

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SUBJECT

Report on the Electrical Energy Efficiency (E³) Survey

BACKGROUND

At its June 2009 meeting, the IEC Conformity Assessment Board (CAB) asked CAB WG 12, *Energy efficiency*, to carry out a survey among conformity assessment stakeholders in order to examine the E³ conformity assessment requirements of today and, if possible, to map out future foreseen projects in the E³ area.

The survey was constructed as a questionnaire with 18 questions divided into three parts consisting of:

- Part 1 with 4 questions regarding stakeholder information
- Part 2 with 8 questions on today's E³ requirements
- Part 3 with 6 questions for mapping out possible future E³ projects.

The survey was distributed in mid-December of last year to about 317 stakeholders and by 19 March 2010, 85 duly completed questionnaires had been returned.

The replies are distributed heterogeneously among the different continents and the average percentage of answers in the documents is almost 90 %. The collected replies not only give an indication of today's E³ requirements at regional, national and global levels, but also directions for future E³ projects in the conformity assessment area.

ACTION

All respondents are invited to send their comments and remarks on this report by **18 August 2010**, to Ms Jennifer Lack at e-mail address jl@iec.ch, copy to the Convenor of CAB WG 12, Mr Thomas Korsell (thomas.korsell@elstandard.se). The answers will be compiled and submitted to the members of CAB WG 12 who will prepare a final report in view of the October CAB meeting which will be held in conjunction with the 74th IEC General Meeting.

Part A: Questionnaire summary

A.1 Part 1: Stakeholder information

The objective of this first part is to determine the geographical origin of the stakeholders having replied and their level of participation in both conformity assessment and standardization.

Q1

Country representation

The questionnaire was initially sent out to 317 addressees and a total of 85 completed documents were returned. The replies come from 37 different countries representing all the continents. The number of replies from each continent is shown in Figure 1.

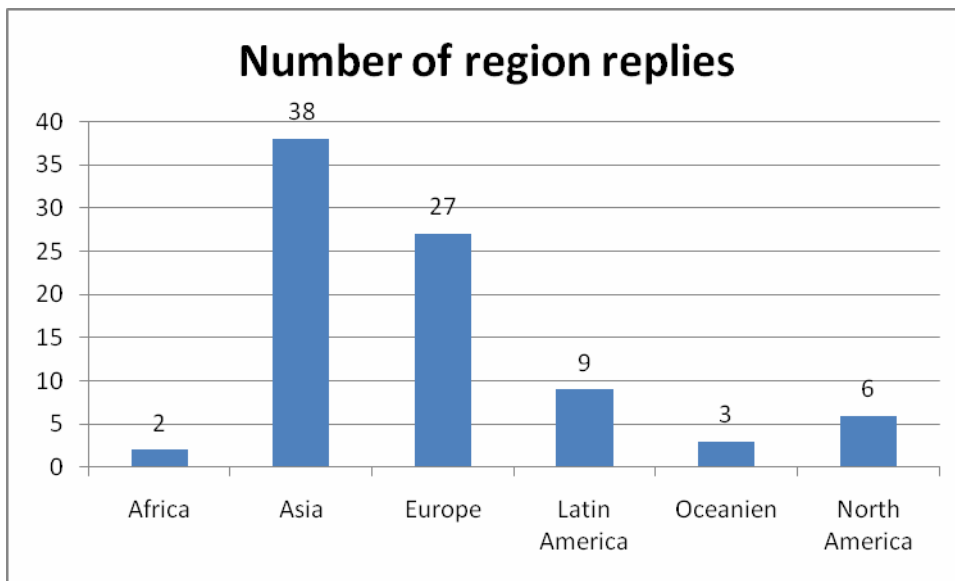


Figure 1: Number of replies from the different regions

Table 1 gives the number and name, by continent, of the different countries having replied.

Table 1¹: Country representation

Continent	Number of different countries	Countries (number of replies from each country)
Africa	2	EG (1), ZA (1)
Asia	12	CN (2), IL (1), IN (1), JP (1), KR (1), KZ (1), LK (1), MY (19), SA (6), SG (1), TH (1), TR (1)
Europe	16	BA (1), BE (1), BG (1), CH (2), CZ (1), DE (4), FI (2), FR (2), GB (2), HU (2), NL (1), RO (1), RS (2), RU (2), SE (4), SK (1)
Latin America	4	AR (6), CO (1), MX (1), UY (1)
Oceania	1	AU (3)
North America	2	CA (1), US (5)

¹ The different continents' extents are referred to the definitions of the English-language version of Wikipedia and the country names (official short names in English) are given as in ISO 3166-1 and the corresponding ISO 3166-1 alpha-2 code elements.

Q2

Type of stakeholder representation

Some of the documents returned consisted of compiled answers from two or more stakeholders, usually compiled and sent in by the respective national committee. Taking into account crossed types of stakeholders, the number of different stakeholders increases to 100 and is subdivided as follows.

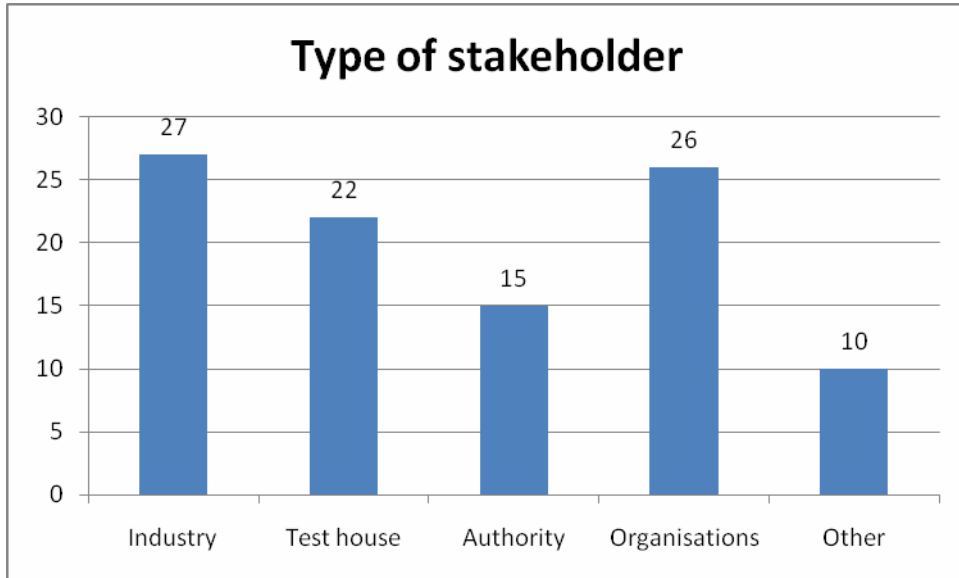


Figure 2: Distribution by type of stakeholder.

Q3

Participation in conformity assessment systems

The stakeholders were asked whether they were represented in any of the IEC conformity assessment (CA) systems or in a similar system. As shown in figure 3, a large majority is involved in at least one of the three IEC CA Systems, 14 are not involved in any and 11 participate in other systems such as laboratory accreditation, regional type testing and labelling. The classification by system is given in Figure 3.

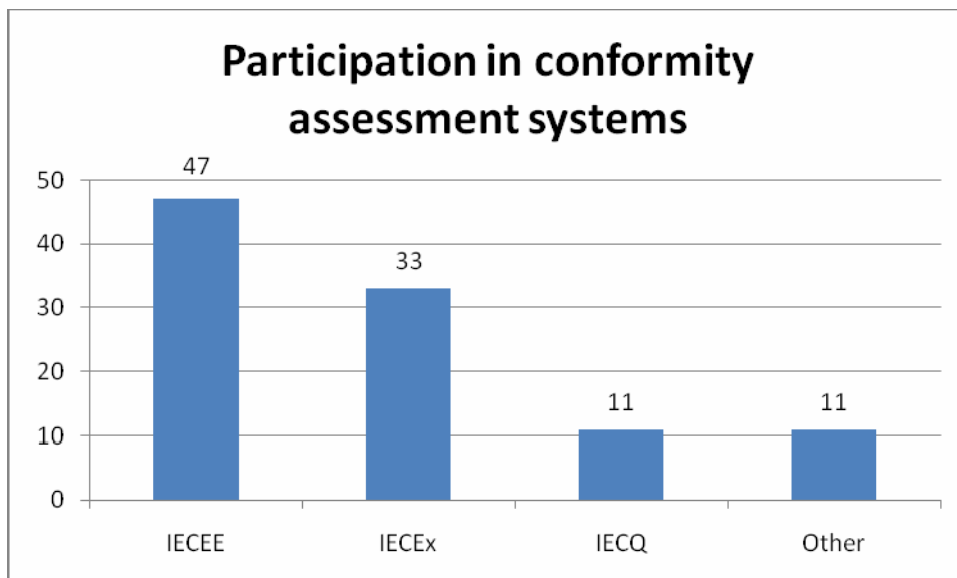


Figure 3: Distribution of stakeholders' participation in IEC and other conformity assessment systems

Q4

Participation in standardization work

The fourth and last question of the first part of the questionnaire asked whether the stakeholder was actively participating in standardization work and, if so, whether at a national, regional or global level. Three did not participate at all, whereas others indicated a multilevel participation, as shown in Figure 4.

