

SMB/SG 1 Energy efficiency and renewable resources

Draft minutes of 4th Meeting, 2008-06-04, IEC Central Office Geneva, Switzerland

TOP 1 Welcome, approval of draft agenda

The Convener welcomed the participants to the 4th meeting – in particular the new Australian member – and opened the meeting.

Members:

Mr Mark AMOS (Australia)
Mr Ken ELSEY (Canada)
Mr Weisheng CHEN (China)
Mr Jia ZHU (China)
Mr Jean-Jaques MARCHAIS (France)
Dr Bernhard THIES (Germany)
Mr Thomas H. WEGMANN (Germany)
Dr Franco BUA (Italy)
Mr Mitsuo MATSUMOTO (Japan)
Mr Pablo CORRONS (Spain)
Mr Thomas KORSELL (Sweden)
Mr Ben WIAIT (US)

Observers, guests:

Mr Ed TYMOFICHUK (Canada)
Mr Daniele GERUNDINO (ISO CS)
Mr Carlo MASETTI (Italy)

Apologies:

Dr. Paul WRIGHT (United Kingdom)

TOP 2 Approval of the minutes of the 3rd meeting

The minutes, SMB-SG1/00016A/RM, were approved.

TOP 3 132 SMB response to 3rd meeting report and SMB decisions regarding the SG 1 recommendations

The SMB welcomed SG 1's recommendations, SMB-SG1/0017/INF, and asked that SG1 address the Danish and Japanese comments, before the possibly revised recommendations be submitted to SMB approval by Correspondence.

In the light of the Danish and Spanish comments as well as remarks from the participants, modifications were agreed to recommendations 2, 4, 5, 6 and 9 (see SMB-SG1/0017A/INF, marked-up in yellow).

The Convener informed of a suggestion made by the IEC President that a method of converting the savings in electricity consumption expressed in kWh into reduced CO₂ emissions would be very interesting for the general public.

Mr Elsey presented a Canadian analysis on the energy efficiency regulations impact with aggregate annual savings for various product classes, which indicates both estimated energy savings and equivalent CO₂ reductions, see Annex 1.

The SG1 members agreed, that this was a very interesting subject, bearing in mind, however, that this kind of comparison is a quite difficult task for electricity consumption, due to the many primary energy sources that may be used for electricity generation.

A detailed proposal from Canada for calculation methods, taking into account the complexity of electricity generation by a variety of primary energy sources, would be welcome for further discussion at the next meeting.

Action: *Mr Elsey*

TOP 4 Information from other bodies

Mr Corrons drew attention to an envisaged CEN/CENELEC Workshop on “Compact Fluorescent Lamp Quality Testing Procedures”, which had just been cancelled early June due to the fact that this topic is already being dealt within IEC/SC 34A “Lamps”, documents SMB-SG1/Spain03/INF and SMB-SG1/Spain04/INF refer.

Mr Chen gave a presentation on the revised “Energy saving law”, which has been enforced in China on 1 April 2008, see SMB-SG1/Chen01/INF.

The Convener drew attention to the so called “10 Bullensee-Assumptions”, containing recommendations for tomorrow’s energy supply, as one example of the many activities dealing with the area of future energy supply and use. This document was prepared jointly by German experts from power supply industry, academia and research institutes.

TOP 4.1 Activities of IEC/CAB WG 12 Energy Efficiency (Mr Korssell)

Mr Korssell informed that CAB/WG 12 had so far not yet started its activities. The purpose of the WG is to evaluate potential new activities in the CAB Schemes with respect to energy saving and energy efficiency.

TOP 4.2 ISO/TMB SAG Energy Efficiency & Renewable Resources – Report on 1st meeting held 13 and 14 May 2008 (Dr Thies)

The recently established ISO/SAG “Energy efficiency and renewable energy resources” held its 1st meeting on 13 and 14 May 2008. The SG 1-Convener attended the meeting on the 1st day and presented the results achieved so far by SG 1.

Mr Gerundino introduced the recommendations of ISO/SAG, SMB-SG1/0021/INF, and drew attention to those areas, where specific IEC involvement is necessary.

- a) ISO/SAG concurred with SG1’s conclusion on the urgent need for International Standards on terminology, metrics and calculation methods (ISO recommendations 2 and 4).

Mr Marchais drew attention to the CEN/CENELEC SFEM Working Group “Terminology”, which he is convening. The work of this group should be offered to ISO and IEC as soon as is possible.

SG 1 reconfirmed the urgency to start activities and welcomed the proposal of Dr Thies that the Conveners of SG 1 and SAG should write a common letter to both SMB and TMB, suggesting rapid establishment of an appropriate joint body.

