other (specify: _____)

☐ **Refrigeration**
- ☐ High Efficiency
- ☐ Controls
- ☐ Variable Speed Compressors
- ☐ Multi-Stage Compressors
- ☐ Operations and Maintenance
- ☐ Other (specify: _____)

☐ **Industrial**
- ☐ Process Changes (specify: _____)
- ☐ Other (specify: _____)

☐ **Other**
- ☐ Office Equipment (specify: _____)
- ☐ Fuel Switching (specify: _____)
- ☐ Other (specify: _____)

Marketing Incentives (✔ if used)

Incentive Type	Recipients of Incentives: Customers	Trade Allies	Manufacturers	Government
Rebates				
Subsidized Financing/Loans		–	–	
Bill Credits		–	–	
Services				
Direct Installation		–	–	
Leasing		–	–	
Rate Discounts		–	–	
Cooperative Advertising	–			–
Bulk Purchasing			–	
Gifts			–	–
Tax Incentives		–	–	
Other (specify): _____				

Marketing Methods

- ❒ Direct Mail
- ❒ Newspaper Ads
- ❒ Radio/TV Ads
- ❒ Telemarketing
- ❒ Bill Inserts
- ❒ Brochures
- ❒ Newsletters
- ❒ General Advertising
- ❒ Seminars/Workshops
- ❒ Shows & Exhibits
- ❒ Tests/Demonstrations
- ❒ Other (specify): ____

Direct Contact By:

- ❒ Utility
- ❒ Trade Ally
- ❒ ESCO

Targeted Market Group

- ❒ Homeowners
- ❒ Non-Res. Building Owners
- ❒ Renters
- ❒ Non-Res. Leasors/Renters
- ❒ Building Operators/Managers
- ❒ Other (specify: _____)
- ❒ A/E Firms
- ❒ Realtors
- ❒ Developers
- ❒ Builders
- ❒ Contractors
- ❒ Trade Associations
- ❒ Manufacturers
- ❒ Wholesalers
- ❒ Retailers
- ❒ Energy Service Companies
- ❒ Non-Profit/Not-for-Profit Groups
- ❒ Government

Data Period

INDEEP data covers program activities from: _____ to: _____

Changes From Previous Program Description

_____

_____

_____

Eligibility Requirements (used to define eligible market and participation)

_____

_____

_____

Describe Units Used for Eligible Market

_____

_____

_____

Size of Eligible Market (*in units defined above*): _____

Definition of Target Market

_____

_____

_____

	Annual	Cumulative
Number of Participating Units (*Defined above*)		
Participation Rate (% of Eligible Market)	%	%

For Audit and Equipment Installation Programs:

Percent of customers contacted that were audited: ____ %

Percent of customers audited that installed measures: ____ %

PROGRAM IMPACTS

Source of Savings Data

❒ Estimated ❒ Measured ❒ Both For what year: _____

Energy Effects

	Electricity Effects (MWh) (+ = Energy Savings) (- = Increased Energy Use)	Gas Effects (MTherms) (+ = Energy Savings) (- = Increased Energy Use)
Incremental		
Annual		
Cumulative		

Diversified Coincident Peak Demand
(MW)
(+ = Demand Savings)
(- = Increased Demand)

	Summer	Winter
Incremental		
Annual		

End Use Technology Savings

Is there information on energy and demand savings for particular end uses? ❒Yes ❒No
If Yes, see Appendix II.

Savings Adjustments

Indicate if results have been adjusted in order to produce savings estimates that are representative of standard, average, or forecast conditions for each of the following parameters.

❒ No adjustments
❒ Comparison group
❒ Free riders (specify percentage of program participants, if available) ____%
❒ Free drivers (specify percentage of program participants, if available) ____%
Changes during program year in:
- ❒ Weather
- ❒ Daylight/daylength
- ❒ Building occupancy
- ❒ Building function
- ❒ Installation of additional equipment
- ❒ Repair, replacement, removal, or retrofit of existing equipment
- ❒ Thermostat schedule and settings
- ❒ Hours of operation
- ❒ Power outages and other supply disruption
- ❒ Industrial production
- ❒ Agricultural production
- ❒ Other (specify): _____

IMPACT METHODOLOGIES

Basis of Energy Savings Estimates

What kind of energy data was collected on participants and the comparison group?

Participants	Comparison Group	Data Sources
❒	❒	Engineering Data
❒	❒	Data from Other Sources
❒	❒	Utility Billing History
❒	❒	Spot Metering
❒	❒	Whole-Building Load Data
❒	❒	End-Use Load Data
❒	❒	Equipment Specifications
❒	❒	Site Specific Data
❒	❒	Other (specify): _____

Impact Evaluation - Sample Size and Response Rates:

For data sources involving sampling, please indicate the following:

Group	Sample Size (N)	Response Rate (%)
Participant Group		
Comparison Group		
Other Group (specify): _____		

Sampling Dates:

Pre-installation: _____ **Post-installation:** _____

What kind of methods were used to analyze energy use of participants and the comparison group?

Participants	Comparison Group	Analytical Methods
❒	❒	Engineering Analysis
❒	❒	Statistical Analysis
❒	❒	Hybrid (Combination) Methods
❒	❒	Other (specify): _____

Load Shapes:

What Types of Load-Shape Data Are Available On This Program?

❒ None Available
❒ 24-hour Load Shapes for _____ Day Types
❒ 8760-Hour Annual Load Shapes

PROGRAM COSTS

Note: Please report cost information in nominal ECUs.

Specify ECU Year Used: _____

Annual Information for Year: _____

Cumulative Information from Year _____ **to Year** _____

Utility/Organizer Costs (in 1,000 ECUs)

	Annual	Cumulative
Incentives:		
Equipment		
Installation		
Other (specify)		
Subtotal		
Administrative		
Measurement & Evaluation		
Other (specify)		
Total Program Costs		
Planning		
Shareholder Incentives		
Other (specify)		
Total Other Costs		
Total Utility/Organizer Costs		

Non-Utility/Organizer Costs (in 1,000 ECUs)

	Annual	Cumulative
Participants' Incremental Costs		
Other (specify): _____		
Total Non-Utility/Organizer Costs		

Life-Cycle Program Costs

Type of Savings:

- ❒ Electricity
- ❒ Gas
- ❒ Electricity & Gas

Levelized Program Cost (total program cost/total energy savings): _____

Cost Units:

- ❒ ECUs per kWh
- ❒ ECUs per KW
- ❒ ECUs per therm
- ❒ ECUs per MBtu
- ❒ Other _____

Values Used:

Time period _____

Average measure lifetime _____

Discount rate _____

- ❒ Environmental costs included - specify: _____
- ❒ Environmental costs NOT included
- ❒ Incentive costs included - specify: _____
- ❒ Incentive costs NOT included
- ❒ Net loss revenue costs included - specify: _____
- ❒ Net loss revenue costs NOT included

Cost-Effectiveness

Benefit-Cost Tests (✔ if used)

	Test Value	Discount Rate	Time Period	Price of Energy to Consumer	Program-Specific Avoided Cost
❒ Utility cost test				N/A	
❒ Participant test					N/A
❒ Non-participant test					
❒ Total resource cost test				N/A	
❒ Societal test				N/A	

Any information on bill impacts? ❒Yes ❒No

If Yes: specify:

_____

_____

ENVIRONMENTAL IMPACTS

CO_2 Impacts

Energy savings [from page 7 of DCI]:	-----	GWh
Efficiency of conversion (%):	%	GWh
Transmission and distribution losses (%):	%	GWh
Conversion factor (from ___ to GJ): (Specify fuel: _____)		GJ
Emission coefficient (kg C/GJ):		-----
CO_2 reduction	-----	kg C

NO_x Impacts

Energy savings [from page 7 of DCI]:	-----	GWh
Efficiency of conversion (%):	%	GWh
Transmission and distribution losses (%):	%	GWh
Conversion factor (from ___ to GJ): (Specify fuel: _____)		GJ
Emission coefficient (kg NO_x/GJ):		-----
NO_x reduction	-----	kg NO_x

SO_2 Impacts

Energy savings [from page 7 of DCI]:	-----	GWh
Efficiency of conversion (%):	%	GWh
Transmission and distribution losses (%):	%	GWh
Conversion factor (from ___ to GJ): (Specify fuel: _____)		GJ
Emission coefficient (kg SO_2/GJ):		-----
SO_2 reduction	-----	kg SO_2

Particulates

Energy savings [from page 7 of DCI]:	-----	GWh
Efficiency of conversion (%):	%	GWh
Transmission and distribution losses (%):	%	GWh
Conversion factor (from ___ to GJ): (Specify fuel: _____)		GJ
Emission coefficient (kg particulates/GJ):		-----
Particulates reduction	-----	kg

PROGRAM PARTICIPATION

Demographics of participants:

_____

_____

Demographics of non-participants:

_____

_____

Reasons for participating in program:

- ❒ Energy savings
- ❒ Rebate
- ❒ Desired technology in program
- ❒ Environmental reasons
- ❒ Other (specify): _____

Reasons for not participating in program:

- ❒ Up-front costs
- ❒ Disruptions to home/business
- ❒ Application process burden
- ❒ Insufficient estimated energy savings
- ❒ Not enough information provided
- ❒ Rebate was inadequate
- ❒ Desired technology not in program
- ❒ Uncertainty about technology
- ❒ Lack of available funds
- ❒ Other (specify): _____

Reasons for satisfaction and dissatisfaction with program (✔ if evaluated):

	Customer		Trade Ally	
	Satisfaction	Dissatisfaction	Satisfaction	Dissatisfaction
General Service Level				
Application Process				
Rebate Processing				
Rebate Level				
Type of Information Provided				
Energy Savings			–	–
Equipment Issues			–	–
Program Promotion & Marketing	–	–		
Sales	–	–		
Availability of Desired Technology	–	–		

Process Evaluation - Sample Size and Response Rates:

Group	Sample Size (N)	Response Rate (%)
Participant Group		
Comparison Group		
Other Group (specify): _____		

Year Sample Taken: _____ **Year of Sample Group's Program Participation:** _____

Process evaluation methods employed:

Participants	Comparison Group	Data Sources
❒	❒	Telephone surveys
❒	❒	Mail surveys
❒	❒	In-person interviews
❒	❒	Focus groups
❒	❒	Other (specify): _____

Market Evaluation - Sample Size and Response Rates:

Group	Sample Size (N)	Response Rate (%)
Participant Group		
Comparison Group		
Other Group (specify): _____		

Year Sample Taken: _____ **Year of Sample Group's Program Participation:** _____

Market evaluation methods employed:

Participants	Comparison Group	Data Sources
❒	❒	Telephone surveys
❒	❒	Mail surveys
❒	❒	In-person interviews
❒	❒	Focus groups
❒	❒	Other (specify): _____

Market Impacts Examined:

- ❒ Increased Availability of Products in Market
- ❒ Decreased Prices of Products in Market
- ❒ Customer Energy Awareness
- ❒ Free Riders
- ❒ Free Drivers
- ❒ Persistence of Savings
- ❒ Other (specify): _____

Type of program tracking database:

