Asia-Pacific
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APEC Energy Efficiency Policy Workshop 2018 Summary Report: Conformity Assessment Approaches

Washington D.C., United States | 10 April 2018

APEC Energy Working Group

August 2018

EWG 08 2017 A

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APEC#218-RE-04.5

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The Conformity Assessment (CA) Workshop is the third of the Energy Efficiency Policy Workshop series, organised by the Asia Pacific Energy Research Centre (APERC). This one-day training was intended to support development of rational and robust energy efficiency policy across APEC. Delivered by APERC and CLASP, it took place alongside the APEC Expert Group on Energy Efficiency and Conservation (EGEE&C) 51th Meetings on 10 April, 2018 in Washington DC.

Participating Organisations and Economies

Expert Organisations: International Federation of Inspection Authorities (IFIA), ANSI-ASQ National Accreditation Board (ANAB), National Electrical Manufacturers Association (NEMA), Underwriter Laboratories (UL), CLASP.

Participating Economies (10 in total): Chile; China; Indonesia; Japan; Malaysia; Mexico; New Zealand; Chinese Taipei; Thailand; United States; and Viet Nam.

Objectives

The objectives of the workshop were to:

- Offer an introduction to CA, when and why to adopt different approaches, costs and benefits of each approach, as well as the risks or challenges that may arise with their implementation.
- Dive into more detail on the different components involved in CA – testing, certification and accreditation – and ensure participants develop a clear understanding of their impacts on subsequent market surveillance and inspection programs.
- Invite speakers from certification bodies and test laboratories, as well as APEC regulators with well-defined certification processes, to share case studies of best practices and lessons learned.
- Encourage participants to work together to dig deeper into workshop topics.

Workshop Overview

Welcoming Remarks

Local economy host, Elena Thomas-Kerr, from U.S. Department of Energy welcomed the participants.

Opening Remarks

EGEE&C Chair, Dr. Pengcheng Li from CNIS stressed three essential focus areas in energy efficiency – capacity building, financing and policy evaluation.

Introduction to the Energy Efficiency Policy Workshop series

Dr Kazutomo Irie from APERC introduced the policy workshop and the topic of CA.

Session 1: Introduction to Conformity Assessment

The Role of Conformity Assessment for Energy Efficiency

Nicole Kearney, CLASP

During this session the concept of CA, its role in energy efficiency policy, and goals and benefits for stakeholders were presented. Up to 25% of potential energy efficiency program savings can be lost through poor compliance and lack of enforcement.

CA is critical to assuring products perform as claimed, thereby safeguarding the anticipated benefits of energy efficiency regulations. Depending on the approach taken, CA can facilitate trade and provide regulatory compliance and public assurance. Governments can introduce aligned CA approaches to help reduce trade barriers, and industry can reduce delays and costs caused by having to test to different governments' testing and certification criteria.

A robust and well-resourced CA process can allow for lower investment in post-market surveillance, as there is higher confidence that products on the market are compliant.

Conformity Assessment Best Practices and Approaches

Lina Kelpsaite, CLASP

The presentation introduced best practices for CA, along with the benefits they bring to different parties when building CA requirements for energy efficiency. The differences between CA approaches were discussed, including when 1st party, 2nd party and 3rd party CAs are appropriate.

The 1st party approach, which relies on the supplier confirming compliance with standards with a Supplier's Declaration of Conformity (SDoC), allows the manufacturer to choose where to have a product tested – at an in-house, unaccredited, or 3rd party test lab. Given the lack of independent oversight, the regulator may have to invest more in market surveillance activities once products are available on the market.

On the other hand, 3rd party CA provides a higher degree of confidence and trust, which can potentially lower market surveillance costs for the regulator. Therefore, 3rd party CA is most appropriate when the risks associated with non-compliance are high and there are limited resources to fund a market surveillance program.

Another benefit of 3rd party CA is that test results and certificates can be recognised internationally and through Mutual Recognition Agreements (MRAs), which can support trade and remove market barriers for industry and for governments. In the APEC region, economies primarily use either 3rd party certification, or 3rd party testing with SDoC.

Selecting Appropriate Conformity Assessment Approaches

Roberta Telles, International Federation of Inspection Authorities

This session introduced the conformity sector that conducts third party CAs, and guidance on selecting appropriate CA approaches.

There is a growing reliance on 3rd party CA due to outsourcing trends (CA bodies reduce compliance costs), international trade, emerging economies, and high infrastructure investment costs. 3rd party CA also helps mitigate risks, protect industry reputation, and reduce in-house compliance costs.

The required confidence level and risk mitigation needs determine which CA approach is selected. IFIA has developed a questionnaire to assist regulators in building CA requirements (table below).

QUESTIONS:	1st Party	3rd Party
Is the perceived risk high?	No	Yes
Are products regulated primarily manufactured in countries with a history of risk factors and other issues?	No	Yes
Are products manufactured in complex /fragmented supply chains?	No	Yes
Is there a documented history of industry non-compliance?	No	Yes
Is there evidence that product liability is an effective deterrent?	Yes	No
Do statutory provisions provide penalties and an effective deterrent?	Yes	No
Are there voluntary schemes that address confidence needs?	Yes	No
What are the societal risks of non-compliant products?	Low	High

A more robust approach delivers a higher level of confidence and compliance. IFIA's 2014-2016 Consumer Product Market Survey demonstrates that programs allowing SDoCs had 17% safety-critical failures[1] (mostly in EU), but less than 1% safety-critical failures were found under 3rd party CA programs.

Session 2: APEC Economy Approaches to Conformity Assessment

Conformity Assessment in the United States and the Case of Energy Star
Roger Muse, ANSI-ASQ National Accreditation Board (ANAB)

This presentation focused primarily on accreditation bodies and processes, with emphasis on the importance of accreditation of a third party body to ensure its competence.

Regulators should consult stakeholders when building their CA process to ensure stringent requirements are set, but that the products subject to these requirements remain affordable. It is also important to address the misconception by manufacturers that testing costs are high when conducted in accredited labs.

The presenter provided an overview of the accreditation body and standard development framework. On the global level, ILAC oversees the accreditation of laboratories and inspection bodies; and IAF oversees the accreditation of management systems, products, services and personnel. Independent testing labs, certification bodies, industry and regulators can participate in drafting standards that are being developed and published by ISO.

The U.S. Energy Star program serves as a strong example of how 3rd party testing increases confidence of compliance. When the Energy Star program was launched, there was no 3rd party oversight. An evaluation identified numerous loopholes that allowed non-qualifying products into the program. As a result, the program transitioned to require 3rd party accredited testing.

During the Q&A session the process of the test report evaluation and certification was clarified. Manufacturers and importers must understand the scope of accreditation for the testing lab, as accreditation can cover broader characteristics than those necessary for compliance

[1] Such as high risk of fire/permanent injury.

regulations. Conformity bodies can be accredited to a required standard (base requirements) and any necessary additional schemes.

The Conformity Assessment Process for Electrical Appliances in Mexico
Diana Patricia Anaya Tellez, CONUEE

This presentation provided an overview of the CA process for electrical appliances in Mexico.

The National Commission for Energy Efficiency (CONUEE) is responsible for developing energy efficiency standards and CA requirements, which are based on international standards. Mexico requires third party testing and certification for electrical appliances. There are 73 laboratories and 8 certification bodies accredited and approved by CONUEE.

The certification process for domestic appliances is as follows:

1. The manufacturer/importer submits certification request to the certification body.
2. The manufacturer/importer sends product to accredited and approved testing labs.
3. After the testing report is issued, the certification body evaluates whether the standards are met and issues the certificate.
4. The manufacturer/importer stamps the NOM Certification on the product and label the product prior to putting them on the market.

The Secretariat of Finance and Credit Public and Federal Consumer Protection Agency (Profeco) oversees market surveillance and inspects products on the market. When a non-compliant product is found, the seller/manufacturer/importer can be penalised, as defined in the Metrology Standards Law. Examples of penalties include confiscating products or withdrawal from the market. Compliance program costs are covered by the manufacturer/importer.

Conformity Assessment and Compliance in New Zealand and Cooperation with Australia
Eddie Thompson, Energy Efficiency and Conservation Authority (EECA)

The collaborative Equipment Energy Efficiency (E3) Programme enables New Zealand and Australia to share the costs of regulation development and implementation. Both jurisdictions develop standards collaboratively to promote a single market, but implement them separately through domestic economy-wide regulations. New Zealand and Australia work together to implement monitoring, verification and enforcement efforts that benefit both economies, even though there is no formal agreement.

Products sold in both economies must be registered in the shared product registration database, which simplifies market monitoring efforts, and provides better consumer information and robust baseline data for further standard development and evaluation.

Both economies align targeting and verification of products on the market – if a product fails verification testing in Australia, New Zealand is notified and can take enforcement action. This approach works and suppliers are cooperating, even when the product has not been purchased or tested by New Zealand. Australia's enforcement team consists of 5 officers and 13 contractors, while New Zealand has only one officer. To check the products that are available on the market Australia spends about AUD 1 million and New Zealand – NZD 0.5 million.

Conformity Assessment for Energy Efficiency in Malaysia

Falisya Noor Azam, Ministry of Energy, Green Technology and Water

An overview of energy efficiency regulations and the CA process in Malaysia was presented.

Malaysia has MEPS for five domestic electrical appliances: refrigerators, air-conditioners, TVs, domestic fans, and lighting (fluorescent, CFL, LED and incandescent). These are reviewed every 3-5 years. The first four products are required to provide SIRIM-ST's energy label, and lighting products must show their efficacy value on the packaging. The regulators collaborate with manufacturers and industry associations to determine the energy rating minimum requirements.

The certification process for domestic appliances is as follows:

1. Regulated appliances must be tested by the manufacturer/importer in an accredited lab for safety and energy efficiency.
2. Once they receive the test report, the manufacturer/importer submits an application for Certificate of Registration.
3. The Energy Commission (regulator) issues a Certificate of Approval (CoA) when the product is approved for sale in Malaysian market.

Malaysia's government uses four approaches to promote energy efficient appliances: 1) discuss with all stakeholders whether incentive schemes are required; 2) create awareness; 3) disseminate information and solicit input on what needs to be regulated; and 4) conduct research and development to demonstrate and promote new technologies. Estimated energy savings since the program inception are 2,685 GWH.

Session 2 - Discussion

Q1: How do regulators deal with the transition to more stringent MEPS when equipment in the market features the older or outdated energy star label? Who is responsible to remove the product or old label?

- Per Steve Margis from UL, the label adds most value when the product first enters the market.
- Malaysia works with distributors and manufacturers to remove old or non-compliant products from the market, or replace old labels.
- In New Zealand, new imported products need to have the newest label and comply with new regulation.

Q2: How to deal with products that are supplied at low volumes? Should they be excluded from the regulations? What are appropriate CA requirements?

- Steve Margis from UL noted that all manufacturers, no matter how small they are, should meet the requirements. UL does not typically work with small manufacturers, but meeting the requirements for these small companies can be more difficult as they are less familiar with CA processes and perceive the costs to be too high.
- Kirk Anderson from NEMA emphasised the value of harmonisation, and how harmonised standards or global programs provide benefits to all and can reduce costs for actors entering multiple markets.
- In China, all products are regulated by existing MEPS regardless of supplied volume.

- Malaysia has harmonised standards with ASEAN. The challenge is to provide enough time for local manufacturers to implement changes in order to comply with ASEAN harmonised standards.
- In Japan, importers have to meet high standards. Industry associations play an important role to ensure that quality standards are met. Small manufacturers are outside of the current standards.

Q4: How does Top Runner use market readiness to set standards and MEPS?

- In Japan, the regulators set Top Runner standards that are higher than MEPS. Industry convenes study groups, which discuss plausible target standards that manufacturers can meet. They also have policy level discussions to support these targets.

Q5: How do regulators feel about investing upfront in CA programs (requiring more stringent verification at market entry) vs. great investment in market surveillance (post-market entry)?

- In New Zealand, the industry encourages the regulator to develop a robust compliance plan and program.

Session 3: Conformity Assessment Case Studies

Lighting Global Quality Assurance: A Voluntary Certification Program for Off-Grid Solar Home Systems and the Pre-Verification of Conformity Process
Ari Reeves, Lighting Global / CLASP

This session included an overview of the Lighting Global Quality Assurance (LG QA) program and its accomplishments.

LG QA is voluntary certification program for off-grid solar products with a goal to catalyse off-grid solar markets and mitigate risks for buyers. Buyers, distributors, development agencies and similar entities use LG QA standards to help identify quality products and quality companies. Currently, five accredited labs can test off-grid solar products using standard IEC TS 62257-9-5. If a tested product qualifies, the LG QA team adds the product to their website and sends the test report, standards specification sheet and verification letter to the manufacturer. These documents can be used to show regulators around the world that the products meet the quality standards.

A key part of LG QA enforcement is Pre-Verification of Conformity, during which the products are checked before import guarding against the introduction of unsafe, sub-standard, and counterfeit goods to the market.

Key success factors that help grow markets for quality products include:

1. Harmonised standards – governments can do more when standards are harmonised. For example, four economies in East Africa have adopted standards that are harmonised with LG standards and are in talks to develop regional standards.
2. Competent labs – LG QA requires accreditation, and provides continuous support to test labs seeking accreditation under the program.
3. It is important to have well trained CA experts so they know what to look for.
4. The CA process requires sampling of random products from the shipment.

5. Well-trained customs officials are essential and should be aware of regulated products.
6. There must be suitable penalties for selling non-conforming products to defer low quality products.

The IECEE Global Motor Energy Efficiency Program: A Conformity Passport for International Trade

Kirk Anderson, National Electrical Manufacturers Association

The challenges of implementing economy-wide motor regulations include high costs to maintain the program, high uncertainty test methods, and trade barriers. Developing a lab and testing process from scratch is very difficult, especially in emerging economies. For example, the U.S. has only one lab that tests energy efficiency for motors. If the market is small, certain manufacturers may decide not to enter the market, which can result in a higher penetration of lower quality products.

A globally recognised conformity assessment program such as the IECEE Global Motor Energy Efficiency (GMEE) Program, which is based on the IECEE/CB Scheme, can help overcome these challenges. Through this program, qualified manufacturers can easily access markets in all participating economies. At an economy level, regulators only verify globally recognised test report and certification that are issued by accredited third party bodies. Manufacturers bear the cost of third party testing and certification.

The program is currently encouraging regulators to endorse the GMEE in their energy efficiency regulation. The GMEE program is easy to implement, has low maintenance costs, high level of confidence, and can especially benefit small economies that import motors. It also has a strong support from motor manufacturers. Potential next steps include developing a mechanism to easily identify of compliant products, and explore compliance, certification and enforcement (CCE) alignment.

The Third Party Perspective: Application of Conformity Assessment Programs

Steven Margis, Underwriters Laboratories

This session provided a third party perspective on CA, with clarifications on the different processes and schemes involved. A scheme, which is a set of CA requirements, provides the roadmap to set standards for compliance and for compliance evaluation processes.

Because products need to meet many requirements before they are allowed on different markets, UL wants to take a strategic approach and simplify the compliance procedure by performing one product test for the manufacturer, offering a lower burden on industry. CA should provide a balanced approach with consensus standards, which are inclusive, transparent, and based on international standards. Additionally, pre-market assessment and certification, and post-market surveillance can jointly help to build a more robust compliance program.

The challenge is building a comprehensive program that provides high confidence in the CA process. The IEC CASCO toolbox framework can help set best practices. However, the biggest challenge is developing and implementing common test methods that support a global testing framework.

Session 4: Determining Benefits and Pitfalls of Different Conformity Assessment Approaches

Participants split into two groups to discuss the design and implementation of CA processes, and to use the GMEE case study to explore how to implement a global CA program.

Breakout Session 1 – Decision-Making and Implementation

In this session, participants discussed CA procedures, implications for post-market compliance, implementation challenges and potential for improvement. The group focused primarily around the challenges to implementing third party CA programs in the ASEAN region and acceptance of results from foreign accredited test labs.

- Harmonising AC standards has been an ongoing effort in ASEAN collaboration (5+ years). Currently the implementation of standards is at different levels in various economies. Seeking agreements and commitments from all levels of government is the greatest barrier to achieving harmonisation and aligned CA processes – high level government officials need to convene, agree and commit both to harmonised standards and implementation, and to dedicate funding to the process. Another major challenge is building testing lab capacity in the region, including needed resources, qualified staff and technical capacity.
- Utilising established test laboratories, regardless of their location/geography – even if they are outside ASEAN, could facilitate successful implementation of standards in the region. However, there are certain political or industrial interests that could hinder using this approach – some concerns were expressed that using foreign test laboratories may harm local business. Thus, before building domestic testing capacity, a solid business case is needed to ensure there will be sufficient value and revenue so the lab is self-sustainable in the long term. Regional cooperation can help to ease the burden of these large investment requirements.
- Japan noted that improving AC efficiency is mutually beneficial to all (government, manufacturers, consumers, etc.) and savings in energy efficiency improvements translate to money saved for the government.

Breakout Session 2 – Case Study: The Global Motors Energy Efficiency (GMEE) Program

The discussion focused on pathways to global program implementation, benefits and challenges.