- b) Concerning energy efficiency in the field of industrial automation (SG 1 recommendation 7), ISO proposes to also involve ISO/TC 184 (SAG recommendation 5). Mssrs Bua and Marchais stressed the need for following the system approach in this field. In order to address the very complex area, a break down to typical applications should be envisaged. It was proposed that IEC organize a Workshop on Energy efficiency in industrial automation to determine further details for new standardization activities.

Note: See revised SG 1 Recommendation 7.

- c) In the area of energy efficiency of machinery associated with electricity generation, ISO/SAG has identified a possible need for a joint ISO/IEC group (ISO recommendation 6).
- d) Also the proposed activities on combined heat and power co-generation (ISO recommendation 8) should be observed by IEC/SG 1.
- e) Concerning the area of transportation (ISO recommendation 13), a Workshop is envisaged for the first quarter of 2009 in cooperation with the International Transport Forum (ITF), and OECD agency. Participation should include experts from ISO, IEC, IEA and WEC.

Mr Wegmann referred to ISO recommendation 10 "boilers", drawing attention to the responsibility of IEC/SC 59C "Heating appliances" and their standard IEC 60379 "Methods for measuring performance of electric storage water-heater for household purposes".

Mr Amos mentioned national standards AS/NZS 4692-1 and -2 and document EL-020 on this subject.

In summary, SG 1 members concluded that there are several topics which are of interest to both SG 1 and SAG. It was therefore suggested to consider the possibility of co-located meetings, which offer the opportunity of a joint meeting on these topics. Furthermore, an exchange of membership lists was agreed.

TOP 5 Review of the contributions from the "champions"

TOP 5.1 Supply chain matrix

The information on the WEC committee on performance of power generating plant was noted.

TOP 5.2 Consumption matrix (Mr Matsumoto)

- data processing – domestic & commercial buildings
- heating/cooling – domestic
- Energy efficient servers

Mr Matsumoto had volunteered to investigate the following three areas of the consumption matrix:

- data processing – domestic
- data processing – commercial buildings
- heating/cooling – domestic

Mr Matsumoto introduced his presentation, SMB-SG1/Matsumoto02/DC, which provides several statistical data on energy consumption and stand-by power losses at home, reflecting the situation in Japan.

According to this presentation, the main energy consuming products are air conditioners (25 %), refrigerators (16 %), lighting fixtures (16 %) and TV sets (10 %).

It was noted that a labelling and classification scheme for household appliances such as refrigerators, washing machines etc. has been established for some 10 years in Europe to determine the efficiency of these products (the resulting classification being communicated via product labelling to the consumer).

As a general trend, the number of household appliances and consumer electronic devices used at home is steadily increasing, even though the energy consumption per individual device may have been reduced. I.e. energy savings are being overcompensated by higher volumes of products in use.

Roughly 7 % of the electricity used at home is due to stand-by power losses.

It is expected that through the introduction of state-of-the-art home energy management systems considerable energy savings can be achieved (e.g. by occupancy control applied to air conditioners, lighting etc.).

The members considered that a single international labelling scheme for household appliances was highly desirable and that this concept should also be introduced for consumer electronic devices. Furthermore it was pointed out that a systematic approach for the design and evaluation of energy efficiency of systems for heating/cooling and home networks is required.

Household appliances

This area is primarily covered by IEC/TC 59 "Performance of household electrical appliances" and its subcommittees. To some extent, also ISO/TC 86 "Refrigeration and air-conditioning" is affected.

SG 1 Recommendation 13:

TC 59 and its SCs to develop/update International Standards on measurement procedures required to define energy efficiency classes of electrical household appliances. The relevant evaluation methods shall take into account a realistic simulation of the actual use of each type of appliance.

SG 1 Recommendation 14:

TC 59 and its SCs to develop a harmonized international system of energy consumption classes including a labelling scheme to determine the energy consumption/energy efficiency of household appliances, taking into account the existing regional and national standards in this field.

SG 1 Recommendation 15a:

TC 59 and its SCs to take into account both stand-by losses and off-mode losses in their product standards.

Note: Definition of stand-by and off-mode losses, as well as measurement techniques, need to be harmonized throughout IEC/TCs.

SG 1 Recommendation 15b:

TC 96 "Small power transformers, reactors, power supply units and similar products" to take into account stand-by operation and energy efficiency of power supplies in their standardization activities.

SG 1 Recommendation 16:

To develop a systematic approach for the design and evaluation of energy efficiency in networked systems used in homes and buildings.

ISO/IEC JTC 1/SC 25 to

- consider the revision of ISO/IEC TR 15067-3, which provides a model of an energy management system for home electronic systems,
- consider the development of guidelines to improve energy efficiency with help of co-operation between different product groups,
- consider the development of an international standard that lists information that supports energy efficiency when conveyed from one product (group) to another product (group).

Note: Such activities shall be undertaken by ISO/IEC/JTC 1/SC 25 in close cooperation with IEC/TC 23, IEC/TC 34, IEC/TC 59, IEC/TC 100 and ISO/TC 205.