_____

_____

Additional Program Information

_____

_____

_____

_____

_____

Related Programs

_____

_____

_____

_____

_____

Lessons Learned
(Include difficulties encountered in program implementation, evaluation, and end use technologies; significant program changes due to evaluation; recommendations for program improvement; information on intermediaries involved in program; and key elements for program success)

DOCUMENTATION

Impact, Process and Market Evaluations (✔ if available)

- ❒ Impact evaluation data are available for this program
- ❒ Impact evaluation reports are available for this program
- ❒ Process evaluation data are available for this program
- ❒ Process evaluation reports are available for this program
- ❒ Market evaluation data are available for this program
- ❒ Market evaluation reports are available for this program

Additional evaluations planned or ongoing:

Publications:
(include title, author, date published, language of publication, report availability, summary, and comments)

APPENDIX I

Program Manager

Name _____ Title _____

Address _____

_____

City _____ State ____ Zip _____

Phone # _____ Fax # _____

Program Evaluator

Name _____ Title _____

Address _____

_____

City _____ State ____ Zip _____

Phone # _____ Fax # _____

APPENDIX II

Electricity Effects for Specific End-Use Technologies:

	Energy Effects (MWh) (−) = Increased Energy Use (+) = Energy Savings	Diversified Coincident Peak Demand (MW) (−) = Increased Demand (+) = Demand Savings	
		Summer	Winter
HVAC			
Incremental			
Annual			
Cumulative			
Water Heating			
Incremental			
Annual			
Cumulative			
Motors			
Incremental			
Annual			
Cumulative			
Lighting			
Incremental			
Annual			
Cumulative			
Refrigeration			
Incremental			
Annual			
Cumulative			
Other			
Incremental			
Annual			
Cumulative			

Gas Effects for Specific End-Use Technologies:

	Energy Effects (MTherms) (+ = Energy Savings) (- = Reduced Energy Use)
HVAC	
Incremental	_____
Annual	_____
Cumulative	_____
Water Heating	
Incremental	_____
Annual	_____
Cumulative	_____
Building Envelope	
Incremental	_____
Annual	_____
Cumulative	_____
Other	
Incremental	_____
Annual	_____
Cumulative	_____

Savings Adjustments

Indicate if results have been adjusted in order to produce savings estimates that are representative of standard, average, or forecast conditions for each of the following parameters.

- ❒ No adjustments
- ❒ Comparison group
- ❒ Free riders (specify percentage of program participants, if available) ____ %
- ❒ Free drivers (specify percentage of program participants, if available) ____ %

Changes during program year in:

- ❒ Weather
- ❒ Daylight/daylength
- ❒ Building occupancy
- ❒ Building function
- ❒ Installation of additional equipment
- ❒ Repair, replacement, removal, or retrofit of existing equipment
- ❒ Thermostat schedule and settings
- ❒ Hours of operation
- ❒ Power outages and other supply disruption
- ❒ Industrial production
- ❒ Agricultural production
- ❒ Other (specify): _____

INSTRUCTIONS FOR COMPLETING THE DEEP DATA COLLECTION INSTUMENT

This data collection instrument (DCI) is designed to facilitate the collection of information on utility DSM programs. These instructions provide guidelines for completion of the DCI. A standard glossary of terms is also available to futher explain the exact meaning of the information requested.

DCI Page 1

Program Status:
"Program status" refers to the life-cycle stage of the program during the time which the DCI data was collected. Programs may be in one of four stages in their life cycle. These stages are defined below. **Check one only.**

Pilot
Pilot Programs are designed to test or build capability to deliver full-scale programs.

Full-Scale
Full-Scale Programs are available to all customers in an eligible market.

Phase Out
A Phase Out Program is in its last year of operation.

Planned
Planned Programs are designed to begin operation as pilot or full-scale programs in the future.

Implementing Agent:
The Implementing Agent is the company performing actual program implementation. This may be the utility company, an energy service company, a contractor (other than an energy service company), or a government agency. There may be a combined effort in program implementation. **Check all applicable implementing agents.**

Utility
The utility company running the DSM program takes part in program implementation/delivery.

Energy Service Company
An Energy Service Company is a firm that specializes in providing DSM conservation services. Typically, this firm enters into contractual agreements with utility companies to assist in planning, implementation/delivery, and monitoring and evaluating DSM programs.

Government Agency
A Government Agency that provides program implementation/delivery services.

Contractor
A firm that specializes in performing key functions in DSM program implementation: e.g., contacting customers, auditing, or installing energy efficiency measures, etc.

Other
Other should be selected if the utility enters into a contractual agreement with a company, other than an Energy Service Company, for program implementation/delivery. Please provide a brief explanation.

Program Objectives
Five potential program objectives are listed on the DCI. **Check one or more** of the five objectives that apply to the DSM program.

Energy Efficiency
Programs promoting more efficient use of energy.

Load Shifting
Programs promoting the movement of electricity use from one time period to another, usually from the on-peak to the off-peak period for a single day.

Valley Filling
Programs promoting increased off-peak electricity consumption, without necessarily reducing on-peak demands.

Peak Clipping
Programs promoting reduced electricity demand (kW) at times of peak daily demand. Typically, these are days that the utility experiences demand at, or close to, its system peak.

Load Building
Programs promoting increased electricity consumption, generally without regard to the timing of this usage.

Eligible Markets
The Eligible Market is any set of customers or participating units that qualify for a program based on the program's eligibility requirements. Eligible Market definitions can be classified into two main categories: New Construction and Existing. These are defined below. **Check all that apply.**

New Construction
New Construction refers to buildings and facilities (or additions) constructed during the current year; it may also include major renovations of existing facilities.

Existing
Existing buildings are structures that are in use as of the beginning of the current year. These include:

Replacement
Replacement is the installation of new equipment for worn out (or obsolete) equipment at the end of its useful life.

Retrofit
Retrofit is the substitution of new equipment for existing equipment prior to its normal retirement age accompanied by the removal and disposal of the old equipment.

Retirement
Retirement is the removal from service (without replacement) and disposal of equipment prior to its normal retirement.

Program Types
DSM programs can be classified as one or more program types. **Check all applicable types.**

General Information
General Information programs inform customers about DSM options through advertising media such as brochures, bill stuffers, TV and radio ads, and workshops.

Site-Specific Information
Site-Specific Information programs provide guidance on energy efficiency and load management options tailored to a particular customer's facility. They often involve an on-site inspection of the facility to identify potential cost-effective DSM actions. An energy audit and design assistance are examples of site-specific information programs.

Installation of Conservation Measures
Programs where the utility, contractor, or customer installs energy efficiency DSM measures in the facilities of participating customers (with or without incentives).

Operations and Maintenance
Operations and Maintenance programs include regular maintenance of particular measure(s), along with training and education of O&M personnel, maintenance manuals, and periodic re-testing to measure actual performance.

Load Control
Load Control programs promote shifts in electricity consumption from one time period to another (usually from on-peak periods to off-peak periods during a single day) or clipping peak usage.

Hook-Up Fees
Hook-Up Fee programs are usually performance-based with a sliding scale; the fees decline as the energy efficiency of the home increases, and increase as it decreases.

Fuel Switching
Fuel Switching programs encourage customers to change from one fuel to another for a particular end use.

Research and Development
Research and Development includes the development of new technologies as well as the demonstration and technology transfer of these research projects.

Building Standards
Building efficiency standards typically require minimum energy efficiency levels for new construction and, sometimes, when making improvements to existing stocks. Typical actors involved in building standards are local, state, and federal government.

Alternative Rates:
Alternative Rate programs offer special rate designs or structures for customers in return for participation in programs designed to change load shape, especially peak load.

Time-of-Use
Time-of-Use programs feature rates differentiated by time-of-the-day and/or season of the year.

Interruptible/Curtailable
Interruptible/Curtailable programs provide incentives in the form of bill credits or special (reduced) rate structures. In exchange for the incentive, the customer agrees to reduce electrical loads upon request from the utility. The utility's request is usually made during critical periods when the system demand approaches the utility's generating capacity.

Other
If an alternative rate program uses a method other than Time-of-Use or Interruptible/Curtailable, then **Other** should be checked. Please provide a brief explanation.

DCI Page 2

Program Participation

Customer Applications
Customer Application refers to a group (or subgroup) of customers with similar characteristics, such as income, building type, or economic activity. Major classes include Residential, Commercial, Industrial, and Agricultural. Each DSM program will target at least one customer class. **Check all that apply.**

DCI Page 3

End Uses & End Use Technologies
Check all End Uses and End Use Technologies that apply to the DSM program. Use the **Other** category only if necessary. Please refer to the definitions below when completing this page.

HVAC
Devices and systems used to condition indoor space for comfort, usually limited to heating, cooling and humidity control.

High Efficiency refers to equipment with better than average performance characteristics for retrofit, replacement, or new installations.

Multi-stage Compressors are usually found in larger built-up chiller systems. These allow for bringing on or reducing compressor capacity to follow the air conditioning load requirements. They may also be found in two-speed heat pumps.

Economizers are used to allow for the use of natural heating or cooling by introducing appropriate amounts of outside air at the appropriate times.

Control systems refer to energy management systems, thermostat, and other HVAC controlling apparatus.

Variable Air Volume systems modulate the amount of conditioned air entering a conditioned space by means of varying the amount of air flowing in the air distribution system.

Variable Speed Drives, also called variable frequency motors/drives, include the series of motors whose speed, and hence power, can be varied either electronically or by means of a variable speed pulley arrangement.

Load Control (Cycling) refers to a variety of techniques used to reduce peak demand by turning HVAC systems off for some percentage of time (each 15, 30 or 60 minute time period) during peak load conditions.

Gas Air Conditioning refers to the absorption or engine driven chillers fired by natural gas.

Thermal Storage refers to storing heat energy (e.g., ice, hot and chilled water, off-peak for use in meeting heating or cooling loads) during peak load conditions.

Heat Pumps move heat from the cooler outside air into the warmer room. Heat pumps can extract heat from the ground or from outside water, but usually use outside air as the heat source. Most heat pumps installed in residential buildings can be run as air conditioners as well, meaning that one device provides both heating and cooling.

Heat Recovery technologies recover the waste heat from space heating and cooling equipment and use it to supply hot water, space heating, or other needs.

Occupancy Sensors can turn heating/cooling systems on automatically when a room is occupied.

Operations and Maintenance programs include regular maintenance of the particular measure(s), along with training and education of O&M personnel, maintenance manuals, and periodic re-testing to measure actual performance.

Duct Sealing and Balancing programs seek to test and repair ducts through sealing of holes and cracks in ducts and by balancing the ventilation (duct) system.

If none of the above End-Use Technologies applies, check **Other** and provide a brief description.

Water Heating
Water Heating devices/systems are used to heat water for domestic or process applications.

Load Control (Cycling) is a thermal storage application taking advantage of the existing tank capacity as the storage device. This application can be peak clipping or valley filling or both.

High Efficiency refers to high "R" value water heaters or those with dip-tubes (a feature that reduces thermal conduction/convection).

Heat Pumps are special devices that extract heat from the ambient air (source) and, through the vapor compression cycle, transfer that heat to water (sink).

Insulation Blankets cover the outside tank of the water heater.

