

SESSION 19

THE ROLE OF ENERGY MANAGEMENT STANDARDS IN ACHIEVING TARGETS IN THE INDUSTRIAL SECTOR

Moderator: Pierre Landry, Southern California Edison

PAPERS:

Promoting Energy Management Systems through Energy Efficiency Programmes, Incentives and Support – Lessons Learnt from Evaluations in Denmark, Ireland and Sweden
Amelie Goldberg and Julia Reinaud, Institute for Industrial Productivity

Policy Pyramids: An Evaluation Framework for Industrial GHG Mitigation Policies
Julia Reinaud and Amelie Goldberg, Institute for Industrial Productivity

Evaluating Industrial Energy Management Systems –Considerations for an Evaluation Plan
Christian Stenqvist, Lund University

The first paper in this session looks at energy management systems in three countries. Denmark, Sweden and Ireland have included standards for energy management systems (EnMS) as a core requirement of energy efficiency agreements between government and industrial companies. Lessons learnt from evaluations in these countries shows that proper adoption of EnMS, coupled with a carefully designed mix of incentives and support systems, and that are embedded within energy efficiency agreements, greatly facilitates the continuous identification and realisation of energy saving opportunities. EnMSs are key to identifying opportunities. With the adoption of EnMS, energy savings far exceed what companies had been able to achieve with the agreements alone. Evaluations of the three energy saving agreements show that companies that have adopted EnMS often realise energy savings beyond the agreement's expectation, typically making savings of 10 to 20 percent within the first five years. The evaluations not only rely on understanding the quantitative impacts of the package, but also on qualitative indicators about how EnMS helped participants to change practices within their own company for achieving continuous improvements.

The second paper on policy pyramids proposes an innovative methodology to evaluate whether policy packages provide the necessary impetus to achieve ambitious improvements in energy savings and emissions reductions in industry. The paper uses the "policy pyramid" methodology, which distinguishes among three levels of policy making: effort-defining policies; supporting measures (or complementary policies, either carrots or sticks) that help deliver that effort and address specific barriers identified; and tools, guidelines or mechanisms that help define and establish the policy implementation framework.

The paper analyses and evaluates the industrial energy efficiency policy packages of two countries (China and the United States) using this policy pyramid methodology. It sheds light on how to evaluate the effectiveness of existing policy packages focusing on the consistency of policy objectives and approaches and whether policies are mutually supportive. The paper argues that an effective policy approach requires a policy package consisting of all three policy levels. These countries' policy packages are surveyed and used as case studies to demonstrate the approach and methodology in two diverse countries in terms of size, economic structure, level of development, culture and policy approach.

The third paper discusses how to evaluate energy management systems. Since year 2000 a number of national energy management systems (EnMS) standards and specifications have been developed. To support EnMS implementation in industry, some governments have launched agreements centered around energy management practices. National experiences show that such policy programs can achieve significant energy efficiency improvements. Implementation of industrial EnMSs has gradually increased and uptake can be expected to accelerate as the international standard (ISO 50001) gains further recognition. Since EnMS complements, or replaces, other energy or climate policies (e.g. emissions trading, energy or carbon taxes), it makes sense to systematically evaluate its implementation in industry. Accurate information needs to be compiled and rated against relevant criteria to confirm desired impact. In their assessments, evaluators need to address several issues. Firstly, EnMS are embedded in a context which makes it difficult to attribute results. Secondly, a principle of EnMS is that firms set internal targets to improve energy performance, but these targets might not be consistent with societal objectives. Finally, EnMS certification issued by external auditors gives approval according to standard but cannot guarantee a desired impact. These and other aspects are analyzed and also proposed to be considered in EnMS evaluation. The methods include literature studies, stakeholder consultations to gather empirical input from practitioners, and quantitative data assessments of energy performance. The main contributions are documented experiences from industrial EnMS implementation in Sweden and based on these a set of considerations to be addressed by policy makers and academics in developing a plan for industrial EnMS evaluation.