

# Introduction to Panel 5

## The role of energy management systems, education, outreach and training

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### Introduction

The thirteen papers summarized below all circulate on topics such as energy technologies and energy resource management, and all have either an economic or environmental focus. Energy Management Systems are explored and it is evident that there are more pros than cons when it comes to them, even though it is important to pay attention to the barriers in order to get the best results. It appears that energy management systems in small and medium-size enterprises (SMEs) are of particular importance. For example, papers from Sweden show that SMEs account for 30 % of national industrial energy use, and research shows that the relative energy efficiency potential and the cost-effectiveness for implementing energy efficiency improvement measures in SMEs are higher than in bigger and more energy-intensive companies. Experience from several countries including Denmark reveals a similar picture. However, they also show that the transaction costs to capture this potential can be high, and this underlines the importance of an increased focus on SMEs in the present context. A widely underestimated potential is the benefits from organizational cultural change: one paper estimates the potential to 5–15 % savings, even in complex industries. This is quite in line with the Deloitte research that concludes that ⅓ of all savings come from user-related activities.

### EnMS

(5-104-14 Reinaud & Goldberg) “The more the merrier: leveraging diverse players to deploy energy management systems in industry”: Energy management systems (EnMSs) are proving to be a cost-effective way to reduce industrial demand for energy with the added benefit of improving productivity in

companies. The paper examines how the private sector can work with governments to help strengthen energy management programs.

(5-045-14 Harrington et al.) “A strategic review of energy management systems in significant industrial sites in Ireland”: The purpose of the paper is to carry out an analysis of a selection of large Irish industrial energy users across a number of sectors, to assess the role and development of effective energy management systems within their organizations. The lack of human and financial resources are identified as common barriers to the development of their EnMS. All of the organizations have sustainability master plans and are interested in centralizing the role of their EnMS.

(5-067-14 Kimura & Noda) “Does regulation of energy management systems work? A case study of the Energy Conservation Law in Japan”: The paper examines the Japanese experience of regulating energy management in industrial and commercial facilities with the aim to provide insights for current debates concerning EnMSs. The conclusion is that programs aiming to enhance EnMSs need to be supplemented with a more informational approach, such as energy audits and customized advice that supports firms that lack the ability to make use of their EnMSs.

(5-101-14 Olsson et al.) “A sawmill-adapted energy management system”: The paper examines the implementation of an EnMS in the sawmill industry. This implementation of an EnMS in a company brings a framework for working with energy management in place. Energy savings potentials that were previously hidden become visible, and the personnel gain knowledge on their processes that they previously did not have the tools to discover.

## Barriers

(5-019-14 Olsthoorn et al.) “Barriers to electricity load shift in companies: a survey-based exploration of the end-user perspective”: The paper conceptually and empirically explores barriers to load shift in industry from end-user perspective. The findings suggest that the most important barriers are risk of disruption of operations, impact on product quality, and uncertainty about cost savings. Larger companies are more concerned about technical, financial and regulatory risk than smaller ones.

(5-079-14 Cooremans) “CAS in energy management: an innovative continuing education program as a tool to market transformation”: The paper describes the program “the Certificate of Advanced Studies (CAS)” in energy management and its market transformation. The program not only helps to build a standard for energy professionals but also represents a new tool to overcome the barriers to energy-efficiency in organizations and to transform the market towards more sustainable energy use.

## Energy efficiency in SMEs and efficient networks

(5-046-14 Perkins et al.) “Advanced thermostats for small- to medium-sized commercial buildings”: The paper explores the use of thermostats in small- to medium-sized commercial buildings. Advanced thermostats are emerging that can provide Internet communication and enable the visibility and control of HVAC systems needed to reach higher levels of efficient operation in this smaller class of buildings. The newest advanced thermostats can both create opportunities for energy and demand savings and integrate with and control other energy consuming systems.

(5-048-14 Paramonova et al.) “Swedish energy networks among industrial SMEs”: The paper studies the current Swedish energy network activity in industrial SMEs, as SMEs account for 30 % of Swedish industrial energy use. It concludes that a large potential for improvement still exists in these networks, i.e. methods and tools used are still to be developed, as well as a more structured methodology on how the network are to be managed. One way to approach SMEs is through energy efficiency networks, where 10–15 companies work together to improve energy efficiency.

(5-053-14 Ivner et al.) “Swedish energy manager networks for energy-intensive industry as a driver for improved ener-

gy efficiency”: The aim of the paper is to present the current Swedish energy efficient network and their role in the energy policy mix. The findings are that despite the low emphasis on networks as a part of the policy mix, the networks have an important role in overcoming barriers to energy efficiency among the participating companies.

## Energy performances and savings

(5-054-14 Sontag et al.) “Energy-benchmarking within companies: insights from benchmarking practice”: The aim of the paper is to address internal energy benchmarking and to provide insights on its application in practice. The results underline that internal energy benchmarks are used in many different ways within companies. They can be very helpful tools to monitor energy performance of sites and a lot of other things, but only if the energy benchmarks are individually tailored, adapted to their users, provide transparent information and if they evolve over time.

(5-069-14 Wising et al.) “Improving industrial energy efficiency by changing the energy culture”: The paper shows how significant energy savings can be achieved by changing behavior. In recent years several studies have shown that behavioral change can contribute to savings of 5–15 % of the energy consumption of an industrial site. The paper suggests two steps: the first step is an assessment of the energy culture of an organization and the next steps is a development of an action plan and an implementation of it.

(5-075-14 Roser et al.) “Organisational energy-efficient measures in industry – a neglected energy saving potential”: The aim of the paper is to demonstrate the potential of organizational measures for energy saving and their cost effectiveness. It brings together the potential for organizational energy efficiency measures in large-scale industries and the service sector for different types and categories of companies.

(5-036-14 Hilliard & Jamieson) “Monitoring & targeting energy in practice: a field study”: The paper summarizes a field study of industrial energy Monitoring & Targeting (M&T) as the experiences of practitioners remain undocumented despite the enduring popularity of M&T methods. The findings underscore opportunities for innovation in Energy M&T software and management processes.