Low-Flow Showerheads are special devices that limit the flow of water in showerheads.

Low-Flow Aerators are special devices that limit the flow of water in sinks.

Solar assisted systems use energy from the sun to heat water.

Operations and Maintenance - As described under HVAC.

If none of the above End-Use Technologies applies, check **Other** and provide a brief description.

Motors
Motors is the general category of electro-mechanical devices that provide shaft power.

High Efficiency motors yield a high efficiency rating, usually 5% to 10% better than a standard motor.

Variable Speed Drives, also called variable frequency motors/drives, include the series of motors whose speed, and hence power, can be varied either electronically or by means of a variable speed pulley arrangement.

Operations and Maintenance - As described under HVAC.

If none of the above End-Use Technologies applies, check **Other** and provide a brief description.

Demand Control
Demand control refers to those techniques that limit or reduce peak energy demand. Demand control includes direct load control, distributed load control, and energy management systems.

Direct Load Control consists of techniques that use a communication system to transmit real-time control commands from the utility to the customer. The utility alone decides the timing and extent of the control actions. This technique can be used to shed remote customer loads (e.g., air conditioning, space heating, and water heating), or to control the meter time-switches to implement time-of-use rates, so that consumers shift their consumption to off-peak hours.

Distributed Load Control consists of techniques that allow control over loads by customers in communication with utilities. For example, the utility may send information, such as prices and requests to reduce demand. Control actions are taken by the smart controller in the customer's premise, based on the utility signals, local conditions, and customer strategies. This type of control is applied mainly to large C&I customers, with whom the utilities have special contracts (e.g., interruptible loads).

Energy Management Systems (EMS) reduce energy consumption through automatic control of the building's energy using systems. Typically, the heating, ventilating and air conditioning, lighting, and service water heatings in commercial buildings are controlled by EMS.

If none of the above End-Use Technologies applies, check **Other** and provide a brief description.

Lighting
Lighting is the general category for electric illumination.

Compact Fluorescents are small wattage screw-in lamps and ballasts. They can be electronic or magnetic, modular or integrated.

Electronic Ballasts include any of a variety of new high frequency, electronic ballasts that consume less power than magnetic ballasts.

Efficient Magnetic Ballasts are designed to operate standardflourescent lamps at close to their ratings. They are similar to standard electromagnetic ballasts, but use different materials to effect energy savings.

Reflector Systems are usually used in retrofit applications where the space is over-lit and some lamps can be removed and reflectors installed in the existing fixtures.

Efficient Flourescent Lamps refer to higher efficiency replacements for conventional fluorescent tubes (4 ft. and 8 ft. U-tubes), including 34-watt replacement type or the newer T-8s.

Lighting Controls can reduce lighting energy use by ensuring that lights are used only when and where required. Options include manual or automatic dimming to reduce output when appropriate, manual switches to allow lights to be turned off when not needed, and scheduled switches to turn lights on and off on a prearranged schedule.

Occupancy Sensors detect the presence of people in a room and turn on the lights. If there is no movement for a selected time period, the device turns off the lights.

High Intensity Discharge lamps are electric discharge lamps in which the light-producing arc is stabilized by wall temperature, and the arc tube has a bulb wall loading in excess of three watts per square centimeter. HID lamps include groups of lamps known as mercury, metal halide, and high pressure sodium.

Operations and Maintenance - As described under HVAC.

Check **Other** if the lighting end-use technology is not defined above and provide a brief description.

Building Envelope
Building Envelope refers to those measures that increase the thermal integrity of the building and minimize the amount of infiltration and ventilation in a building.

Insulation refers to wall, ceiling, basement/foundation, and perimeter insulation. Insulation values are commonly referred to as R-values or inches (thickness) of insulation. The different types of insulation include blanket or batt, foam, loose fill, or reflective insulation.

Infiltration Control, limiting the amount of air flow from outside into the heated space of a building, is commonly achieved with weatherstripping and caulking.

Glazing refers to more energy-efficient windows including the following: double-pane, triple-pane, low emissivity (low-e), and gas-filled windows. **Glazing Control** refers to films, tints, or coatings (or combinations) that are placed on glazing to reduce solar heat gain.

Operations and Maintenance - As described under HVAC.

Check **Other** if the building envelope technology is not defined above and provide a brief description.

Refrigeration
Refrigeration refers to household refrigerators as well as large capacity industrial refrigeration units used in commercial or process applications.

High Efficiency Appliances include any of a number of appliance rebate, labeling, or pick-up programs.

Examples of refrigeration **Controls** are defrost termination sensor switches for controlling defrost operations and humidity sensing controls for controlling glass door antisweat heaters.

Variable Speed Compressors, like variable speed drives, include the series of motors whose speed, and hence power, can be varied either electronically or by means of a variable speed pulley arrangement.

Multi-Stage Compressors are multiple compressors connected to large chillers and sequenced to meet load conditions.

Operations and Maintenance - As described under HVAC.

Check **Other** if the refrigeration end-use technology is not defined above and provide a brief description.

Other
Check if the end use is not defined above. Up to two additional categories may be checked. Please provide a brief description.

Cogeneration systems produces both heat and electricity simultaneously by recovery of waste heat from an electric power plant.

Fuel Switching programs encourage customers to change from one fuel to another for a particular end use.

If none of the above End-Use Technologies applies, check **Other** and provide a brief description.

DCI Page 4

Marketing Incentives

Type of Incentives
Any award used to encourage customer participation in a DSM program and adoption of recommended measures is an incentive. Below are definitions of incentive types:

Rebates
Rebates are cash payments in the form of a check awarded for participation in a DSM program.

Subsidized Financing/Loans
Subsidized Financing/Loans are utility DSM program incentives where the financing cost associated with a financial instrument or loan is paid for, in part or in whole, by the utility.

Bill Credits
Bill Credits are DSM incentives in the form of discounts on participating customers' bills for performing DSM program actions requested by the utility or for allowing the utility to control customer equipment.

Services
Service Incentives, such as technical assistance, engineering design, and/or energy audits are provided to the customer either free or at a reduced cost.

Direct Installation
In some DSM programs, energy efficient equipment may be directly installed. Equipment may be installed for the customer at a discounted rate (e.g., through rebates), or at no cost. Either of these options may be used as an incentive to entice customer participation in a DSM program.

Leasing
Equipment, such as lighting or water heaters, may be leased to a customer at low rates. This equipment may be directly installed, or bought by the customer to be installed at a later date.

Rate Discounts
Rate Discounts are reduced rates offered to a customer in order to encourage participation in a DSM program.

Cooperative Advertising
Sharing the costs of advertising a product or program, such as paying part (or all) of the costs of listing in a newspaper the names of builders participating in a home energy rating program.

Bulk Purchasing
Bulk Purchasing occurs when a utility purchases a large quantity of merchandise (e.g., refrigerators) and sells them at a wholesale cost plus a slight markup (usually lower than retail cost).

Gifts
Incentives in the form of merchandise are awarded to a customer, utility, or trade ally for participation in a DSM program.

Tax Incentives
Tax Incentives include personal (or business) income tax credits or deductions, or reduced sales tax, for investing in energy efficiency.

Other
If the incentive used in the program does not fall into one of the above categories, the Other category may be checked. Please provide a brief explanation.

Recipient of Incentives
Incentives can be given to the following types of people: customers, trade allies, manufacturers, and government. If the DSM program being defined uses marketing incentives, then check all the applicable Incentive Types that each Recipient receives in the matrix on page 4. Please note that the dashed boxes should not be checked.

Marketing Methods
The list identifies methods commonly used to contact, educate, or solicit customer participation in a DSM program. **Check all applicable methods**. If the incentive used in the program does not fall into one of the listed categories, check **Other** and provide a brief explanation.

Targeted Market Group
The list identifies typical target groups for utility marketing efforts (for education or for soliciting customer participation in a DSM program). **Check all applicable groups**. If the group targeted by the program does not fall into one of the categories provided, check **Other** and provide a brief explanation.

DCI Page 5

Data Period
Enter the calendar year, start month, and end month for which information at this stage of the program applies.

Changes from Previous Program Description
Enter a brief description of recent changes in the program design and description. For example, note changes in end-uses targeted, type and amount of incentives, and so forth.

Eligibility Requirements
The Eligibility Requirements are those criteria which a customer or unit must meet in order to participate in a DSM program. Describe these requirements.

Number of Eligible Customers
Enter the number of customers in the eligible market for the year(s) specified in the **Data Period** specified above.

Describe Units used for Eligible Market
Describe the units used for defining the size of the eligible market. The units may vary between programs. In residential programs, for example, the units could be customers. In commercial programs, the units could be square feet. Other units, such as the number of lamps or ballasts, are possible.

Size of Eligible Market (in units)
Enter the total size of the eligible market based on the units chosen for program eligibility. *Note: If the units used to define the eligible market are customers, the total number of eligible customers will be equal to the total size of the eligible market.*

Definition of Target Market
Target Market is defined as the subset of the eligible market where utility marketing efforts are focused. Describe the Target Market. An example for a residential program could be single-family residences that have electric heat.

Number of Customer Participants
Enter the number of eligible customers who take part in the program.

Current Year (Annual)
Enter the number of customers enrolled in the program during the year specified in the **Data Period** above.

From Program Inception (Cumulative)
Enter the number of customers enrolled from the start of the program through the year specified in the **Data Period** above.

Number of Participating Units
The participating units are the ultimate units used by a utility to measure program effects. Units of measure may be customers, households, facilities or firms, square feet, connected load, or equipment (and operating hours). The units chosen should be the same unit type as those used to specify the eligible market.

Current Year (Annual)
Enter the total number of program participating units for the year specified in the **Data Period** above.

From Program Inception (Cumulative)
Enter the total number of program participating units from the start of the program through the year specified in the **Data Period** above.

Participation Rate (% of Eligible Customers)
Enter the *ratio* (expressed as a percent) of the number of *participating customers* to the total number of *eligible customers* for the program. *Note: If the units used to define the eligible market and participating units are customers, the Eligible Market percentage will be identical to the Eligible Customers percentage.*

Participation Rate = (Participating Customers/Eligible Customers)*100

Current Year (Annual)
Enter the annual customer participation rate, i.e. the *ratio* (%) of the number of *participating customers* to the number of *eligible customers* in the year specified in the **Data Period** above.

From Program Inception (Cumulative)
Enter the cumulative customer participation rate, i.e., the *ratio* (expressed as a percent) of the number of *participating customers* to the number of *eligible customers* from the start of the program through the year specified in the **Data Period** above.

Participation Rate (% of Eligible Market)
The Participation Rate is defined as the *ratio* (expressed as a percent) of the number of *participating units* in a program to the total number of *eligible units* for the program, with both the numerator and denominator defined in the same units. The following equation specifies the participation rate:

Participation Rate = (Participating Units/Eligible Units)*100)

Current Year (Annual)
Enter the annual participation rate, i.e., the *ratio* (expressed as a percent) of the number of *participating units* to the number of *eligible units* for the year specified in the **Data Period** above.

From Program Inception (Cumulative)
Enter the cumulative participation rate, i.e., the *ratio* (expressed as a percent) of the number of *participating units* to the number of *eligible units* from the start of the program through the year specified in the **Data Period** above.