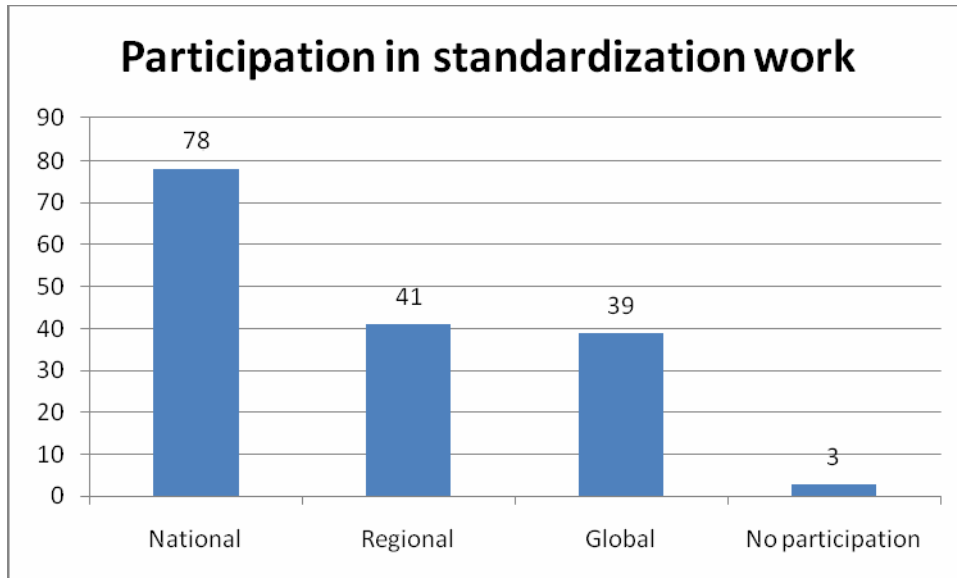


Figure 4: Stakeholders' participation in standardization work at different levels

A.1.1 Part 1: Summary and conclusions

Given the large number and geographical distribution of the answers received, we can consider that they give a good indication of E³ conformity assessment aspects throughout the different regions of the world, and also future work and projects to be developed within the E³ sector.

Recommended action:

1. Discuss the relevance and validity of the survey in the light of the answers given and the geographical spread.

A.2 Part 2: E³ requirements today

The aim of the second part of the questionnaire is to outline today's existing legal and voluntary requirements within the E³ sector. Additional questions concerned tested products' acceptance and verification of their requirements.

Q5

Are there any legal requirements connected to E³ products, components or services in your country?

The question was answered by 59 Yeses and 25 Noes. A clear distinction can be made between the answers from European countries and those from the rest of the world. In Europe, the legal requirements are based on regulatory demands from European Directives while those of the rest of the world are mostly based on different national legal requirements and, in a few cases, on limited regional marketing requirements.

Q6

Are there any voluntary requirements or agreements connected to E³ products, components or services in your country?

With 62 Yeses and 20 Noes the main trend indicates a spread of voluntary willingness to achieve E³ improvements, especially in the areas of white goods and luminaires, rotating machines and brown goods.

Q7

What volumes do you estimate for testing according to legal and voluntary requirements in the E³ area?

The question was answered by a lot of N/A (Not Available) or answers explaining the difficulty of giving exact figures. However, a number of answers indicate that this is a growing market as shown by the increasing number of tests undertaken each year and the development of new upcoming sectors. Some other answers expected significant increases in the coming years as the regulations within the E³ area are growing.

Q8

What type is the legal or voluntary requirement?

Two-thirds of the 94 answers indicated that the requirements were mainly national, then regional and finally global, as shown in Figure 5.

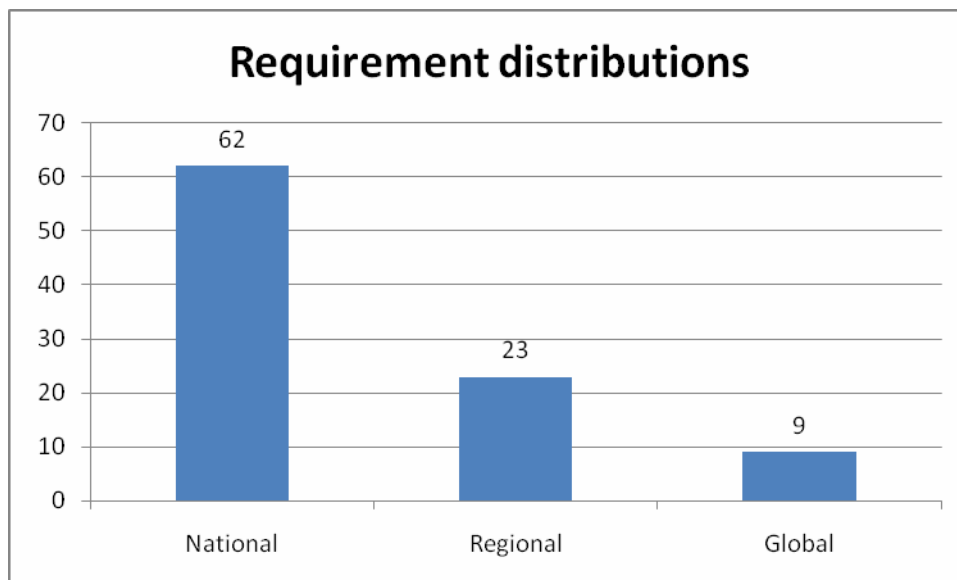


Figure 5: Legal and/or voluntary requirements

The "Regional" answers originate mainly from Europe with a few from North America.

Q9

How is the requirement verified?

In 44 cases it is consent to verification by certificates and in 47 it is consent to verification by acceptance criteria.

Certification within the E³ sector is related mainly to conformity to energy performance and energy labelling requirements. In Europe the ErP (Energy related Product) directive was mentioned several times as well as the CE mark (European conformity mark) for environmental requirements, various requirements for different products.

Answers given by requirements fulfilled by acceptance criteria referred often to test reports based on relevant standards. Manufacturer's declarations and performance testing were also frequently mentioned criteria.

Q10

What documentation is accepted from other countries for the legal and voluntary requirements?

The answers are shown in Figure 6.

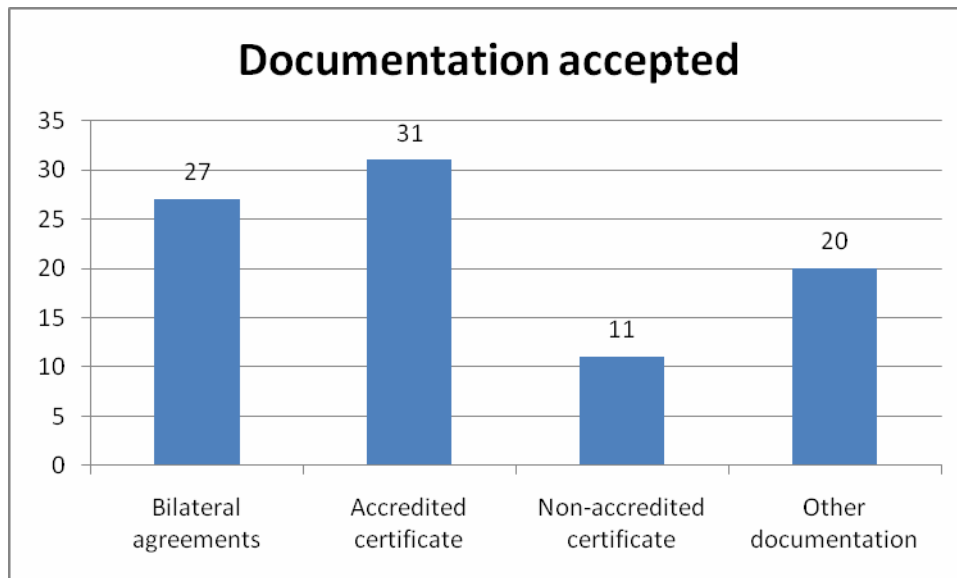


Figure 6: Documentation accepted for legal and/or voluntary requirements

Examples of other accepted documentation are test reports from designated test houses, self declarations and special agreements for chosen test laboratories.