- The GMEE program has the value for both, the regulators and manufacturers. The motor industry has spent large sums of money over 30 years to conduct round robin testing to perfect the GMEE test method, which the regulators in APEC economies can simply adopt as program participants. GMEE program adoption could be very easy and especially beneficial for the smaller markets that rely on motor imports.
- Several challenges associated with the adoption of the GMEE program were raised:
  - Legislature changes are needed to allow participation in the global program (Chile)

  - Some laboratories are lobbying against performing testing overseas (Chile); the economies want to build their own testing capacities to protect domestic interests and benefit from the programs (Viet Nam)
  - Standard requirements – adaptation of IEC standard in New Zealand might complicate CAs
  - Political challenges – if energy efficiency is not the priority for the current government then such program face increased challenges (U.S. and Chile)
  - Lack of knowledge on how to adopt global programs – more guidance and case studies needed
- Several opportunities were identified during the discussion:
  - If economies are eager to engage in shaping the global programs they can participate in the committees to influence the decision-making process
  - The change in legislation can only happen when there is a window of opportunity – incorporate changes into the regulation during the revision process, which only happens cyclically (New Zealand)
- To address the above challenges, Kirk Anderson from NEMA suggested a modified pathway - if an economy adopts the GMEE global program, the program can support local test labs and work with them to build capacity (could take about 2-3 years). These labs could then seek accreditation to test to the GMEE process and deliver testing services for neighbouring or regional markets.

Conclusion

The workshop consisted of a diverse and comprehensive training program, with insights from governments, as well as CA experts, associations, and implementing bodies (test lab and CA accreditation body). APEC participants left the workshop with a greater understanding and appreciation of:

1. The value of CA to compliance programs;
2. The different CA approaches available to them, and how to select an appropriate approach based on their market conditions and institutional frameworks;
3. The level of confidence provided by each approach and what the implications on their market surveillance efforts and budgets will be;
4. Lessons learned and best practices from CA approaches implemented in other APEC economies; and
5. A new global approach to CA, through the Global Motors Energy Efficiency program.

The workshop discussions revealed that post-market surveillance can be challenging and very resource intensive. For this reason, some economies have postponed their market surveillance efforts, which can increase the risk of non-compliant products entering the market. However, most APEC economies require some combination of third party testing and/or certification, which can itself lead to greater product compliance.

The lessons learned and shared in the workshop could help strengthen the conformity assessment process in some APEC economies, thereby enabling them to potentially reduce their investments and kick-start lower resource activities in post-market surveillance.

Through collaborative discussions in the breakout sessions, participants highlighted and considered the challenges raised by the regional harmonisation of AC standards in ASEAN and adopting global programs, such as the GMEE. The challenges vary from economy to economy. If more economies in the region were to adopt the third party CA approach, an aligned regional compliance network will become more feasible as economies can implement MRAs and potentially share test results and/or certification information.

This workshop provided APEC economies with an opportunity to come together and share their concerns, interests as well as identify the opportunities for collaboration. Potential next steps include:

- Bringing together APEC economies to discuss specific aspects of conformity assessment and compliance in more details;
- Facilitating further discussions on the development of aligned regional standards and compliance frameworks;
- Developing a follow up project to facilitate adoption of a global conformity assessment program, such as the GMEE, in several APEC economies.

ANNEX

- Agenda
- Breakout session questions
- Presentations
- CA one-pager

APEC Asia-Pacific Economic Cooperation

APEC Expert Group on Energy Efficiency and Conservation (EGEE&C)
Under the APEC Energy Working Group

Energy Efficiency Policy Workshop
Energy Efficiency Conformity Assessment

Bringing together policymakers and experts to understand and share national experiences on the conformity assessment process, as well as the different approaches to determining conformity for energy efficiency according to the individual conditions of each economy.

10 April 2018

Embassy Suites by Hilton
Washington DC Convention Centre, United States

8:30 - 9:00	**Registration**	
Welcome and Introduction to the Workshop		
9:00 - 9:05	Brief Introduction to the Workshop	Martin Brown Santirso, APERC
9:05 - 9:10	Welcoming Remarks by the Host Economy	Elena Thomas Kerr, US Dept of Energy
9:10 - 9:15	Opening remarks by the EGEE&C Chair	Pengcheng Li, CNIS
9:15 – 9:25	Introduction to the Energy Efficiency Policy Workshop series, the topic of Conformity Assessment, and Workshop Agenda	Dr Kazutomo Irie, APERC
Session 1: Introduction to Conformity Assessment		
9:25 - 9:40	The Role of Conformity Assessment for Energy Efficiency	Nicole Kearney, CLASP
9:40 - 10:00	Conformity Assessment Best Practices and Approaches	Lina Kelpsaite, CLASP
10:00 - 10:30	Selecting Appropriate Conformity Assessment Approaches	Roberta Telles, International Federation of Inspection Authorities
10:30 - 10:45	**Tea and Coffee Break**	
Session 2: APEC Economy Approaches to Conformity Assessment		
10:45 - 11:10	Conformity Assessment in the United States and the Case of Energy Star	Roger Muse, ANAB
11:10 - 11:35	The Conformity Assessment Process for Electrical Appliances in Mexico	Diana Patricia Anaya Tellez, CONUEE
11:35 - 12:00	Conformity Assessment and Compliance in New Zealand and Cooperation with Australia	Eddie Thompson, EECA
12:00 – 12:25	Conformity Assessment for Energy Efficiency in Malaysia	Falisya Noor Azam, Ministry of Energy, Green Technology and Water
12:30 - 13:00	Panel Q&A and Discussion	Moderated by CLASP

13:00 - 14:00	**Lunch**	
Session 3: Conformity Assessment Case Studies		
14:00 - 14:20	Lighting Global Quality Assurance: A Voluntary Certification Programme for Off-Grid Solar Home Systems and the Pre-Verification of Conformity Process	Ari Reeves, Lighting Global / CLASP
14:20 – 14:40	The IECEE Global Motor Energy Efficiency Programme: A Conformity Passport for International Trade	Kirk Anderson, National Electrical Manufacturers Association
14:40 - 15:00	The Third Party Perspective: Application of Conformity Assessment Programmes	Steven Margis, Underwriters Laboratories
15:00 - 15:20	Panel Q&A and Discussion	Moderated by CLASP
15:20 - 15:40	**Tea and Coffee Break**	
Session 4: Determining Benefits and Pitfalls of Different Conformity Assessment Approaches		
15:40 - 16:10	**Breakout Session** Participants will break into smaller groups to discuss: ▪ **Decision-Making:** Determining conformity assessment procedures and implications for post-market compliance ▪ **Implementation:** Conformity assessment challenges and potential for improvement ▪ **Case Study:** The Global Motors Energy Efficiency Program – Potential for Implementation, Benefits and Challenges	All Participants
16:10 - 16:40	**Plenary Session** Presentations by Breakout Session Leaders and Group Discussion	Moderated by CLASP
16:40 – 16:50	Summary of the Workshop, Potential Next Steps and Lessons Learned	Nicole Kearney, CLASP
16:50 - 17:00	Closing remarks	Dr Kazutomo Irie, APERC

Conformity Assessment Breakout Session Questions

SESSION 1: Decision Making - Determining conformity assessment procedures and implications for post-market compliance

- What are the challenges you face when determining conformity assessment for different product categories?
- How do you communicate different conformity assessment processes, and the standards required for different products to different regulators or border controls/customs?
- What role does industry play towards the design of national conformity assessment processes? How do regulators consider the burden of conformity on industry?
- What considerations are given to regional compliance and conformity assessment? Is there an opportunity to do more at the regional or global level, and how?

SESSION 2: Implementation - Conformity assessment challenges and potential for improvement

- What practical challenges do third parties face in implementation of different conformity assessment programs and government requirements?
- Are there different challenges anticipated per product category?
- What recommendations would third parties offer to improve conformity assessment at the national level?
- How can regional compliance and conformity assessment be facilitated, and is there an opportunity to do more at a regional or global level?

SESSION 3: Case Study - The Global Motors Energy Efficiency Program – Potential for Implementation, Benefits and Challenges

- What benefits do you see coming out of joining this type of program?
- What challenges or barriers are there to signing up and adopting the program?
- What is the pathway to adopting this program at the national level?
- How do governments engage in decisions for evolution of the program? Is this done at a national level or through the IEC?
- Would economies benefit from a centralized market surveillance or compliance service, to facilitate coordination and alerts of non-compliant motors?

Energy Efficiency Policy Workshop
Energy Efficiency Conformity Assessment

List of Presentations

Session 1: Introduction to Conformity Assessment	
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Introduction to Conformity Assessment

APEC Energy Efficiency Policy Workshop

Nicole Kearney and Lina Kelpsaite
10 April 2018

The Role of Conformity Assessment for Energy Efficiency

Nicole Kearney, CLASP

What is Conformity Assessment?

"demonstration that specified requirements relating to a product, process, system, person or body are fulfilled"

ISO/IEC 17000: 2004: https://www.iso.org/obp/ui/#iso:std:iso-iec:17000:ed-1:v1:en

3

Why is it important?

Up to 25% of potential energy efficiency program savings lost through poor compliance and lack of enforcement

"In most markets…

- 20% of the regulated population will comply with any regulation
- 5% will attempt to evade it, and
- the remaining 75% will comply as long as they think that the 5% will be caught and punished."

- Zaelke 2005

4

Goals of Conformity Assessment

Facilitate Trade

Expedite free flow of goods in international commerce.

Provide Regulatory Confidence

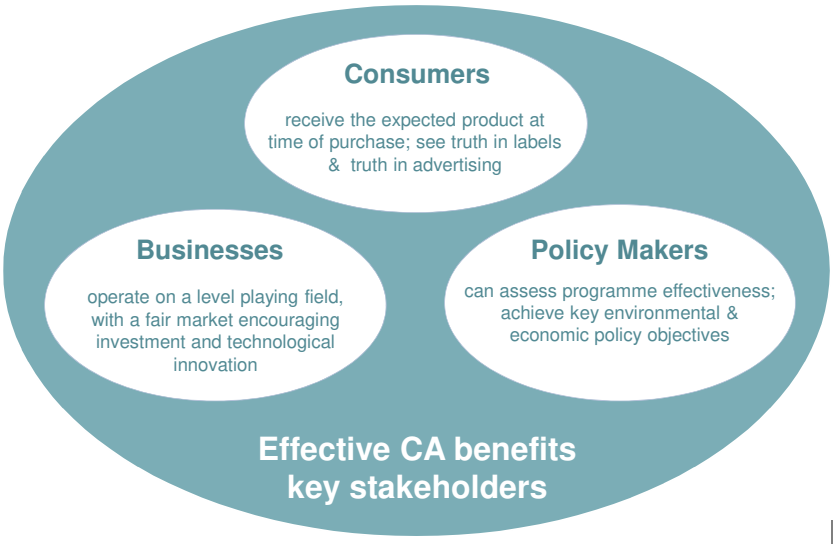
Demonstrate that a product placed on the market complies with all legislative requirements.

Public/Customer Assurance

Ensure confidence of consumers, public authorities and manufacturers on conformity of products.

5

Benefits for All Stakeholders



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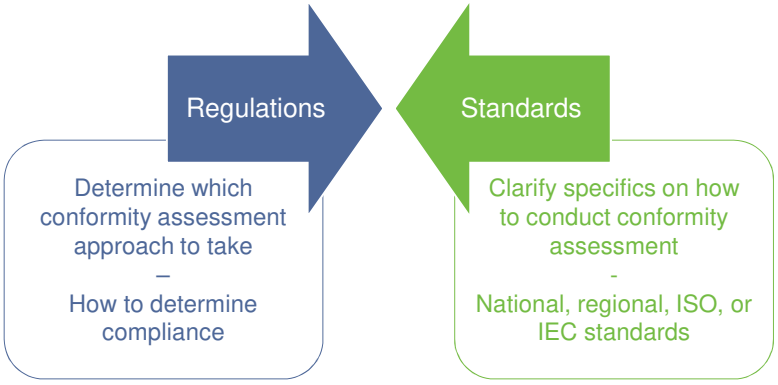
Determining CA Approaches and Procedures



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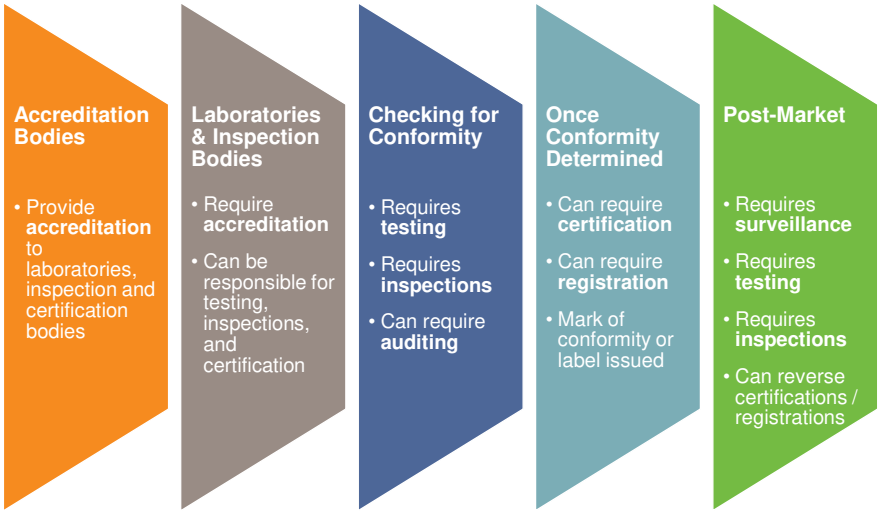
Energy Efficiency Conformity Assessment Activities



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Energy Efficiency Conformity Assessment Definitions

Terminology	Definition
Accreditation	Procedure giving recognition that a body is competent to carry out specific tasks, such as testing and certification
Testing	Determining conformity of characteristics of a product according to a set procedure or test methods
Inspection	Examining a product to determine its conformity with specific requirements, through measurement, testing, or other evaluations
Auditing	Systematic, independent, documented process for obtaining relevant information and assessing them objectively to determine whether require-ments are met
Certification	Procedure by which a third party or authorized body gives written assurance that a product conforms to specified requirements
Registration	Procedure used to register conformance to specified requirements
Surveillance	Conducting regular conformity assessment activities to maintain the validity of the statement of conformity
Supplier's Declaration of Conformity	Where a supplier gives written assurance that a product conforms to specified requirements

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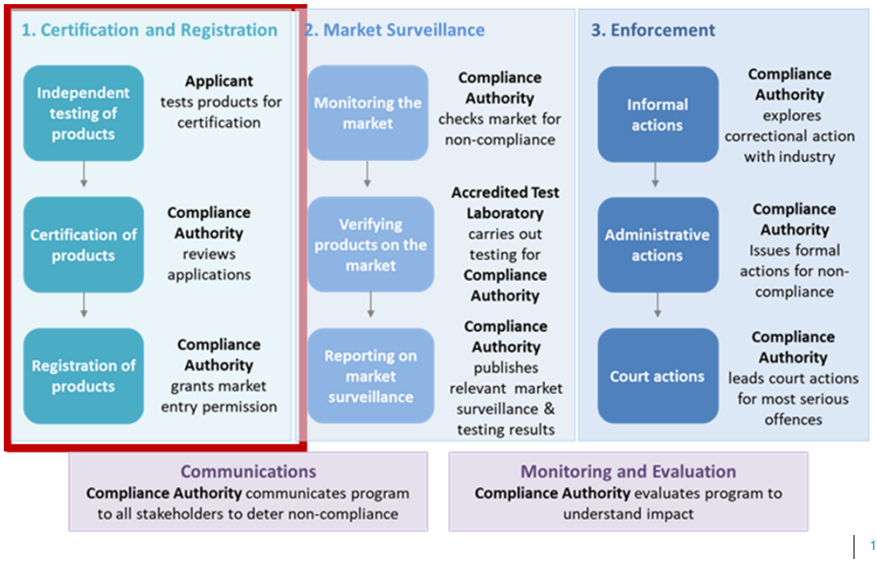
Conformity Assessment and Impacts on Energy Efficiency Compliance Programs



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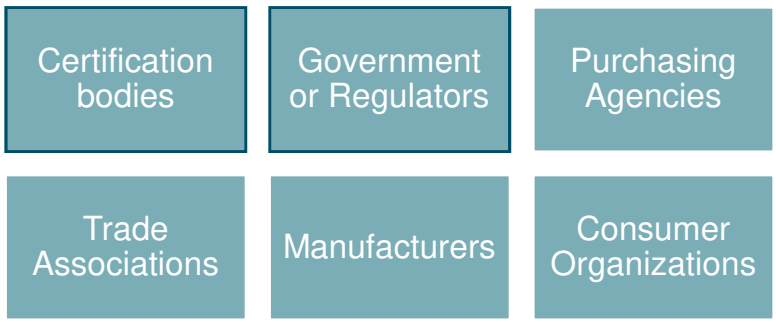
CA Programs Owners



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Key Takeaways

- Conformity assessment guarantees:
  - Products meet energy efficiency, safety, quality requirements
  - Consumer protection and confidence in products
  - Facilitated international trade
- CA approaches are set out in regulations, and procedures are set out in standards
- Many different CA activities
  - Support energy efficiency policy at various stages of the process
  - Chosen approach can significantly impact on necessary investment in post-market surveillance activities
  - Can be owned by single or multiple bodies

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Introduction to Conformity Assessment Best Practices and Approaches

Lina Kelpsaite, CLASP

Role of CA Best Practices

APEC Region: National & Regional Bodies

NATIONAL:

ANSI American National Standards Institute

STANDARDS Australia

Korean Agency for Technology and Standards

JISC 日本工業標準調査会 Japanese Industrial Standards Committee

STANDARDS MALAYSIA

STANDARDS NEW ZEALAND

Standards Council of Canada
Conseil canadien des normes

REGIONAL:

APEC Asia-Pacific Economic Cooperation — APEC Sub-Committee of Standards and Conformance

ASSOCIATION OF SOUTHEAST ASIAN NATIONS — ASEAN Guidelines for Accreditation and Conformity Assessment