Audit and Equipment Installation
For those programs offering to audit and install equipment, enter the following: (1) what percentage of customers contacted in the program agreed to be audited? and (2) of those customers that were audited, what percentage installed energy efficiency measures?

DCI Page 6

PROGRAM IMPACTS

Source of Savings Data
If the program information being entered is **Estimated** (projected), this box should be checked. If actual data (end-use metering, billing data, building load data) are used, check the **Measured** box. If both estimated and measured data are used, check the **Both** box. Indicate the **Year** for which the data applies.

Program Energy Effects
Information on energy effects and diversified coincident peak demand is required for the **Overall Program**. If available, data for specific **end uses** should be entered in **Appendix II**. Where available, adjusted energy impacts should be entered. (Unadjusted energy figures should also be noted.)

Energy effects should be entered in megawatt-hours or megatherms, while peak demand information should be entered in megawatts. A megawatt is equal to 1000 kilowatts or 1,000,000 watts and is abbreviated MW; a megawatt-hour is equal to 1,000 kilowatt-hours or 1,000,000 watt-hours and is abbreviated MWh. A therm is equal to 100,000 Btus. A megathern is equal to 1,000 therms and is abbreviated MTherm.

In order to ensure consistency of calculations, please use the definitions below when completing this section of the form.

Electricity and Gas Effects
Electricity and gas effects are the changes in electricity and gas use resulting from participation in a DSM program.

Incremental
The energy effects of the DSM program upon participants who were new to the program during the year specified above.

Annual
The energy effects of the DSM program upon all customers participating in the program during the year specified above.

Cumulative
The energy effects of the DSM program upon all customer's participating in the program from the time of the program's inception through the year specified above.

Program Demand Effects
Diversified Coincident Peak Demand effects are the changes in the demand for electricity resulting from a utility DSM program occurring at the same time the utility experiences its summer or winter peak load.

Incremental
The Diversified Coincident Peak Demand effects directly related to a program's activities during the year specified above by new customers participating in the DSM program.

Annual
The Diversified Coincident Peak Demand effects directly related to a program's activities during the year specified above by all customers participating in the DSM program.

Savings Adjustments
Indicate if information on a control group, free riders, or free drivers was used in the estimation of program savings. Check **No Adjustment** if no adjustments were taken.

Control Group - a control group was used
Free riders - program participants who would have adopted program recommended actions during the given year regardless of the existence of the program
Free drivers - people who are not formally program participants but reduce energy use because they are aware of the energy efficiency program or because of program-induced changes in the marketplace

Indicate if original savings estimates have been adjusted as a result of changes during the program year in the parameters listed below (e.g., is the savings estimate based on actual weather data rather than standard weather data). For some of these parameters, on-site data are needed to make the proper adjustment.

Weather - warmer/cooler temperatures, lower/higher humidity
Daylight/daylength - shorter/longer daylength
Building occupancy - more/less people
Building function - differences in occupancy types (e.g., a change in occupancy from retail to grocery)
Installation of additional equipment
Repair, replacement, removal, or retrofit of existing equipment
Thermostat schedule and settings - higher or lower settings, shorter or longer schedules
Hours of operation - shorter or longer hours of operation (e.g., lighting)
Power outages and other supply disruption
Industrial production - changes in type and level and changes in materials or inputs;
Agricultural production - changes in type and level, rainfall, and depth of water table
Other - if none of the above categories applies, check this category and provide a brief description

DCI Page 7

End Use Technology Savings
If there is information on energy savings for particular end uses, provide this information in Appendix II. Refer to information for page 6 of DCI for a definition of terms.

Basis of Energy Savings Estimates
This section requests information regarding the types of energy data used for the calculations of energy and load effects. Data refers to measurements of electricity and gas use. Analytical methods are procedures applied to the data to compute energy use and load changes. Frequently, when a control group is used, monthly electric and gas bills are compared for both participating and control group customers. Ideally, data is collected for at least a year prior to participation as well as the first year of participation.

Indicate the sources of the energy data that were collected for participants and, where applicable, for a control group. Indicate, as well, the analytical methods that were used for energy data related to participants and, where applicable, to a control group.

Data Sources

Engineering Data
Engineering estimates of DSM program impacts can be developed using engineering principles with assumptions about equipment and system performance characteristics and operation profiles of measures installed through the programs.

Data from Other Sources
Data obtained from other utilities, professionals in the field, etc.

Utility Bills
Ideally, utility bills are obtained for a year before and a year after participation, aAnnual electricity and gas use is adjusted for weather and other relevant factors, and the differences between pre- and post-participation use in kWh/year or therms/year are computed.

Spot Metering
Generally, electricity and gas use is monitored before and after participation for short times (e.g., a few days). Other relevant factors (e.g., operating hours for equipment and heating degree days) are measured for a longer time (e.g., up to a year).

Whole-building Load Data
Electrical use of a facility is monitored to record kW demands and kWh before and after participation.

End-Use Load data
Specific circuits or equipment affected by new systems are monitored to record kW demand and kWh before and after participation.

Equipment Specifications
Performance of new equipment is calculated based on information obtained directly from the manufacturer. (In those cases where there is a handbook of equipment specs in the hands of engineers, "engineering data" should be checked instead.)

Site Specific Data
Energy and load effects are calculated based on information obtained by a program representative during an audit of, or other type of visit to, the facility.

Other
Indicate other data sources used for estimating or measuring the energy impacts of DSM programs.

Analytical Methods

Engineering Analysis
Engineering estimates of DSM program impacts are developed by using engineering principles to make assumptions about equipment and system performance characteristics and operation profiles of measures installed throughout the programs.

Statistical Analysis
Statistical options for estimating the energy savings of DSM programs include (1) single comparisons using in-house utility data and (2) multivariate regression approaches using customer-specific survey data.

Hybrid (Combination) Methods
Methods for combining data from different sources for analyzing energy savings include the following: (1) using engineering estimates and/or metering to augment statistical estimates; (2) using metered data directly in statistical models; (3) using statistical procedures in combination with engineering estimates; and (4) using statistically adjusted engineering (SAE) estimates.

Other
Indicate other methods used for estimating or measuring the energy impacts of DSM programs.

Load-Shape Data
Load shape refers to the time-of-use pattern of customer electricity use, typically a 24-hour pattern or an annual (8760-hour) pattern. Enter the type of load shape pattern used.

Day types
If 24-hour load shape patterns are used, enter a description of the day types used. Day types are the customer class daily load shape patterns representative of weekdays and weekends/holidays, peak and off-peak period, and season of the year. An example of a day type description would be *typical winter weekdays*.

DCI Page 8

Annual and Cumulative Program Costs
Enter the calendar year for which the annual costs apply. Enter the start and end years for which the cumulative costs apply.

Utility Costs

Incentives
Incentives are monetary inducements in the form of a rebate or payment. Incentives costs to the utility could include reimbursement of installation and/or equipment costs as well as other costs such as cash rebates to customers and incentives to trade allies.

Administrative
Administative costs are the costs of implementing the DSM program. These include labor costs (such as the time of utility staff, field representatives, and contractors) as well as program support costs which are directly associated with individual customers participating in the program. Such costs include advertising and program promotion.

Measurement and Evaluation
The costs incurred for data collection and analysis to assess the performance of a DSM program. This includes the cost of equipment (such as meters) used for measurement of program energy impacts.

Total Program Costs
Total Program Costs are all utility expenses associated with a DSM program.

Planning
Costs incurred by the utility for the planning of the DSM program.

General Administration
Costs incurred by the utility for the general administration of the DSM program - for example, the cost of departmental secretaries and other administrative staff.

Shareholder Incentives
In many states, agreements with regulators allow utilities to earn bonuses or incentives for good performance in DSM. To the extent that these regulatory incentives add to the cost of the program to ratepayers, they should be reported.

Total Utility Costs
Total Utility Costs are all expenses incurred by a utility in a given year for operation of a DSM program, regardless of whether the costs are capitalized or expensed.

Non-Utility Costs

Participants' Incremental Costs
Participants' Incremental Costs are all program expenses paid by the customer that are net of the incentive paid by the utility.

Other Non-Utility Costs (Not Paid by Utility)
Other Non-Utility costs include all program expenses paid by trade allies that are not reimbursed by the utility.

Total Non-Utility Costs
Total Non-Utility Costs are all program expenses paid by customers and trade allies that are not reimbursed by the utility.

DCI Page 9

Life-Cycle Program Costs

Levelized Program Cost - Electricity Savings
The levelized program cost is the uniform cost of a program (in ¢/kWh, $/kW, ¢/therm, or ¢/MBtu) *over its lifetime*, or the cost of the program's first year multiplied by the uniform capital recovery factor applied at the utility's discount rate divided by the average annual energy or demand changes (in kWh, kW, therms, or MBtus). Indicate the time period, average measure lifetime, and discount rate used in determining the levelized cost. Indicate whether environmental costs, shareholder incentive costs, or net loss revenue costs are included in this calculation. If any are, specify the amount of these costs.

Cost-Effectiveness
Indicate the type of cost-effectiveness test used by the utility and the value of the test. In addition, provide information on the assumptions used in each of the benefit-cost tests. Assumptions include: real discount rate, time period over which program costs and savings are estimated, the cost of energy to consumers, and the utility's avoided cost of energy.

The **Utility Cost Test** assumes that the utility's objective is to minimize revenue requirements. The cost components of this test include the utility's program administration (or overhead) costs, incentive costs, and any direct expenditure by the utility to purchase conservation equipment. The benefits side of this test consists of the utility's avoided cost.

The **Total Resource Cost (TRC) Test** evaluates the impact of DSM programs on the total customer bill for energy services, including participants and non-participants. The cost components of this test include the utility's program administration (or overhead) costs and the cost of buying the actual conservation measures. Incentive costs are not included. The benefits side of this test consists of the utility's avoided cost. Externality costs are not included.

The **Societal Cost Test** is very similar to the **TRC** (see above), but externality costs are included.

This **Participant Test** test views the question of cost-effectiveness from the perspective of the participant, rather than the utility. The cost component of this test is the participant's cost of purchasing the equipment, or other expenditures necessary to participate. The benefits side of this test consists of incentives provided by the utility and the participant's bill savings.

The **Ratepayer Impact Measure (RIM) Test** is designed to measure the impact of a DSM program on the utility's rates. This test is often thought of as the nonparticipating ratepayer's cost test. The cost components of this test include the utility's program administration (or overhead) costs, incentive costs, any direct expenditure by the utility to purchase conservation equipment, and the utility's lost revenue. The benefits side of this test consists of the utility's avoided cost.

Bill Impacts
Indicate the kind of information collected on bill impacts.

DCI Page 10

PROGRAM PARTICIPATION

Only questions pertaining to customer, trade ally, and staff impressions and behavior directly related to the program should be considered. Responses to process questions regarding the general purchase of energy efficient equipment, or practice of energy efficient strategies, are not relevant.

Demographics of Participants and Non-Participants
Indicate the type of demographic information collected on program participants and non-participants: e.g., level of education, age, household income, gender, marital status, type of occupied dwelling (single-family, multi-family, commercial building, etc.), tenancy (own, rent, other), and age of dwelling.

