

DSM Spotlight

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Workshop on White Certificates Focuses on UK Experience

In the search for additional ways to reduce energy use and meet Kyoto targets, some countries are now considering whether an energy efficiency trading scheme, known as "White Certificates," can be an effective means to attain goals for reduction of energy consumption and CO₂ emissions, similar to Black (carbon trading) and Green (renewable energy) Certificates.

To help member countries assess the feasibility of such a scheme, consider implementation problems, and determine how a White Certificates programme could interact with other certificate trading schemes, Task XIV was initiated in 2004. The Task will hold a series of four workshops to provide a forum for participating countries to look at the relevant issues, existing experience, and best ways to introduce White Certificates into their energy markets.

The first of these workshops was held in November, 2004 at the UK's Department for Environment, Food, and Rural Affairs (DEFRA) in London. The theme of the workshop was "Current Experiences and National Expectations Associated with the Trading of White Certificates." In attendance were experts from France, Italy, Norway and Sweden, as well as UK representatives from DEFRA, the Office of Gas and Electricity Markets (OFGEM), Warwick University, and the UK Business Council for Sustainable Energy.

The workshop focused primarily on the UK experience as a national case study. The current state of implementation of the UK's Energy Efficiency Commitment (EEC), its implication for energy efficiency trading or other EE policies, and other medium-term EE plans were presented. The perspectives of both business and regulators were covered.

The EEC, initiated in April 2002 and scheduled to remain in force until 2011, requires gas and electricity suppliers in the UK with at least 15,000 residential customers to meet a combined energy savings target

of 62 TWh by 2005. Suppliers have already met more than 3/4 of the savings needed to comply with these targets. Targets will increase to 130 TWh during the period 2005-2008.

The trading of Energy Efficiency (EE) certificates (called obligations in the UK) is performed by means of bi-lateral contracts based on saved TWh. Certificate trading occurs in the final stages of each target period, when suppliers reconcile their achieved performance against their targets. A more "liquid" kind of trade (e.g., by means of White Certificates in a suitable marketplace) has not as yet been implemented.

The experience gained thus far in the field of emissions trading schemes (both at the UK and EU levels) indicates that an International Emissions Trading Registry with on-line, real-time access could play a valuable role.

Energy Service Companies (ESCOs) are seen as a potentially-effective mechanism for attaining the energy savings targets, but do not yet exist on a large scale in the UK. It was suggested that the formation of ESCOs might be encouraged by ensuring that they receive a fair economic gain from the energy savings achieved.

The Task XIV Operating Agent, Antonio Capozza, was pleased with the success of the UK workshop and looks forward to the remaining workshops which he expects will further expand the participants' understanding of the challenges and opportunities of a White Certificates programme. The second workshop will be hosted by ADEME in Paris in April 2005.

For more information, visit the Task XIV website at <http://dsm.iea.org/NewDSM/Work/Tasks/task14.asp> or contact the Operating Agent, Antonio Capozza, at capozza@cesi.it.

PARTICIPATING COUNTRIES

Australia

Austria

Belgium

Canada

Denmark

European Commission

Finland

France

Greece

Italy

Japan

Korea

Netherlands

Norway

Spain

Sweden

United Kingdom

United States

trends

DSM and EE Trends Reported in EXCO Workshop

In recent years, the policy and market context in which Demand Side Management (DSM) and Energy Efficiency (EE) programmes must operate is constantly changing. The energy sector in many of the IEA countries has been unbundled and liberalized with various degrees of competition. The use of spot and futures markets is growing. And many countries have introduced new energy policies.

The IEA DSM Executive Committee places a high priority on ensuring that the work it undertakes reflects the changes that are taking place in government programmes and in the marketplace. To help its members determine how the IEA collaboration should respond to these changes, the ExCo held a special session on the status of DSM and EE at its October 2004 meeting in Atlanta, Georgia. The shared information will be utilized in future planning to ensure relevance of the IEA DSM work.

Executive Committee members were asked to summarize: (1) their countries' top energy concerns, (2) new trends in the energy sector, and (3) new policies that will impact DSM and EE in their

country. The highlights of the workshop are summarized below.

Energy Concerns

All the reporting countries identified their top energy concerns as **security and reliability of energy supply** and the need for **environmental protection**.

Ageing infrastructure, avoidance of blackouts, a growing base load, increases in peak demand, lack of adequate or reliable transmission, volatile and increasing energy prices were the major energy supply and reliability concerns.

The primary environmental issues deal with how to encourage increased energy efficiency to help meet Kyoto carbon dioxide aspirations as well as national, regional and local targets and regulations.

All countries indicated that they wish to address these two concerns by market-based mechanisms rather than by directives or mandates.

New Market Trends

- The use of **tradable white certificates**, which have been adopted by Italy and France, is expected to spread to other countries as they set demand reduction targets.
- **Energy efficiency in the building sector** is viewed as an important component in meeting Kyoto targets by most IEA DSM countries.
- There is growing interest in DSM by **regulated grid operators** because of their responsibility for security of electricity.

