



DSM *spotlight*

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The Newsletter of the International Energy Agency Demand-Side Management Programme

Impact of Electric Industry Restructuring

The power sector is changing rapidly throughout the world as more countries begin to change the way they deliver electricity services. And, with this restructuring the relationship between the utility, their customers and the regulators is changing. As utilities focus their attention on the economic efficiency of restructuring, demand-side management (DSM) efforts are given little thought. So whether the change in the electric industry is large or small, DSM programs and the incentives to pursue these types of programs will need to be modified.

A restructured market can impact a DSM program in many ways. Restructuring can change a DSM program's funding source or budget, the companies who deliver

services and the focus of the program. The changes that can occur are in ownership, structure and regulation. Typically, the change in ownership results from the privatization of a government-owned generation, transmission and/or distribution

company. Privatization leads to changes in the type and amount of funding available for DSM programs, and often to the introduction of government regulations which may or may not support DSM programs.

In many countries, the electric industry is structured as a vertically integrated industry with generation, transmission and distribution being provided by the same company. A change in this structure can result in big changes for DSM programs. When the structure of an electric industry changes new players enter, such as program delivery specialists (e.g., private Energy Service Companies or ESCOs), regulators and private sector managers. These players inevitably will influence the content, funding and focus of a DSM program.

Changes in ownership and structure are often accompanied by changes in regulation. Where government oversight may have been limited, once an electric industry is privatized government regulations can become stricter resulting in either an expanded or restricted program focus and scope.

As outlined in the article, "Public Purpose Energy Efficiency Programs and Utilities in Restructured Markets," by the Operating Agent of IEA DSM Task IV and several of his colleagues, policy makers should return to the basics when considering how to promote DSM programs in a restructured market. Before considering market intervention policy makers should:¹

■ Determine whether there is strong public interest in intervening in the market to influence the level of energy efficiency.

■ Indicate how the objectives of market intervention will be reconciled with the objectives of restructuring.

■ Determine how to fund the intervention.

■ Identify organizations to implement the intervention.

■ Identify ways to structure the management of the intervention.

Countries that have undergone restructuring caution others to consider how the changes in the industry structure will affect the country's DSM programs before restructuring begins. Although demand-side management is only one of many electric industry goals, it should be considered as part of the total package of energy services delivered to the public. Demand-side management should also be profitable for the company. As competition increases, there will be a greater need for customer incentives. And, the profits from providing a service will be small unless value-added services, such as DSM programs, are offered.

To assist in the development of such value-added services, the IEA DSM Programme has initiated a new Task on DSM and energy efficiency in restructured electric industries. Task VI, *Mechanism for Promoting DSM and Energy Efficiency in New Business Environments*, will develop a range of practical mechanisms whereby economically justifiable DSM and energy efficiency can be incorporated into restructured electric industries.² The goal of the Task is to develop factual information for the responsible authorities to use when promoting DSM and energy efficiency in restructured electrical industries.

✓ *The DSM Spotlight is published four times a year to keep readers abreast of recent results of the IEA Demand-Side Management Programme and of related DSM issues. The viewpoints or policies expressed in this newsletter do not necessarily reflect those of the International Energy Agency, the IEA Demand-Side Management Programme member countries, or the participating researchers.*

For more information on the Programme, its work and contact addresses, please visit our website at <http://www.iea.org/dsm-enef>

Tracking DSM in New Business Environments

If DSM programs are to be used in the marketplace along with conventional and non-conventional supply-side programs then utilities and governments must understand the benefits, costs and impacts of demand-side management. In an effort to give DSM equal footing, the IEA Demand-Side Management Programme initiated Task IV, *Development of Improved Methods for Integrating Demand-Side Management Options Into Resource Planning*. This Task created a forum for the exchange of experiences as well as an opportunity to develop practical mechanisms for incorporating DSM and energy efficiency in the changing environment of electricity businesses.