Reasons for Participating in Program
Check all the reasons why people participated in DSM program. Use the **Other** category only if necessary. Please refer to the definitions below when completing this page.

Energy savings: customer expected to save energy (electricity, gas or dollars) by participating in program.

Rebate: customer expected to receive a rebate (dollars) for participating in program.

Desired Technology in Program: customer decided to participate in program because of his or her interest in installing a particular technology.

Environmental Reasons: customer participated because saving energy was perceived to be good environmentally.

Reasons for Not Participating in Program
Check all the reasons why people did not participate in the DSM program. Use the **Other** category only if necessary. Please refer to the definitions below when completing this page.

Up-front Costs: customer perceived the initial costs to be too high to participate (in addition to actual dollars, costs include time and "hassle factor").

Disruptions to Home/Business: customer perceieved that home and/or work would be disrupted when measures were to be installed.

Application Process Burden: customer perceived that participating in a program (especially one with rebates) would entail a lot of paperwork and communication, making it burdensome.

Insufficient Estimated Savings: customer perceived that the expected energy savings would be low and not attractive enough for participating in the program.

Not Enough Information Provided: customer needed more information before making a commitment to participate in the program.

Rebate Was Inadequate: customer felt the rebate was not attractive enough for participating in the program.

Desired Technology Not in Program: because of his or her interest in installing a particular technology, customer decided not to participate in program because the technology was not offered in the program.

Uncertainty About Technology: customer felt that the energy efficiency technologies were too risky.

Lack of Available Funds: customer felt that funding was not not available for investing in energy-efficiency measures.

Customers' Reasons for Level of Satisfaction With Program
Check all the reasons why people were satisfied or dissatisfied with the DSM program. Please refer to the definitions below when completing this page.

General Level of Service: refers to the interaction between the program and the customer and includes such overall impressions as friendliness and responsiveness of utility staff, ease in processing application and rebate, little interruption in daily affairs (at home or at work), etc.

Rebate Processing: refers to the ease and timeliness in processing rebate, from start to finish.

Energy Savings: customer felt that energy was being saved (or not saved) in the home (or at work) after participating in the program.

Type of Information Provided: program information provided to the customer was perceived as adequate or inadequate.

Rebate Level: the amount of the rebate was perceived as adequate or inadequate.

Equipment Issues: customer was satisfied with the new energy efficiency measures because of thermal or visual comfort, convenience, etc. or dissatisfied with the new measures because of problems in maintaining equipment, repair problems, thermal or visual discomfort, inconvenience, etc.

Trade Allies' Reasons for Level of Satisfaction With Program
Check all the reasons why trade allies (dealers, manufacturers, etc.) were satisfied or dissatisfied with the DSM program. Please refer to the definitions below when completing this page.

General Level of Service: refers to the interaction between the program and the trade ally and includes such overall impressions as friendliness and responsiveness of utility staff, ease in processing application and rebate, little interruption in daily affairs (at work), etc.

Rebate Processing: refers to the ease and timeliness in processing rebate, from start to finish.

Program Promotion and Marketing: trade ally felt that program was (or wasn't) being promoted and marketed in his or her best interests .

Sales: trade ally felt that sales improved (or declined) after participating in program.

Type of Information Provided: program information provided to the trade ally was perceived as adequate or inadequate.

Rebate Level: the amount of the rebate offered to customers was perceived as adequate or inadequate.

Availability of Desired Technology: program offered (or did not offer) technologies promoted by trade ally.

DCI Page 11

Sample Size and Response Rates
Enter the size of the sample that comprised the participant group and the control group. If an alternative group is used, then **Other** should be checked and briefly explained. Where appropriate, indicate the response rate for each of the groups: e.g., for a mail survey, 50% of the population of participants returned a complete mail questionnaire and these people formed the sample for evaluation.

Process and Market Evaluation Methods
Indicate which of the listed types of evaluation methods were employed to conduct the process and/or market evaluation.

Market Impacts Examined:
Indicate which of the listed types of market impacts were examined.

Free riders - program participants who would have adopted program recommended actions during the given year regardless of the existence of the program

Free drivers - people who are not formally program participants but reduce energy use because they are aware of the energy efficiency program

Persistence - relates to the degradation of energy savings over time. This includes any deterioration in efficiency due to aging and poor maintenance, as well as the removal of the measure before the end of its useful life.

Type of Program-Tracking Database
Indicate the type of program tracking data base that is being used in the program.

DCI Page 12

Additional Program Information
Add any program information that is important but not provided in the previous pages.

Related Programs
Indicate any programs within the utility or by other utility companies which are closely related to this program.

Lessons Learned
Enter any lessons learned in this section. Lessons learned may pertain to the current program year or to the entire life of the program. Where available, discuss difficulties encountered in program implementation and evaluation, recommendations for program improvement, and key elements for program success.

DCI Page 13

DOCUMENTATION

Process and/or Impact Evaluation Data and Reports
Check the box for process and/or impact evaluation data and/or reports on this program, if this information is available. Process evaluation data is used to show utility effectiveness and efficiency in delivering DSM programs to its customers. Impact evaluation data is used to show the effectiveness of a DSM program in terms of energy and/or demand effects. The availability of process or impact "data" implies that one is able to recreate, from raw data, the numbers that evaluators have summarized in an evaluation report.

Publications
The publications section is included with the DCI to provide a source for additional documented information related to the DSM program.

> Include the title of the document (if the document is a memorandum, enter the subject of the memo); author, date of publication, and DEEP Library number. In addition, enter the source where a copy of the document may be found. This may be a person's name or a place; please be as specific as possible.

Page 14, Appendix I

Program Manager/Program Evaluator
Enter the name, title, address, telephone number, and FAX number for both the program manager and program evaluator.

Pages 15 -17, Appendix II

End Use Energy
Information on energy effects and diversified coincident peak demand on electric and gas **end uses** should be described on these pages. Positive figures indicate reduced energy/load (savings programs) while negative figures indicate added energy/load (load-building programs). Energy effects should be entered in MWh or MTherms, while peak demand information should be entered in MW. See the instructions for Page 6 of the DCI for further definition of terms.

INDEEP
UTILITY PROFILE

Refer to the instructions for a description of terms

Date Profile Submitted: _____

Name of Utility: _____

Location (Headquarters): _____

Type of Utility Ownership:

- ❒ Investor-owned Utility
- ❒ Publicly owned Utility

Type of Utility Functions:

- ❒ Production/Generation
- ❒ Transmission
- ❒ Distribution

DSM Goals:

Objectives	Short-Term	Long-Term
Energy Efficiency	❒	❒
Load Shifting	❒	❒
Load Building	❒	❒
Peak Clipping	❒	❒
Valley Filling	❒	❒

System Characteristics

Utility Generating Capacity (GW)	_____
Imported Generating Capacity (GW)	_____
Total Generating Capacity (GW)	_____
	_____
Utility Annual Energy Production (GWh)	_____
Purchased (+) Energy Production (GWh)	_____
Exported (-) Energy Production (GWh)	_____
Net Domestic Energy Production (GWh)	_____
Average cost of avoided capacity (ECU/kW)	_____

Market Characteristics:

Enter period for which data apply: Start Date: _____ End Date: _____

	Total	Customer Class			
		Residential	Commercial	Industrial	Other
Number of Customers	_____	_____	_____	_____	_____
Revenues (Millions $)	_____	_____	_____	_____	_____
Annual Energy Sales (GWh)	_____	_____	_____	_____	_____
Annual Electricity Sales Growth (%/year)	_____	_____	_____	_____	_____
Average Price of Electricity (cents/kWh)	_____	_____	_____	_____	_____
Annual Energy Sales (Mtherms)	_____	_____	_____	_____	_____
Annual Gas Sales Growth (%/year)	_____	_____	_____	_____	_____
Average Price of Natural Gas (cents/therm)	_____	_____	_____	_____	_____
Percent of service territory served by gas (%)	_____	_____	_____	_____	_____

Utility-Wide Average Avoided Cost of Generation _____

Taxes:

Energy tax _____
CO_2 tax _____
Value-added tax _____
Other _____
(specify): _____

Fraction of Utility Annual Energy Production (%)

Hydro-electric _____
Coal _____
Nuclear _____
Oil _____
Natural gas _____
Other (specify): _____

Type of Sales:

- ❒ Electricity
- ❒ Gas
- ❒ Gas and Electric
- ❒ District Heating

Load Characteristics:

Capacity (MW) _____

Peak Demand:	**Start (Average Hour)**	**Load (MW)**
Summer Peak	_____	_____
Winter Peak	_____	_____

Reserve Margin (MW) _____

Any Regulatory Incentives Earned by Utility?

- ❒ Yes (Please specify: _____)
- ❒ No

Instructions for Completing the INDEEP Utility Profile

This form is designed to collect general information related to a utility's DSM programs. In this case, "utility" refers to the company as a whole. For non-utility-implemented DSM programs, one should use the Provider Profile.Detailed information on individual DSM programs is contained in the INDEEP Data Collection Instrument.

PROFILE Page 1

Name of Utility

Enter the name of the utility.

Location

Enter the location of the utility. If the utility has more than one location, enter the headquarters.

Type of Utility

Enter the type of utility: investor-owned or publicly-owned (municipal).

DSM Goals

Objectives

Check the following applicable items and indicate whether this is a short-term (5 years or less) or long-term (more than 5 years) objective of the utility.

Energy Efficiency

Programs promoting more efficient use of energy.

Load Shifting

Programs promoting the movement of electricity use from one time period to another (usually from the on-peak to the off-peak period for a single day).

Load Building

Programs promoting increased electricity consumption, generally without regard to the timing of usage.

Peak Clipping

Programs promoting reduced electricity demand (kW) at times of peak daily demand. Typically, these are days when the utility experiences demand at, or close to, its system peak.

Valley Filling

Programs promoting increased off-peak electricity consumption (without necessarily reducing on-peak demands).

System Characteristics

For demand, indicate how much the utility generates at its own facilities and how much it imports to meet demand, and then sum these two amounts to obtain total generating capacity. For energy use, indicate how much the utility produces, how much is purchased elsewhere, and how much is exported, in order to determine net domestic energy production.

Fraction of Net Energy Production

Indicate the percentage of fuels used for producing energy: hydro-electric, coal, nuclear, oil, and natural gas. If **Other**, please specify the source of fuel.

PROFILE Page 2

Market Characteristics

Enter the **Start** and **End Dates** for which these data apply. In general, the period covered should be *one calendar year*.

Customer Class

Customer Class is a group (or subgroup) of customers with similar characteristics, such as income, building type, or economic activity. Major classes include residential, commercial, industrial, and agricultural.

For the entire service territory (Total) and each of the four customer classes (Residential, Commercial, Industrial, Other), enter the number of customers, revenues (in million $), annual energy sales in GWh and/or Mtherms, annual sales growth (electricity and gas), and average cost of electricity (cents per kWh) and gas (cents per therm). For those utilities offering gas service, indicate the percentage of the service territory that is supplied with gas from this utility.

Utility-Wide Average Avoided Cost of Generation

Avoided Costs are the costs of a utility's marginal energy and/or demand costs (in ¢/kWh)

Taxes

Indicate the taxes that are placed on energy: e.g., energy tax, CO_2 and value-added tax. If **Other,** please specify the tax.

