



## IEC ACADEMY WEBINAR Q&A

### Energy Efficiency – Key Principles, terminology and good practice for use in electrotechnical publications, 2020-06-23

Questions	Answers
In the nomination of members are all continents represented for easy implementation of policies?	<a href="#">ACEE</a> members are nominated by their respective TCs or NCs. Nominations are then confirmed by the <a href="#">SMB</a> . For the time being, ACEE experts come from 8 NCs (Asia, Europe and North America), 9 TCs and 1 liaison from IEC (please see the <a href="#">“Structure”</a> tab of the ACEE dashboard).
Do we need country specific standards?	ACEE does not deliver standards. The scope of ACEE is: “To Coordinate activities related to energy efficiency. To be responsible for the assignment of horizontal energy efficiency aspects and requirements. To deal with energy efficiency matters which are not specific to one single technical committee of the IEC. To provide guidance for implementation in a general perspective and for specific sectors. To encourage a systems perspective for the development of standards for energy efficiency and provide support for system considerations.” We would encourage each country to apply the <a href="#">ACEE Energy Efficiency publications</a> , for their defined scope.
How do you account for the effect of ambient temperatures of performance thereby lowering energy efficiency performance?	The concept of boundary is described in <a href="#">Guide 118</a> . Ambient temperature can be included within the Driving Parameters of a Boundary.
Do you have examples of typical basic or group functions you expect to have to assign?	It will come from the IEC TC/SCs. For the time being two TC/SCs have been assigned with a horizontal Energy Efficiency function: <ul style="list-style-type: none"> <li>• <a href="#">IEC/TC 64</a> for a Horizontal Energy Efficiency Function for Low Voltage electrical installations: “Guidelines for energy efficiency of low-voltage electrical installation” (IEC 60364-8-1 “Low-voltage electrical installations - Part 8-1: Energy efficiency”.)</li> <li>• <a href="#">IEC/SC 22G</a> for the allocation of an energy efficiency function in the context of the development of IEC 61800-9-1: General requirements for setting energy efficiency standards for power driven equipment using the extended product approach (EPA) and semi analytical model (SMA).</li> </ul>
Is it correct that one product may have different efficiency sub-cycles?	Energy Efficiency is defined in <a href="#">Guide 118</a> as the ratio or other quantitative relationship between: <ul style="list-style-type: none"> <li>• an output of performance, service, goods or energy,</li> <li>• and an input of energy.</li> </ul> One product may thus contribute to several boundaries.

<p>Does Guide 118 recommend technology neutral standards?</p>	<p>Energy Efficiency is defined in Guide 118 as the ratio or other quantitative relationship between:</p> <ul style="list-style-type: none"> <li>• an output of performance, service, goods or energy,</li> <li>• and an input of energy, whatever the technology.</li> </ul> <p>However, within Guide 118 Table A.1 (examples of generic market barriers to energy efficiency and possible measures to overcome them from a standardization point of view) we clearly mention that:</p> <ul style="list-style-type: none"> <li>• one of the generic barriers is higher perceived risks of the more efficient technology,</li> <li>• and that potential measures to remove this barrier would be technology research, adaptation, and demonstration; and/or performance contracting,</li> <li>• and that standardization role in support is to disseminate energy efficient technology and provide a consistent and clear framework describing technologies and good practices in the fields concerned, including, inter alia, terminology, classifications, test methods, performances (along with the modalities of the presentation of test results and performance levels)</li> </ul>
<p>Does Guide 119 consider wider boundaries to account for circular economy?</p>	<p>Yes, a wider boundary is indeed already considered in <a href="#">Guide 119</a>, Chapter 4.3: Broader boundary description: The choice of the boundary is central for the possible EE improvements. The energy efficiency of a complex system needs to be analyzed using a system approach instead by seeking to optimize the performances of each single component. This means that it is advisable to consider wider boundary descriptions including several services and components in order to achieve further improvements.</p> <p>Energy Efficiency is a key contributor to circular economy, and more largely to the United Nations Sustainable Development Goals.</p>
<p>Some would argue that energy efficiency is the field of regulation not standardization. How do IEC and ACEE consider this?</p>	<p>Energy efficiency is everyone's concern. It is a global issue. In a large majority of countries, regulations are based on standards, which represent the global state of the art.</p>
<p>While embracing a system's approach, what are the majors in place to find common technical ground within technical committees whilst ensuring that there is no overlap of scopes?</p>	<p>Each IEC/TC and SC has a defined scope. A system and systemic approach in the field of Energy Efficiency will help to find a common objective between all TC/SCs contributing to a defined Boundary.</p>
<p>How can these standards be useful in India as we have BEE Standards?</p>	<p>In India, the BEE (Bureau of Energy Efficiency) may, for example, refer to the published <a href="#">IEC 60364-8-1 ED2</a>, a group energy efficiency publication (GEEP), which may help define the required level of Low Voltage Electrical Installation Energy efficiency for any type of building.</p>
<p>Seven standards dealing with EE for motors were given in the example for Guide 118. I trust that users would prefer to have one standard dealing with EE for motors. Could you please clarify this?</p>	<p>Well, the standards are part of two families: the 60034-x family (motors) and 61800-x power drive systems (converters). Within those two families different standards define respectively, Scope, Testing methods, Efficiency classes and Guides.</p>

