Market Surveillance for Air Conditioners:

Voluntary Guidelines for ASEAN Member States

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Executive Summary

Cooling is essential to improving labor productivity, educational outcomes, and quality of life for people living in warm climates. Air conditioning makes up a significant portion of household energy demand, particularly in regions with hot climates where periods of high use correlate with peak demand. With growing economies and expanding populations, the global demand for air conditioning will increase. In Southeast Asia, the room air conditioning market is expected to grow by at least 10% annually over the next five years, hand in hand with increasing energy intensity and greenhouse gas emissions.[1]

Policies that curb the energy and environmental impacts from air conditioners can transform markets and improve lives. Minimum energy performance standards (MEPS) and labels shift global markets to the highest quality, lowest impact appliances. Mandatory MEPS prohibit inefficient products from entering the market, thus protecting consumers and leveling the playing field for manufacturers and distributors. Labels influence consumers and other buyers to purchase the most efficient products.

An effective compliance framework is critical to safeguarding expected energy savings, CO_2 emissions reductions, and other benefits from MEPS and labeling programs. Appliance energy efficiency programs can lose up to 25% of expected energy savings when products do not perform as claimed.[2]

Product policy compliance bolsters the credibility of government programs, protects consumers, and creates a fair playing field for manufacturers selling energy efficient and high-quality products. Proper enforcement of standards, market monitoring for label misuse or mis-rated products, and performance verification through testing are all necessary to ensure the success of product standards and labeling (S&L) programs. Consistently enforced registration or certification requirements protect suppliers' competitiveness by ensuring they are all subject to the same market entry conditions. These processes provide valuable market data and intelligence which compliance authorities rely on to investigate the market for potential cases of non-compliance. If conducted efficiently and strategically, market surveillance activities can significantly reduce costs and reduce the burden on government bodies to prove and rectify cases of non-compliance.

The ***"Market Surveillance for Air Conditioners: Voluntary Guidelines for ASEAN Member States"*** outlines best practices for conducting market surveillance for MEPS and energy labeling requirements for residential air conditioners. This document serves as a practical resource for governments and compliance authorities to follow when designing and implementing a national market surveillance program, or when revising and strengthening existing programs.

Key recommendations and considerations:

A strong legislative foundation, comprehensive administrative guidelines, and a budget proportional to market needs are critical to establishing a market surveillance program. Before developing new energy efficiency market surveillance legislation and processes for air conditioners, policymakers should consider reviewing and amending or adapting existing legislation to maintain consistency across all such programs and avoid repeating work. Providing stakeholders with comprehensive and flexible administrative guidelines will help them develop a clear understanding of the new legislation so they can plan ahead and avoid cases of non-

[1] Harmonization of air conditioner standards in ASEAN economies - A Regional Policy Roadmap. CLASP. February 2015.
[2] A 2010 study estimated the rate of non-compliance in the United Kingdom to be around 10 to 15% at manufacturing level (failure to meet the claim on the label) and 20% at retail level (absent or incorrect labelling). See Defra Market Transformation Programme Compliance Strategy, available at http://efficient-products.defra.gov.uk/compliance. Australian compliance rates are estimated at around 85%. See IEA Policy Pathways: Monitoring, Verification and Enforcement 2010, available at: https://www.iea.org/publications/freepublications/publication/monitoring.pdf. In new or developing programs with no compliance framework, non-compliance are assumed to be significantly higher.

compliance. Legislation and administrative guidelines should outline and define roles and responsibilities for all ministries, agencies, and authorities to avoid confusion when implementing the program.

Sustainable funding is vital to program success - although a larger budget is preferred, a modest budget can support impactful market surveillance activities. The budget and scale of market surveillance efforts will depend on the stringency of market entry conditions, or the conformity assessment procedures[3]. When product market entry conditions are rigorous, investment in market surveillance can be lighter. When market entry conditions are less robust, investment in market surveillance will have to be significantly higher to protect the market from non-compliant products. Funding can be sourced through government budgets or recouped through financial penalties and product registration fees. Collaboration with stakeholders and neighboring compliance authorities also offers in-kind resources to a market surveillance program, for example through sharing testing results.