PROFILE Page 3

Type of Sales

Enter the type of principal fuel(s) sold by the utility: electricity, gas, or combined.

Load Characteristics

Capacity

Capacity refers to the utility's maximum, combined, generating capacity (usually, in megawatts (MW)).

The System Peak Load is the maximum single hourly demand on a utility during a given season of the year. For **Summer and Winter peaks**, enter the average hour when peak begins, and the peak load.

Reserve Margin

Reserve Margin is the amount of capacity a utility has available in excess of its system peak load, expressed in megawatts, or as a percentage of the peak.

Regulatory Incentives

Check the types of incentives the utility earns for pursuing energy efficiency in the following categories: DSM Program Cost Recovery, Lost Revenue Recovery, and Shareholder Incentive Mechanism.

DSM Program Cost Recovery

Refers to policies for regulating utilities' recovery of DSM program costs. Two common policies are balancing accounts and ratebasing.

Balancing Account
A balancing account is a rate mechanism that reconciles, with interest, a utilities' collections from ratepayers for DSM to its actual expenditures. Use of a balancing account ensures that a utility recovers its full DSM expenditures; at the same time, it ensures that the utility does not profit by underspending its DSM budget.

Ratebasing
In ratebasing, utilities are permitted to capitalize and amortize DSM expenditures (other than expenditures for utility-owned equipment), and to earn a return on the investment during the amortization period.

Lost Revenue Recovery
Two methods used to offset the reduction in base revenues attributable to DSM programs are DSM-Specific Adjustments and ERAM-Type Mechanisms.

DSM-Specific Adjustment
With this method, a utility can recover the estimated amount of lost base revenue that is specifically attributable to DSM.

ERAM-Type Mechanism
This mechanism is based on California's Electric Revenue Adjust Mechanism (ERAM) and automatically adjusts a utility's base revenue to an authorized amount, thus eliminating revenue fluctuations due to weather and general economic conditions, as well as DSM.

Shareholder Incentive Mechanisms
A number of mechanisms exist for providing incentives to shareholders:

Percentage Markup:
The utility may receive a percentage markup on certain DSM expenditures.

Ratebase Bonus:
Ratebased DSM expenditures are eligible to earn a greater-than-normal return on equity.

Return on Equity Adjustment:
The utility's overall return on equity may be adjusted in response to quantitative or qualitative evaluation of DSM performance.

Percentage Share of Benefits:
The utility may receive a percentage share of the benefits (gross and/or net) attributable to its DSM programs.

Bonus Per Unit:
The utility may receive a specific bonus amount for each kW and/or kWh saved through its DSM programs.

Other
If an alternative mechanism exists, then **Other** should be checked. A brief explanation should be given specifying the alternative mechanism.

INDEEP
PROVIDER PROFILE

Refer to the instructions for a description of terms

Date Profile Submitted: _____

Name of Provider: _____

Location (Headquarters) _____

Type of Provider:

- ❒ Local Government
- ❒ Regional Government
- ❒ National (Federal) Government
- ❒ Other (specify): _____

Instructions for Completing the INDEEP Provider Profile

This form is designed to collect general information related to a provider's DSM programs. In this case, "provider" refers to non-utility organizations. For utility-implemented DSM programs, one should use the Utility Profile. Detailed information on individual DSM programs is contained in the INDEEP Data Collection Instrument.

Name of Provider

Enter the name of the provider.

Location

Enter the location of the provider. If the organization has more than one location, enter the headquarters.

Name of Provider

Enter the type of provider: local government, regional government, national (federal) government. If **Other,** please specify.

INDEEP GLOSSARY

STANDARD TERMS FOR

INDEEP DATA COLLECTION INSTRUMENT

Prepared for

Annex 1 of the IEA Implementing Agreement on Technologies and Programs for Demand-Side Management

Prepared by

Edward Vine

Operating Agent, Annex 1

Lawrence Berkeley Laboratory

Building 90-4000

Berkeley, California 94720

U.S.A.

DRAFT

April 26, 1994

Alternative Rate Programs	Special rate designs or structures for costumers in return for participation in programs designed to change load shape, especially peak load.
Annual Energy Effects	The changes in electric and gas energy and/or demand for a given year of all of the program's participants (new and prior participants). The savings may have been adjusted (see Savings Adjustments).
Audit	Inspection of a house, building, or industrial process by an expert who makes recommendations for ways the customer can reduce energy use.
Average Measure Lifetime	The operating life of an individual measure in a single-measure program or the weighted average life of a group of measures in a multi-measure program. The operating life depends on the estimated laboratory lifetime of the measure and on how people operate the measure.
Avoided Cost	The incremental cost that a utility would incur to produce or purchase an amount of power equivalent to that saved under a DSM program.
Balancing Account	A rate mechanism that reconciles, with interest, a utilities' collections from ratepayers for DSM to its actual expenditures. Use of a balancing account ensures that a utility recovers its full DSM expenditures; symmetrically, it ensures that the utility does not profit by underspending its DSM budget.
Bill Credits	DSM incentives in the form of discounts on participating customers' bills for performing DSM program actions requested by the utility or for allowing the utility to control customer equipment.
Bill Inserts	Written material (e.g., program announcement, newsletter, publication notice, etc.) enclosed in utility bills mailed to customers.
Building Standards	Building efficiency standards typically require minimum energy efficiency levels for new construction and, sometimes, when making improvements to existing stocks. Typical developers and implementors of building standards are local, state, and federal government.
Bulk Purchasing	Occurs when a utility purchases a large quantity of merchandise (e.g., refrigerators) and sells them at a wholesale cost plus a slight markup (usually lower than retail cost).

Capacity	Refers to the maximum electrical output of a power plant (expressed in megawatts), or the size of a power plant.
Cash Incentives	Cash Incentives are monetary inducements in the form of a rebate or payment.
Coincident Demand	A customer's demand at the time of a utility's system peak demand.
Cooperative Advertising	Sharing the costs of advertising a product or program, such as paying part (or all) of the costs of listing in a newspaper the names of builders participating in a home energy rating program.
Control Group	A comparison group of non-participants that is used for isolating key program effects from other factors that might affect energy use, such as building characteristics, customer income, weather, etc.
Cumulative Energy Effects	The changes in electric and gas energy for all participating customers (both new and prior) over all years of the program (from the program's inception through the current year). These savings may have been adjusted (see Savings Adjustments.
Customer Class	A group (or subgroup) of customers with similar characteristics, such as income, building type, or economic activity. Major classes include Residential, Commercial, Industrial, and Agricultural.
Day Types	Customer class daily load shape patterns representative of weekdays and weekends/holidays, peak and off-peak periods, and season of the year.
Degree Days (Heating/Cooling)	The total number of degrees the average daily temperature falls below 60° F (heating) or above 65° F (cooling) over the heating or cooling season, respectively.
Demand-Side Management (DSM) Programs	Programs intended to affect the amount and timing of customer electricity and gas use.
Demographics	Socioeconomic information on individuals, such as level of education, age, income, gender, marital status, type of occupied dwelling (single-family, multi-family, commercial building, etc), tenancy (own, rent, other), and age of dwelling.
Direct Contact	A targeted approach where customers are contacted (typically, by phone) to determine if they are interested in participating in a DSM program. Other techniques may include personal visits to the building or by mail (see Direct Mail).

Direct Installation	Installation of energy efficient equipment at the building. Equipment is installed for the customer at no cost.
Direct Mail	A targeted approach where customers are contacted by mail to determine if they are interested in participating in a DSM program.
Discount Rate	For an individual, it is the opportunity cost of funds: either the interest foregone on savings, or the interest incurred by borrowing. The real discount rate adjusts for inflation. The nominal discount rate does not adjust for inflation.
Diversified Coincident Peak Demand Effects	The changes in the demand for electricity resulting from a utility DSM program occurring at the same time the utility experiences its summer or winter peak load.
DSM Program Cost Recovery	The types of costs, rate of return or other incentives, and/or lost revenue associated with DSM programs a utility's public service commission allows the utility to recover through rates or a separate surcharge.
DSM Expenditures	The total dollars spent in a given year by a utility on all of its DSM program activities.
Eligible Market	Any set of customers or participating units that qualify for a program based on the program's eligibility requirements.
Eligibility Requirements	Those criteria which a customer or unit must meet in order to participate in a DSM program.
End-Use Load Data Estimates	Involve monitoring specific circuits or equipment affected by new systems to record kW and kWh demand before and after participation.
Energy Effects	The changes in electricity and gas use resulting from participation in a DSM program. See also Gross Program Effects.
Energy Efficiency Programs	Programs promoting more efficient use of energy.
Energy Service Company	A firm that specializes in providing DSM conservation services. Typically, this firm enters into contractual agreements with utility companies to assist in planning, implementation/delivery, and monitoring and evaluating DSM programs.
Engineering Data and Analysis	Engineering estimates of DSM program impacts developed using engineering principles with assumptions about equipment and system performance characteristics and operation profiles of measures installed throughout the programs.

Environmental Costs	The societal costs of residual environmental externalities: e.g., control or mitigation costs, or societal damage costs. The values calculated may be a proxy percentage adder to polluting resources, a percentage credit to nonpolluting resources, or both.
Equipment Cost (Utility)	The price of all equipment a utility directly purchases for a DSM program, whether for its own use or distributed free to program participants.
Equipment Installation or Leasing Incentives	Installation or leasing of energy efficient equipment in exchange for DSM program participation.
Equipment Specifications	Performance of new equipment is calculated based on information provided by the manufacturer or other suppliers.
ERAM-Type Mechanism	This lost revenue recovery mechanism automatically adjusts utility's base revenue to an authorized amount (this mechanism is based on California's Electric Revenue Adjust Mechanism (ERAM)), eliminating revenue fluctuations due to weather and general economic conditions as well as DSM.
Evaluation Costs	The costs incurred for conducting measurement and evaluation studies of DSM programs: evaluations may be process, impact, market impact, or some combination.
Existing Buildings	Structures that are in use at the beginning of the current year.
Focus Groups	Groups of customers (usually 6-10) who participate in a structured and facilitated discussion about a program.
Free Drivers	Customers that take energy efficiency actions recommended by DSM programs because of the program, but do not participate directly in the program (e.g., they do not claim rebates).
Free Riders	Program participants who would have adopted program recommended actions during the given year, regardless of the existence of the programs.
Fuel Switching Programs	Programs encouraging customers to change from one fuel to another for a particular end use.
Full-Scale Programs	Programs that are available to all customers in an eligible market.