Q11

Is there any demand for marking of products and/or components related to the E³ area?

The question was answered with 55 Yeses and 25 Noes. The answers were well spread regionally and most of them indicated that marking and labelling is mostly required in the white goods and luminaires and exclusively connected to energy efficiency and environmental conditions.

Q12

Is there any demand for factory surveillance or other inspections connected to the marking?

The question was answered by 35 Yeses and 44 Noes. Among the positive answers concerning the type of surveillance many mentioned state inspections through market surveillance (product samples for instance) and factory inspections. As a conclusion, we may say that different types and ways of performing surveillance and inspections exist in most countries.

A.2.1 Part 2: Summary and conclusions

The purpose of this second part was to gather information on the present situation of requirements within the E³ sector.

The answers mainly come from stakeholders involved and taking part in different conformity assessment systems. The answers show that even if they may differ from one region to another, requirements are now common practice in almost every country, especially within the white goods and the luminaires sectors. In addition the answers also indicate a growing conformity assessment industry in the E³ sector which naturally follows the increase of both legal and voluntary requirements.

It is interesting to note that both regional and especially national requirements related to conformity assessment work are already widespread. As indicated there is already a collaboration between countries, through bilateral agreements and other special agreements, which may be used as a basis for a more outward collaboration.

The answers indicate a possibility and base for a formation of increased global activities directed towards national and regional conformity assessment work. The existing legal and voluntary requirements on regional and national bases also gives a base for an increased exchange with policy makers to map out future directions of legal and voluntary requirements.

Recommended actions:

2. As a basis for today's existing legal and voluntary requirements in the E³ area a discussion could take place on the possibilities to enlarge the national and/or regional conformity assessment to be included, with new processes, in future global conformity assessment systems.
3. Discuss priority lists for relevant sectors/products/components. (Related to Q5, Q6, and Q7.)
4. Discuss an extended exchange with policy makers to better foresee future regulation in different regions of the world and thereby be informed ahead of future changes in legal aspects. (Related to Q8 and Q17.)
5. Discuss an enlargement of the IEC conformity assessment to include/accept new types of participators and new types of agreements. (Related to Q9 and Q10.)
6. Monitor and analyze legal and voluntary requirements in relevant countries that follow from the priority lists. (Related to above recommendations 2 and 3 and to Q8 to Q12.)

A.3 Part 3: E³ projects of tomorrow

The last part tries to outline the stakeholders' future ideas and thoughts for tomorrow's projects within the E³ sector. The aim is to map out the important future sectors for the conformity assessment work.

Q13

Indicate the areas or sectors you consider important for future work in conformity assessment within the E3 area.

Six different suggestions were given for future important E³ work. The answers given to each option are shown in Figure 7.

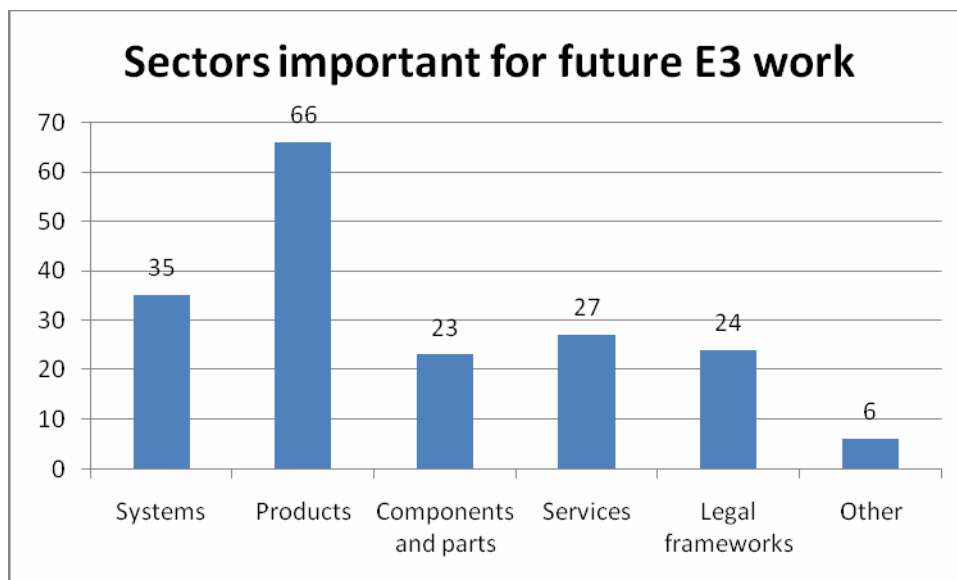


Figure 7: Stakeholders' view on important sectors for future E³ work

The "Systems" option includes overall aspects for large plants such as power plants, manufacturing plants, etc. The "Products" option includes sectors of products such as white goods, brown goods, etc.

The comments given to the "Other" option include among other things green buildings, the public sector and sectors of large energy density use.

The answers were uniformly given from the different regions of the world although we may note that the “Products” option is often chosen by European countries.

Q14

What future E³ project(s) do you think will be needed, on global, regional or national level? Please give a brief description of the possible project(s).

The question aimed at mapping out the stakeholders’ views as to what kind of future E³ projects should be developed in the future, and more importantly, at what level. The answers are shown in Figure 8.

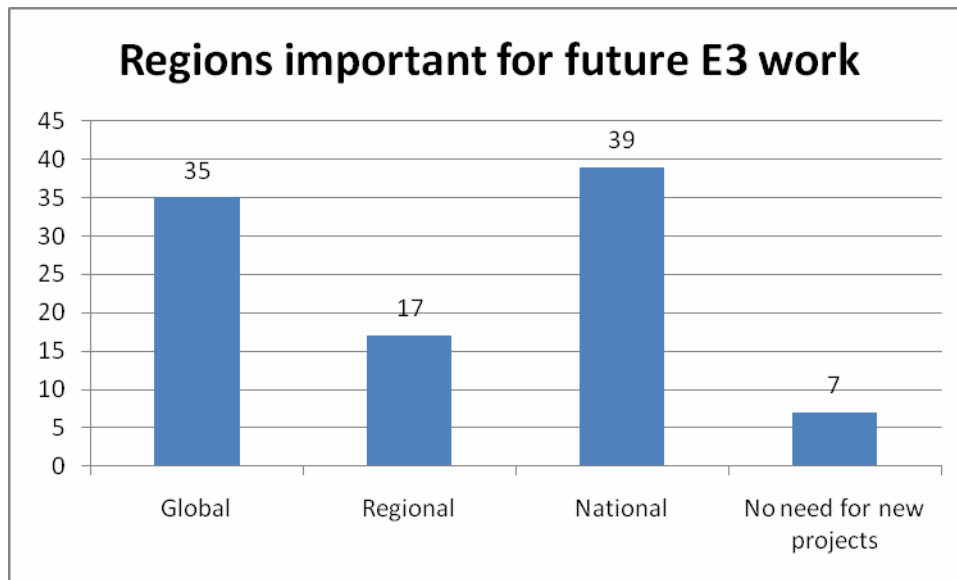


Figure 8: Stakeholders’ views on important regions for future E³ work

A number of proposals for new projects were given for each level, the most important of which are described below.

Global:

A number of proposals, also including specific sectors and products, suggest that there is a global need for better harmonization of test procedures and global acceptance of limits and levels for energy use in different sectors. A global system for E³ conformity assessment is wanted from a number of stakeholders using marketing/labelling systems. There also seems to be a need for knowledge-based information on how available technologies (e.g. renewable energies) may at a reasonable cost contribute to replace today’s inefficient technologies products/processes/systems. According to several stakeholders energy efficiency has indeed become an important issue. The question of how new technologies are incorporated or prepared to be incorporated into the global standardization and conformity assessment systems was also raised.