Risk-based market surveillance activities enable compliance authorities to make an impact with different size budgets. The effort and resources required for market inspections or verification testing can be overwhelming when building a nascent program; for this reason, governments often defer investment in compliance to a later stage. However, focusing solely on standards and labels development and adoption will not secure the anticipated program savings. Even the smallest market surveillance efforts can make a significant impact - knowing there is even a slight risk of being caught can deter non-compliance. When planning a market surveillance strategy, compliance authorities should:

- Identify realistic and achievable goals;
- Target products at risk of non-compliance;
- Start with lower-cost and lower-resource intensive efforts to identify potential non-compliance; and
- Select products with the highest risk of non-compliance for more rigorous verification testing.

Cost-effective verification testing targets products at risk for non-compliance; well-documented and strict processes secure evidence to prove non-compliance in a court of law. Compliance authorities use verification testing to determine the accuracy of product labels and compliance with MEPS. The most cost-effective approach to verification testing is to select products based on specific 'risk-factor' criteria, which are publicly available in the administrative guidelines. Once the authorities have identified specific product models for testing, they should source representative samples from retailers or manufacturers using methods that ensure providers cannot manipulate the chosen models. Careful procurement and transport procedures ensure the product is not damaged or altered before testing in an accredited laboratory. The entire testing process, along with the verification testing results, should be documented through a robust and transparent record-keeping system so that cases of non-compliance can be supported by incontestable evidence. Since ASEAN harmonized test methods and metrics, mutual recognition agreements (MRAs)[4] are the most cost-effective approach to testing, as test results and reports can come from any accredited test laboratory, in-country or elsewhere. When disposing of tested products, authorities should consider whether they can legally donate or sell products, whether they can sell products back to manufacturers, or whether they must destroy them.

Regional collaboration and coordination can strengthen ASEAN Member States national compliance programs. Compliance programs that share information and coordinate activities can minimize resources used to conduct market surveillance and maximize efficiency for national authorities. Compliance authorities can use an online system to share testing plans and inspection activities, market intelligence on non-compliant or sub-standard products, inspection results, and verification testing results. Under MRAs, compliance authorities can use results from foreign test laboratories and partner authorities to inform national enforcement actions.

[3] Includes the processes of testing, certification and registration to demonstrate compliance of a product before it is allowed on the market

[4] Multilateral arrangements between two or more countries to mutually recognize or accept some or all aspects of another's conformity test procedures.

Guidelines Overview

These voluntary guidelines outline best practices for conducting market surveillance for minimum energy performance standards (MEPS) and energy labeling requirements for residential air conditioners. This document serves as a practical resource for ASEAN governments and compliance authorities to follow when designing and implementing a national market surveillance program, or when revising and strengthening existing programs.

These guidelines are not exhaustive. Although registration, certification, and enforcement practices are referred to within these guidelines, the scope is best practices for market surveillance – specifically checking non-compliance related to the display or accuracy of the label and performance claims, or whether a product meets the relevant performance requirements. These guidelines concentrate on practices and processes most relevant to ASEAN Member States and identify relevant and relatable case studies from the region. The guidelines outline best practices for import and domestic manufacturing markets, and for various program budget levels. As every market and legislative framework is different, the recommendations provided within these guidelines can be modified according to national regulatory and market needs. The guidelines include references, so users can access more detailed information.

The guidance contained herein is **voluntary** and intended to support policymakers and compliance practitioners as they design or implement market surveillance activities in ASEAN Member States. This guidance focuses on air conditioning products, but in most cases, it can apply to market surveillance for other products. Therefore, this document can serve as a foundation for national market surveillance strategies.

- **Section 1** introduces the concept of market surveillance in the context of a compliance regime. This section presents the current state of air conditioner energy efficiency policies, as well as the status and stringency of market entry conditions and market surveillance activities in different ASEAN Member States.
- **Section 2** discusses best practices for designing and establishing a market surveillance program. This section provides guidance on developing effective legislative and administrative frameworks and addresses budgetary needs and the funding mechanisms to support market surveillance.
- **Section 3** identifies best practice for conducting effective, risk-based, and resource-efficient market surveillance activities, ranging from smaller projects to larger and more resource-intensive activities. A market surveillance decision tree offers a step-by-step guide to conducting market surveillance and choosing enforcement responses at each step.
- **Section 4** provides guidance for the verification testing process including best practice for selecting products from retailers and manufacturers, ensuring a secure chain of evidence during product procurement and transport, choosing laboratories to test air conditioning products, and disposing of products after testing.
- **Section 5** emphasizes the importance of regional collaboration for effective and efficient market surveillance. The document proposes building a regional network of compliance practitioners and using online databases and MRAs to support exchange of product compliance and testing information across borders.