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Common CA Best Practices

- CA procedures are open and transparent
- Competence of the assessment body
- Adequacy and appropriateness of the standards
- Stakeholder consultation
- Minimization of inconvenience and costs
- Effective and prompt communication
- CA requirements and procedures foster national and international trade

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Key Considerations

Facilitate Trade

Provide Regulatory Confidence

User Assurance

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CA Approaches

First Party

- Manufacturer
- Importer

Second Party

- Purchaser
- User

Third party

- Independent Entity

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1st Party: Overview

Who	Manufacturer, importer/supplier
What	Provide Supplier's Declaration of Conformity (SDoC)
How	Based on • Manufacturers confidence in quality control system, and/or • Results of testing, inspection, or audits undertaken by the manufacturer or other party
When	Used in regulatory systems • As a prerequisite market entry • For establishing a legal responsibility on the supplier
Standard	ISO/IEC 17050: 2004 specifies requirements for SDoC

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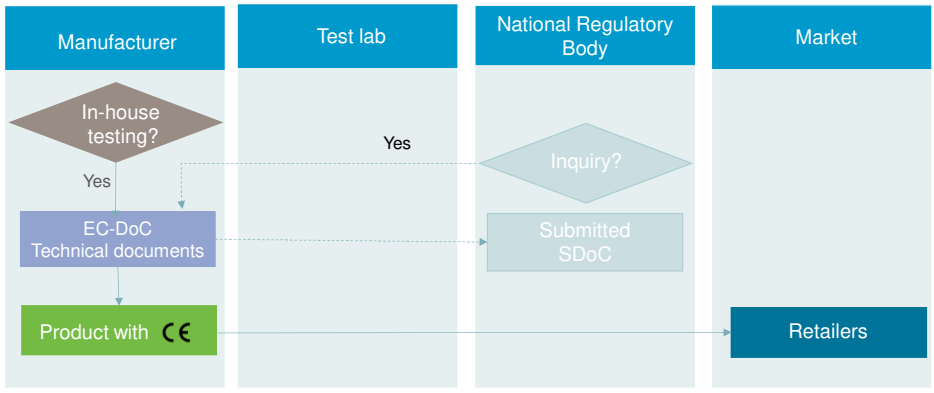
SDoC Process in European Union (EU)

- The EU **Ecodesign Directive** (Directive 2009/125/EC)
- Products must have CE mark before placed on EU market



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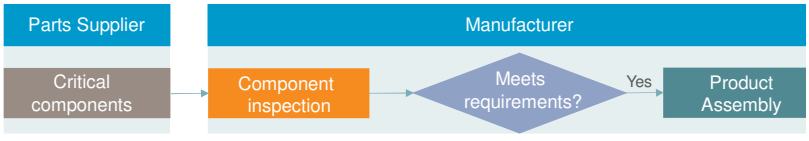
1st Party: Benefits and Suitability

Benefits	• Trade-friendly approach • Flexibility • Cost and time savings to the manufacturer/importer
Appropriate when	• Risk of non-compliance is low, • Active and consistent market surveillance is in place, • Suitable penalties are in place when nonconforming, products are placed on the market, and/or • There are effective mechanisms in place to take the nonconforming products from the market.

2nd Party: Overview

Who	Industry association, procurer, or product buyer/user performs assessment activities
How	Testing, inspection, auditing
When	• The buyer or user demands or allows it, • There is a need to have a factual basis to make a determination of compliance.

Example - 2nd party inspection:



3rd Party: Overview

Who	Independent or accredited body	
	TESTING/INSPECTION	CERTIFICATION
	• Testing lab • Inspection body	• Certification body
How	• Testing by accredited test lab	• Accredited body certifies product
What	• Provide impartial test report	• Provide impartial certification
When	• In certification programs to assist in determining product compliance, • By manufacturers to be used with SDoC.	• In energy labeling and other programs.

3rd Party: Different Options

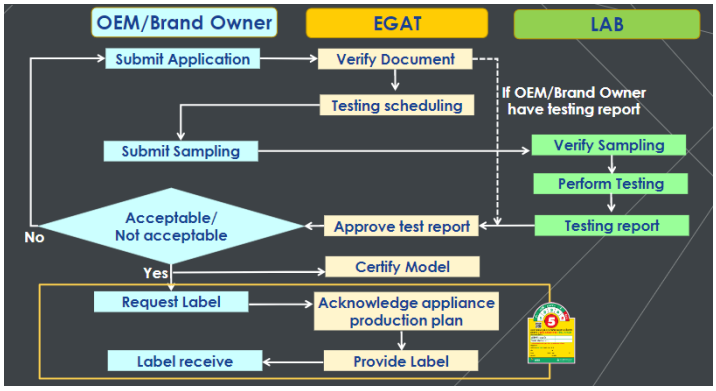
	Testing/ Inspection	Certification	Registration
Option A – 3rd party testing			
Option B - 3rd party certification			
Option C - Global program			

 - Third-party

 - Government Body

Option A: Thailand's Certification Program

- Label No. 5 (or Energy Efficiency Label) was launched in 1995 by Electricity Generating Authority of Thailand (EGAT)
- Voluntary Labeling program



Source: The role of Certification and Registration practices presentation, The Lower Mekong Initiative, Bangkok, January, 2018

3rd Party: Benefits and Suitability

Benefits	• Broad confidence and trust • International recognition • Potentially lower market surveillance cost for regulator
Appropriate when	• The risks associated with non-compliance are high, • Limited resources to fully fund market surveillance programs, • Need for an independent assessment that a product fulfils specified energy efficiency requirements.

1st & 3rd Party: Viet Nam's AC Labeling Program

- Ministry of Industry and Trade (MOIT) owns energy labeling program
- 3rd Party: approved testing labs
  - 5 in Viet Nam
  - 2 abroad (Korea and Thailand)
- 1st Party: manufacturer or importer submits SDoC

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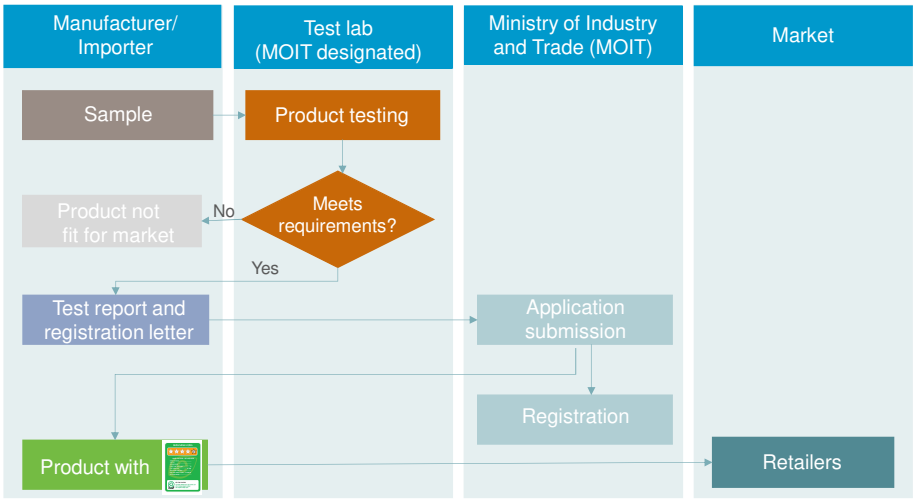
1st & 3rd Party: Viet Nam's AC Labeling Program



Source: Certification & Registration in Viet Nam presentation, The Lower Mekong Initiative, Bangkok, January, 2018

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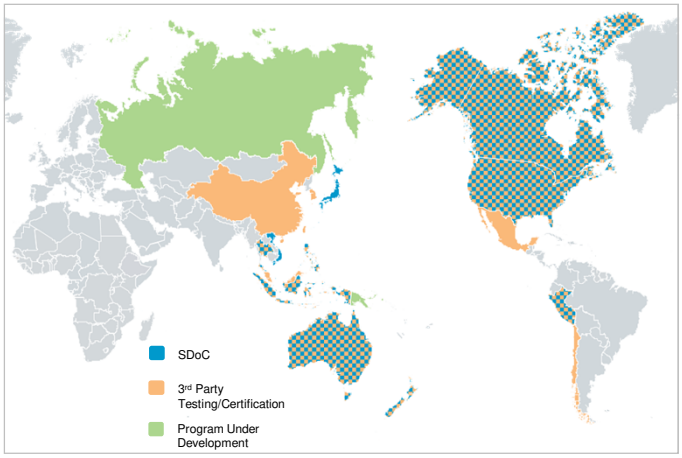
Conformity Assessment Across APEC



Source: Survey of Market Compliance Mechanisms for Energy Efficiency Programs in APEC Economies Report, May 2012, and desktop research

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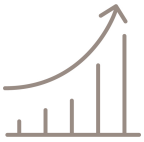
Mutual Recognition Agreements (MRAs)

- **MRAs** can facilitate the acceptance of CA test reports or certificates between two or more economies



- **MRA's benefits**:
  - May help remove technical barriers to trade,
  - Eliminate the need for retesting and/or recertification, therefore, reduce the costs for both, manufacturer and regulator,
  - Quicken the circulation of goods entering the markets,
  - Ensure that regulatory CA requirements are met.

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Key Takeaways

- **Use best practices guidance to build a effective CA**
  - Requirements that facilitates the trade, and provide user assurance and regulatory confidence
- **Three different approaches for CA (1st and 3rd are most common)**
  - 1st party – SDoC
  - 3rd party – completed by an independent body
- **Most APEC economies use 3rd party approach**
- **Evaluate what is the effective approach**
  - What are the goals and risks?

The International Federation of Inspection Agencies

APEC Energy Efficiency Policy Workshop

Roberta Telles, Executive Director Americas
10 April 2018
Washington, D.C.

Agenda

- Overview of IFIA
- Overview of the Testing, Inspection and certification (TIC) industry
- Third-party conformity assessment
- Considerations for selecting conformity assessment methods
- IFIA market survey results

IFIA Membership

Global Providers & SMEs

63 Members active in 160+ Countries

Independent Conformity Assessment

The Testing, Inspection, Certification Sector

https://www.youtube.com/watch?v=w52fYCDuntE

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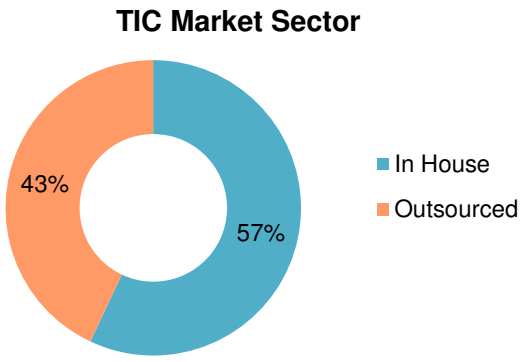
The Testing, Inspection, Certification (TIC) Sector



$160
Billion
Market

5-6%
Growth
Annually
(forecast)

Source: Catalyst Corporate Finance

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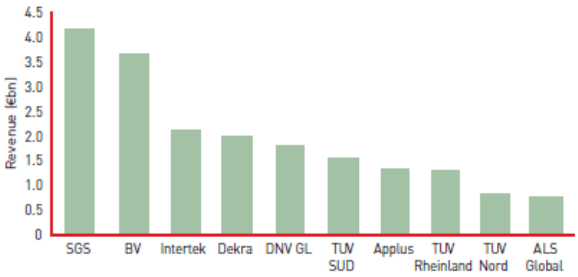
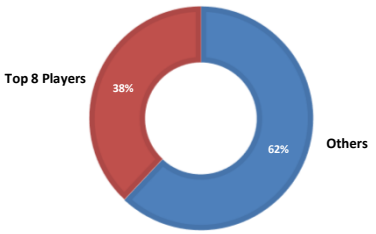
The Testing, Inspection, Certification (TIC) Sector



Key Market Leaders
(2015 revenues in €bn)



Addressable market share for the top eight players (2015)

Source: Company Report, S&P CapitalIQ

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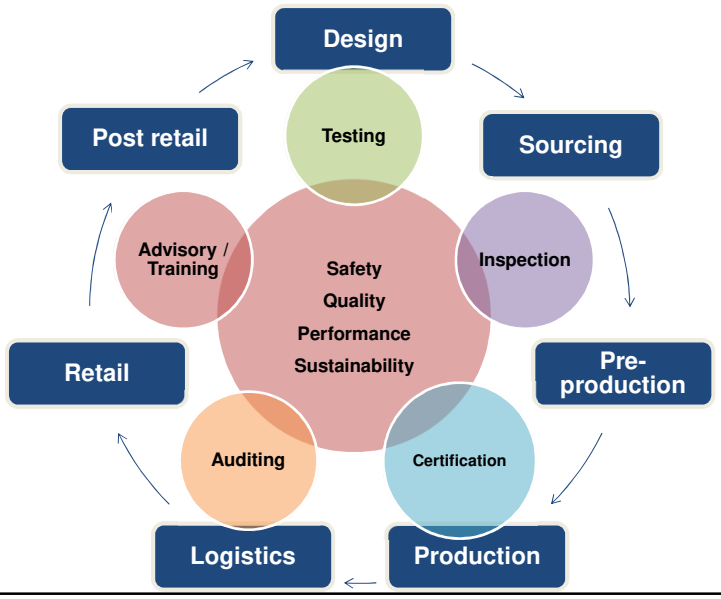
Third-Party Conformity Assessment: Consumer Products



- ✓ Gain global market access
- ✓ Mitigate risks
- ✓ Help ensure compliance
- ✓ Improve performance
- ✓ Protect reputation
- ✓ Reduce in-house compliance costs

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Third-Party Conformity Assessment: Consumer Products

Design	Sourcing	Production	Logistics	Warehouse	Retail	Post retail
Design and Regulatory Review	Comparison Testing	Testing	Loading/ unloading Checks	In-Warehouse Testing	In-Store Testing	Failure Analysis
Specification Development	Supplier Scorecard	QC Inspection		Mold Prevention Audit	Network Conformity Assessment	Consumer Panel Evaluation
Regulations & Standards Management	Training	Audit				Product Certification
Training						Smart Products Interoperability

Different conformity assessment tools are used depending on risks and confidence levels needed in a particular situation

Use of Third-Party in Regulatory Frameworks

- High risk of non-compliance
- High risk products
- Need for independence and impartiality
- Need for higher levels of confidence of compliance
- There are limited government resources to fully fund post-market surveillance systems

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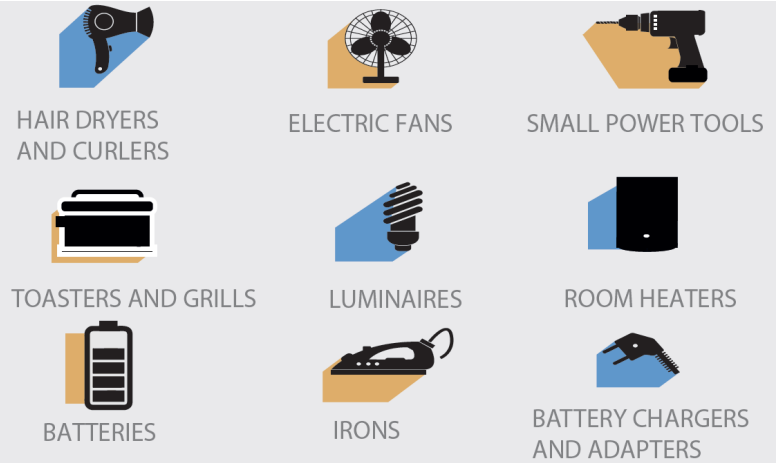
Considerations for Risk Assessment

QUESTIONS:	1st Party	3rd Party
Is the perceived risk high?	No	Yes
Are products regulated primarily manufactured in countries with a history of risk factors and other issues?	No	Yes
Are products manufactured in complex /fragmented supply chains?	No	Yes
Is there a documented history of industry non-compliance?	No	Yes
Is there evidence that product liability is an effective deterrent?	Yes	No
Do statutory provisions provide penalties and an effective deterrent?	Yes	No
Are there voluntary schemes that address confidence needs?	Yes	No
What are the societal risks of non-compliant products?	Low	High

IFIA Consumer Product Market Survey 2014-2016

Testing self-declared and third party certified products and comparing their compliance in EU and U.S.



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IFIA Consumer Product Market Survey 2014-2016

Self-declared product compliance (SDoC)	Third-Party certified product compliance
17% safety-critical failures*	**<1%** safety-critical failures

Safety-critical failures: high risk of fire / permanent injury

*Mostly found in the EU, which relies on SDoC for these types of products

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THANK YOU!