<p>Regarding the revision of the guides mentioned, for any comments and/or proposal, can they come from an individual expert or must they be from an IEC/TC?</p>	<p>For the time being, ACEE experts come from 8 NCs, 9 TCs and 1 liaison from IECEE. If you think you could actively contribute to the revision of the guides, or more largely, contribute to ACEE activities, we would encourage you to ask either your <a href="#">National Committee</a> or your <a href="#">Technical Committee</a> to start the process to nominate you as their ACEE representative.</p>
<p>Why no mention of ISO 50001:2018 'Energy management systems - Requirements with guidance for use'?</p> <p>This standard enables organizations to establish the systems and processes necessary to continually improve energy performance, including energy efficiency, energy use and energy consumption.</p>	<p>ISO 50001:2018 is mentioned in Guide 118, Table C.1 – Energy efficiency aspects and examples of their inclusion in publications.</p>
<p>What are the links between IEC activities and ISO work on Energy efficiency (for example ISO 50001)?</p>	<p>For example, ACEE TG6-CAISEMS (Coordination and Alignment of IEC and ISO Standards for Energy efficiency electric Motor driven Systems) offers a platform for both IEC and ISO TCs on energy efficiency electric motor driven systems.</p>
<p>Energy efficiency is one aspect of performance and is related to cost. During standardization how to consider the balance between energy efficiency and full performance, the balance between energy efficiency and cost?</p>	<p>As described in <a href="#">Guide 118</a>, cost considerations is one of the generic barriers, for example:</p> <ul style="list-style-type: none"> <li>• High transaction costs,</li> <li>• High initial capital costs or lack of access to credit,</li> <li>• Mismatch of the incidence of investment costs and energy savings</li> </ul> <p>Table A.1 describes potential measures to remove barriers and the role of standardization in support. Guide 118, Figure 2, illustrates the interactive process of energy efficiency improvement. The criteria for deciding whether the current level of losses is tolerable or not may be found in many different sources such as national regulations, societal decisions or standards.</p> <p>If no regulation, the balance is when for the same output of performance, the energy input gains on one hand and the cost-if any to implement the measures on the other hand are accepted by the decision maker.</p>
<p>When we look at IEC 60034-30-1, the IEC TS 60034-31 causes a lot of confusion because many users do not clearly distinguish between an IEC IS and an IEC TS. The IEC TS' are not very well understood. Also, IEC TS 60034-30-2 makes reference to IE5 efficiency values but these are not defined in the corresponding IEC 60034-30-1. The point is that ACEE should somewhere play a role in ensuring that no two parallel IEC documents exist on the same topic. Could you please help clarify, share your insight on this?</p>	<p>“The IEC TS are not very well understood.”: IEC TS 60034-30-2 is a Technical Specification and is subject to review (by <a href="#">IEC/TC 2</a>) to decide whether it can be transformed into an International Standard (IS).  “these are not defined”: the tabled values [in 60034-30-2] are identical to the nominal values given for IE4 classification in IEC 60034-30-1.”  IEC 60034 part 30-1 = Efficiency classes of line operated AC motors.  IEC 60034 part 30-2 = Efficiency classes of variable speed AC motors.</p> <p>Having said that, indeed according to its terms of reference, coordination of IEC activities related to energy efficiency is one of <a href="#">ACEE</a>'s tasks.</p>
<p>The energy efficiency of equipment depends generally on the climate conditions in which the equipment is used: what does the IEC do to take this into account in the IEC EE standards?</p>	<p>The concept of boundary is described in <a href="#">Guide 118</a>. Climate conditions can be included within the Driving Parameters of a Boundary.</p>