1. Introduction

Cooling is essential to improving labor productivity, educational outcomes, and quality of life for people living in warm climates. Air conditioning makes up a significant portion of household energy demand, particularly in regions with hot climates where periods of high use correlate with peak demand. With growing economies and expanding populations, the global demand for air conditioning will increase. In Southeast Asia, the room air conditioning market is expected to grow by at least 10% annually over the next five years, hand in hand with increasing energy intensity and greenhouse gas emissions.[5]

Policies that curb the energy use and environmental impacts from air conditioners can transform markets and improve lives. MEPS and labels shift global markets to the highest quality, lowest impact appliances. MEPS prohibit inefficient products from entering the market, thus protecting consumers and leveling the playing field for manufacturers and distributors. Labels influence consumers and other buyers to purchase the most efficient products. Uniform and consistent test methods provide a solid foundation for standards and labels.

Appliance energy efficiency programs can lose around 25% of expected energy savings, due to suppliers offering products on the market that do not perform as claimed.[6] These products either bear labels that provide misleading information to consumers, or do not meet MEPS or label requirements.

Introduction to Compliance

An effective compliance framework is critical to safeguarding expected energy savings, CO_2 emissions reductions, and other benefits from MEPS and labeling programs. A compliance framework refers to the processes put in place by governments to check product compliance prior to their placement on the market, to monitor and verify products available on the market to ensure they conform to the regulations, and to take corrective action when they do not comply with the regulations.

Product policy compliance bolsters the credibility of government programs, protects consumers, and creates a fair playing field for manufacturers selling energy efficient and high-quality products. Proper enforcement of standards, market monitoring for label misuse or mis-rated products, and performance verification through testing are all necessary to ensure the success of product standards and labeling (S&L) programs.

Three key pillars form a successful and impactful compliance framework, as shown below in Figure 1. The first pillar, ***conformity assessment***, protects suppliers' competitiveness by ensuring that they are all subject to the same robust market entry conditions. The market data and intelligence gathered through the testing, certification, and registration process enables compliance authorities to effectively target and investigate the market and check for potential cases of non-compliance under the second pillar, ***market surveillance***. If conducted efficiently and strategically, market surveillance activities can significantly reduce costs and reduce the burden on government bodies to prove and rectify cases of non-compliance under the third pillar, ***enforcement***.