International Federation of Inspection Agencies

Roberta Telles

rtelles@ifia-federation.org
www.ifia-federation.org

ANSI-ASQ National Accreditation Board

Third Party Conformity Assessment with Oversight

Third Party

Accredited Third Party

VS

Third Party (non accredited)

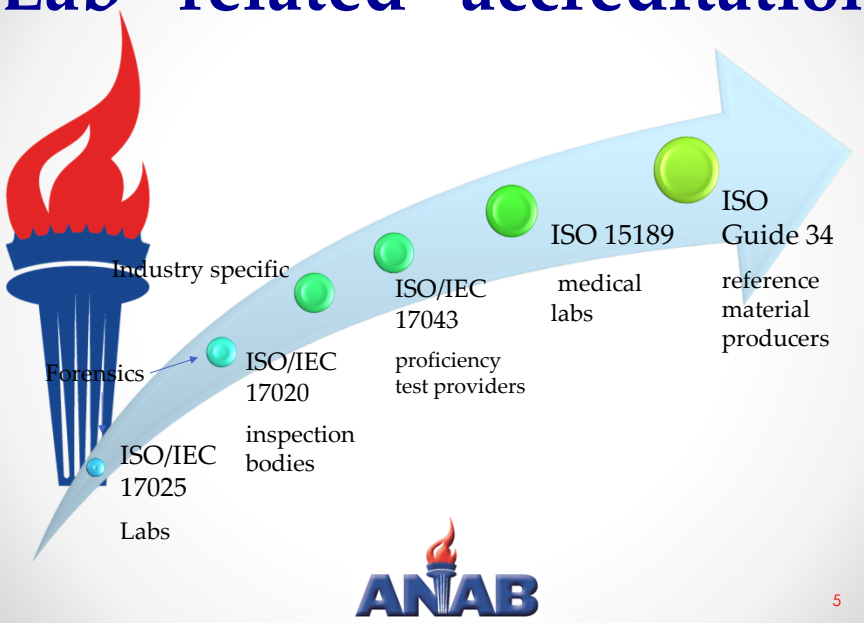
ANAB and ANSI

- Commonly known for accrediting CABs:
  - *CBs (product and MS), Labs, Inspection Bodies, RMPs, PTP*
  - *ISO member body for US*

Management Systems – under ISO/IEC 17021 Accreditation

- ISO 9001 quality management systems (MS)
- ISO 14001 environmental MS
- ISO 13485 medical devices
- ISO/IEC 27001 information security MS
- ISO 22000 food safety MS and FSSC
- ANSI/AIHA Z10, CSA Z1000, and BS OHSAS 18001 occupational health and safety MS
- ISO 28000 supply chain security MS
- ISO/IEC 20000-1 IT service MS

Lab "related" accreditation



ANAB

Product and Personnel

ANAB

ANAB

What is the Difference?

Accreditation *is a "3rd party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks"*

Certification *is a "3rd party attestation related to products, processes, systems or persons"*

* as defined by ISO/IEC 17011 and ISO/IEC 17000

ANAB

Accreditation Standards - examples

These ISO/CASCO standards are for accreditation bodies who maintain recognition to ISO/IEC 17011

- ISO/IEC 17021 – For Certification Bodies
- ISO/IEC 17025 – For Laboratories
- ISO/IEC 17020 – For Inspection Agencies
- ISO/IEC 17065 – For Product Certifiers
- ISO/IEC 17024 – For Personnel Certifiers

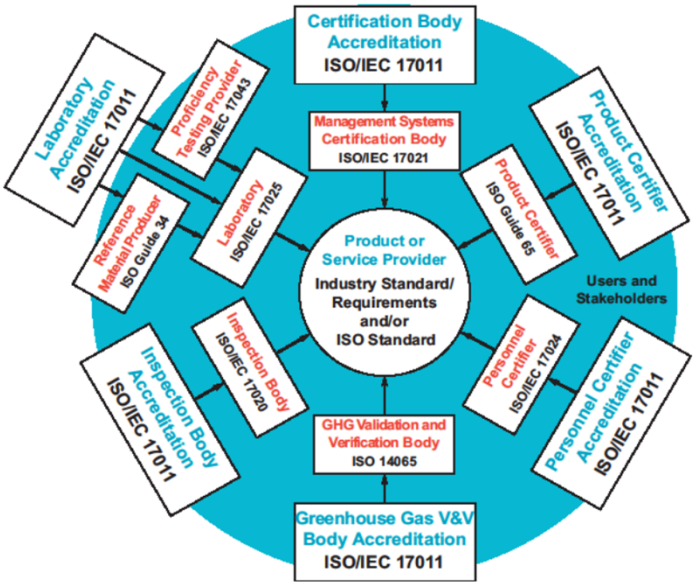
Certification Standards - examples

Certification bodies who maintain ACCREDITATION to ISO/IEC 17021 provide accreditation to the following partial list:

- ISO 9001 - QMS
- ISO 22000 – Food Safety
- ISO 14001 - Environmental
- ISO 13485 – Medical Devices
- ISO/IEC 27001 – Information Security
- ISO 50001 – Energy

ISO based certifications for industry specific programs include AS9100, TL 9000, BA 9001, SNOW 9000

Generic Third-Party Conformity Assessment Model



Accreditation Process

Certification body (CB) application → Documentation review by executive audit team leader → Office assessment and witness stage 1 audit → CB provides evidence of correction and corrective action

If acceptable, witness stage 2 audit → Any non-conformances closed → Staff prepares accreditation package and recommendation → Independent Accreditation Council votes on package

Staff notifies CB and issues certificate if approved → Annual office and witnessed audits → Reaccreditation audit as for initial certification

ANAB

Certification Process

Review standard and conduct gap analysis to guide conformance activities

Conduct internal assessment and management review

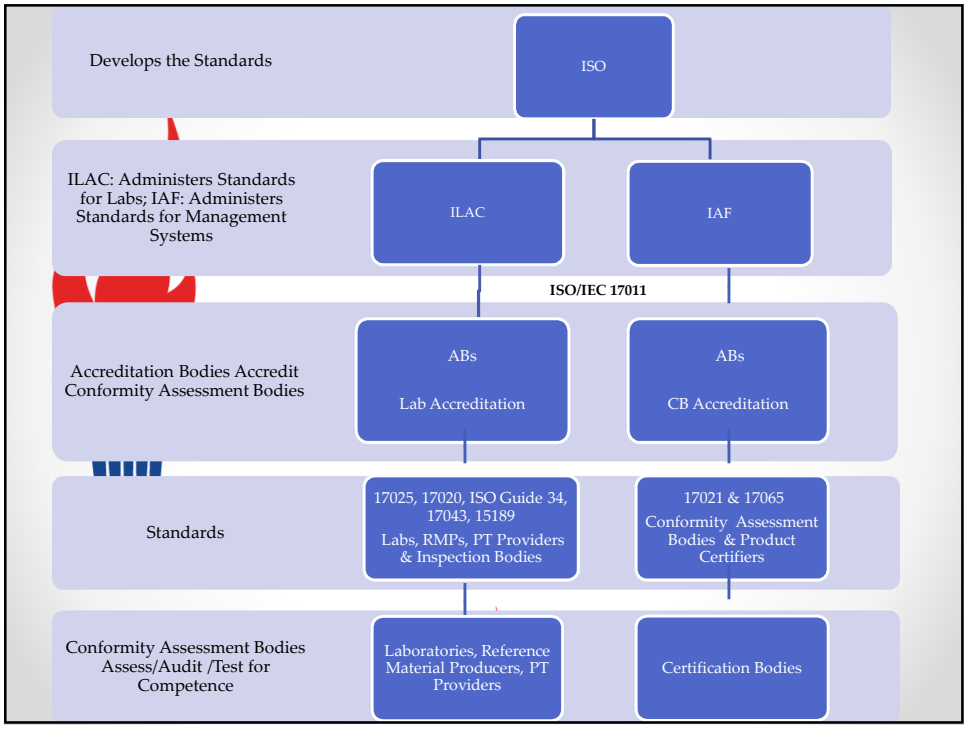
Contact potential certification bodies (CBs) and ensure they're qualified/ accredited

CB conducts document review and site visits and audits organization for effective conformance to standard

Audit may result in nonconformances (NCRs) and/or opportunities for improvement (OFIs)

CB may not consult or provide solutions

ANAB



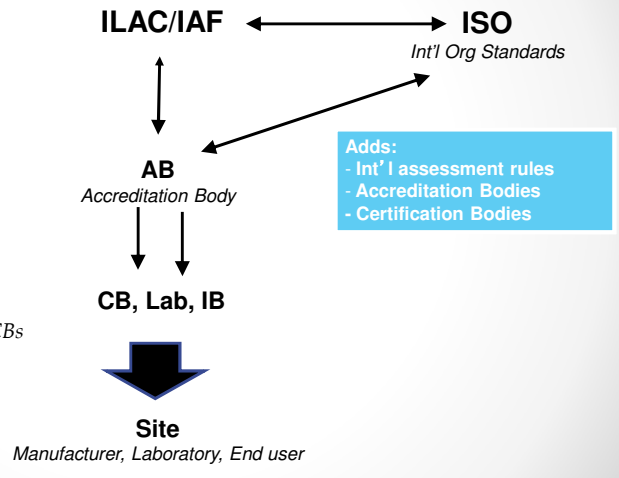
Concept of ISO "plus"

- The need for a quality scheme identified by specifiers and/or regulators by which a basic ISO standard framework is utilized but with additional and specific criteria infused into the scheme.

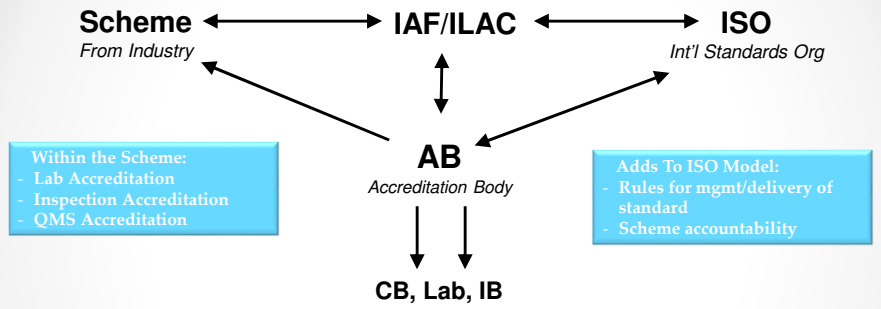
Accredited 3rd Party with Oversight
(ISO Model)

Pros:
- ✓ *Widely used process & rules in other industries*
- ✓ *Transparency*
- ✓ *Recognition (Int'l)*

Cons:
- ✓ *Oversight adds costs*
- ✓ *Variable CB interpretation of standards implementation*
- ✓ *Limited AB resources to police CBs*



Accredited 3rd Party with Oversight and Scheme Ownership



Cons:
- ✓ *Oversight adds costs*
- ✓ *High standard for emerging markets*

Site
Manufacturer, Laboratory, End User

Pros:
- ✓ *Benchmarking of schemes*
- ✓ *Requirements for schemes & auditors*
- ✓ *Consistent delivery of Schemes*
- ✓ *Accountability of scheme owners*
- ✓ *Multi-stakeholder approach*
- ✓ *Acceptance by industry*

Who Develops Standards? Schemes?

- ABs do not write standards
- Regulators and specifiers

Examples of ISO Based Schemes

- EPA/DOE Energy Star
- DOJ Body Armor
- DOD Environmental Restoration
- AS 9100 Aerospace

ANAB

Federal Entities Requiring Accredited ISO Programs

- EPA
- DOE
- FAA
- NIST
- DoD
- GSA
- DHS
- NRC
- FBI
- Navy/Army/Coast Guard
- FCC
- DOJ and NIJ
- CPSC
- FDA

Third Party

Accredited Third Party

VS

Third Party (non accredited)

Open Discussion

SENER
SECRETARÍA DE ENERGÍA

CONUEE
Comisión Nacional para el Uso Eficiente de la Energía

The Conformity Assessment Process for Electrical Appliances in Mexico

Diana Patricia Anaya Tellez
April, 2018

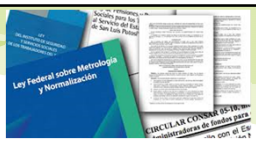
CONUEE
Comisión Nacional para el Uso Eficiente de la Energía

WHO IS CONUEE?

The National Commission for Energy Efficiency **(CONUEE)** is responsible for developing EE standards. It is a decentralized, administrative agency of the Secretary of Energy, with technical and operative autonomy to promote energy efficiency.

NOM

CONUEE
Comisión Nacional para el Uso Eficiente de la Energía



Federal Law on Metrology and Standardization and its Regulation in Mexico

- **Metrology**
  - **CENAM**
    National Metrology Center
    - **Secondary Calibration Lab**
- **Standardization**
  - **National Commission for Standardization CNN**
    - **NOM** — Mandatory compliance
    - **NMX** Normas Mexicanas — Voluntary compliance
- **Acreditation**
  - **Accreditation Entity**
- **Certification and inspection**
  - **Certification bodies**
  - **Verification Bodies**
  - **Test Laboratories**

Mexican Ministries

Private Organization

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Comisión Nacional para el Uso Eficiente de la Energía

Conformity Assessment of Energy Efficiency Standards (EES)

To achieve the certification of a product or the verification certificate of a system there are **accreditation entities** whose function is to recognize the technical competence of **certification bodies, test laboratories** and **verification bodies**, in accordance with the corresponding NMX standards:

Certification Body

- NMX-EC-17065-IMNC-2014
  (ISO/IEC 17065:2012)

Test laboratory

- NMX-EC-17025-IMNC-2006
  (ISO/IEC 17025:2005 COPANT)

Verification Body

- NMX-EC-17020-IMNC-2014
  (ISO/IEC 17020:2012)

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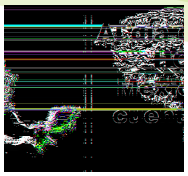
Current infrastructure to assess the compliance of EES

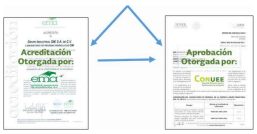


- **Test Laboratory (TL):**

There are **73 TL**, accredited and approved available for testing in EES of product.

- **Certification Body (CB) :**

There are currently **8 CB,** accredited and approved available for certification more than one EES of product.



- **Verification Body (VB):**

170 (VB) physical or moral persons accredited and approved in one or more EES of systems

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Energy Efficiency Standards

Domestic sector

- Refrigerator and freezers
- Air conditioner (window, central, inverter and split)
- Washing machines
- Heat water
- Cook stoves
- Domestic water pumps
- Compact fluorescents lamps
- Lamps for general uses (incandescent, linear fluorescents, street lighting)
- Lamps for general uses (Leds)
- Standby power
- External power supplies



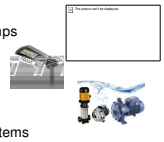


Industry and Commercial sectors

- One-phase motors and
- Three-phase motors
- Industrial thermal insulation
- Tortilladoras Machines
- Commercial Refrigeration
- Distribution transformers
- New light vehicles


Agriculture and Municipal services

- Submersible water pumps
- Vertical water pumps
- Luminaires LED
- Street lighting systems
- Deep well pumping systems



Residential and non residential buildings

- Thermal insulation for buildings
- Residential and non residential buildings envelope
- Lighting systems of non residential buildings
- Thermal and optical characteristics of glass and glazed systems

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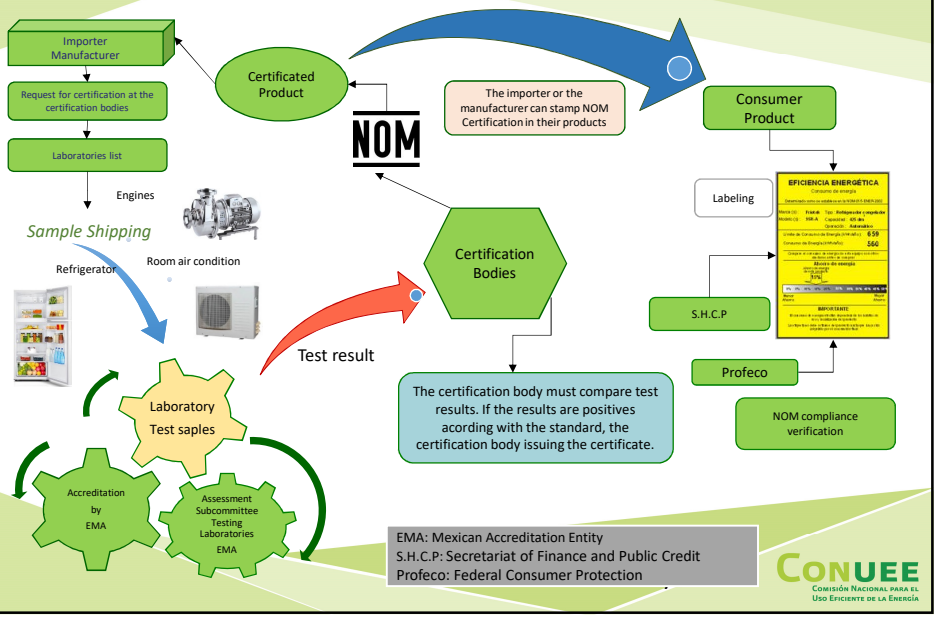
Product Certification Process



EMA: Mexican Accreditation Entity
S.H.C.P: Secretariat of Finance and Public Credit
Profeco: Federal Consumer Protection

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@CONUEE_mx /CONUEE @NOMs_EE

Thank you

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www.gob.mx/conuee

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Equipment Energy Efficiency (E3) Programme

April 2018

Joint standards development between Australia & New Zealand

Outline

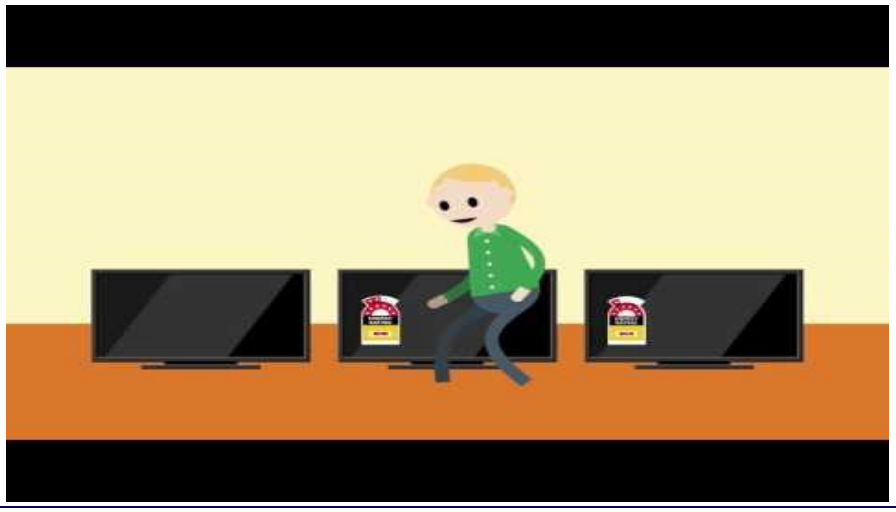
- Background to the E3 program
- Standards development process
- Administration and Compliance
  - Standards implementation
  - Conformity assessment process
  - Monitoring verification & enforcement
- Conclusion

