

## SESSION 23

### STANDARDS FOR THE CALCULATION OF ENERGY SAVINGS

*Moderator: Barbara Schlomann, Fraunhofer Institute for Systems and Innovation Research*

#### PAPERS:

**Using prEN 16212 for Improving the Comparability of Results of Bottom-up Energy Savings**

Klemens Leutgöb, e7 Energie Markt Analyse GmbH, Vienna, Austria

**Assessing Bottom-Up and Top-Down Approaches for Assessing DSM Programs and Efforts**

Daniel M. Violette, Navigant Consulting, Inc., Boulder, CO

Bill Provencher, Navigant Consulting, Inc., Madison, WI

Iris Sulyma, BC Hydro, Burnaby, BC

**A New Tool for Evaluators: The European Standard on Energy Savings Calculations**

Harry Vreuls, NL Agency, Sittard, The Netherlands

#### SESSION SUMMARY:

The increasing setting of energy saving targets both at the national and European level brings an increasing need for a clear methodological basis for the calculation of energy savings with it. In addition, the introduction of energy efficiency obligation schemes, also known as “white certificates”, requires a clear and transparent measurement of the energy savings provided within the scheme. Some countries (such as Denmark, France, Italy and UK) have already implemented this instrument, and it might be assumed that other countries will follow this approach in the light of the proposal for a new EU Directive on Energy Efficiency from June 2011. In general, there are two principal types of methods, known as bottom-up and top-down methods, to calculate energy savings. In the EU Directive on energy end-use efficiency and energy services (ESD) from 2006, e.g., the methodological guidelines on the measurement of the energy savings achieved under the ESD were rather vague, resulting in long discussions on the usability of bottom-up and top-down methods. In parallel, a new tool for energy savings calculations has been developed in the frame of the European (CEN) standard “Introductory element, Energy Efficiency and Savings Calculation, Top-down and Bottom-up Methods Complementary element” (prEN 16212), which is expected to be published during 2012.

This session will focus on specific methodological issues with regard to top-down and especially bottom-up calculations of energy savings. Some proposals will be made how to further improve the methodological basis for these calculations in order to achieve transparent and comparable results.

First, Klemens Leutgöb develops the idea of a standardized prEN 16212-based bottom-up calculation tool, which can process different energy efficiency improvement (EEI) actions in a flexible way, so that different calculation options can be chosen (e.g. different baseline options, different system levels, different ways of handling double counting, etc.). The proposed approach is called “energy savings calculation for comparability” (ESC-COMP) and needs to be based on a database tool which is capable to process raw data. When comparing similar EEI actions in different settings, the ESC-COMP tool may contribute to a better comparability of results by ensuring that the same calculation options are applied. This will be demonstrated for concrete examples of EEI actions.

Next, Violette et al. examine the role of bottom-up and top-down approaches for the evaluation of DSM efforts. The main focus is on the consistency or inconsistency of these two approaches. Violette et al. present examples of bottom-up and top-down evaluation approaches

focusing on the challenges inherent in implementing each approach. They assess the strengths and weaknesses of each approach and the general role they might play in future DSM evaluation efforts.

Finally, Harry Vreuls will come back to the new European (CEN) standard which holds agreed terms and definitions, and the characteristics of the top-down and bottom-up methods. He presents the bottom-up calculation of CEN methods, as well as the level of detail at which bottom-up methods can be applied. This will be illustrated by a case study from the building sector, boiler replacement. Vreuls shows that the preferred calculation methods should generally be composed of three main elements: a) a calculation model or formula including baselines and normalization; b) data collection techniques, for data needed to feed the calculation model; and c) a set of reference or default values. If these preconditions are fulfilled, the use of the CEN standard in practice could make energy savings figures easier to compare, stimulate a common way of documentation, and could even result in more cost-efficient energy saving evaluations.