IT equipment & Consumer electronics

Similarly, for IT equipment including consumer electronic products standardization activities need to be started/reinforced.

The primarily affected IEC/TCs of this sector are:

- TC 100 "Audio, video and multimedia systems and equipment"

- TC 108 "Safety of electronic equipment within the field of audio/video, information technology and communication technology"
- JTC 1/SC 25 "Interconnection of information technology equipment"

SG 1 Recommendation 17:

TC 100 and TC 108 to develop/update International Standards on measurement procedures for IT equipment and consumer electronics shall be established (or revised, as appropriate), which are the basis for establishing energy consumption/ energy efficiency classes.

SG 1 Recommendation 18:

TC 100 and TC 108 to develop a harmonized international system of energy consumption classes including a labelling scheme to determine the energy consumption/ energy efficiency of consumer electronic products, such as TV sets, set-top boxes, cable modems, DSL routers etc.

SG 1 Recommendation 15c:

TC 100 and TC 108 to take into account both stand-by losses and off-mode losses in their product standards. This requires external power supplies (AC/DC converters) to be considered as integral parts of the pertinent appliances. For true zero stand-by and off-mode losses, the power supply shall be completely disconnected from the power grid by appropriate means.

Data processing – Commercial buildings

The presentation addresses the IT equipment used in companies and organizations, i.e. office equipment, as well as IT equipment for server rooms and data centres and the associated networks.

There are many activities related to the deployment of information technologies as a tool to reduce CO₂ emissions caused by e.g. travelling (web based virtual meetings, teleconferences). On the other hand, the energy consumption of the internet and its associated infrastructure has become itself a significant factor (both with respect to energy consumption and operational cost of data centres, which require counter-measures to optimize operation and reduce the energy consumption of associated equipment and infrastructures). This development has triggered a lot of initiatives around the world. Two examples are "The Green Grid" (www.thegreengrid.org) and the "Energy Efficiency Inter-Operator Collaboration Group (EEIOCG)".

In this area, the ITU-T is very active, see e.g. International Symposium "ICTs and Climate Change", www.itu.int/ITU-T/worksem/climatechange/programme-london.html

Mr Wegmann drew attention to an initiative of CENELEC, which recently set-up a BT Working Group on "Green Data Centres". This group is expected to deliver a roadmap on required standardization activities, which would also be offered to the IEC.

Documents SMB-SG1/0018A/INF and SMB-SG1/0018B/INF, dealing with energy efficient servers, were noted.

Action: *Mr Bua and Mr Marchais agreed to provide input on the subject for discussion at the next meeting.*

Further analysis of Consumption Matrix

Action: *Mr Elsey volunteered to prepare a detailed analysis of box 13 "Lighting – Industrial" for presentation and discussion of the next meeting.*

Action: *Mr Bua volunteered to prepare a detailed analysis of box 15 "Heating/Cooling – Commercial" for presentation and discussion of the next meeting.*

TOP 6 IEC activities in renewable energy sources - TC 4, TC 82, TC 88, TC 114

The discussions during the previous meeting revealed a general lack of suitable standards and guidelines dealing with:

- operation of electrical grids, which are fed by highly decentralized generation systems
- integration of decentralized electricity generation systems into the grid, stability of the grid
- quality aspects in electrical grids with fed by decentralized generation systems (voltage, frequency, tolerances)
- load shifting (supply and demand balance)
- large scale storage of electricity (high generation – low consumption vs. low generation – high consumption)

In order to accomplished the in-depth analysis agreed, members agreed to the following

SG 1 Recommendation 19:

IEC to organize a Workshop on the topic of “Advanced supply and demand site balance in electrical grids” in order to inform on the state-of-the-art in standardization and to further determine concrete new standardization activities. This covers the integration of renewable energy sources into existing grids as well as techniques aiming at the optimization of electricity supply versus electricity demand.

Note: Primarily concerned IEC/TCs are TC 8 “System aspects of electrical energy supply” and TC 57 “Power systems management and associated information exchange”.

TOP 7 Report to SMB

A status report including agreed recommendations will be submitted to 133 SMB meeting.

TOP 8 Date of next meeting(s)

- note US invitation for 30 October 2008 to Orlando
- fix 2009 meeting(s)

The invitation of the US NC to Orlando, Florida, on 30 October 2008 was confirmed.

Mr Gerundino agreed to check with ISO/SAG whether a co-located meeting would be feasible to them, allowing for a half-day joint meeting, provided that the host could provide the required meeting rooms.

NOTE: In the meantime ISO has informed that a joint meeting at the end of October was not feasible; a joint meeting during 2009, however, would be very welcome.

For the 6th meeting of SG 1, an invitation by the Chinese members has been received. In view of the 134 SMB meeting being scheduled on 18 February 2009 in Seoul, the SG 1 meeting is planned for 19 and 20 February 2009 in Guangzhou.