Background to the E3 Program

Drivers for the New Zealand & Australia joint standards development;

- Commitment to a Single Economic Market (SEM)
  - Closer Economic Relations (CER) (1983)
  - Trans-Tasman Mutual Recognition Arrangement (TTMRA)
- Lower cost to businesses
  - Two markets, One compliance cost

Background to the E3 Program



http://www.energyrating.gov.au/about

Background to the E3 Program

- New Zealand joined the program in 2005
  - Reduced costs to both countries (one process)
  - Less risk of different requirements in each economy (TTMRA) issues
- Administration
  - Inter-Governmental policy and funding framework sets out New Zealand involvement
  - Each economy contributes by population
  - Council of Australian Governments (COAG) is the Governance body (NZ Minister of Energy & Resources has voting rights on trade issues)
  - Energy Efficiency Advisory Team (EEAT) Australian commonwealth & State Governments and New Zealand Government

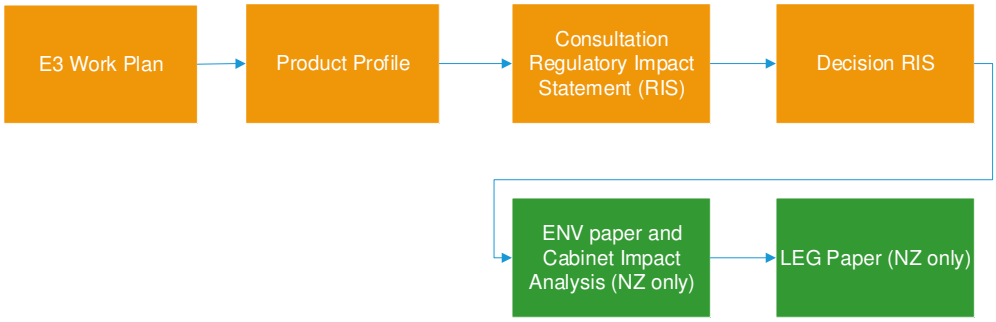
EECA Energy Efficiency and Conservation Authority Te Tari Tiaki Pūngao

Standards Development Process

- E3 work programme (agreed by EEAT)
- Commitment to using international test methods
- Joint standards development through Australian COAG (Council of Australian Governments) process
- Separate implementation of standards into regulations of each economy.

EECA Energy Efficiency and Conservation Authority Te Tari Tiaki Pūngao

Standards Development Process



Administration and Compliance

- Standards implemented in separate regulations in Australia & New Zealand
- Alignment of conformity assessment processes
- Alignment of monitoring, verification and enforcement between economies

Standards implementation

- Implemented in Australia
  - GEMS ACT, and
  - Product specific Determinations
- Implemented in New Zealand
  - Energy Efficiency (Energy Using Products) Regulations 2002
- Similar powers but not the same

Conformity Assessment Process

- Product registration required to access Australasian Market
  - Test report from third party or manufacturers laboratory
  - Complete registration form and attached test report
  - Registrations assessed and approved by Regulator
- Joint Australian / New Zealand registration website www.enegryrating.gov.au.
- Where products sold in Australia or both countries register in Australia (cost) else register in NZ (free)

Product Registration (Advantages & Dis-advantages)

- Advantages:
  - Good market understanding
  - Simplifies Market Monitoring
  - Target verification testing
  - Improved compliance – list of products legal for sale available
  - Consumer information (web tools)
  - Information for further Standards development and programme evaluation

- Dis-Advantages
  - Additional cost to business
  - Not-suitable for all products i.e. large bespoke, short product cycle.

Monitoring, Verification and Enforcement

- No formal agreement - Very close working relationship
- Work together to identify areas to target for Monitoring
- Separate verification testing programmes
- Shared website for testing results
- Alignment of enforcement

Conclusion

- Joint standards development result in:
  - Reduced cost to Government and Business, one process, two economies, no duplication.
- Product registration, alignment of conformity assessment process, compliance and intelligence result in:
  - Reduced cost to business and Government
  - Transparent list of products legal for sale
  - Improved Market Monitoring and Compliance
  - Improved Targeting of Verification testing
  - While maintaining own economy legal framework

EECA Energy Efficiency and Conservation Authority Te Tari Tiaki Pūngao

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

ENERGY EFFICIENCY POLICY WORKSHOP : CONFORMITY ASSESSMENT APPROACHES

10th April 2018
Washington DC, USA

1

CONTENT

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

1. CERTIFICATE OF APPROVAL (CoA)
2. MINIMUM ENERGY PERFORMANCE STANDARDS (MEPS)
3. STANDARDS AND LABELLING
4. STANDARDS CONFORMITY FOR MEPS APPLIANCES
5. RECOGNISED TEST REPORTS
6. CoA APPLICATION AND RENEWAL PROCEDURES

2

CERTIFICATE OF APPROVAL (CoA)

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

- Under the Electricity Regulations 1994, manufacturers, importers, exhibitors, sellers and advertisers of electrical equipment need to apply for a Certificate of Approval (CoA) from the Energy Commission
- The objective for the issuance of CoA under the Electricity Regulations 1994 is to ensure that all activities to manufacture, import, display, sale or advertisement of:

  (a) any domestic equipment;
  (b) any low voltage equipment which is usually sold directly to the general public; or
  (c) any low voltage equipment which does not require special skills in its operation,

  meets the specified safety and efficient use of electricity requirements.
- Any electrical appliances and electronic devices in the market will need to be tested in order to meet safety, performance and energy efficiency requirements.
  (a) compatible to Malaysian electricity supply system;
  (b) complying to standards;
  (c) tested by accredited laboratory;
  (d) labelled with SIRIM-ST's label.

3

MINIMUM ENERGY PERFORMANCE STANDARDS (MEPS)

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

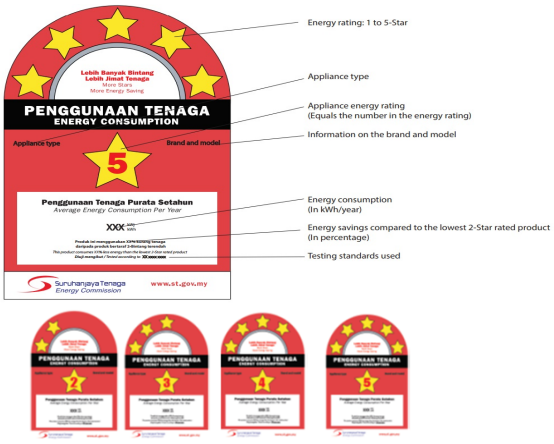
- On 3rd of Mei 2013, the amendment to the Electricity Regulations 1994 was gazzeted by the the Minister of Energy, Green Technology and Water Malaysia. The amendments was known as the Electricity (Amendment) Regulations 2013
- Incorporates the standards and requirements for the implementation and enforcement of the Minimum Energy Performance Standards (MEPS) that will set minimum energy performance for energy consuming equipment sold in the market. Currently MEPS has been introduced for 5 domestic electrical appliances :
  - ❖ Refrigerator
  - ❖ Air-conditioner
  - ❖ Television
  - ❖ Domestic Fan
  - ❖ Lighting (Fluorescent, CFL, LED and Incandescent)
- It also makes it mandatory these equipments to be affixed with an energy rating label or known as star rating label while for lighting, the efficacy value is required to be shown on the cover or box
- The mechanism of approval is through the issuance of the Certificate of Approval (COA) issued by Energy Commission.

4

STANDARDS AND LABELLING

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

MEPS Requirement is 2 Star.



In September 2018, one more appliance will be introduced under MEPS : **Washing Machine**

Air Conditioner
- Type :Non-ducted Single Split Wall Mounted
- Capacity ≤ 25,000 btu/hr

Fan
- Ceiling Fan with diameter less than 60 inch
- Wall fan,desk fan,table fan with diameter less than 16inch

Refrigerator
- 1-door & 2-door only

Television
- Type :LCD,PLASMA,LED,CRT
- Screen size up to or equal to 70 inch

Lamp
- T5 & T8 Fluorescent Lamp
- Self ballasted single capped CFL
- Single Capped Fluorescent Lamp & Circular Fluorescent Lamp
- Self ballasted LED Lamp

5

STANDARDS CONFORMITY FOR MEPS APPLIANCES

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

Appliance	Testing Standard	Calculation Method	Malaysia Requirement and MEPS Standard
Refrigerator	• MS IEC 62552 (effective till end May 2018) • MS IEC 62552 -1, MS IEC 62552 -2, MS IEC 62552 -3 **(effective June 2018)**		• MS 2595:2014 (effective till end May 2018) • Guide on Minimum Energy Performance Standards Requirements for Refrigerator **(effective June 2018)**
Air Conditioner	MS ISO 5151 :2012	ISO 16358-1:2013 **(effective June 2018)**	• MS2597:2014 (effective till end May 2018) • Guide on Minimum Energy Performance Standards Requirements for Air Conditioner With Cooling Capacity <=7.1kw **(effective June 2018)**
Domestic Fan	MS 1220		MS 2574:2014
Television	MS IEC 62301 & IEC 62087		MS 2576:2014
Lighting	MS 62612, MS IEC 60061-1, MS IEC 60064, MS IEC 60081, MS IEC 60901, MS IEC 60969		MS 2598:2014
Washing Machine (will be implemented in September 2018)	MS IEC 60456;		Guide On MEPS Requirement for Washing Machine

6

RECOGNISED TEST REPORTS

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

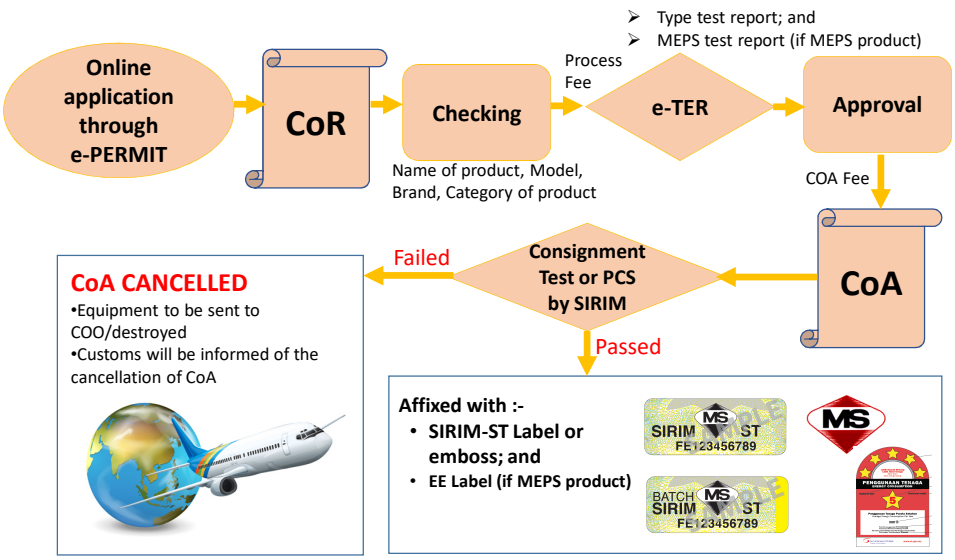
Type of Test reports shall be produced by any of the following laboratories:-

- ✓ Sirim QAS International Sdn. Bhd. (SIRIM), Malaysia; or
- ✓ Accredited lab under SAMM by DSM;
- ✓ Lab under IECEE CB Scheme; or
- ✓ Accredited lab by APLAC MRA; or
- ✓ Accredited lab by ILAC MRA; or
- ✓ Lab listed as Designated Testing Laboratory (DTL) under ASEAN EEE MRA

7

CoA APPLICATION TO IMPORT

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER



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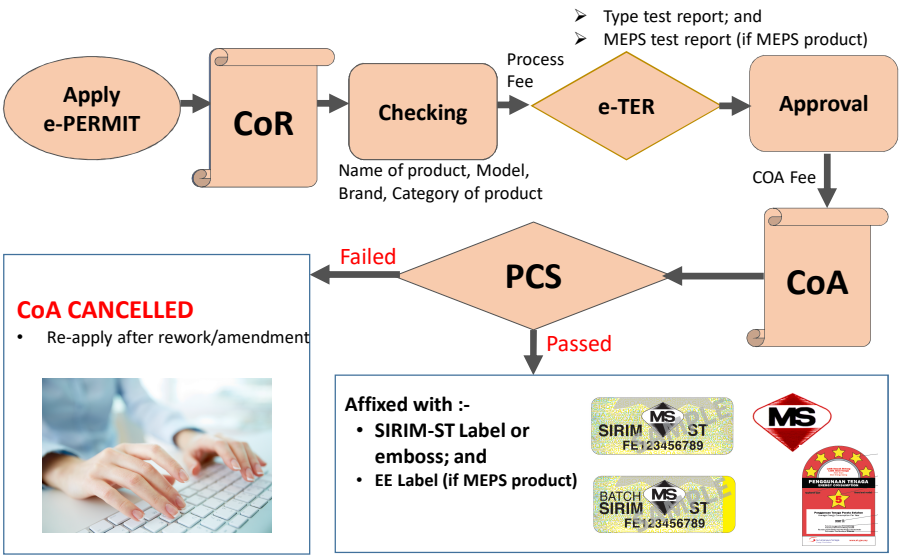
CoA APPLICATION TO MANUFACTURE

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER



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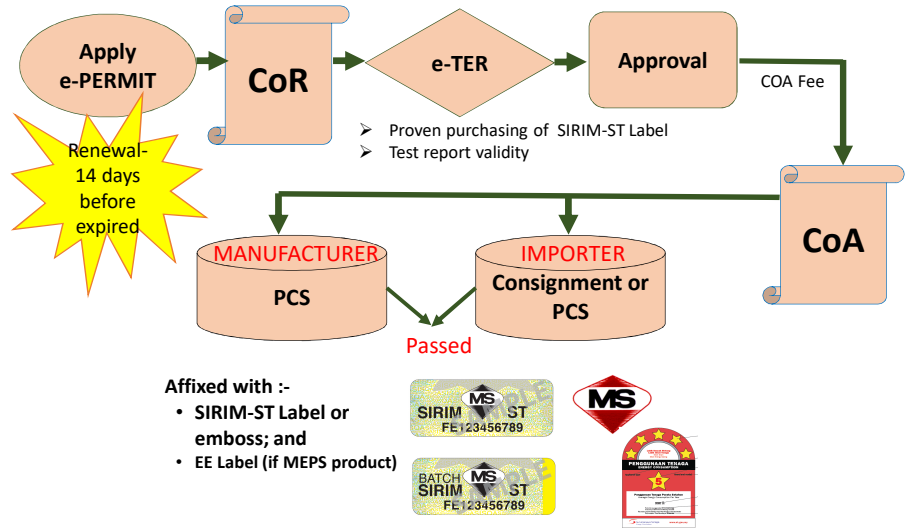
RENEWAL OF CoA

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER



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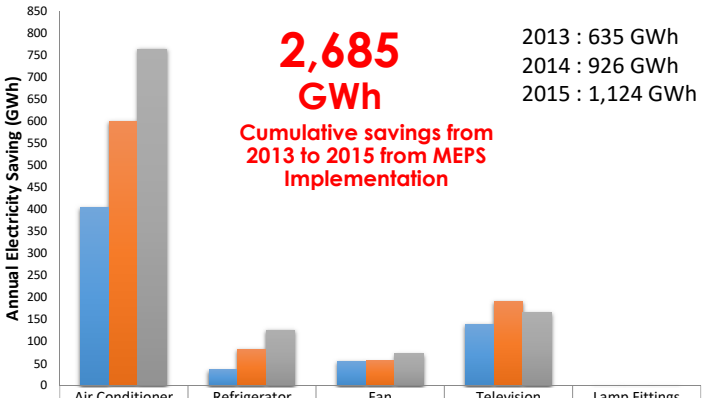
MEPS STANDARDS AND LABELLING RESULT

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER



2,685 GWh

Cumulative savings from 2013 to 2015 from MEPS Implementation

2013 : 635 GWh
2014 : 926 GWh
2015 : 1,124 GWh

	Air Conditioner	Refrigerator	Fan	Television	Lamp Fittings
2013	404	37	55	139	0.03
2014	598	83	56	190	0.05
2015	762	125	72	165	0.06

WAY FORWARD

6 more appliances will be regulated under MEPS in 11th Malaysia Plan

- Rice Cooker
- Washing Machine
- Vacuum Cleaner
- Microwave
- Cloth Dryer
- Oven

11

CONCLUSION: BASIC APPROACHES TO PROMOTE EE

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

Economic measures	• Implement efficient energy pricing, provide fiscal incentives, consumer behaviour
Persuasive measures	• Create awareness/interest and disseminate information
Prescriptive measures	• Prescribe and regulate technical standards and guidelines
Research, development and demonstration	• Develop, demonstrate and commercialize new technologies and measures

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KEMENTERIAN TENAGA, TEKNOLOGI HIJAU DAN AIR

Thank You

Lighting Global Quality Assurance

Energy Efficiency Policy Workshop
Energy Efficiency Conformity Assessment
Washington DC
10 April 2018