Regional:

The project proposals at the regional level reflect in many ways the ones made at the global level. One comment raises the importance of resource sharing and future planning of energy use projects to reasonable costs in order to maximize the energy efficiency and hence bring economical and social benefit to all across the world.

National:

The national project proposals tends to follow the major trends described above although at this level a greater number of proposals foresee a closer and wider cooperation with national governments and authorities.

No need:

Those having answered that there was no need for new future E3 projects did not explain why.

Q15

Do you foresee new products or services related to E³ on the market in the near future?

The question was aimed at mapping out the near future market trends for new E³ products. A short description of the product or sector was given alongside all positive answers.

The replies given totalled 60 Yeses and 20 Noes. The descriptions of new products stretch from small components, home appliances to heavier equipment (electric vehicles, machinery, buildings) and certification systems. Descriptions also give information on implemented services with people and management certifications. A complete list of the projects described can be found in Annex A.

Q16

Do you foresee a need for new marking related to E³ in the near future?

The question aimed to see at what level new E³ markings/labelling were required according to the different stakeholders. The answers are given in Figure 9.

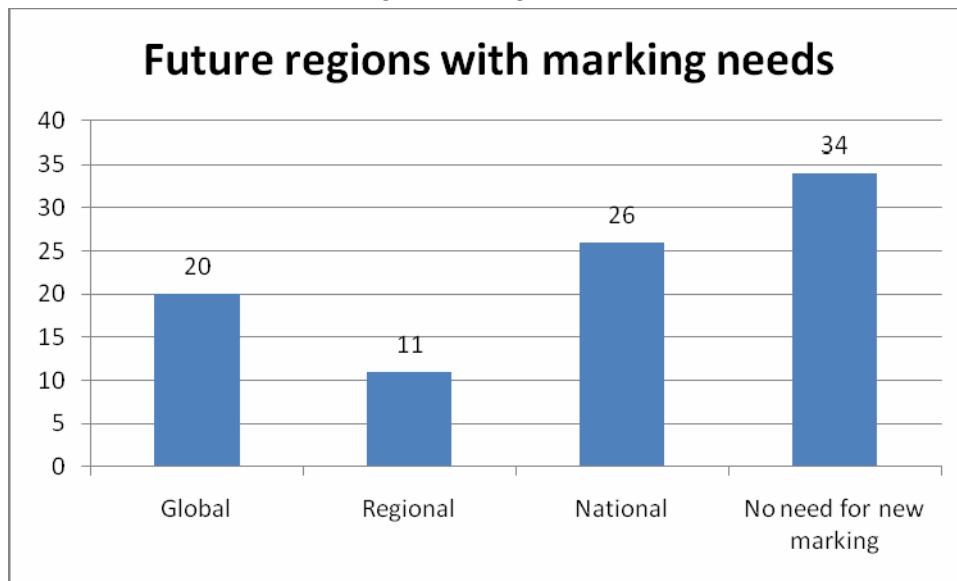


Figure 9: Stakeholders' view on future regions for marking needs

A rough summary of the suggested new markings according to the three different levels are that the need for energy-efficiency labelling and universal rating appeared at all three levels. Common certification was also mentioned. All the other answers are listed in Annex A.

Once again, no explanation was given by those having selected the “no need for new marking” answer.

Q17

For future work within the E³ area, do you see a need for exchanges with other activities or sectors?

The question aimed to obtain information on future needs for new or increased exchanges with other activities or sectors. The question was answered with NO, or YES with a request for indicating new activities or sectors.

The replies totalled 61 Yeses and 19 Noes. A large number of answers were received with proposals for exchanges with other activities and/or sectors indicating, once again, a true need for increased exchange or increased activities with other sectors and areas. Below a compilation of the suggestions.

Proposals were made for an increased exchange in sectors covering harmonized surveillance, electrotechnical installations in buildings, lightning and luminaries, power generation-transmission-end use, sustainable and ecodesign approvals and certifications, system approvals and certifications.

The complete list of answers may be found in Annex A.

Q18

Any additional information on how conformity assessment may best support future work on E³ projects would be appreciated.

This question was the one with most abstentions. Of the 85 received answers there were 28 answers commenting on this question.

Even though the answers were limited there were a lot of good suggestions for improving and supporting future E³ projects and work. One subject repeated in a number of answers was the need for international standards within the E³ area including testing procedures for conformity assessment.

A complete list of answers given is found in Annex A.

A.3.1 Part 3: Summary and conclusions

This last part presents comprehensive information on the ideas and views for future projects. The information given in Part 3 should be seen in the view of the complete survey and be thoroughly involved in and discussed for future strategy and implementations plans.

The answers given in Part 3 indicate a clear need for global, regional and national work for E³ projects. Question 13 indicates a number of E³ areas to discuss and monitor, and Question 14 indicates a need for projects in different regions which may be considered in the future. Question 15 gives hints of possible new products and services related to the E³ market while Question 16 indicates possible new E³ markets. Question 17 relates to new or extended exchange and cooperation with other activities and/or sectors. Question 18 at the end gives open comments of additional information relevant to future E³ work.

The answers given indicate a need for discussion of the future structural systems of the global conformity assessment work for extended or/and incorporating new systems and agreements. In addition, an enhanced exchange with policy makers may be constructive to learn more about future legal and voluntary requirements. Last but not least, future components, products, services and environments must be discussed to foresee the future steps for a global conformity assessment in the E³ area.

Recommended actions:

- 7. Discuss further work within the “System” and “Product” sectors accordingly to Q13. This could, for example, lead to consider future frameworks for incorporating larger systems such as “smart grid”, electrical vehicles, charging systems, wind and solar energy systems, in the IEC conformity assessment.*
- 8. Discuss future E³ projects on short term and long term conditions according to answers given in Q14. This discussion might come up with a priority list based on global, regional and national answers.*
- 9. Discuss future important E³ sectors and services referred to in the answers to Q15 and Q16. This question should be discussed in parallel with recommendation 8.*
- 10. Discuss the principle of marking and its need within the IEC systems and in relation to Q16 what future marking/labelling can be of interest to the IEC.*
- 11. Discuss the additional answers given in Q18 and their relevance to future IEC conformity assessment work.*

Part B: Recommendations and future work to be undertaken by the CAB
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(This part has been addressed directly to the CAB)

Part C: Annex A

C.1 Answers given to questions in the survey

Below are all the answers given to each question in the survey.

Q1

Country representation

As presented in the document.

Q2

Type of stakeholder representation

Type representation	of	Number answers	of	% representation
Industry		27		31,76
Test house		22		25,88
Authority		15		17,65
Organization		25		29,41
Other		12		14,12

The following information corresponds to the answers given under the “Other” option.

- National Energy Efficiency Program
- Certification Body
- Electrical equipment manufacturer
- Belgian Electrotechnical Committee
- National Standards Body
- Certification body
- Government
- Educational/Research
- National Institute of Industrial Technology
- Electric Power Distribution Company
- Serbian Energy Efficiency Agency (SEEA)
- ExCB and ExTL NANIO CCVE
- Electric Company
- Trade Association
- National VDE conformity checks according to European low voltage directive etc.
- NGO

Q3

Participation in Conformity assessment Systems

Systems	Number	of
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	participators
IECEE	47
IECEX	33
IECQ	11
Other	11

The following information corresponds to the answers given under the “Other” option.

- ECS (European Certification System) and national certification schemes
- European NB for ATEX Directive
- Laboratory accreditation
- National Certification System CERTIFEL
- Labelling
- ISO 9001, ISO 14000, Product certification
- certification of building and production facilities
- GOST R Certification System
- Specifications/ Committees- Electrotechnical Meetings
- Type testing

Q4

Indicate if the business you represent actively participates in standardization work?

As presented in the document.

Q5

Are there any legal requirements connected to E3 products, components or services in your country?

The question was answered by 59 Yeses and 25 Noes. Following comments were made to the YES answers indicating the type of legal requirements.