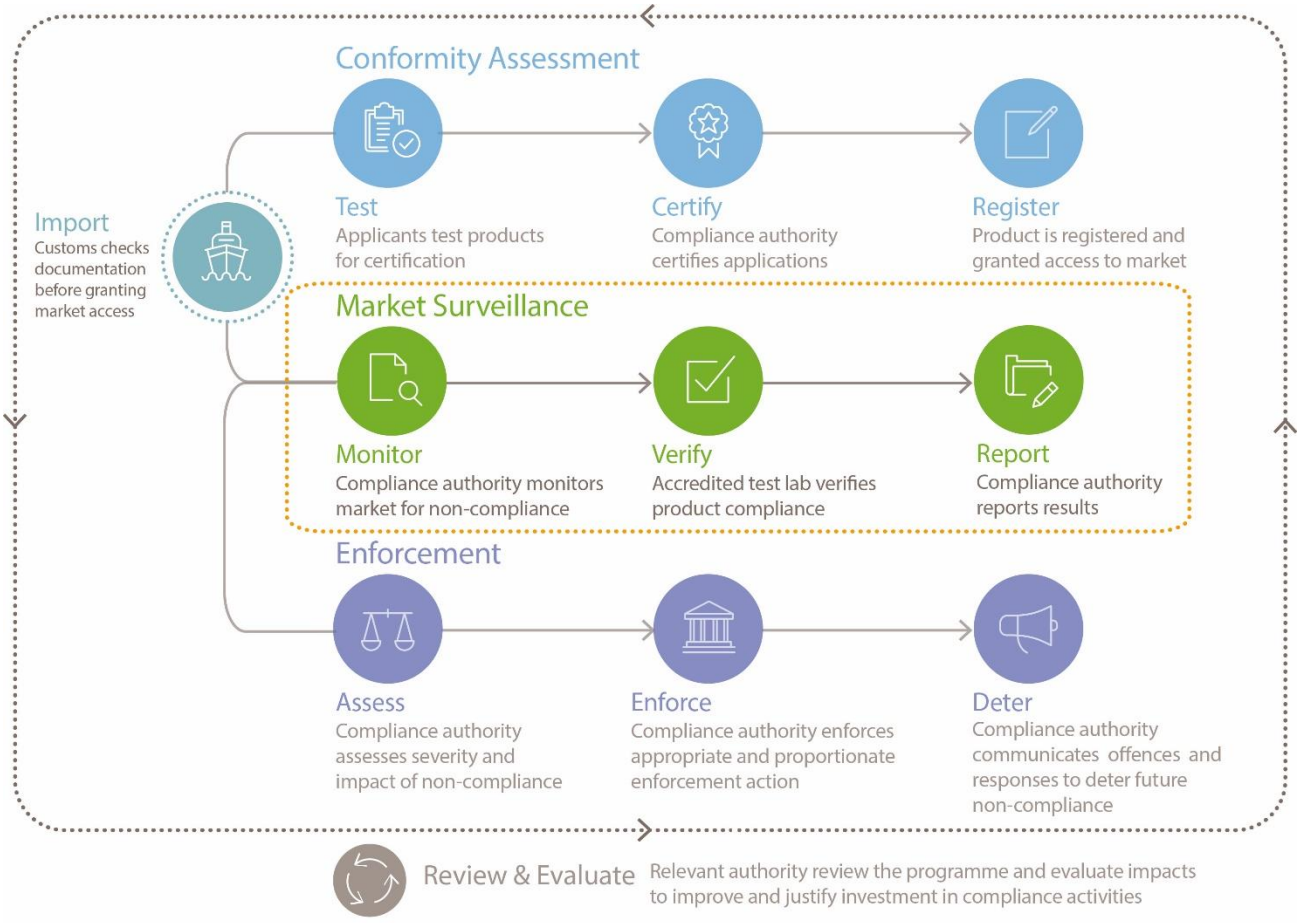
These guidelines are focused on the ***market surveillance*** pillar. Market surveillance is most readily applicable to labeling programs, since their highly visual criteria can be checked in the retail environment (i.e. who should provide/apply the label, how the label must look, where it is fixed, etc.). Surveillance programs for MEPS ensure

[5] Harmonization of air conditioner standards in ASEAN economies - A Regional Policy Roadmap. CLASP. February 2015, available athttp://www.aseanshine.org/asean-shine-task-force/d/asean-regional-policy-roadmap-for-harmonization-of-energy-performance-standards-for-air-conditioners .

[6] A 2010 United Kingdom study estimated the rate of non-compliance to be around 10 to 15% at manufacturing level (failure to meet the claim on the label) and 20% at retail level (absent or incorrect labelling). See Defra Market Transformation Programme Compliance Strategy, available at http://efficient-products.defra.gov.uk/compliance. Australian compliance rates are estimated at around 85%. See IEA Policy Pathways: Monitoring, Verification and Enforcement 2010, available at: https://www.iea.org/publications/freepublications/publication/monitoring.pdf. In new or developing programs with no compliance framework, non-compliance are assumed to be significantly higher.

that products in the marketplace are compliant with applicable entry requirements or regulatory conditions. Surveillance programs can also confirm product verification marks.[7]

Figure 1. Market Surveillance in the Compliance Process



Source: CLASP 2018

Market Surveillance in ASEAN

In September 2015, the ASEAN Ministers of Energy Meeting (AMEM) endorsed the "ASEAN Regional Policy Roadmap for Harmonization of Energy Performance Standards for Air Conditioners."[8] The roadmap provides guidelines and defines targets for ASEAN Member States to adopt harmonized air conditioner energy performance standards by 2020. Following the adoption of the Regional Policy Roadmap, ASEAN Member States developed national policy roadmaps. The roadmaps include strategies and actions to strengthen national compliance frameworks. All ASEAN Member States now have harmonized test metrics and test

[7] More information on the compliance process can be found in Compliance Counts, CLASP 2010, available at: https://clasp.ngo/tools/mv-e-guidebook, as well as the CLASP Standards & Labelling Guidebook, Compliance Chapter, Draft version, 2018, available for review at: http://www.clasp.ngo/guidebook

[8] CLASP 2015

methods for air conditioners. This strengthens the potential benefits from coordinated and collaborative market surveillance efforts and facilitates round robin testing activities to increase and improve access to accredited testing facilities across ASEAN.