LIGHTING GLOBAL
Catalyzing markets for modern off-grid energy

AN INNOVATION OF
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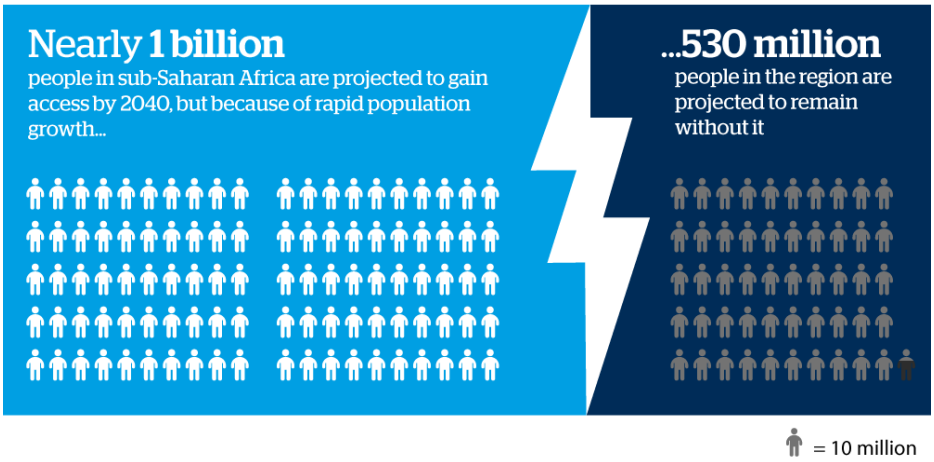
IFC International Finance Corporation

Lack of Access to Energy Services Still a Global Crisis



Sub-Saharan Africa: Access to off-grid power
Source: International Energy Agency

Lighting Global Quality Assurance -- a voluntary certification programme for off-grid solar products

150 quality-verified products today

pico-solar products:
131

solar home system kits:
19

Source: Lighting Global website (9 April 2018)

57 Companies with QV Products

- AEG International
- All Solar
- All Weather Solar Technology Co
- Amped Innovation PBC
- Anji DaSol Solar Energy Science & Technology Co., Ltd.
- Azuri Technologies, Ltd.
- Barefoot Power Pty Ltd
- BBOXX Ltd
- BioLite Inc.
- Bright Products
- Brighterlite
- CAA Communications And Accessories Int GmbH
- d.light design
- EcoZoom
- fosera GmbH & Co. KGaA
- Freeplay
- Greenlight Planet Inc.
- Jua Energy
- Lagazel
- Little Sun GmbH
- Mibawa Suppliers Ltd.
- M-KOPA Solar
- Mobisol
- MPOWERD Inc.
- Nadji.Bi Group
- Niwa - Next Energy Products Ltd.
- Nokero
- NRS Enlight FZE
- Nuru Energy
- Off Grid Electric
- Off-Grid Solutions BV
- OffgridSun (Futurasun)
- Omnivoltaic Energy Solutions (Marathoner CLP (Toomeen Solar)
- One Degree Solar
- Orb Energy Private Limited ("Orb")
- ovSolar (Omnivoltaic Power Company Limited)
- Panasonic
- Philips
- Poly Solar Technologies (Beijing) Co., LTD
- RAL Consumer Products Ltd.
- Renewit Solar Limited
- Schneider Electric Industries SAS
- Shamba Technologies
- Shanghai EASY Renewable Energy Co.
- Shenzhen Solar Run Energy Co. Ltd.
- Skypower Home
- Solarway
- SolarWorks! (NTL-Lemnis Holding B.V.)
- Speedtech Energy
- Team Planet
- Third Wave Power
- True Solar USA Inc
- Villageboom
- Yingli Green Energy Europe GmbH
- Zimpertec

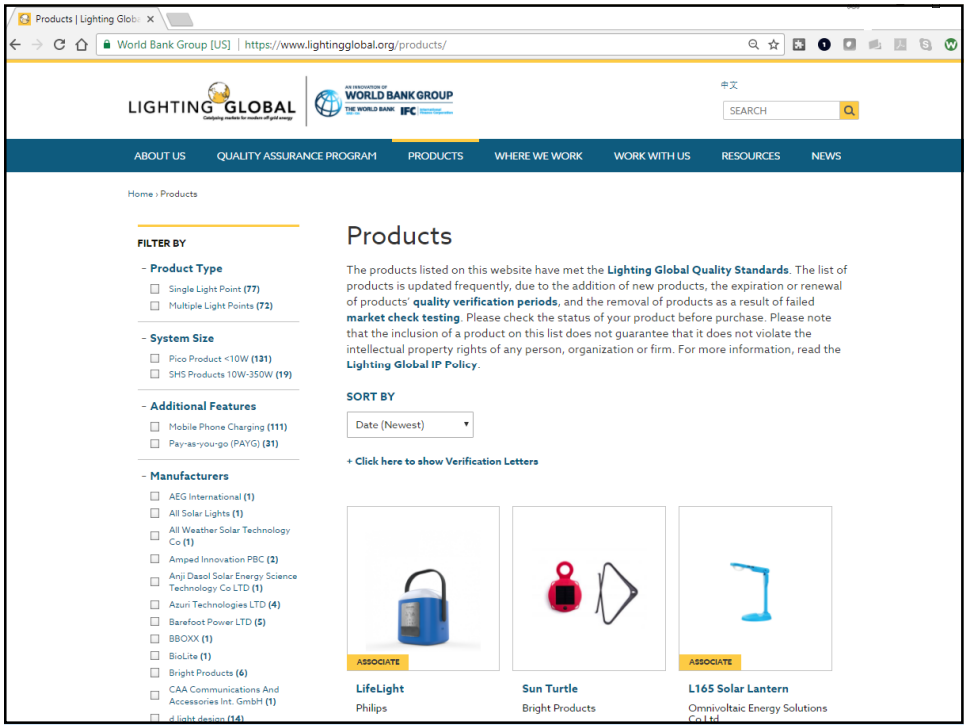
Test Methods

Lighting Global Quality Standards

- **Truth-in-advertising**: accurate product performance for key metrics
- **Lumen maintenance**: light output at 2,000 hours not less than 85% of initial
- **Battery**: durable and adequately protected against overcharging, deep discharge
- **Health and Safety**: no mercury or cadmium in batteries; products are safe
- **Durability**: designed and manufactured to avoid early failure
- **Warranty**: consumer-facing warranty with at least one year of coverage
- **Performance Information**: Product packaging reports run time and brightness with a note about the impact of mobile phone charging on run time

Lighting Global-Approved Test Labs

Off-Grid Solar Test Laboratory	Location	ISO 17025 Accreditation for IEC/TS 62257-9-5
Schatz Energy Research Center (SERC)	California, USA	Yes
Shenzhen Academy of Metrology and Quality Inspection (SMQ)	Shenzhen, China	Yes
Intertek Hong Kong	Kowloon, Hong Kong	Yes
Solar Lighting Laboratory The Energy and Resources Institute (TERI)	New Delhi, India	Yes
University of Nairobi – The Lighting Laboratory (UoN-LL) Institute for Nuclear Science & Technology	Nairobi, Kenya	Yes


Products | Lighting Glob
World Bank Group [US] | https://www.lightingglobal.org/products/
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WHERE WE WORK
WORK WITH US
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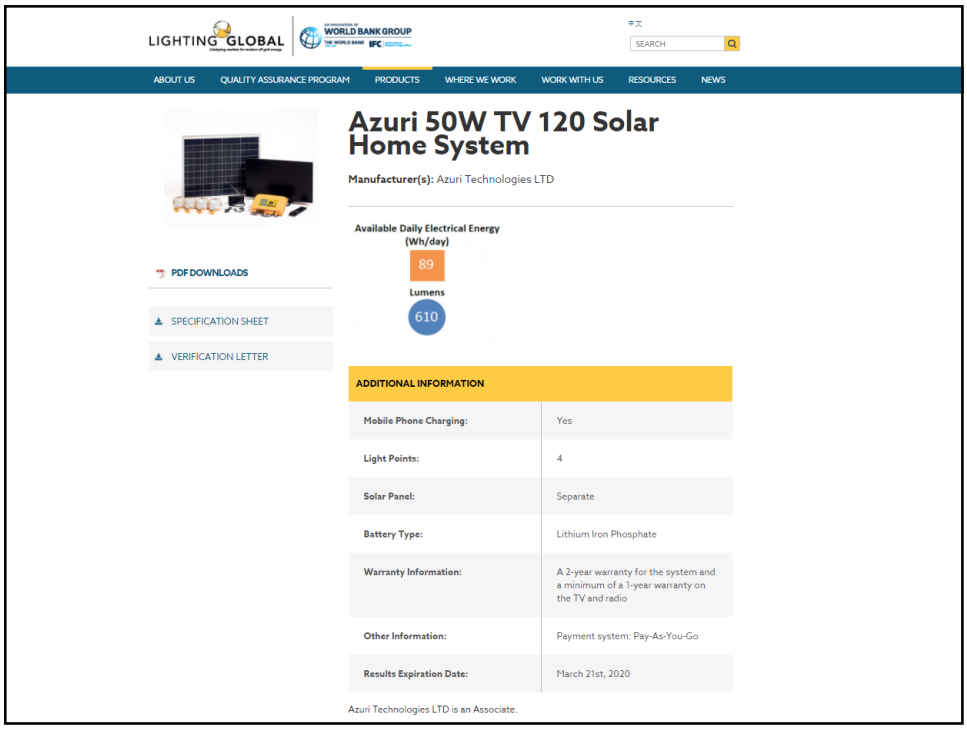
Home › Products
FILTER BY
Product Type
Single Light Point (77)
Multiple Light Points (72)
System Size
Pico Product <10W (131)
SHS Products 10W-350W (19)
Additional Features
Mobile Phone Charging (111)
Pay-as-you-go (PAYG) (31)
Manufacturers
AEG International (1)
All Solar Lights (1)
All Weather Solar Technology Co (1)
Amped Innovation PBC (2)
Anji Dasol Solar Energy Science Technology Co LTD (1)
Azuri Technologies LTD (4)
Barefoot Power LTD (5)
BBOXX (1)
BioLite (1)
Bright Products (6)
CAA Communications And Accessories Int. GmbH (1)
Products
The products listed on this website have met the Lighting Global Quality Standards. The list of products is updated frequently, due to the addition of new products, the expiration or renewal of products' quality verification periods, and the removal of products as a result of failed market check testing. Please check the status of your product before purchase. Please note that the inclusion of a product on this list does not guarantee that it does not violate the intellectual property rights of any person, organization or firm. For more information, read the Lighting Global IP Policy.
SORT BY
Date (Newest)
+ Click here to show Verification Letters
ASSOCIATE
LifeLight
Philips
Sun Turtle
Bright Products
ASSOCIATE
L165 Solar Lantern
Omnivoltaic Energy Solutions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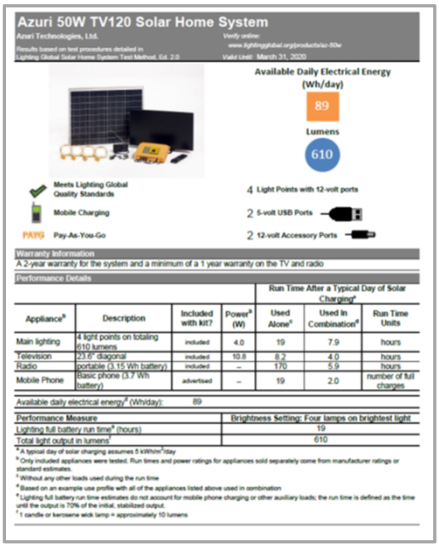
RESOURCES
NEWS
Azuri 50W TV 120 Solar Home System
Manufacturer(s): Azuri Technologies LTD
Available Daily Electrical Energy (Wh/day)
89
Lumens
610
PDF DOWNLOADS
SPECIFICATION SHEET
VERIFICATION LETTER
ADDITIONAL INFORMATION
Mobile Phone Charging: Yes
Light Points: 4
Solar Panel: Separate
Battery Type: Lithium Iron Phosphate
Warranty Information: A 2-year warranty for the system and a minimum of a 1-year warranty on the TV and radio
Other Information: Payment system: Pay-As-You-Go
Results Expiration Date: March 21st, 2020
Azuri Technologies LTD is an Associate.

Standardized Specification Sheet



Azuri 50W TV120 Solar Home System

Azuri Technologies, Ltd.

Verify online: www.lightingglobal.org/products/az-50w

Results based on test procedures detailed in Lighting Global Solar Home System Test Method, Ed. 2.0

Valid Until: March 31, 2020

Available Daily Electrical Energy (Wh/day)

89

Lumens

610

Meets Lighting Global Quality Standards

4 Light Points with 12-volt ports

Mobile Charging

2 5-volt USB Ports

PAYG Pay-As-You-Go

2 12-volt Accessory Ports

Warranty Information

A 2-year warranty for the system and a minimum of a 1 year warranty on the TV and radio

Performance Details

Appliance[b]	Description	Included with kit?	Power[a] (W)	Run Time After a Typical Day of Solar Charging[c]: Used Alone[d]	Used In Combination[e]	Run Time Units
Main lighting	4 light points on totaling 610 lumens	included	4.0	19	7.9	hours
Television	23.6" diagonal	included	10.8	8.2	4.0	hours
Radio	portable (3.15 Wh battery)	included	–	170	5.9	hours
Mobile Phone	Basic phone (3.7 Wh battery)	advertised	–	19	2.0	number of full charges
Available daily electrical energy[a] (Wh/day)			89			

Performance Measure	Brightness Setting: Four lamps on brightest light
Lighting full battery run time[g] (hours)	19
Total light output in lumens[f]	610

[a] A typical day of solar charging assumes 5 kWh/m²/day

[b] Only included appliances were tested. Run times and power ratings for appliances sold separately come from manufacturer ratings or standard estimates.

[c] Without any other loads used during the run time

[d] Based on an example use profile with all of the appliances listed above used in combination

[e] Lighting full battery-run time estimates do not account for mobile phone charging or other auxiliary loads; the run time is defined as the time until the output is 70% of the initial, stabilized output.

[f] 1 candle or kerosene wick lamp = approximately 10 lumens

Verification Letter or "Type Approval"

LIGHTING GLOBAL

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THE WORLD BANK IFC

Lighting Global Product Testing Verification

Azuri 50W TV120 Solar Home System

Expiration Date: March 31, 2020[1]

Verify here: www.lightingglobal.org/products/az-50W

This verifies that the Azuri 50W TV120 Solar Home System was tested according to the Quality Test Method in the Quality Assurance Protocols for Solar Home System Kits and met the Lighting Global Quality Standards for Solar Home Systems Kits[2].

standards

Testing Details:

Product Name: Azuri 50W TV120 Solar Home System

Model Number: AZ-002151 (kit); AZ001705 (PV Module); AZ001866 (Control Unit and Lighting Kit); AZ001735 (TV)

Company Name: Azuri Technologies

Country of Origin: China, Malaysia

Company Contact: Nigel Preston, info@azuri-technologies.com

Original QTM Sample Size: n=4

Renewal Test Conducted: n/a

Sample Procurement Method: Random warehouse sampling

Testing Laboratory: Shenzhen Academy of Metrology and Quality Inspection, Shenzhen, Guangdong, China

Documentation:

Specifications sheet with verified test results and original version of this verification: www.lightingglobal.org/products/az-50W

Russell Strum
Global Head, Energy Access
Lighting Global Project Manager
International Finance Corporation

[1] Lighting Global requires re-testing every two years or upon major product revisions, and in special cases reserves the right to grant an extension on results validity.

[2] The Quality Standards for Solar Home Systems Kits are available at www.lightingglobal.org

Lighting Global Quality Assurance

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Develop Institutions / Aid Agencies

User	How Lighting Global Quality Assurance Is Used
International Finance Corporation	Product producers must have at least one QV product to gain access to IFC's business development services and co-marketing opportunities
World Bank	Philippines SHS & pico-solar installation project and Vanuatu SHS program use QV as eligibility requirement for bidders. Solar lamp lending library program in Burkina Faso requires QV.
UN Refugee Agency (UNHCR)	Requiring that products meet Lighting Global Quality Standards for a major tender to distribute 500,000 solar lights per year in refugee camps (over 3 years).*
Energising Development (EnDev)	Deals only with QV products for financing schemes in Rwanda, Kenya, Tanzania, and Benin.
Ethiopian Development Bank	Working capital facility -- investments available only for QV products.

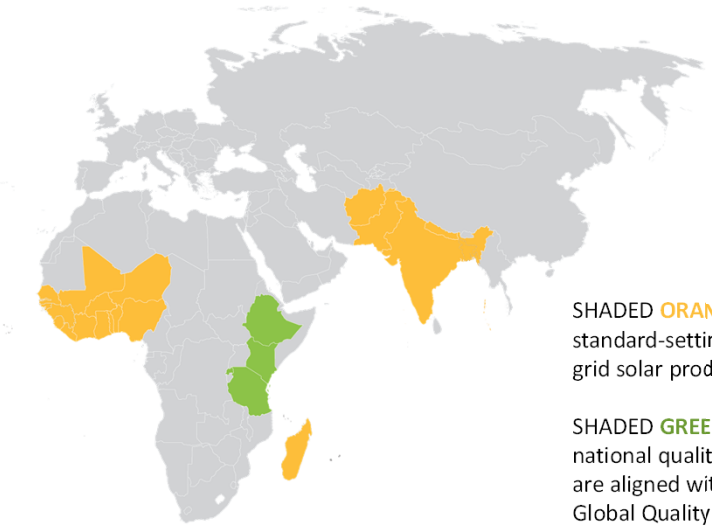
Buyers / Distributors

User	How Lighting Global Quality Assurance Is Used
One Acre Fund	Uses LG QA as a screening tool when deciding which products to market to its network of farmers across six countries.
MicroEnergy Credits	Advises financial institutions to only provide loans for LG QV products. Has worked with more than 15 FIs across East Africa, India, and Mongolia.
Solar Aid	Distributes only LG QV solar products across Africa.
Solar Sisters	Network of last mile saleswomen who sell a variety of goods. All solar products must be LG QV.
Frontier Markets	Distribution company in India that exclusively markets LG QV solar products.
Pamoja Life	Energy distribution company that relies on LG QA to help screen solar product offerings.