- ENVKV: EUP, Eco flower, Eco design
- EuP directive
- Labeling system
- 1. Several European Directives concerning marking with energy labels for several product groups
- 2. European Directive 2009/125/EC former 2005/32/EC (ecodesign) and its implementing measures
- Energy Efficiency Label and Standards Program
- 2009/25EC directive (Energy using Products) was a adopted to national law; EC Commission regulations with limits and product categories have to be transfered into Swiss ordinances
- EcoDesign-directive 2009/125/EC, Energy Labelling Directive 92/75/EEC
- EUP / ERP
- Most of the requirements are in the safety standards, some are in the regulations.
- In accordance with the European ErP Directive and some UK legal requirements for specific products.

- Singapore Energy Labelling Scheme
- Regional
- All national requirement has been harmonized with EU requirements
- Energy efficient transformers
- Belgium as member of the European Union transposes the European directives in national laws, also those which are linked to Energy efficiency. (Energy efficiency in buildings, Energy efficiency labeling, etc...) A lot of governmental initiatives to subsidize the installation of renewable energy devices and systems stimulate currently the economy.
- 96/57/EC Directive for refrigerator; Decision 1999/468/EC ballast for fluorescent lamps
- Minimum Energy Performance requirement called MEP Scheme.
- Ministry of Industry and Energy -MIEM- Decree 402/009
- EuP
- Federal Law, Government Regulation
- Energy Efficiency standards and Labels, Energy efficiency building codes for residential commercial and administrative buildings enforced by Ministerial decrees
- Energy Efficiency Classification & Identification for Air-conditioner, refrigerator, washing machine, TV sets.
- National standards
- Induction motors, Air conditioners, Refrigerators
- Germany: EBPB this is the national legalization of the European EuP/ErP directive and the corresponding Commission Regulations
- Energy efficiency regulations which cover many products
- Swiss Energy Ordinance, similar to European EuP/ErP
- Mainly recent implementation of marking requirements for several products
- Technical Regulations "RETILAP"
- EN 62 301
- Energy Law
- Thermal regulation - Building Regulations - Energy performance certificate of buildings - Energy Audits - Certificate (White certificate)
- Legal resolutions
- Compact Fluorescent Lamps should comply with SLS 1225 and Its minimum energy performance grading
- Power Factor on Luminaires
- Law on electrical efficiency
- Standards and legal requirements
- European Directives
- The law of the Republic of Kazakhstan "On energy efficiency"
- Regulations on energy efficiency labelling
- Standards
- Ministry, Electricity Regulatory Authority, Saudi Standardization Org.
- Energy Labelling for washing machine, refrigerators and freezers (will be mandatory from April 27, 2010)
- 2002/40/EC Electrical Ovens, 94/2/EEC Refrigerators,95/12/EC Washing Machines,95/13/EC Tumble Dryers,96/60/EC Combined Washing Machines and Tumble Dryers,96/57 EC Refrigerators, 97/17 Dish Washers,98/11EC Lamps,2000/55/EC Ballasts for fluorescent Lamps,2002/31EC Household air conditioners

- The requirements mentioned in Saudi Standards SASO 2663/2007, SASO 2664/2007, SASO 2692/2007
- Standards and legal requirements (Etiquetado)
- U.S. Department of Energy, Federal Trade Commission, California Energy Commission
- Mark of energy efficiency bands of Lamps and some house hold appliances.
- Metrology and Standardization Federal Law involves general requirements in standardization matter, and invite to create, between others, mandatory (regulations) and voluntary Electrical Energy Efficiency standards and schemes for electrical products.
- Reduction of carbon dioxide, Reduction of energy consumption
- 2013 / 2015 Coming European EuP Requirements for Pumps & Circulators
- CE (ErP Directive), EU Directive 98/11/EC
- LVD, EMC, Efficiency, WEEE
- Energy Efficiency Act

Q6

Are there any voluntary requirements or agreements connected to E3 products, components or services in your country?

The question was answered by 62 Yeses and 20 Noes. Following comments were made to the YES answers indicating the type of voluntary requirements.

- NEEP
- EU ecolabel: see http://ec.europa.eu/environment/ecolabel/index_en.htm
- Blauer Engel: see <http://www.blauer-engel.de>
- High-efficiency Appliance Certification Program and e-Standby program
- Energy star (IT, Office, consumer products)
- EU Eco-Flower, Energy Star
- ENERGY STAR®, ESR, CoC, Eco-Label
- Certification by separate bodies.
- Energy Star
- Energy Star
- Voluntary agreements with regard to the energy labelling directive. cfr CECED)
- Energy performance labelling
- Kyoto protocol, National Action Plan for Environmental Protection ("Environmental protection through energy efficiency improvement" part)
- GOST, GOST R
- NF and CSTB certification
- Certification
- National decree
- Rice cookers, Electric pumps, Fluorescent lamps
- Several voluntary industry agreements in imitation of the European EuP/ErP directive; Energy Star (CoC); EU EcoFlower; several marks e.g. blue angle
- Some requirements have a voluntary component, but these are not common
- Energy Star and voluntary agreements i.e. for coffee machines, set top boxes
- Several standards regarding performance parameters
- Products Standards
- Standard

- uBAC Certification (EPBD) Motor (EFF1, 2, 3), New regulation in 2011, IE1,2,3,4
- Codes of Conduct (CoC) published by JRC:
 - o Energy consumption of broadband equipment
 - o Energy efficiency of external Power Supplies
 - o Data centres energy efficiency
 - o Energy efficiency of digital TV service systems
 - o Uninterruptible Power Supplies
- Voluntary energy labelling scheme for ballasts
- Refrigerator labelling, and tax rebates for energy savings
- On the territory of the Republic of Kazakhstan in the energy efficiency are the state standards ST RK and interstate standards GOST
- Energy efficiency product certification
- Energy efficiency label
- Labels
- Voluntary certification in household appliances for electrical energy efficiency.
- Regulation of Electrical Energy Efficiency (E3) Label for Electrical Appliances.
- Energy Star, AHAM Certification Programs
- Motors Energy Efficiency markings
- Voluntary standards related to energy efficiency and stand-by power test methods for electrical and electronic products, some of them being reference inside Electrical Energy Efficiency mandatory standards.
- Reduction of energy consumption
- European voluntary Energy Labelling commitment
- Nordic Swan, P-marking,
- US Environmental Protection Agency, Energy Star
- refrigerators and lamps
- refrigerators and bulbs
- refrigerators, bulbs, washing machines
- refrigerators, bulbs, washing machines
- refrigerators and bulbs
- refrigerators and bulbs
- refrigerators and bulbs

Q7

What volumes do you estimate for testing according to legal and voluntary requirements in the E³ area?

The question was answered with a lot of N/A (Not Available) notifications. The following answers were given in reply to the question.

- Future will show and depends on the development of the EuP Directive
- It is difficult to estimate the volume in monetary form but surely this business will be increased substantially
- Refrigerator: 800 / freezer: 500 / washing machine: 300
- A few
- Brown Goods = 200, White Goods = 100
- 150 tests per year

- We cannot put a figure on this. However, the market in this area is improving year on year.
- 15% of our testing volume. 5% for refrigerators, 5% for air-conditioners & 5% for dryers.
- More than 100
- Adalet manufacturers enclosed for haz. Locations. Our end users typically ?? their equipment for final approval. We have Lights as an option on some of our pilot light lines and Leo are standard on other - check + Thomas:Adalet_USNC_IECEX
- Depends on the acceptance of the market and the product policy of manufacturers with regard to third party certification in the voluntary area. In the legal field no applicable data are currently available.
- Production energy mechanical engineering, Electric machine, Electrical equipment, Production of oil and chemical engineering, Equipment metalworking and woodworking, Production of general engineering applications, Products automobile industry, Tractors and agricultural machines, Production of construction, road and municipal mechanical engineering, Technological equipment for light and food industry, Oil products
- Testing of refrigerators, washing Machines, air conditioning, lighting equipment. No availability of % of locally manufactured or imported products
- 100% for household appliances mentioned above.
- Explosion safe products
- There are about 10 induction motors, 15 air conditioners and 15 refrigerators to be tested in each month.
- About 50 projects p. a.
- Governments do not current have mandatory requirements for labs. Accredited labs are used for verification. The number of tests per year for energy for all products is of the order of 5000.
- There is only information about private industries.
- 350'000
- Significant
- Air conditioners: 140 expected for 2010, Refrigerators and freezers: 60 expected for 2010, Lamps: 250 expected for 2010
- In future conformity assessment for other products may also begin. The testing facilities are major restrictions to initiate this.
- Currently it is still very small, however as soon as a general standard for energy efficiency is published and made compulsory it will increase.
- 2 production facilities
- 5%
- Air-Conditioners: around 500 models in first year and around 200 models per year in subsequent years - Washing Machines: around 200 models in first year and around 100 models per year in subsequent years - Refrigerators: around 300 models in first year and around 100 models per year in subsequent years
- There are three products: 1- Air Condition. , 2- Refrigerator. , 3- Washing Machine. - SASO laboratory or any other accredited lab from the Saudi Committee of Accreditation or accredited from bodies accepted by SASO.
- The following quantities are global in relation with the number of product models tested in the following years (3 samples per model tested - household appliances most of them): 2006 - 91 product model tested; 2007 - 132 product models tested, 2008 - 108 product models tested
- 23 products
- Non-directional light sources, 40 types - Ballasts for fluorescent lamps, 2 types - Fluorescent lamp without int. ballast, 4 types
- 100'000 Euros