General Administrative Costs	Administrative costs that are directly associated with individual customers participating in the program. These costs do not include planning, implementation/delivery, incentive, equipment or evaluation and monitoring costs. Such costs include staff support of the program and overhead allocated to the program.
General Information Programs	Programs where utilities inform customers about DSM options through advertising media such as brochures, bill stuffers, TV and radio ads, and workshops.
Gifts	Merchandise awarded to a customer, utility, employee, or trade ally for participation in a DSM program.
Hook-Up Fee Programs	Typically, performance-based with a sliding scale: the fees decline as the energy efficiency of the home increases, and increase as it decreases.
HVAC	Heating, ventilation, and air conditioning.
Impact Evaluation Data	Data from evaluations of DSM program energy and/or demand effects.
Hybrid (Combination) Methods	Methods for combining data from different sources for analyzing energy savings include the following: (1) using engineering estimates and/or metering to augment statistical estimates; (2) using metered data directly in statistical models; (3) using statistical procedures in combination with engineering estimates; and (4) using statistically adjusted engineering (SAE) estimates.
Incentive	Any award used to encourage customer participation in a DSM program and adoption of recommended measures.
Incentive Costs	Monetary inducements in the form of a rebate or payment. Cash incentives could go to customers, trade allies, or employees.
Incremental Cost	The difference in price between that of an efficient model and a model of standard efficiency for a given technology or measure; or the full cost of the efficient model where no relevant standard efficiency alternative exists (e.g., adding insulation to an uninsulated attic).
Incremental Energy Effects	The changes in electric and gas energy and/or demand of new program participants for the given year. These savings may have been adjusted (see Savings Adjustments.
Installation of Conservation Measures Programs	Programs where the utility, contractor, or customer installs energy efficiency DSM measures in the facilities of participating customers (with or without incentives).

Interruptible/Curtailable Programs — Programs that provide incentives in the form of bill credits or special (reduced) rate structures. In exchange for the incentive, the customer agrees to reduce electrical loads upon request from the utility. The utility's request is usually made during critical periods when the system demand approaches the utility's generating capacity.

Investor Owned Utility — A privately owned utility that distributes its profits to stockholders as dividends or reinvests the profits and any excess cash flow.

Leasing — Equipment, such as lighting or water heaters, may be leased to a customer at low rates. This equipment may be directly installed, or bought by the customer to be installed at a later date.

Levelized Program Cost — The uniform cost of a program (in cents/kWh, dollars/KW, or cents/therm) over its lifetime, or the program's first year cost times the uniform capital recovery factor applied at the utility's discount rate divided by the average annual energy or demand changes expressed in kWh or kW.

Load Building Programs — Programs promoting increased electricity consumption, generally without regard to the timing of usage.

Load Control Programs — Programs promoting shifts in electricity consumption from one time period to another (usually from the on-peak to the off-peak period for a single day) or clipping peak usage.

Load Shape — The time-of-use pattern of customer electricity use, typically a 24-hour pattern or an annual (8760-hour) pattern.

Load Shifting Programs — Programs promoting the movement of electricity use from one time period to another (usually from the on-peak to the off-peak period for a single day).

Lost Revenues — Revenues not collected from sales lost as a direct result of DSM programs promoting energy efficiency and/or load management.

Market Impact — Impact of the DSM program on the market, such as increased availability (sales) of products, decreased prices of energy efficiency products, and increased energy awareness of customers.

Megawatts — 1,000 kilowatts or 1,000,000 watts, abbreviated MW.

Megawatt-hour — 1,000 kilowatt-hours or 1,000,000 watt-hours, abbreviated MWh.

Monitoring and Evaluation Costs — Expenditures associated with collection and analysis of data used to assess program impacts, marketing, and processes.

Municipal Utility — A publicly owned utility that serves its community at cost, returning excess funds to the consumer in the form of community contributions, economic and efficient facilities, and low rates.

New Construction — Buildings and facilities (or additions) constructed during the current year; it may also include major renovations of existing facilities.

Non-Cash Incentives — Inducements in a form other than a rebate or cash payment. They may include low-interest loans, reduced equipment costs, bill credits or discounts, merchandise, or free services.

Non-Participants — All customers not participating in a given DSM program.

Non-Utility Costs — All program expenses paid by customers and trade allies that are not reimbursed by the utility.

Operations and Maintenance Programs — Include regular maintenance of the particular measure(s), along with training and education of O&M personnel, maintenance manuals, and periodic re-testing to measure actual performance.

Participant Incremental Costs — All program expenses paid by customers that are not reimbursed by the utility.

Participants — Eligible customers who take part in a program.

Participant Test — This test views the question of cost-effectiveness from the participant's perspective, rather than the utility's perspective. The cost component of this test is the participant's cost of purchasing the equipment, or other expenditures necessary to participate. The benefits side of this test consists of incentives (rebates) provided by the utility and the participant's bill savings.

Participating Units — The ultimate units used by a utility to measure program effects. Units of measure may be customers, households, facilities or firms, square feet, connected load, or equipment (and operating hours). Annual participating units are for a given year. Cumulative participating units are from program inception through the current year.

Participation Rate: Annual — The ratio (expressed as a percent) of the number of participating units to the total number of eligible units for a given year. Units may be customers. Eligible units are the units used to describe the eligible market.

Participation Rate: Cumulative	The ratio (expressed as a percent) of the number of participating units to the total number of eligible units from program inception through the current year. Units may be customers. Eligible units are the units used to describe the eligible market.
Peak-Clipping Programs	Programs promoting reduced electricity demand (kW) at times of peak daily demand. Typically, these are days that the utility experiences demand at, or close to, its system peak.
Peak Demand	See System Peak Load
Phase-Out Program	A program in its last year of operation.
Pilot Programs	Programs designed to test or build capability to deliver full-scale programs.
Planned Programs	Programs being designed to begin operation as pilot or full-scale programs in the future.
Planning Costs	Expenditures required for a DSM program prior to program implementation.
Price of Energy to Consumer	Price of energy to consumer (e.g., cents/kWh) used in calculating benefit-cost test.
Process Evaluation Data	Data on utility effectiveness and efficiency in delivering DSM programs to its customers.
Program-specific Avoided Cost	The avoided cost of energy that is specific for the DSM program being implemented (see Avoided Cost).
Public Marketing Authority (Administration)	Part of the U.S. Department of Energy, these organizations market electricity produced by federally owned utilities; authorities include: Bonneville Power Administration, Western Area Power Administration, and Tennessee Valley Authority.
Rate Discount Incentives	Rate reductions offered to a customer in order to encourage participation in a DSM program.
Ratebasing	In ratebasing, utilities are allowed to capitalize and amortize DSM expenditures (other than expenditures for utility-owned equipment), and to earn a return on the investment during the amortization period.
Ratepayer Impact Measure (RIM) Test	This test is designed to measure the impact of a DSM program on the utility's rates. This test is often thought of as the nonparticipating ratepayer's cost test. The cost components of this test include the utility's program administration (or overhead) costs, incentive (rebate) costs, any direct expenditure by the utility to purchase conservation equipment, and the utility's lost revenue. The benefits side of this test consists of the utility's avoided cost.

Rebates	Cash payments in the form of a check awarded for participation in a DSM program.
Regulatory Incentives	Types of incentives that utilities can earn for pursuing energy efficiency, such as DSM program cost recovery, lost revenue recovery, and shareholder incentives.
Replacement	The installation of new equipment for worn out (or obsolete) equipment at the end of its useful life.
Research and Development Programs	Development of new technologies as well as the demonstration and technology transfer of research projects.
Reserve Margin	The amount of capacity a utility has available in excess of its system peak load, expressed in megawatts, or as a percentage of the peak.
Retirement	The removal from service (without replacement) and disposal of equipment prior to its normal retirement.
Retrofit	The substitution of new equipment for existing equipment prior to normal retirement age accompanied by the removal and disposal of the old equipment.
Savings Adjustments	Savings may have been adjusted for the following factors: weather; daylight/daylength; building occupancy; thermostat schedule and settings; building function; installation of additional equipment; repair, replacement, removal, or retrofit of existing equipment; hours of operation; free riders; free drivers; power outages and other supply disruptions; industrial production; and agricultural production.
Services	Services, such as technical assistance, engineering design, and/or energy audits provided to the customer either free or at a reduced cost.
Shareholder Incentives	Bounties or bonuses offered to utilities for meeting DSM targets or goals. They usually represent a reward for doing a good job.
Site-Specific Data Estimates	Energy and load effects are calculated based on information obtained at the facility.
Site-Specific Information Programs	Programs providing guidance on energy efficiency and load management options tailored to a particular customer's facility. They often involve an on-site inspection of the facility to identify potential cost-effective DSM actions.

Spot Metering Data Estimates	Involve the monitoring of electricity and gas use before and after participation for short times (e.g., a few days), and measuring other relevant factors, such as operating hours for equipment and heating degree days, for a longer time (e.g., a year).
Statistical Analysis	Statistical options for estimating the energy savings of DSM programs include (1) single comparisons using in-house utility data and (2) multivariate regression approaches using customer-specific survey data.
Subsidized Financing/Loans	Utility DSM program incentives where the financing cost associated with a financial instrument or loan is paid for in part or in whole by the utility.
System Peak Load	The maximum single hourly demand on a utility during a given season of the year.
Target Market	A subset of the eligible market where utility marketing efforts are focussed.
Tax Incentives	Include personal (or business) income tax credits or deductions, or reduced sales tax, for investing in energy efficiency.
Telemarketing	Telephoning a large sample of customers to obtain their interest in participating in a DSM program. Customers are targeted based on previously identified information: for example, participation in past programs, zip codes, telephone area codes, previous market surveys, etc.
Time-of-Use Program	A program featuring rates differentiated by time-of-day and/or season of the year.
Total DSM Energy Saved	The total change in energy (in MWh/year or MTherms/year) resulting from all of a utility's DSM program activities during a given year.
Total DSM Demand Saved	The total change in peak demand (in MW) resulting from all of a utility's DSM program activities during a given year.
Total Program Costs	All expenses associated with a DSM program regardless of whether borne by the utility, participating customers, or trade allies. The costs paid by customers and trade allies are reduced by the value of incentives paid by the utility, if appropriate, to avoid double-counting.

Total Resource Cost (TRC) Test	This test evaluates the impact of DSM programs on the total customer bill for energy services, including participants and non-participants. The cost components of this test include the utility's program administration (or overhead) costs and the cost of buying the actual conservation measures. Incentive (rebate) costs are not included. The benefits side of this test consists of the utility's avoided cost.
Trade Allies	Organizations (e.g, architect and engineer firms, building contractors, appliance manufacturers and dealers, and banks) that affect the energy-related decisions of customers who might participate in DSM programs.
Utility Cooperative	Utility cooperatives are owned by their members and are established to provide energy to the members.
Utility Costs	All expenses (planning, implementation/deliver, equipment, cash and non-cash incentives, monitoring and evaluation, and other) incurred by a utility in a given year for operation of a DSM program, regardless of whether the costs are capitalized or expensed.
Utility Cost Test	This test assumes that the utility's objective is to minimize revenue requirements. The cost components of this test include the utility's program administration (or overhead) costs, incentive (rebate) costs, and any direct expenditure by the utility to purchase conservation equipment. The benefits side of this test consists of the utility's avoided cost.
Utility Performance Incentives	Mechanisms established by public utility commissions to provide utilities return-on-equity, shared savings bonus, or other awards for attaining or surpassing DSM program cost-effectiveness and/or market capture goals.
Utility-wide Average Avoided Cost of Generation	The average levelized cost of a utility's marginal energy and/or demand costs (in cents/kWh or cents/therm) over a given time horizon using the utility's discount rate.
Valley Filling Programs	Programs promoting increased off-peak electricity consumption (without necessarily reducing on-peak demands).
Whole-Building Load Data Estimates	Involve monitoring electricity use of a facility to record hourly kW and KWh demands before and after participation.