Investors

User	How Lighting Global Quality Assurance Is Used
SunFunder	Uses LG QA as a screening tool when deciding whether to extend debt financing to a given SHS or pico-solar company.
Equity Bank (Kenya)	Allows only QV product manufacturers to apply for loans through their Ecomoto Clean Energy Loan.
Juhudi Kilimo	Farmer Asset finance company in Kenya that provides consumer finance only for QV lanterns and SHS kits.
SKDRDP	Indian MFI that provides consumer finance only for QV products.
Lendable	Manages Special Purpose Vehicles (SPVs) for working capital debt. LG QA used as a screening tool for inclusion in solar SPVs and other debt instruments.
Kiva	Kiva's Eco loan portfolio uses LG QA as a screening tool for lanterns and SHS kits.

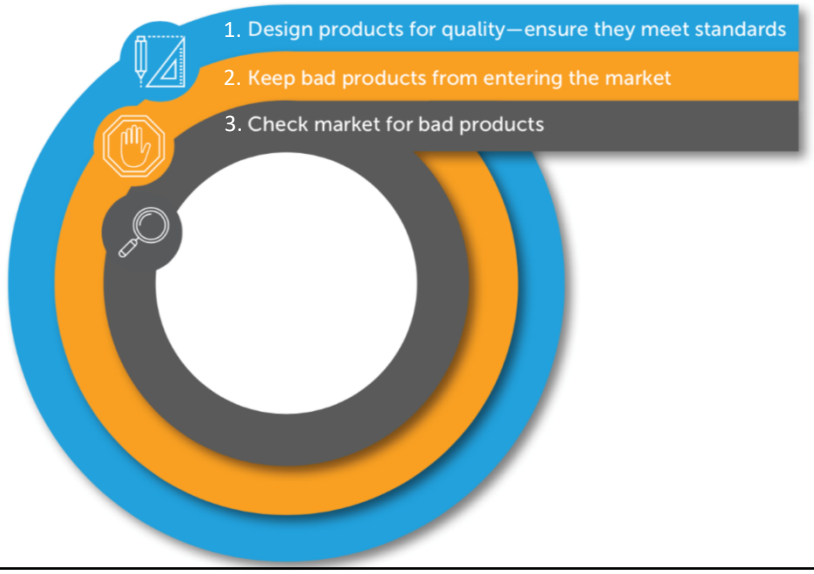
National Standards for Off-Grid Solar Products



SHADED **ORANGE**: Engaged in standard-setting activity for off-grid solar products

SHADED **GREEN**: have adopted national quality standards that are aligned with the Lighting Global Quality Standards

Standards: three lines of defense against poor-quality products



Key Success Factors

- Harmonized standards
- Competent test labs
- Well-trained conformity assessment experts
- Well-trained customs officials
- Suitable penalties for breaking the rules

Thank you!

Direct questions to:
Ari Reeves
CLASP | Washington, DC, USA
areeves@clasp.ngo

BACKUP

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Pre-Shipment Conformity Assessment for Pico-PV Products

INTRODUCTION

In an effort to protect consumers from low quality products, governments can adopt mandatory quality standards. As part of the standards enforcement process, many governments have put in place pre-shipment conformity assessment (PSCA) programs as a safeguard against the importation of unsafe, sub-standard, and counterfeit goods. Exports to these countries require a certificate of conformity (CoC), which is obtained by assessing products in the country of supply to ensure that they meet the regulations and quality requirements of the destination country.

The Lighting Global Quality Assurance (QA) Program recommends that for shipments of pico-PV products to countries with mandatory

CERTIFICATE OF CONFORMITY

A certificate of conformity is a mandatory document for customs clearance of exports to many countries around the globe. The CoC, issued prior to a shipment leaving the port of export, shows that the goods comply with the relevant regulations and national, regional or international standards. A CoC is granted to a product that meets a minimum set of regulatory, technical and safety requirements. Prior to issuing a CoC the PSCA program evaluates documents to establish compliance; shipments are commonly subjected to physical inspections prior to receiving a CoC.

PRE-SHIPMENT CONFORMITY ASSESSMENT

The World Trade Organization agreement on

- Who are the customs and enforcement experts, even if they have no particular expertise in CLASP/LGQA product areas?
- Which documentation is requested/required for the products of interest?
- What are the HS codes for pico-PV, SHS kits, and how do they handle kits that are not fully packaged together?
- How do PVoC companies track country-level regulations pertaining to off-grid solar product quality (and what are those regulations)?
- Accurate identification of off-grid solar products subject to quality standards
- How to use the list of Lighting Global quality-verified products as a shortcut. Are they using LG verification letters (and online validation) to confirm that products meet the standards?
- How to use random sampling reports to ensure sampling was done properly
- How to verify that testing was performed by a ISO 17025-accredited laboratory. Are they requiring official test reports from ISO 17025 accredited labs?
- Understanding the LGQA accelerated verification method and how it can be utilized
- How to properly interpret and use the expiration dates that appear on test reports
- Is there a need for further training/outreach for PVoC companies and/or customs officials?
- Internal questions
- How do we engage with PVoC companies? Individually or a joint meeting with a representative from each company?

Country	Quality Standards for Pico-PV Products	Quality Standards for SHS Kits	Degree of Harmonization	Compliance Program
Afghanistan	Entered into Force (Voluntary)		Fully Harmonized as of November 2017	
Ethiopia	Entered into Force (Mandatory)	Entered into Force (Voluntary)	Fully Harmonized as of January 2016	Under Development
India	Entered into Force (Mandatory)	Entered into Force (Mandatory)	Not Harmonized	Unknown
Kenya	Entered into Force -- Under Consideration for Revision (Mandatory)	Under Development	Fully Harmonized as of February 2015	Under Development
Nigeria	Under Development			
Rwanda	Entered into Force (Mandatory)	Under Development	Fully Harmonized as of 2013	Unknown
Tanzania	Entered into Force (Mandatory)		Fully Harmonized as of September 2017	Under Development
EAC	Under Development			
ECOWAS	Under Development			

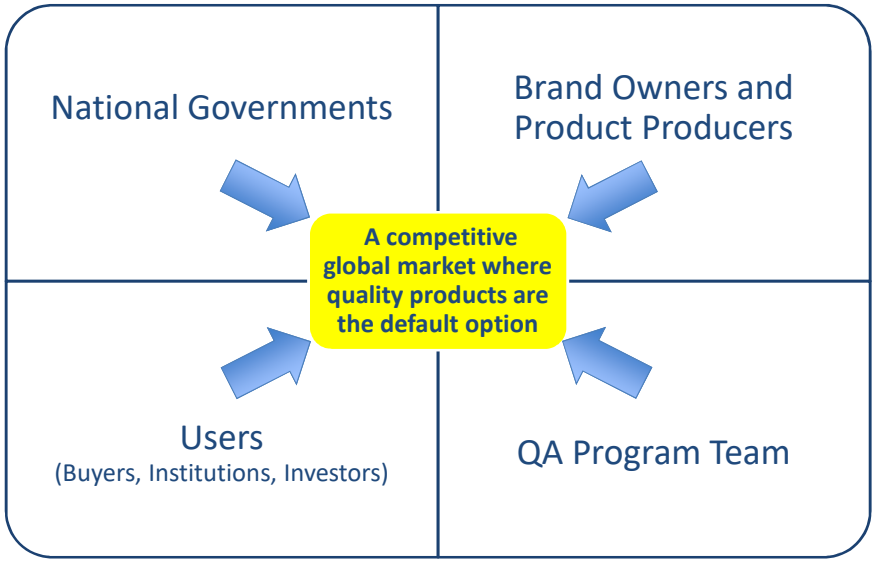
QA Activities

- Manage test methods and quality standards
  - Conduct research and give input on test methods
  - Conduct research and give input on quality standards
- Test labs
  - Build capacity
  - Provide ongoing support
- Third-party product quality verification
  - Provide credible third-party review of sampling and test reports
  - Test products obtained from the market to ensure that products that claim to meet the global standards really do
- Advise producers on how to make better products
  - Give general guidance in Technical and Eco Design Notes
  - Give model-specific guidance in a cover letter for each product tested
- Help governments adopt, implement, and maintain harmonized global standards
- Advise other institutions on how to use the global standards
- Engage with stakeholders of all types on quality

Lighting Global QA History

- Standards were introduced in **2009**
- First products were quality verified in **2010**
- Number of companies that have ever had a…
  - product tested (Quality Test Method only): **107**
  - QV product: **80**

Success Requires Action by Many



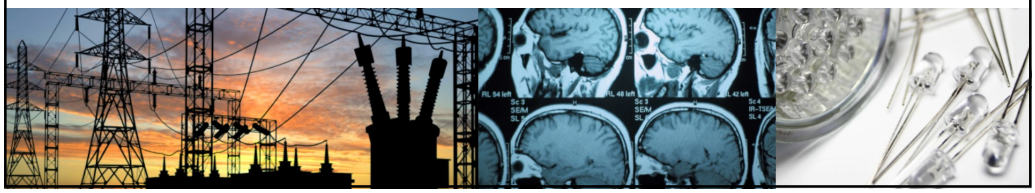
IECEE. Taking Conformity Assessment Further

"Global Motor Energy Efficiency" (GMEE)

Kirk Anderson
National Electrical Manufacturers Association (NEMA)

APERC – Energy Efficiency Policy Workshop
April 10, 2018

The Association of Electrical and Medical Imaging Equipment Manufacturers



IECEE. Taking Conformity Assessment Further

CHALLENGES OF REGULATING MOTORS:

- Difficult to implement
  - Requires time to develop robust certification and compliance program
- High cost to maintain
  - Laboratory qualification and ongoing surveillance can be burdensome
- High uncertainty test methods
  - Test methods other than IEC, IEEE and CSA test provide questionable results
- Trade barriers
  - Regulations can create delays and increased costs for manufacturers, hurting markets

Testing Standard	Economy MEPS (Minimum Energy Performance Standard)	Economy MEPS Regulation
Low Uncertainty IEC 60034-2-1, IEEE 112B or CSA C390	USA (1/4-500HP)	US DOE 10 CFR Part 431
	Europe: 2015* (>7.5kW); 2017* (>0.75kW)	ErP Directive, Regulation 640/2009
	Canada (1-500HP)	Canadian EEA, CSA C390
	Mexico (1-500HP)	NOM 016-ENER-2010
	South Korea	MOCIE/KEMCO
	Australia/New Zealand	AS/NZS 1359:2004
	China	GB 18613-2010
	Brazil	NBR 17094-1
	Turkey	SMG-2012/2
	Argentina	IRAM 62405
	Saudi Arabia	SASO
	Chile	SEC PE No 7/01/2
	Egypt	EOS 2008/6791
	Japan	Energy Labeling Program
	Viet Nam	MOIT 03/2013/QD-TTg
	India	BEE Schedule 6
	Israel	EEEM 5764-2004 / SI 5289
	Costa Rica	Decree No. 25584 / 24.10.96
	Chinese Taipei	CNS 14400
	Peru	MINEM 1-200HP

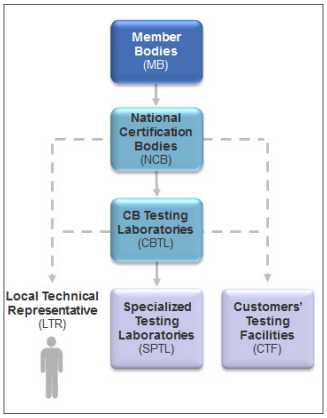
IECEE. Taking Conformity Assessment Further

BENEFITS OF THE GMEE PROGRAM:

- Globally recognized certificate program
- Based on IECEE/CB Scheme – largest certificate provider
- "Off-the-shelf" comprehensive program
- Customize Energy Savings (IE level)
- Independently maintained database, reduces maintenance costs
- Laboratory qualification program increases accountability

IECEE. Taking Conformity Assessment Further

WHO IS THE IECEE:

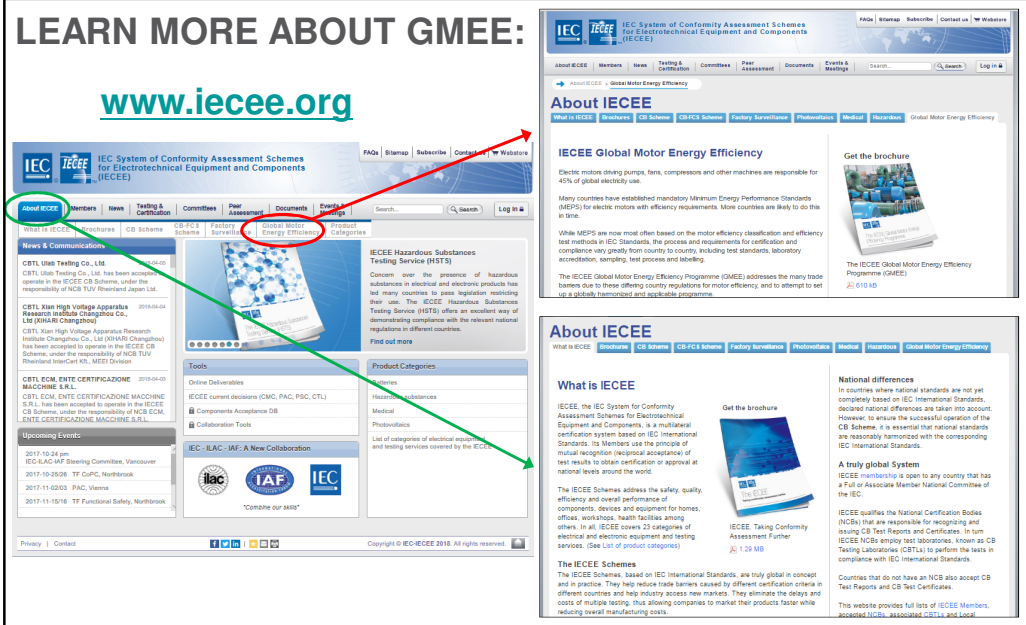


- 54 Member Bodies (Countries)
- 472 CBTL's (Certification Body Test Laboratories)
- 147 LTR (Local Technical Representatives)
- 78 NCB's (National Certification Bodies)
- 2,246 Customer Test Facilities
- 23 Product Categories (based on IEC standards)

IECEE. Taking Conformity Assessment Further

LEARN MORE ABOUT GMEE:

www.iecee.org



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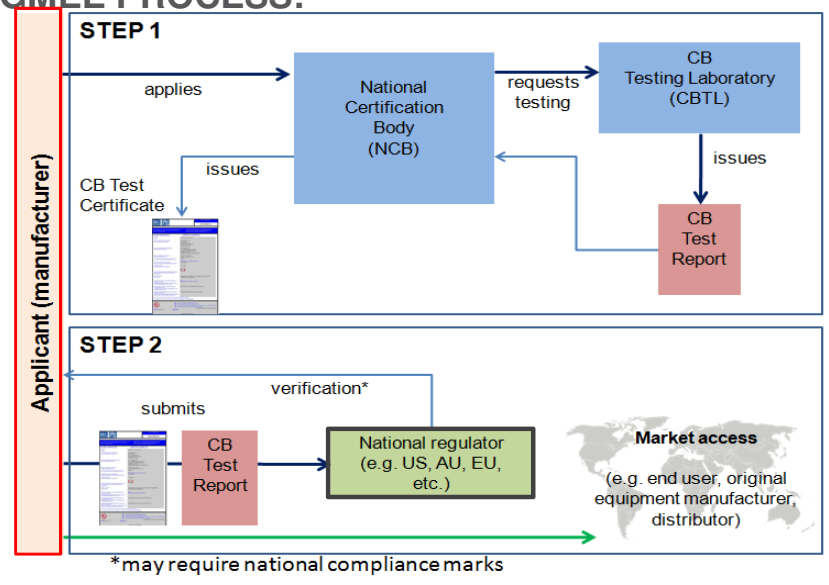
THE GMEE PROCESS:



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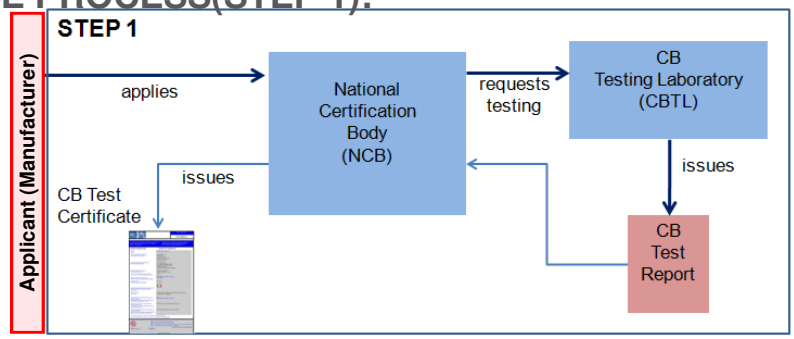
THE GMEE PROCESS(STEP 1):



STEP 1: GMEE Motor Evaluation Process (NCB and CBTL)

1. Manufacturer provides NCB with desired Product Certification Scope
2. NCB review product scope and determines sample selection
3. Manufacturer coordinates testing at qualified test facility
4. NCB reviews Test Results for compliance to appropriate efficiency levels
5. NCB completes Test Report Form (TRF)
6. NCB issues GMEE Test Certificate (CBTC) for covered product

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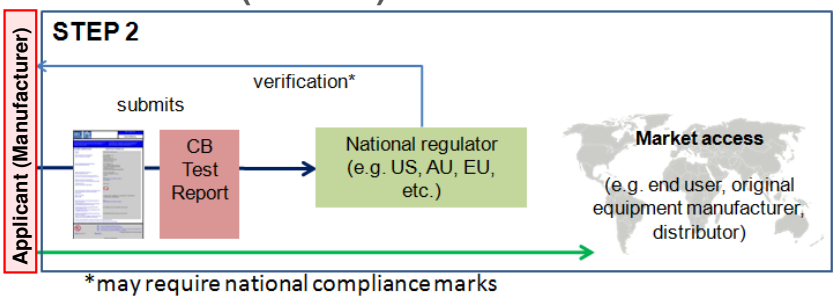
THE GMEE PROCESS(STEP 2):



Step 2: GMEE National Regulatory Process

1. Manufacturer submits GMEE CB Certificate and Test Results to National Regulatory Body
2. National Regulatory body reviews test results for compliance and issues compliance statement
3. Manufacturer complies with any national registration and/or marking requirements as needed

NATIONAL REGULATOR ACTION:
- Add GMEE to national regulatory body language
- Allow NCBs to submit GMEE Certificates directly to National Regulator

IECEE. Taking Conformity Assessment Further

NEXT STEPS:

- Regulatory Bodies to endorse/accept GMEE in their energy efficiency regulations
- Develop easy identification of compliant product
- Harmonize enforcement rules and push for CCE harmonization
- Review need for a System Energy Efficiency program?