<p>How is the ACEE related to SDG?</p>	<p>In September 2015, the United Nations published 17 Sustainable Development Goals (SDGs) with an aim to enhancing world peace and prosperity, eradicate hunger and poverty, and to protect people and the planet by 2030. It calls for innovation and broad collaboration between public and private society.</p> <p>IEC International Standards and IEC Conformity Assessment (CA) Systems contribute to all of the 17 SDGs. They provide the foundation that allows all countries and industries to adopt or build sustainable technologies and apply best practice, and they form the basis for innovation as well as quality and risk management.</p> <p>As presented during the webinar the trends in Global Energy Demand in front of to the fact that there is a huge energy efficiency potential that remains untapped make energy Efficiency considerations a huge topic for the coming years.</p> <p>The role of ACEE is to:</p> <ul style="list-style-type: none"> <li>• coordinate activities related to energy efficiency.</li> <li>• provide guidance for implementation in a general perspective and for specific sectors.</li> <li>• encourage a systems perspective for the development of standards for energy efficiency and provides support for system considerations.</li> </ul> <p>Please see: <a href="https://www.iec.ch/SDG/">https://www.iec.ch/SDG/</a></p>
<p>Are there EE standards for IT equipment?</p>	<p>Yes, e.g. IEC 62623 ED2: Desktop and notebook computers - Measurement of energy consumption (TA 14). Datacenters, PUE, ISO/IEC 30134-2:2016.</p>
<p><b>MISCELLANEOUS</b></p>	
<p>Where can we download the IEC Guide 118 please?</p>	<p>A preview of both Guide 118 &amp; 119 is accessible to all on the ACEE dedicated <a href="#">Webpage</a> and IEC registered experts may access the entire documents under the "Guides/Projects" tab.</p>
<p>Can this presentation be shared with members of non-IEC Standardization Development Organizations?</p>	<p>The IEC Webinars are publicly available on the <a href="#">IEC Academy page</a>, so, yes, please feel free to direct other experts to this page.</p>
<p>Where can I find the full names of abbreviations used in the presentation.</p>	<p>You can find them here: <a href="https://www.iec.ch/members_experts/refdocs/abbreviations.htm">https://www.iec.ch/members_experts/refdocs/abbreviations.htm</a></p>
<p><b>For any further questions, please contact the IEC Academy, <a href="mailto:academy@iec.ch">academy@iec.ch</a></b></p>	



## IEC ACADEMY WEBINAR Q&A

### Energy Efficiency - Part 2: Presentation of 2 case studies on how to implement Guide 118 in IEC publications, 22 September 2020

Questions	Answers
Are Guides 118 and 119 considered in eco-design requirements issued by Europe?	No, not directly, a true holistic approach would also include the use of materials (i.e. to build the system).
Do guides 118 and 119 refer to ISO 50001?	ISO 50001:2018 is mentioned in <a href="#">Guide 118</a> , Table C.1 – Energy efficiency aspects and examples of their inclusion in publications. More generally, other ISO 5000x standards are referenced in Guide 118.
Are both Guide 118 and Guide 119 free for consulting?	A preview of both Guide 118 & 119 is accessible to all on the ACEE dedicated <a href="#">Webpage</a> and IEC registered experts may access the entire documents under the “Guides/Projects” tab.
Are the MEPS used worldwide in the same harmonized standards used with EU regulation?	Yes, the MEPS shown in slide 34 all use/reference the same set of IEC standards. Please note the difference between the individual MEPS, as these are the minimum efficiency <i>requirements</i> for motors set by the regional, national regulator, & the IEC <i>standards</i> . The EU regulation (slide 35) is based on the same set of IEC standards.
What is the standard status in Africa on LV installation and Electric Motors as described in slide 34?	Slide 34 shows the MEPS, i.e. the minimum efficiency requirements for motors worldwide as defined by regional, national regulators. In Africa no MEPS are in force yet. The listed IEC standards in slide 34 are used as reference/basis for these MEPS.
For heavy motors (power greater than 100kw) do we have any safety IEC standard?	Motors with rated power higher than 100 kW are covered by IEC 60034 series.
In an energy efficiency aspect what EE functions can be considered horizontal, parallel or group EE functions?	<p><a href="#">Guide 119</a> provides the Structure of IEC EE publications and EE function assignment: An EE publication can be a:</p> <ul style="list-style-type: none"> <li>• Basic EE publication: publication covering Energy Efficiency Aspects (EEA), applicable to products within the scope of two or more TCs(*)</li> <li>• Group EE publication: publication covering EEA, applicable within a specific boundary</li> <li>• Product publication: publication covering a specific product or group of related products</li> </ul> <p>And the EE function assignment is either a:</p> <ul style="list-style-type: none"> <li>• Horizontal EE function: task assigned to a TC(*) to prepare basic EE publications</li> <li>• Group EE function: task assigned to a TC(*) to prepare group EE publications</li> </ul> <p>(*): refers to definition: TCs= TCs, SCs, SyCs</p> <p>As an example, we can note the SMB approval of the allocation of an Horizontal Energy Efficiency Function to <a href="#">TC 64</a> on “Guidelines for energy efficiency of low-voltage electrical installation” to prepare a new edition of IEC 60364-8-1 “Low-voltage electrical installations - Part 8-1: Energy efficiency”.</p>

**For any further questions, please contact the IEC Academy, [academy@iec.ch](mailto:academy@iec.ch)**