■ **Interest in demand response** is growing in many countries, notably the US.

■ There is a growing presence of **renewables** in the market, for example, wind power in Spain and the US, green certificates in Belgium and Sweden and renewable energy portfolio standards in a large and growing number of states in the US.

■ There is also a growing presence of **distributed generation**, notably in Austria and Finland, and co-generation in Belgium.

■ While there is growing expectation of **new coal and nuclear power plants** in Finland and the US, **nuclear power continues to be phased out** in other countries such as Belgium and Sweden.

New Policies

A large number of new energy policies related to DSM and EE were reported. **Financial policies** being adopted include the use of tax deductions for businesses which employ EE and tax incentives to promote greater use of EE products. Belgium has instituted an innovative new tax on energy that increases only when international energy prices decrease. The UK imposes a climate change tax based on fuel use and offers a tax credit to businesses for their EE investments. There are a growing number of clean energy funds, such as those in various states in the US and those in Belgium, where regional energy taxes go into an energy fund based on electricity consumption.

A growing number of policies pertain to **carbon targets and emissions**



<http://dsm.iea.org>

Visit the IEA DSM web site for more information on Programme activities, publications and contact names.

china

China's Surging Electricity Demand Needs DSM

A workshop was held in Beijing in early November 2004 to launch an IEA study of China's electric power sector. The workshop was jointly organized by the IEA and China's Energy Research Institute, with the support of the Energy Bureau of the National Development and Reform Commission (NDRC).

Hans Nilsson of Sweden, Chairman of the IEA DSM Programme, was a member of the IEA team. During their visit, team members also met with several government officials and other stakeholders.

The context of the mission was the soaring electricity consumption that has accompanied China's remarkable economic growth. Their power sector has expanded enormously over the past twenty-five years, averaging an additional 15 GW of installed capacity each year. Between 1993 and 2003, electricity demand rose by 98%, and generating capacity is presently increasing at a rate of about 30 GW per year, the size of the entire Swedish system! Installed capacity exceeded 400 GW early in 2004, second only to that of the U.S.

The Chinese government has recognized that significant reforms must be enacted to achieve its goal of an energy system which is "secure, clean, and affordable," according to remarks made by a representative of the NDRC at the opening of the workshop. The IEA study will attempt to contribute to that process by formulating practical policy recommendations to the Chinese government primarily in the areas of:

- Power pricing,
- Efficiency and demand side management,
- Institutional issues,
- Wholesale and retail competition models, and
- Policy framework.

The workshop noted the challenges that have accompanied the rapidly-increasing electricity demand. Capacity has not been able to keep up with demand, and electricity supplies have had to be limited in many provinces, municipalities and regions during the past few years. Large scale blackouts occurred in Shanghai in the summer of 2003. Coal supplies have at times been inadequate due to production or transportation problems, while hot weather and dry spells have decreased hydroelectric supply. Another major concern involves the environmental problems caused by the coal-burning plants which generate about 80% of China's electricity.

In response to those problems, the government has initiated a major reform of China's power sector. As one of the first steps in that reform, the government and business functions of the electric power industry have been separated, and the power generation and transmission sectors have been separated as well.

New policies have also been enacted. "Principles for Development of the Electric Power Industry (Sept. 2003)" emphasizes sustainable development and mutual cooperation, acceleration of new energy development, structural reform of the power industry, development of more efficient coal technology, and development of natural gas technology capability.

Stronger environmental restrictions on coal-fired plants have also been introduced.

Some efforts are also underway in China to encourage demand side management, through seasonal or daily off-peak discount rates, restructuring, and efficiency improvements in industries

It was evident to the members of the IEA mission that China intends to place equal emphasis on supply and demand-side issues in reforming its power sector. That approach could be an important model for future global sustainability.

with high electricity consumption. Electricity rates have been raised, thus far primarily for industrial users. Attempts are being made to identify industries with high electricity consumption, and demand side measures have been adopted in some factories to reduce their peak load demand.

During the workshop, Mr. Nilsson presented the work of the IEA DSM Programme. The Chinese hosts responded very positively to that presentation and noted their desire to identify and develop additional DSM opportunities. They also requested that such opportunities be included in the recommendations produced by the IEA team.

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Opportunity to Partner with the Climate Technology Initiative

Following his participation in a recent Climate Technology Initiative (CTI) seminar in Vienna, the IEA DSM Executive Committee Chairman, Hans Nilsson, concluded that there's a significant opportunity for mutually-beneficial collaboration between the CTI and DSM Programmes.

The mission of the CTI is to bring countries together to foster international co-operation in the accelerated development and diffusion of climate-friendly and environmentally-sound technologies and practices. It was first established in 1995 and became an IEA Implementing Agreement in 2003. Eight countries are presently members.

The CTI aims to undertake a broad range of co-operative activities in partnership with developing and transition countries. In that process, it works closely with the United Nations Framework Convention on Climate Change (UNFCCC) (especially the Expert Group on Technology Transfer), other relevant IEA Agreements, and other international bodies.