IECEE. Taking Conformity Assessment Further

SUMMARY:

GMEE provides key benefits to regions looking to implement effective energy savings programs:

- Easy to implement – Complete program that includes certifiers, manufacturers and laboratories
- Low maintenance costs – Shared GMEE and NCBs help reduce costs
- High level of confidence – Globally reviewed certifiers, laboratories and accepted test program
- Open market-place – facilitates ease of manufacturers to enter market, creating competition and reducing cost for buyers

IECEE. Taking Conformity Assessment Further

SUMMARY:

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IECEE. Taking Conformity Assessment Further

ABBREVIATIONS:

CBTL – Certification Body Test Laboratory. A laboratory that has been verified as having the equipment and expertise to conduct testing to specific IEC standards

CCE – Compliance Certification and Enforcement – The combination of any testing, registration and/or surveillance (or enforcement) of energy efficiency requirement regulations

GMEE – Global Motor Energy Efficiency Program. Uses IEC 60034-2-1 as the test method under IEC scheme to validate efficiency levels and provide test certificates

IE level – Established levels of efficiency for A

IECEE – certification system based on IEC standards used facilitate certifications

MEPs – Minimum Efficiency Performance Standard(s). Establishes maximum amounts of energy a product can consume performing a given task.

NCB – National Certification Body – Organization under IECEE that is authorized to issue certificates. NCBs are validated for competency for each program they issue certificates under.

IECEE. Taking Conformity Assessment Further

QUESTIONS?

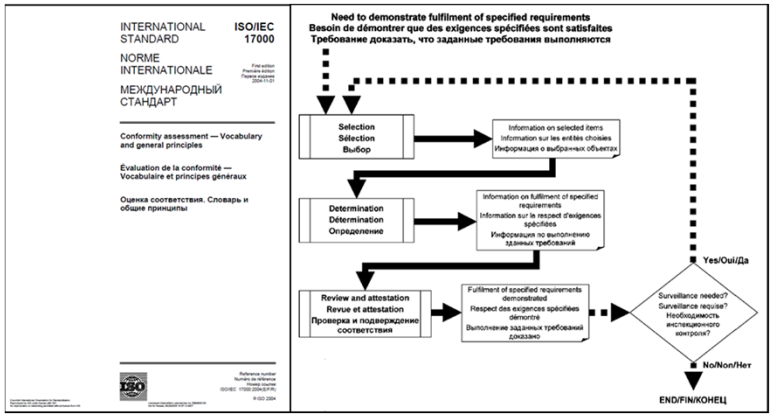
THANK YOU!

The Third Party Perspective
Application of Conformity Assessment Programs

10 April 2018
Energy Efficiency Policy Workshop
Energy Efficiency Conformity Assessment

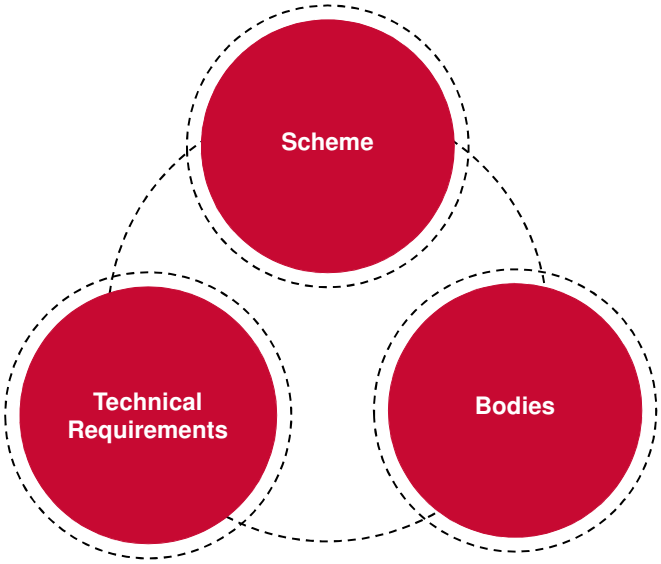
Steven Margis
Director, Conformity Assessment Programs
UL LLC

Conformity Assessment



"demonstration that **specified requirements** relating to a product, process, system, person or body are fulfilled"

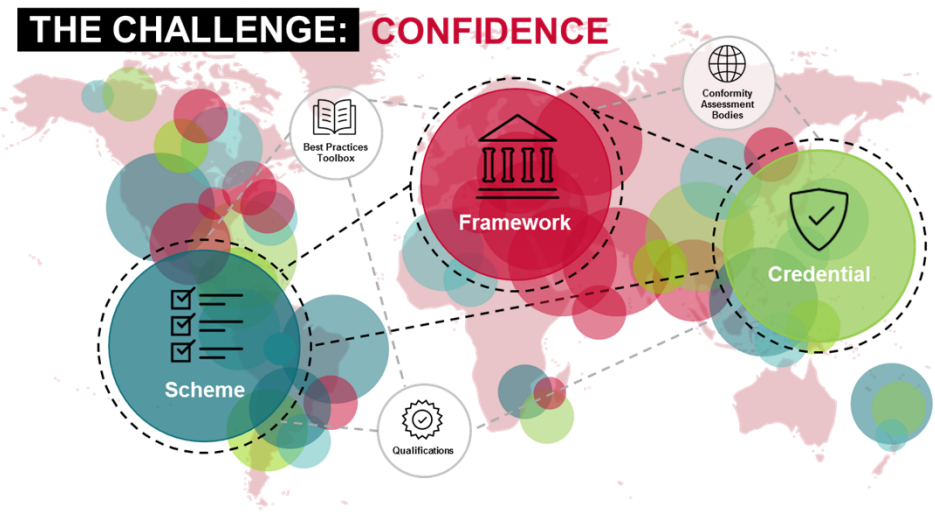
Specified Requirements



A Balanced Approach to Conformity Assessment

Consensus Standards	Pre-Market Assessment and Certification	Ongoing Factory Surveillance	Post Market Surveillance
Industry Consumers Authorities Certifiers Interested Parties	Verification of Conformity to the Standard Factory Pre-Inspection & Approval	Verification That Product "As Built" Conforms to the Approval	Random Purchase at Retail and Verification Testing Anti-Counterfeiting Communications with Regulators
Threshold of Safety	Ensuring Safety Entering the Market	Avoid Adulteration	Monitor Real-Life Outcomes

Recipe for maintaining "Integrity & Trust" while balancing "Safety & Time-to-Market"



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Best Practices

- National Treatment
- Use of Independent Third Parties
- International Harmonization of Requirements
- Conformity Assessment Selection Based on Risk Level
- Public-Private Partnership
- Private Sector, Consensus Based Standards
- Intellectual Property Protections
- Standards & Conformity Assessment in Government Procurement
- Science Based Risk Assessment

6

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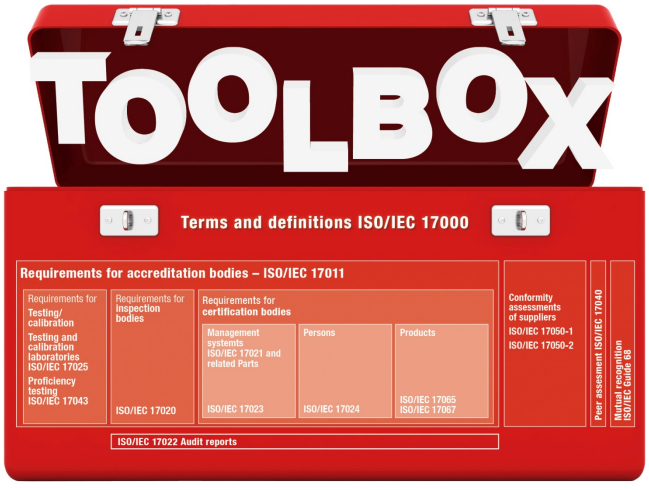
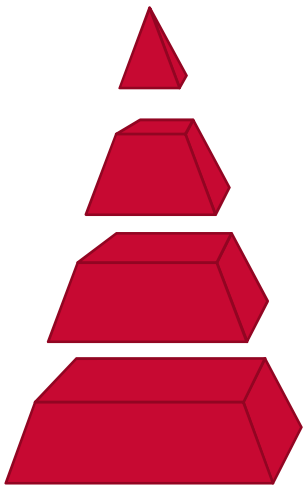
Distinguished
Member of Technical Staff
William Henry Merrill Society

ISO casco



Key Elements of Compliance



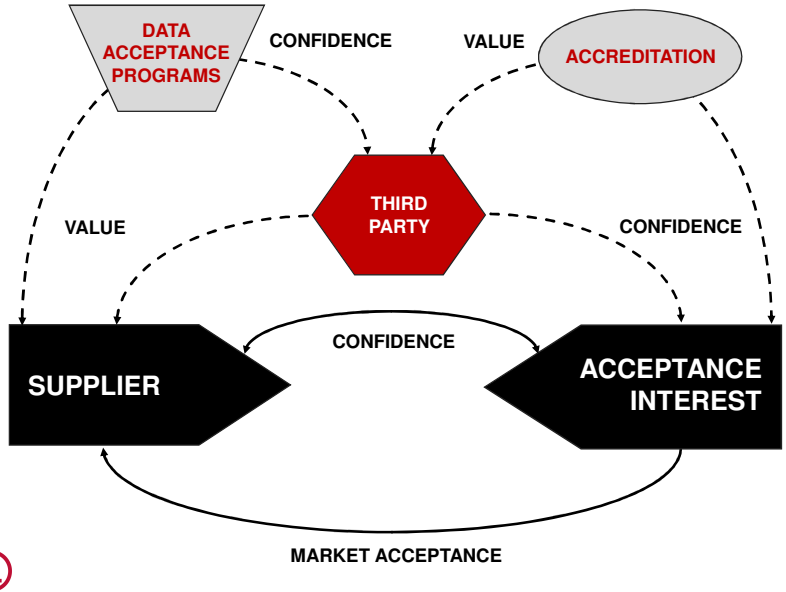
Compliance Systems (Market Access)
Rules and Regulations that define a market

Conformity Assessment
Available paths which compliance can be verified (design, production, documentation)

Technical Requirements / Standards
Minimum requirements used for evaluating compliance (may be mandatory or voluntary)

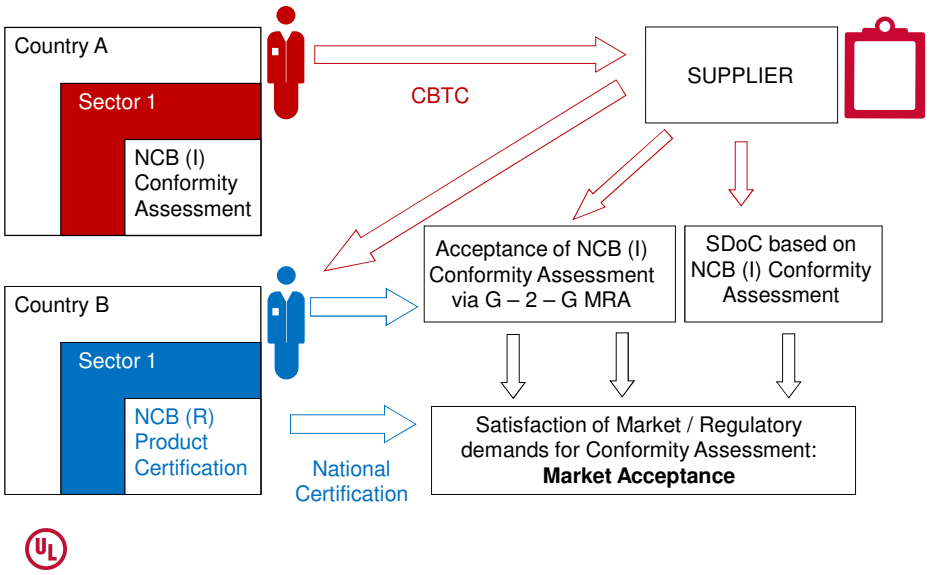
Market Requirements (Market Acceptance)
Additional requirements to those of the compliance system to establish confidence in the marketplace

Conformity Assessment Value Chain



Case: Flow of an IECEE CB Test Certificate (CBTC)

Transportable Conformity Assessment℠



Conformity Assessment for Energy Efficiency: An Overview

Up to 25% of potential energy efficiency program savings are lost through poor compliance and lack of enforcement. The process of conformity assessment helps protect these savings by ensuring that products meet their energy efficiency program requirements. Specifically, the International Standards Organization and the International Electrotechnical Committee (ISO/IEC 17000:2004) define conformity assessment as a:

"demonstration that specified requirements relating to a product, process, system, person or body are fulfilled"

Conformity assessment can be conducted by three different parties and approaches:

First Party
Conducted by supplier to self-declare conformity

Second Party
Conducted by the purchaser or user to check conformity

Third party
Conducted by independent entity to prove conformity

Conformity assessment is used to:

- **Facilitate Trade**
- **Provide Regulatory Confidence**
- **Assure Public and Customer**

Conformity assessment should follow best practice:

- Procedures should be open and transparent
- Ensure competence of the assessment body
- Ensure adequacy and appropriateness of the standards
- Incorporate stakeholder consultation
- Minimize inconvenience and costs
- Provide effective and prompt communication
- Requirements and procedures should foster trade

Conformity assessment is used to evaluate whether a product meets specified energy efficiency requirements. Different **conformity assessment activities** are used in each stage of the process:

Accreditation Bodies

- Provide **accreditation** to laboratories, inspection and certification bodies

Laboratories & Inspection Bodies

- Require **accreditation**
- Can be responsible for testing, inspections, and certification

Checking for Conformity

- Requires **testing**
- Requires **inspections**
- Can require **auditing**

Once Conformity Determined

- Can require **certification**
- Can require **registration**
- Mark of conformity or label issued

Post-Market Conformity

- Requires **surveillance, testing and inspections**
- Results can reverse certifications & registrations

Conformity Assessment Approaches and Considerations

	1st Party	3rd Party	
		Testing	Certification
Who	Manufacturer, importer/supplier	Independent or accredited body	
What	Provides Supplier's Declaration of Conformity (SDoC)	Provides impartial test report	Provides impartial certification
How	Based on manufacturers confidence in quality control system and/or results of testing, inspection, audits	Product tested by accredited test lab	Accredited body certifies product
When	• Prerequisite for market entry • Legal responsibility is with the supplier	• For certification programs • In support of SDoC	• Prerequisite for market entry • Energy labeling
Benefit	• Flexibility • Cost and time savings to industry	• Broad confidence and trust • Recognized internationally • Cost and time savings for regulator	
Used when	• Risk of non-compliance is low • Well resourced market surveillance in place • Self-declaration is sufficient	• Risk associated with non-compliance is high • Limited market surveillance resources • Independent assessment needed to ensure energy efficiency requirements are met	

Questions for Selecting Conformity Assessment Approach

	Questions	1st Party	3rd Party
1	Is a high level of confidence required?	No	Yes
2	Is the perceived risk high?	No	Yes
3	Are products primarily manufactured in countries with a high-risk history?	No	Yes
4	Are products manufactured in complex and fragmented supply chains?	No	Yes
5	Is there a documented history of industry non-compliance?	No	Yes
6	Is there evidence that product liability is an effective deterrent?	Yes	No
7	Do regulatory provisions provide penalties and an effective deterrent?	Yes	No
8	How strong is the need for impartiality and independence?	Low	High
9	Are there voluntary, market driven schemes to address confidence needs?	Yes	No
10	What are the societal risks of non-compliant products?	Low	High
11	Who bears the costs of market surveillance?	Primarily regulator	Private sector
12	How likely is the need for recall or corrective action?	More likely	Less likely

Source: IFIA, *Considerations in Selecting Methods of Conformity as Part of Regulatory Scheme Framework – DRAFT, 2018*