APPENDIX C

Revised INDEEP DCI

DCI #: INDEEP-2

INDEEP DATA COLLECTION INSTRUMENT

Refer to the instructions for a description of terms

MAIN SECTION

INDEEP Expert: _____ **Country:** _____

Date Submitted: _____ ☐ First Data Submittal ☐ Data Update

Primary Program Implementing Agent

- ☐ Electricity or Gas Utility
- ☐ Central Government
- ☐ Regional Government
- ☐ Local Government
- ☐ Local Organization
- ☐ ESCo (Energy Service Company)
- ☐ Other

Contact Name: _____

Address: _____

_____

_____

Phone: _____

Fax: _____

Program Name: _____

Program Summary
(describe after rest of form is completed)

_____

_____

_____

_____

_____

_____

_____

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_____

_____

Program Start Date: _____ ☐ Ongoing

☐ **Terminated - Program End Date:** _____

Program Status

- ☐ Planned
- ☐ Pilot (Demonstration)
- ☐ Full Scale (National level)
- ☐ Full Scale (Regional level)
- ☐ Phase Out

Evaluation Status

- ☐ Completed
- ☐ In-progress
- ☐ Planned

Start Date: _____

Energy Objectives

- ☐ Energy Efficiency
- ☐ Load Optimization
- ☐ Fuel Switching (from _____ to _____)

Program Goals

Number of participants: _____

Energy savings: _____

Demand savings: _____

Appliance sales: _____

Other (specify:_____) _____

Reasons for SelectingThis DSM Activity (Choose the Top 5 Reasons)

- ☐ Regulatory Incentive
- ☐ Legislated/Mandated
- ☐ Political Pressure
- ☐ Public Image
- ☐ Result of Screening Process
- ☐ Result of Other Competitive Analysis
- ☐ Economic Development
- ☐ Business Opportunity
- ☐ Other (specify): _____
- ☐ Long-term Resource Option
- ☐ Market Penetration
- ☐ Quality of Service
- ☐ Customer Retention
- ☐ Cost of Service
- ☐ Reduction of Global Warming
- ☐ Reduction of Local Emissions
- ☐ Market Transformation

Eligible Markets: ☐ New Construction ☐ Replacement/Retrofit

Program Type

- ☐ General Information (Brochures, etc.)
- ☐ Site-Specific Information (Audits, etc.)
- ☐ Installation of Conservation Measures
- ☐ Operations and Maintenance
- ☐ Load Control
- ☐ Hook-Up Fees
- ☐ Education/Training
- ☐ Research and Development
- ☐ Building Standards
- ☐ Market Transformation

Alternative rates:

- ☐ Time-of-Use
- ☐ Interruptible/Curtailable
- ☐ Other (specify): _____

Program Participation: Target Group(s)

Residential:

- ☐ All
- ☐ Single-Two Family Houses - With Electric Heating
- ☐ Single-Two Family Houses - Without Electric Heating
- ☐ Multi-Family Houses/Apartments - With Electric Heating
- ☐ Multi-Family Houses/Apartments - Without Electric Heating
- ☐ Other (specify):

Commercial: ☐ All ☐ Other (specify 6-digit NACE code(s)): _____

Industrial: ☐ All ☐ Other (specify 6-digit NACE code(s)): _____

Agricultural: ☐ All ☐ Other (specify 6-digit NACE code(s)): _____

Technologies

	Payback time in years		Payback time in years
☐ HVAC	_____	☐ Refrigeration	_____
☐ Water heating	_____	☐ Ventilation	_____
☐ Motors	_____	☐ Compressed air	_____
☐ Demand control	_____	☐ Industrial	_____
☐ Lighting	_____	☐ Other (specify): _____	_____
☐ Building envelope	_____		

Marketing Incentives

- ☐ Rebates
- ☐ Financing/Loans
- ☐ Direct Instllation*
- ☐ Rate Discounts
- ☐ Bulk Purchasing
- ☐ Gifts
- ☐ Other (specify): _____

Marketing Methods

- ☐ Direct Mail
- ☐ Advertising
- ☐ Energy Audits
- ☐ Personal Contact
- ☐ Other (specify): _____

Participation Summary

	Most Recent Year (19__)	Cumulative (19__ to 19__)
Participants		
Eligible Customers		
Participation Rate		

Program Costs, Energy Savings, and Appliance Sales

		Most Recent Year (19__)	Cumulative (19__ to 19__)
Costs in ECUs	Total Utility/Organizer Costs		
(Specify ECU years(s) used: 19__)	Total Non-Utility/Organizer Costs		
	Total Program Costs		
Energy Savings	Electricity savings (MWh)		
	Demand savings (MW)		
	Fuel savings (Terajoules (=10^{12} joules))		
Appliance Sales	Appliance sales		

Data used to estimate savings:

- ☐ Engineering data
- ☐ Utility billing data
- ☐ Spot metering
- ☐ Whole-building load data
- ☐ End-use load data
- ☐ Equipment specifications
- ☐ Site-specific data
- ☐ Appliance sales data
- ☐ Other (specify): _____

Life-Cycle Program Costs

Levelized Total Resource Cost: _____

Values Used::

Average measure lifetime _____

Discount rate _____

Cost Units:

- ☐ ECUs per MWh
- ☐ ECUs per MW
- ☐ ECUs per cubic meter
- ☐ ECUs per MBtu
- ☐ Other (specify): _____

Lessons Learned

(For example, key elements for program success or failure; consider program design, financing, implementation, and evaluation; include difficulties encountered; and provide recommendations for program improvement)

_____

_____

_____

_____

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_____

Go Back and Complete Program Summary on Page 1

APPENDIX D

Workshop Agenda

List of Workshop Participants

IEA-Implementing Agreement for Cooperation on Technologies and Programs for Demand-Side Management

Workshop on DSM Program Evaluation
Vienna, 26-27 January 1995

Agenda

Thursday, January 26

8:30 am - 9:00 am	Registration
*Chair: **Alfred Reichl** (Austrian Association of Power Utilities)*	
9:00 am - 9:40 am	Opening Remarks **Martin Kasztler** (WIENSTROM), Welcome address **David Rubin** (IEA), „IEA Policy on Energy Efficiency" **Edward Vine**, Annex 1 Operating Agent (LBL, USA), „IEA Implementing Agreement, Annex 1, and Workshop Objectives"
9:40 am - 10:15 am	**Hans Nilsson** (NUTEK), „Current and future status of IRP and DSM in Europe - competition and regulation"
10:15 am - 10:45 am	*BREAK*
10:45 am - 11:30 am	**Edward Vine**, „Benefits of international cooperation: The INDEEP project"
11:30 am - 1:00 pm	**Small group discussions** on the use of the INDEEP data base, „Comparing the performance of DSM programs"
1:00 pm - 2:30 pm	*LUNCH*
2:30 pm - 4:00 pm	**Small group discussions** on the use of the INDEEP data base, „Detailed analysis of a DSM program: expectations and reality"
4:00 pm - 4:30 pm	*BREAK*
4:30 pm - 5:15 pm	**Summary presentations** of small group discussions to all participants
5:15 pm - 6:00 pm	**Randall Bowie** (NUTEK), „DSM Program Evaluation in Sweden"
8:00 pm	*RECEPTION in the „Rathauskeller" given by the Mayor of Vienna*

Friday, January 27

Chair: ***Manfred Heindler*** *(E.V.A.)*

9:00 am - 9:30 am	**Herbert Fink** (WIEN ENERGIE), „Experience with DSM Programs in Vienna“
9:30 am - 10:30 am	**Edward Vine and Annex 1 Experts**, „Lessons learned from first day“
10:30 am - 11:00 am	*BREAK*
11:00 am - 12:00 pm	**Plenary discussion**, „Future directions for INDEEP“
12:00 pm - 12:45 pm	**Derek Fee** (European Commission, DG XVII), „The European Commission´s Perspective on DSM, IRP, and IEA Implementing Agreement on DSM Programs and Technologies
	Conclusion of the workshop
1:00 pm	*LUNCH*

J. M. Bais, ECN, Netherlands
Hans Henrik Benediktson, NVE, Denmark
J.M. van den Berg, N.V. Sep, Dutch Electricity Board, Netherlands
Jan-Olof Berghe, Göteborg Energi AB, Sweden
Randall Bowie, Dep. of Energy Efficiency, NUTEK, Sweden
Roman Cizek, SCI CS, Czech Republic
Flavio Conti, Joint Research Center Ispra, Commission of the EC, Italy
Gerardo Cracas, A.C.E.A. - Roma, Italy
Werner Eckhart, Wiener Stadtwerke - WIENSTROM, Austria
Derek Fee, Energy Directorate (DG XVII), Commission of the EC, Belgium
Mario Feruglio, SOFTECH, Italy
Herbert Fink, Wiener Stadtwerke - WIEN ENERGIE, Austria
J. Frerejean, Regional Energiebedrijf Dordrecht, Netherlands
Paul Viktor Gilli, Graz University of Technology, Austria
Cesar Gaya Goya, ADAE, Spain
Reinhard Haas, Institute for Energy Economics, Technical University of Vienna, Austria
Ture Hammer, ELKRAFT, Denmark
Grayson Heffner, Electric Power Research Institute (EPRI), USA
Manfred Heindler, Energieverwertungsagentur (E.V.A.), Austria
Hannes Holzer, Austrian Electricity Board, Austria
Stale Johansen, SRC International ApS, Denmark
Finn Josefsen, Head of DSM dep., SEAS A/S, Denmark
Martin Kasztler, WIENSTROM, Austria
Seppo Kärkkäinen, Techn. Research Center of Finland, Energy and Power Systems, Finland
Caspar Kofod, DEFU, Denmark
Herbert Lechner, Energieverwertungsagentur (E.V.A.), Austria
Anders Lewald, Dep. of Energy Efficiency, NUTEK, Sweden
Erwin Mair, Oberösterreichische Kraftwerke AG, Austria
Miroslav Maly, SRCI CS, Czech Republic
Felix Martinez, Red Electrica, Spain
Jan Möller, DEFU, Denmark
Flemming Nielsen, NESA, Denmark
Hans Nilsson, Director, Dep. of Energy Efficiency, NUTEK, Sweden
Giuseppe Noia, ACEA-Roma, Italy
Andreas Paul, WIENSTROM, Austria
Alfred Reichl, VEÖ, Austria
David Rubin, International Energy Agency, France
Hans-Georg Rych, Energieversorgung Niederösterreich, Austria
Mats Rydehell, Norwegian Water Resources and Energy Administration, Norway
Sergio Scalcino, Study and Research Division, Electrical Research Center, ENEL, Italy
Waltraud Schmid, Energieverwertungsagentur (E.V.A.), Austria
Iben Spliid, Danish Energy Agency, Denmark
Harry H.J. Vreuls, NOVEM B.V., Netherlands
Edward Vine, Lawrence Berkeley Laboratory, USA
Leon R. de Wit, N.V. KEMA, Netherlands

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