Given the mission and scope of the CTI, it seems clear that the EE and DSM technologies, policies and measures which have been the focus of the IEA DSM Programme are highly relevant to the CTI and that the opportunity for effective synergy exists. The CTI's intended audience could benefit from the

experts, knowledge, and results that have emanated from the IEA DSM Programme. And the CTI could provide an effective framework for dissemination of the DSM Programme's products and information.

Examples of joint activities where IEA DSM expertise could be particularly beneficial are:

- Training seminars on topics such as demand response, aggregated procurement, and design of effective EE policies and programmes.
- Preparation of handbooks on appropriate procedures and technologies for small-scale EE projects for CDM/JI.
- Joint projects on lighting, communicating the benefits of EE to customers/users, promoting effective standards and labeling, and aggregation of purchases of local energy efficiency measures through cooperatives.
- Industrial energy auditing and benchmarking of emissions.
- Quantifying and visualizing the impact of EE improvements for decision makers.

Discussions are underway with the CTI regarding the formation of a partnership between the two Implementing Agreements, and joint projects may soon be forthcoming.

UP CLOSE AND PERSONAL Antonio Capozza



Dr. Antonio Capozza wears two hats in the IEA DSM Programme, serving both as the Italian national representative to the Executive Committee and as the Operating Agent of the recently-initiated Task XIV on White Certificates. He first became acquainted with the DSM Programme when he was designated as the Italian expert for Task X on "Performance Contracting." So when

Task XIV was proposed, Antonio was a logical candidate for Operating Agent, given his IEA experience and his involvement in Italy's programme on energy efficiency targets and exploration of trading schemes.

A native of Rome, Antonio was educated in the Eternal City. He attended "La Sapienza" University of Rome from which he received a Doctorate in Nuclear Engineering, summa cum laude, in the field of automatic controls & electronics.

After completing his studies, he worked for ENEL, the largest Italian electricity company, and later for CISE, the National Research Centre on Energy. Antonio presently works for CESI, the Italian Company for Research and Services in the Electricity Sector. In addition to 20 years of research experience in computational fluid dynamics, he has worked on a variety of subjects in the energy field:

- Market mechanisms for fostering energy savings, such as White Certificates
- Development of technical guidelines for evaluation of energy efficiency projects
- Technical and contractual problems related to the operation of Energy Service Companies
- Analysis of DSM programmes in liberalised energy markets
- Use of DSM methodologies for postponing investments in urban grids
- Application of heat pumps for residential heating, cooling and hot water supply
- Studies on the evolution of EU and national policies on R&D project financing.

Outside of office hours, Antonio's favorite pastimes are music, horseback riding and travelling. Just saying "music" is a bit of an understatement, because he is, in fact, very musically talented. He studied piano at the Conservatorio for quite a few years and sings semi-professionally as a bass in a choir which specializes in baroque and 18th century works.

In his travels, Antonio is drawn to northern destinations such as Norway, the Svalbaard Islands, Iceland, Finland, and Sweden, places he sees as illustrative of the struggle of man against a harsh nature. No doubt the contrast to his warmer and sunnier native country is part of the appeal.

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trading. Carbon reduction targets were tightened in the UK and emissions trading expanded. National energy savings targets were established for distribution companies and energy service companies in Italy, and white certificate trading systems are being implemented in Italy and France. Mandatory energy savings targets have been set in Belgium (Flanders region), France and Italy. Voluntary agreements are used in Korea.

Standards and labeling policies exist in most reporting countries. Some of these policies are driven by the new EU Directives on Building Performance and on Energy Using Products. Korea is using standards, labels and voluntary programmes to promote EE products, and the US uses national voluntary standards for many energy products. Energy audits, which are common in most countries, and information programmes often support these policies, examples being the highly effective local information programmes in France, Sweden and Norway.

Although not mentioned by all reporting countries, **R&D** is an important policy tool. France, for example, has an R&D strategy to reduce greenhouse gas emissions by a factor of four by 2050, and Finland considers R&D to be a very important tool for climate change technologies. In contrast, however, Sweden has reduced its R&D budget.

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Mr. Nilsson's visits with several stakeholder organizations confirmed the strong Chinese interest in DSM. For example, the China Electricity Council, a business trade association, expressed interest in the use of DSM measures to alleviate problems in the power sector. In addition, the National Development and Reform Council requested that a study tour be organized to visit successful examples of DSM applications in IEA DSM member countries.

In summary, Mr. Nilsson characterized China's position regarding DSM as very positive. "The Chinese leaders that we met, representing several levels of decision making and implementation, were all unanimous in their wish to make energy efficiency and DSM an integral part of their power sector reform."

The IEA DSM Programme could play a key role in helping China successfully shape and implement demand-side policies and measures. It is hoped that China will decide to join the DSM collaboration, enabling it to benefit from the expertise and knowledge available to the participating countries and, at the same time, enriching the collaboration with its own experiences.

The DSM Spotlight is published several 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://dsm.iea.org>

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