- Household Electric Appliances: 800 - Household Electric Water Heaters: 100 - Lighting: 750 - Household Heating, Ventilation and Air Conditioning Equipment (HVAC): 100 - Household Electronics: 1,000 - Office Equipment: 250
- 5
- 1000
- Euro 20K

Q8

What type is the legal or voluntary requirement? (National, Regional, Global)

The regional answers were divided in 14 European, 1 USA and 1 Latin America. The following comments were made under the "Regional" answers.

- European community
- Europe (EC)
- ETA-zone including EU Member States and Norway, Switzerland, Iceland
- EU
- Europe
- States, USA
- USA
- European directives
- EU
- Mercosur
- Europe with some directives
- GCC
- California

Q9

How is the requirement verified? (Certificate, Acceptance criteria)

Following comments were made to the **Certificate** answers

- Type test certificate
- Ecodesign (EC conformity declaration by manufacturer)
- CE-marking, Certificate of Conformity
- Verification of Conformity
- Voluntary certification - at this time
- Third party Certification body.
- Type test & market surveillance
- Energy Efficiency certification
- Type Examination Certificate
- Product certification
- Labeling
- CB
- Government
- Energy Performance Certificate of Building
- Issued by NCBS
- energy labelling certificate

- 3 rd party certificate
- Accredited certificate
- Testing
- SASO Energy Label approval
- quality assessment certification
- Etiquetado
- Type Certification
- Conformity assessment certificate product according relevant mandatory or voluntary standard.
- VoC, PoC
- LVD, EMC, EHPA
- Attestation - (for legal requirement)
- Energy saving rating type
- Nrj efficiency performance

Following comments were made to the **Acceptance criteria** answers

- Energy efficiency label
- Test reports for the relevant tests
- Regulation (manufacturer has to issue a statement of conformity)
- Different criteria for every product group given in Commission Regulations having regard to EcoDesign-directive
- No-Load, standby, on-mode power, energy efficiency
- Manufacturers declaration
- As determined by National Environment Agency (NEA)
- comparison of energy efficiency of electrical product
- Energy star
- Conformity with global/European standards
- Declaration of the manufacturer
- Performance testing
- CE marking
- GB 12021
- Market control by authorities
- Compliance with relevant standard and submission of a test report to confirm all claims
- self declaration according to requirements
- Testing by approved laboratories
- Standard
- for example energy labeling
- conformity with the energy efficiency rating Sri Lanka Standard
- Test report
- Testing of parameters
- D.O.C
- criteria for labels
- Approval by the ministry of Water& Electricity, SASO
- According to the requirements of SASO standards mentioned in Q. 7 , the requirement can be verified.
- Manufacturer testing specified in DOE test procedure

- EN Standard
- Self Declaration - (for voluntary requirement)
- nrj Star with Star rating

Q10

What documentation is accepted from other countries for the legal and voluntary requirements? (Bilateral agreements, Accredited certificate, Non-accredited certificate, Other documentations).

Following answers were given to the **Other documentations**.

- Test reports by accredited test labs are necessary.
- EC-Statement of conformity
- This could be manufacturers test data
- Test reports from Test Laboratory as authorised by NEA
- Test reports
- CE marking
- : Multilateral Agreement (among ASEAN Countries)
- Please indicate self declaration route for assessment of conformity
- Laboratory test report, accreditation is preferred
- self declaration
- according to the request of the regulation
- As per the guideline for energy efficiency labelling
- Test report
- D.O.C
- To be coordinated with the ministry of W& Elect.and SASO.
- Test reports for SASO Energy Label approval
- Type Testing in local accredited laboratories (ISO17025)
- Technical Documentation file, Declaration of Conformity
- Test report from assigned or accredited laboratory

Q11

Is there any demand for marking of products and/or components related to the E3 area?

The question was answered with 55 Yeses and 25 Noes. Following answers were given to the YES answers.

- ENKV contents, EUP & Eco design directive
- Under consideration
- ENERGY EFFICIENCY LABEL
- Energy labelling
- Some products need a label with efficiency class A-E
- CE-marking, Certificate of Conformity
- CE, Efficiency Labelling
- On the label attached to the product, according to the standard (adoption of requirement found in the European directives as requirement in National standards and in regulations)
- Mainly local within the UK conducted by the Energy Saving Trust. We have some requests for the Energy Star label and our own Ecolabel

- Energy star (reply from Intertek USA)
- Singapore Energy Labelling Scheme's labels
- regional
- EU: energy label
- Energy star
- Energy rating
- Energy labelling (similar to European Energy label)
- CE marking
- Legal requirement Federal Law and Government Regulation
- label
- EEL(Energy Efficiency Level)
- CE
- CE marking in accordance to European EuP/ErP directive
- Lighting devices and accessories, air conditioning equipment, electric motors
- Label
- with energy consumption labelling for lamps, household appliance etc.
- Standard labelling
- Electrical and electronic equipment
- legal requirements
- ENERGY CLASS
- ST RK GOST R 51565-2009, GOST 9181-74, GOST IEC 61293-2002, GOST 18690-82, GOST 18620-86, GOST 24686-81, GOST 25834-83 , GOST 26118-84, GOST 9294-83, GOST IEC 61056-2-2002*, GOST 30668-2000
- Energy efficiency product certification/CCC
- Energy Labels
- AC, Freg, Washing machines and ESL
- Governmental& Private Sectors.
- SASO Energy Start Rating Label
- Lamps, Electrical Ovens.
- By using stars (to show consumers the degree of saving energy that the electrical appliance can provide and how much it is efficient to do its work), the greater the number of stars the more efficient and saving energy the device can provide.
- legal requirements
- U.S. Federal Trade Commission, EPA Energy Star, AHAM Certification Programs
- Colour Bands A,B,C,D
- Each relevant mandatory energy efficiency standard contains particular requirements for marking of product, throughout a label describing energy consumption and energy efficiency values.
- Consumer electronics
- Energy Efficiency Index
- Lamps
- CE
- Third Party "Energy Efficiency" Verification Mark
- Fridges & air conditioners
- Labelling of nrj efficiency rating on products
- nrj efficiency labeling

- Lights
- Commercial household products

Q12

Is there any demand for factory surveillance or other inspections connected to the marking?

The question was answered by 35 Yeses and 44 Noes. The following answers were given to the YES answers.

- Under consideration
- Check the products in the retail shops
- ErP
- Import Testing
- Bi annual inspections on samples taken from the local market
- Legal requirement
- Testing at neutral laboratory
- Annually surveillance if voluntary certification is selected by the factory.
- Quality Assessment Surveillance
- Market control by authorities
- Only market surveillance
- CIG 023
- Government
- Factory inspections for markings and other fields are compulsory in the "mark" conformity system
- Market surveillance
- Randomly state inspections
- Technical Regulation "Requirements for packaging, marking, labelling and correct their application", approved by the Government of the Republic of Kazakhstan dated March 21, 2008 N 277
- Customs and Clearance inspection
- National audits
- Ministry of W&Elect. , SASO.
- Factory inspection and inspection on product samples in laboratory
- According to SASO REGULATION, SASO has the right to draw samples of the products mentioned in Q.7 (which has the E3 label) from the market for the purpose of testing and for making sure of its compliance to SASO standards requirements.
- LVD, P-marking, Efficiency directive
- Factory surveillance
- If the company's laboratory is used for testing equipment

Q13

Indicate the areas or sectors you consider important for future work in conformity assessment within the E3 area.