Task experts studied DSM and energy efficiency activities in 15 countries. Many of these activities varied by country because of the different utility industry structures, market situations and regulations. The restructuring of a country's electricity industries (i.e., the "unbundling" of traditional utility functions and opening the door to competition) has had a significant impact on DSM activities. To track DSM and energy efficiency activities in new electricity business environments, Task experts surveyed key government and industry policy and decision makers from countries that are or will implement DSM and energy efficiency programs in their restructured electricity markets. This survey provided information on existing and proposed mechanisms for incorporating DSM and energy efficiency into restructured electricity supply industries as well as clarified the types of market barriers and implementation problems which could

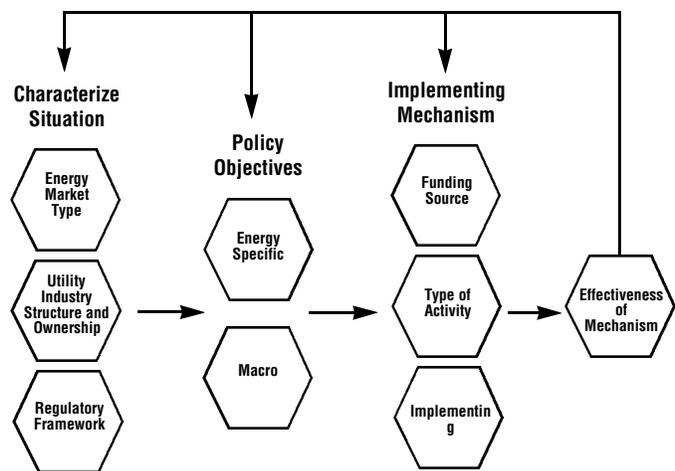
impede energy efficiency goals. Task experts found that DSM and energy efficiency activities can be divided, based on their objectives, into two groups—public policy and commercial. Some DSM and energy efficiency activities are carried out by governments to achieve public policy objectives, such as to reduce environmental damage, to increase overall energy system efficiency, or to achieve job creation. And, some DSM and energy efficiency activities are carried out by energy businesses to achieve commercial objectives, such as to improve the profitability of existing business areas, to improve market positioning, to retain customers, to improve public relations, or to increase profitability from new business areas (e.g., new products and services).

These objectives are achieved in a variety of ways. Public policy-based mechanisms include product labeling to show the efficiency and annual

operating cost, "branding" of energy efficiency to increase its visibility and credibility, market transformation programs to accelerate the introduction and commercialization of energy efficient technologies, and direct financial incentives, such as tax credits or subsidies for efficient technologies and surcharges for inefficient technologies.

Business-based mechanisms include district cooling services, street and area lighting services, HVAC equipment and remote monitoring, maintenance and control services, and whole-building energy service including energy procurement, operation, maintenance, and possibly energy equipment ownership. Another important new mechanism is an Energy Trust or Sustainable Development Authority. This type of organization, which exists in Australia, Finland, Norway and the U.K., is designed to fill the gap created by the utilities' withdrawal from

Figure 1
Framework for Assessment of Mechanisms



Marketing DSM Technology

implementing DSM and the government's hesitation to take on this added responsibility.

Task experts developed a framework to assess the effectiveness of different mechanisms for promoting DSM and energy efficiency in new electricity business environments. This framework creates a systematic approach to characterize the situation in which a mechanism may be implemented. The framework, illustrated in Figure 1, can help to determine whether electricity businesses should implement DSM and energy efficiency programs that otherwise would not occur in a competitive market, or to characterize what type of mechanism would be most effective for use by a government entity to implement DSM and energy efficiency services in the public interest.

Three excellent Task reports are available which provide up-to-date summaries of who is doing what in DSM and how to find more information on this topic. The report "Inventory of Available Methods and Processes for Assessing the Benefits, Costs, and Impacts of Demand-Side Options" is an encyclopedia of integrated planning approaches, methods, country-specific considerations and software model descriptions. "Review of Existing Mechanisms for Promoting DSM and Energy Efficiency in New Electricity Business Environments" outlines a way to conceptualize and evaluate DSM mechanisms. The results of two regional workshops are detailed in the report "Preliminary Concepts for New Mechanisms for Promoting DSM and Energy Efficiency in New Electricity Business Environments." ■

More information on Task IV can be obtained from the Operating Agent,

How do you market a product that is not tangible, but can offer significant benefits to the consumer? Task V of the IEA Demand-Side Management Programme, *Investigation of Techniques for Implementation of Demand-Side Management Technology in Marketplace*, is starting to answer just this question. By researching, analyzing, and learning how utilities are implementing DSM programs, Task experts will be able to develop improved DSM technology marketing strategies that should be useful to utilities as well as other entities who deal with electricity end-users.