There were six different suggested options including the option "Other" with a request for indicating which sector. The following answers were given:

- Public sector

- Existing standards should be implemented as compulsory before any new standards are developed.
- The area where the electricity is consumed more and can be saved.
- All electrical and electronic equipment
- Green buildings
- Sector of Electrical appliances products: 1- Air Condition. , 2- Refrigerator. , 3- Washing Machine

Q14

What future E3 project(s) do you think will be needed, on global, regional or national level? Please give a brief description of the possible project(s).

The following answers were given for each level:

Global

- Increase the research of renewable resources
- Harmonisation of the testing procedures (IEC standards)
- Harmonization of test procedures
- Internationally accepted limits for energy efficiency/standby power and IEC CB certificates to document E3 conformity with does limits.
- Electric Car Building Management System
- Harmonisation of global requirements
- Anything electrical
- IEC standards about energy efficiency requirements of product
- Refrigeration, Air conditioners, washing machines, household appliances energy performance
- Improving the environmental situation through improving electrical energy efficiency and using renewable energy sources.
- At this stage certification is not used for E3 in Australia. But if a good system was developed, this may be attractive. A stronger effort on international harmonisation of test procedures is important and more active collaboration by governments on appropriate global metrics for efficiency is an important area.
- Standards for measurements of E3 criteria
- Safety of low energy lamps (fire risk plastic material)
- Knowledge base -Awareness on how extent electrical energy can be saved, availability of technologies, products/process, system at national or regional level at a reasonable cost to bring economic benefits to substitute the inefficient technologies, products/process/system
- NEW E3 STANDARDS
- Limit energy waste
- Energy Labelling requirements for heating appliances, lamps, water heaters, and other devices consuming high energy.
- Household appliances, lighting, electrical motors (full range), air conditioning
- This is a global issue and cannot be solved in only one national/regional level.
- Frequency Converter Standardisation
- Performance standard for LED engines, test methods for measuring light output from Luminaries (general lighting and directed light) connected to energy efficacy.
- Standardisation (common rules)

Regional

- Increase the research of insulation materials
- Harmonisation of the testing procedures (EN standards)
- Anything electrical
- Energy efficient lighting requirements
- Promotion of regional cooperation in legal, testing and other sectors, development of mutual funds for energy efficiency improvement activities.
- Med-enec II
- Covered by the European EuP/ErP projects
- Safety of low energy lamps (fire risk plastic material)
- In addition to the above, resource sharing needs to be planned and practiced to facilitate electrical energy efficiency projects and programs at a reasonable cost to bring economic benefits to the people of each country
- Green buildings
- Energy Labelling requirements for heating appliances, lamps, water heaters, and other devices consuming high energy.
- Household appliances, lighting, electrical motors (full range), air conditioning, boilers
- Standardisation (common rules)
- Harmonisation of testing standards and nrj efficiency criteria

National

- Adopting the specification for efficient building materials & appliances
- Energy efficient lighting, Smart metering and Electrical installations in buildings
- Within the UK there are still some National requirements that should be adopted on a European scale
- Anything electrical
- Extension to new electrical products, e.g. irons
- Bring the legal provisions in the field of energy efficiency. Stimulate producers to invent more efficient products and services by giving them tax and other benefits for products that are more efficient.
- To harmonize the IECEx requirements in the national industry
- Consumer awareness + legal constraints to ensure the implementation of E3 products & services
- In first place, a national legal requirement for products like refrigerators, lamps, air conditional, ballasts.
- Stand-by power consumption, motors, washing machines
- National governments should support and facilitate those projects and programs which bring economical benefit to the people - global and regional help is required to bring such projects and programs and influence at national level communicating economic benefits at national level
- Energy efficiency standard in preparation, to become compulsory. Also accreditation of measuring and verification agencies.
- Legal framework on products, components and parts is the most important project
- Development of the state standards in the field of the energy efficiency
- Governmental Purchasing
- Stick with E3 requirements
- (to manufacture related products locally)
- Energy Labelling requirements for heating appliances, lamps, water heaters, and other devices consuming high energy.

- By the aid of governmental authorities in preparing awareness programs for leading manufacturers and people of the best way for saving electric energy either when buying the electrical appliance or when using it and in showing them the importance of this saving culture for man life.
- Planchas, lavavajillas, etc.
- Energy Efficiency into production plants
- Extend Electric Energy Efficiency requirements to whole household and electrical products spectrum
- Increased enforcement and scrutiny over existing regulations and expansion of eligible products covered by the scope of existing regulations.
- Awareness program introduced to the nation on E3 project
- MEPS, mandatory laboratory

Q15

Do you foresee new products or services related to E3 on the market in the near future?

The replies amounted to 60 Yeses and 20 Noes. The following proposals were given to the YES answers.

- Some efficient products like home appliances
- ErP conformity verification for the notified body
- Renewable Energy, Electric vehicles, Illumination, Energy management,
- e.g. Irons
- services: comparison of the properties of the energy efficiency of products
- Energy efficient lighting
- Depends on future market demand and legal priorities
- Electric cars, various household appliances
- Energy Audit, Energy Efficiency gas turbine, Building of power station with use of gas turbine.
- Products for passive and active E3 for building control.
- Fans, motors. TV sets
- Test and certification
- please refer to the running preparation studies corresponding to the European ErP directive
- Consulting services regarding energy saving
- Sustainable building
- Energy Saving actions and services for building
- Led lamps and luminaries, alternative energy generators and power plants
- energy audits on system and energy labelling of products
- Energy efficiency timers. Also all electrical appliances will have to be energy efficient.
- product certification on EEE
- Development new products with smaller power losses
- steam irons and dishwashers
- Gulf Regulations
- ACs
- Electricity consumers equipments machinery , home appliances... etc.
- New services (By applying awareness programs concerning saving energy by buying the most efficient electric appliance and encouraging manufacturers to put the E3 label on their products.

- Energy Efficiency audits - Energy y Energy Action
- Smart Grid System
- Pump System Certification
- Energy using products within the heating area
- Increased demands for third party product assessment and surveillance.
- products & services labelled for nrj efficient rating
- nrj management certification

Q16

Do you foresee a need for new marking related to E3 in the near future? (Global, Regional, National and No need).

The following answers were given according to the different levels:

Global

- Best country in reduction of CO₂ emission
- Energy labelling
- Providing the requirements are harmonised, then a global marking scheme would be an advantage.
- Energy labelling
- Multiple recognized marking
- Certification to efficiency scale from +, A, B ...G
- unified labelling criteria
- A universal rating (either stars or by numbering) to indicate E3
- Internationally accepted new certification and agreement is needed.
- Energy Efficiency's Definition, Calculation methods of carbon di-oxide
- Outdoor luminaries, sensor control lighting, directed light sources

Regional

- New sign which will replace the eco flower & will demonstrate the eco compliance of the product for Europe
- Best region in energy conservation
- Energy labelling for further product groups
- Category A to E marking should be expanded to more product categories
- This may be required in Europe anyway but is likely to be a manufacturers declared marking scheme in a similar way to CE marking.
- CE4
- Energy efficiency labelling and energy audit
- A universal rating (either stars or by numbering) to indicate E3 which is inline with global scheme
- Into Mercosur for Electrical products
- Household appliances, lighting, electrical motors (full range), air conditioning
- common ASEAN energy efficiency labelling

National

- Labelling system for lamps
- Mark for E³ Compliance
- nergy efficiency labelling and energy audit

- Certification to efficiency scale from +, A, B ...G
- Conformity mark
- Electricity consumers equipments machinery , home appliances... etc.
- A universal rating (either stars or by numbering) to indicate E3 which is inline with global scheme
- Green Building Clasification
- Extend Electric Energy Efficiency requirements to whole household and electrical products spectrum
- star rating
- STAR rating from 1 to 5
- STAR rating from 1 to 5
- STAR rating from 1 to 5
- STAR rating from 1 to 5
- Star rating
- Star rating
- STAR rating from 1 to 5
- STAR rating from 1 to 5
- Star system
- STAR rating from 1 to 5

Q17

For future work within the E3 area, do you see a need for exchanges with other activities or sectors?

The replies amounted to 61 Yeses and 19 Noes. The following proposals were given to the YES answers.

- Research in the effect of saving energy in human health
- Performance requirements
- APP, APEC and IEA
- Harmonized market surveillance methods
- Electrical safety testing
- Possibly safety
- CECED, CELMA
- Solar technology. Heating and photovoltaic
- Mainly all sectors should cooperate within E3 area as far as they are involved with it. Everyone should give a contribution to overcome this
- Future work need for exchanges with other activities or sectors in Cross-sectoral, Buildings, Appliances and equipment, Lighting, Transport, Industry, Energy utilities
- Building actors who will implement it.
- Public sectors, governmental sector, street lighting
- clear energy technology
- standardisation of test and measurements and limits
- All the other energy sectors; e.g., the use of electric household appliances require similar energy-saving awareness as gas-operated household equipment. Drinkable water management is also closely related to energy saving.
- Environment building

- Global
- Building and transport
- renewable energy sources, mechatronics and nano technologies
- Accreditation, and acceptance of test reports
- standardization activities
- Civil engineering
- Household appliances
- Ecology, industry, production
- Product Standard compliance
- That is with different power generation, transmission, distribution Companies.
- There should be a close exchange of information and feedback between regulatory authorities, standardization bodies, consumer associations and manufacturing sector to achieve the best results.
- Saudi Ministry of water and electricity.
- Personally I guess that interaction with thermal insulation materials manufacturers will be necessary (Buildings) and over industry the specialist on cogeneration (High efficiency Electrical Generation)
- Environmental standards for electrical and electronic products in close relation with Electric Energy Efficiency - Green products.
- Industry: ISO, IEA - Regulator: The International Partnership for Energy Efficiency Cooperation (IPEEC) is designed for sharing information on energy conservation measures between member countries in order to improve their energy efficiency .Japan will contribute for the E³ through the IPEEC. E³
- IEC needs to take leadership before national legislation imposes regulations that international companies can't follow without increasing the cost for consumers.
- Development of electrical safety standards.
- Safety E3
- With the sustainable development sector
- Exchange of experience on labelling and MEPS

Q18

Any additional information on how conformity assessment may best support future work on E3 projects would be appreciated.

The purpose of this open question was to gather any additional information which could be beneficial to E³ conformity assessment work. The following proposals were made:

- Consumers in rich countries have low interaction with energy saving programs but all people in those countries concerning on the effect of new technology in human health. so, we must be research about the effect of efficient products in reducing electrical current and reducing the magnetic flux then reducing the probability of cancer.
- Important is a unique global test standard for much as possible product groups.
- Testing and certification of electrical product normally includes safety and EMC. Energy efficiency should be including as well and European (ENEC) and international (IECEE) certification schemes should be extended to allow certification of this feature.
- Clear precise achievable standards.
- Any initiative for a new voluntary marking should be carefully supported by a marketing project, where manufacturers and importers should identify their needs. E3 projects are not an exception to this statement

- Organising some kind of annual awards ceremony with strong media cover, where symbolic rewards would be given to best energy saving companies and products according to energy consumption results, thus prompting competition and advertising good products and companies.
- FFIE (French Electrical Contractors association) submitted, with the French delegation, a proposal of work, for the Energy efficiency WG of IEC TC64. The proposal was accepted by the plenary meeting held in Pretoria in September 2009.
- There will be a second phase of the ongoing E.E. project focusing on governmental building and street lighting in addition to preparing energy efficiency specifications for some home appliances such as Cloth dryers, E/n water heaters, Dish washers, Pumping motors, Television, Boilers in Commercial sector, Space heaters, Electric fans, Irons.
- Worldwide acceptance criteria
- Standardisation in testing and measurement conditions
- Argentina: In our country, conformity assessment can be empowered only by having the Government issue the laws and decrees required to implement existing standards. Market pressure (i.e., exporting requirements, for instance) on its own does not suffice to push users and manufacturers toward E3 implementations.
- By Establishing conformity assessment-International framework
- Training, education, workshops, papers, bulletins, etc. on global tendencies, new requirements, future standardization, up-to-date knowledge, etc. will be appreciated
- Make available information free in medias - the standards, guidelines and code of practices and knowledge based information to use the energy efficient technologies, products/process and system, so anyone interested in can use these information to improve electrical energy efficiency.
- The whole world needs to follow an international standard to prevent national barriers to trade
- Development of conformity assessment schemes for the separate products and components
- from GE infra nrj, US:
 - A. This work may play a huge role (IEC TC5 TAG) in the Steam Turbine Procurement changes coming down from the machine level. Right now, our Steam Turbine Group have restructured their standard to meet NEMA Premium and they are working to EISA IE3 to set the Plant level efficiency by reducing parasitic loads. Recent reviews from CEMEP and JEMA indicate that IEEE 112B is more stringent then IEC 60034-2-1. So the big question is which will be the dominate test standard to prove compliance and when will it be cut in, or will IEC 60034-2-1 be finally harmonized with IEE 112B, CSA390 since it may become that we can only buy from vendors which meet both since they are in flux.
 - o From a survey perspective we currently provide a Steam Turbines to customer specification. Even though there are few regulations dictating these efficiency levels, we see enough contractual requirements in the specifications. So again the missing piece for us is the final verdict on which test methods will be the more globally acceptable and how to be ahead of the curve
 - B. At this time industrial controls and instrumentation cabinets and equipment are (to our knowledge) outside EEE rules but it does apply to IT equipment - the computers, HMIs, etc... that we incorporate into our systems.
- I would like to articulate concerns about said industrial equipment. i.e.
 - o 1) I don't think it is desirable for industrial equipment to fall under EEE marking and testing. Control cabinets and projects are highly variable - testing, certifying, and marking cabinets would be difficult. If a standard is written, it would only work if it allows a "Panel Shop" scenario.
 - o 2) The individual products that make up a cabinet are proprietary one-of-a-kind products. I'm not sure how a EEE standard could be specific about the power

- consumption or characteristics of this equipment such that we can mark them. These parts are also highly configurable with different I/O and cards.
- 3) If the global movement is towards EEE controls on industrial equipment then having a one stop at IEC to achieve is a lot better than if individual countries start to do it.
 - 4) If there is a need for EEE for this equipment then the standards, testing, marking, needs to allow for above concerns.
- Removing trade barriers and unnecessary inspection as long as the products are certified by a recognized body
 - By power utility as well as by consumers can benefit in respect of power savings
 - Like harmonised safety standards, also energy efficiency standards and requirements for various countries should be harmonised to avoid multiple testing and re-work of labels and products etc.
 - An international workshop group for EEE assessment may be launched.
 - Conformity assessment will not be efficient and active unless the its procedures with respect to E3 become mandatory, so SASO took this preceding step and gave the manufacturers a chance to make the suitable adoptions to their products in order to comply with the Saudi standards (Saudi Standards SASO 2663/2007, SASO 2664/2007, SASO 2692/2007) which will become mandatory as of 2010-04-26
 - For appliances, IECEE should not be involved in conformity assessment of energy efficiency. The industry prefers to work through IEC TC59 to harmonize energy test procedures.
 - The development of a new part of IEC 60364 regarding energy efficiency into electrical installations and the issue of future standard ISO 50001 would be key points to allow conformity assessment and of course improve future work on E3 projects. Regarding this future part of IEC we propose that different key points on how to save energy in each part of the electrical installations should be pointed out together with a proper energy measuring system that allow the permanent improving into energy management activities.
 - The values of energy efficiency depend on the definitions, measurement methods and the calculation methods. I strongly hole to develop the rational way to calculate the energy efficiency based on scientifically ways at CAB.
 - There are different applications and needs of individual customers. The CB scheme should adopt a scale like for IP-ratings. Ordinary products have a minimum set of requirements and more energy efficient electrical products have a higher "value". This is then mandatory to put on the product label itself (like IP-rating) and also on the outside of the packaging. Making it possible for the customer to chose the best product for his/her need. But all should have a set of minimum requirements (like standby losses etc).
 - Conformity assessment is an ideal tool to support and validate compliance with regional, national and international norms and should be viewed as a means of improving overall compliance.
 - CA is extremely necessary for transparency and for comparison of performance of different equipment