To develop new strategies, the Task has evaluated many current DSM Programs and started thirteen pilot projects in Finland, Netherlands, Norway, Spain, Sweden and Tanzania. The pilot projects are designed to test new DSM techniques for motivating customers to change their attitudes and behavior towards energy use which in turn will benefit them as well as the utilities. The focus areas of the projects are on small economic units, such as the customers in residential, small commercial and small industrial service areas. Each pilot project takes into account the types and numbers of customers, socio-economic environment, and culture and habits which add to the wealth of knowledge to be gained. The use of a common format based on a specific methodology allows Task experts to share experiences, plans, and program results (successes and failures) and evaluations. And workshops held every three months provide Task participants with the opportunity to discuss project specifics and share experiences.

To date, all the pilot projects have found that having diversity in the types of utility

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services and customers is an advantage because more can be learned. The new information gained can not only help utilities react better to what is happening in their area, but also in other areas. In Spain, the pilot projects found that customer communication is important and can affect participation rates. For example, when the same new service was described differently in letters to designated groups, such as retired customers, young couples with families, etc., the overall participation rate increased compared to the participation rate in an area that used a standard letter.

It is anticipated that the evaluation of the Programme's pilot projects and market analysis of other DSM programs will better define how to meet market needs, target customers and communicate with customers, in addition, how to improve cost efficiency and business and profit strategies. ■

More information on Task V can be obtained from the Operating Agent, Juan Comas, FECSA, Spain, e-mail: jcomas@eic.ictnet.es (See IEA DSM web site for address and fax.)

IEA DSM Programme and the World Bank Join Forces in Tanzania

The mechanisms to be considered in Task VI are not DSM and energy efficiency programs. Instead, the mechanisms are to

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assist in the implementation of such programs. Two types of mechanisms are to be investigated by Task experts. The first mechanism type is policy and regulatory measures that can be

¹ The complete article, "Public Purpose Energy Efficiency Programs and Utilities in Restructured Markets," by M. King, G. Heffner, S. Johansen and B. Kick can be found in the *Electricity Journal*, July 1996.

² More information on Task VI can be obtained from the Operating Agent, David Crossley, Energy Futures Australia. e-mail: crossley@efa.com.au (See IEA DSM website for address and fax.)

Tanzania, like many developing countries, faces an increasing demand for electricity, but lacks the capacity to meet this growing demand. What this imbalance in supply and demand means is that citizens must put up with regularly occurring power outages. In an effort to change this situation, the World Bank is promoting demand-side management to reduce electricity demand by delaying the need for increased investments in the generation, transmission and distribution of electricity. As the concept of DSM is relatively new, and subsidized energy in many developing countries is cheap, the World Bank is seeking ways to promote DSM. The IEA DSM Programme and the World Bank are natural partners as both are working to introduce new techniques and approaches aimed to integrate DSM activities into countries' resources, strategies and plans.

The World Bank facilitated Tanzania joining IEA DSM Task V in 1995. The Task's primary objective is to create pilot DSM projects from which valuable lessons of experience and

information on good practices is shared among the Task participants and disseminated in the participating countries. In Tanzania the pilot project is focusing on load management and time-of-use rates in three industrial towns in northern Tanzania and pre-paid meters for residential customers in the country's capital, Dar es Salaam. The IEA DSM Programme plays an important role in this project by bringing together countries that are implementing similar DSM and marketing strategies. For example, the Netherlands and Finland have also started time of use rate projects. The challenges in implementing these three projects varies tremendously by country because of differences in electricity prices, types of end-uses, and social and economic factors. However, much can be gained by country experts working together—not only are they sharing their experiences, but also helping each other evaluate their successes and failures. ■

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