These voluntary guidelines highlight best practices for effective market surveillance based on the state of MEPS, energy labeling, and compliance programs in ASEAN. An effective market surveillance program considers the robustness of the conformity assessment process, also referred to in this guide as the market entry conditions. Market entry conditions describe specific obligations that product suppliers (manufacturers, importers, wholesalers, and retailers) must adhere to in order to place a product on the market or participate in labeling programs. Market entry conditions establish the level of assurance provided to governments that products meet the energy performance and other criteria established by an S&L program, and therefore play a central role in a compliance framework,[9] as shown in Figure 1. The scale of investment in market surveillance will depend on the stringency of market entry conditions.

Box 1: Case Study – EU and North America Conformity Assessment

In a market survey conducted by the International Federation of Inspection Agencies (IFIA) and the International Confederation of Inspection and Certification Organizations (CEOC) from 2014-2016, 537 samples of products from eight different categories of low-end small household electrical appliances were selected and tested for conformity to safety standards. Of these products, 316 samples were purchased in the EU, and the remaining 231 samples were purchased in North America. The study compared the regulatory compliance rates of self-declared products, which represent approximately 90% and 5% of products in the EU and North America respectively, with the compliance rates of products certified by independent third parties.

Self-declared products undergo conformity assessments conducted by product manufacturers or suppliers, a practice common in product markets where the risks associated with non-compliance are low, where there are adequate penalties for non-compliance, and where there are effective market surveillance and post-market surveillance frameworks in place. Where these characteristics are lacking, independent, accredited parties are often engaged to conduct product conformity assessments.

In the study, an independent laboratory appointed by IFIA and CEOC to test the 537 sample products found that 17% of the products with self-declarations of conformity were non-compliant, demonstrating dangerous safety faults, while only 1% of third-party certified products failed the compliance testing. While the small sample size of the study precludes a firm conclusion as to the efficacy of manufacturers' self-declarations of conformity, the study does suggest that third-party conformity assessment can boost compliance rates.

Sources: IFIA & CEOC 2018.

ASEAN's Member States can be divided into three different levels of market entry condition stringency:

- **Stringent market entry conditions requirements –** where a test report from an independent (or accredited third party) laboratory is used to obtain certification and the product is registered in a database with the appropriate national agency;
- **Medium market entry conditions requirements –** self-declaration, where manufacturers and importers declare conformity of products with regulatory requirements, following in-house or third-party testing, and pursue registration with the appropriate national agency; and
- **Programs currently under development –** where the process is still to be defined.

[9] CLASP 2010

Each of the above groups require targeted recommendations that suit the market and regulatory needs. The following table groups the ASEAN Member States into the appropriate category and explains the current situation in each group of countries. It provides a high-level recommendation for how these countries should approach market surveillance based on the stringency of their market entry conditions. This table is used throughout this document to provide relevant examples and suitable recommendations for each approach. A compliance state of play overview for each ASEAN Member State is available in Annex 1.

Stringent Market Entry Conditions in Thailand and Malaysia	**Medium Market Entry Conditions** in Indonesia, Philippines, Singapore, and Vietnam	**Program Under Development** in Brunei, Cambodia, Lao PDR, and Myanmar
Status: • Have both un/accredited in-country test laboratories • Require third-party testing by accredited test laboratories • Require certification and registration process • Malaysia uses MRAs	**Status:** • Have both un/accredited in-country test laboratories • Allow self-declaration with in-house or third-party testing • Require registration / Singapore uses MRAs	**Status:** • No in-country test capacity • MEPS and labels under development • No defined certification nor registration process
Recommendation: ➔ Lower investment in market surveillance needed, given stringent checks upon market entry	**Recommendation:** ➔ Introduce accredited third-party self-declaration requirements ➔ Higher investment in market surveillance needed, given soft checks upon market entry	**Recommendation:** ➔ Require stringent checks upon market entry, lower investment in market surveillance, and use of MRAs

These are not the only approaches for market entry conditions or the only options to design effective surveillance activities. These voluntary guidelines concentrate on practices and processes most relevant to ASEAN Member States, and can be can be modified according to national regulatory and market needs. For a comprehensive review of compliance frameworks, multiple resources provide practical information based on the experiences of existing S&L programs, including:

- *Compliance Counts, A Practitioner's Guidebook on Best Practice Monitoring, Verification, and Enforcement for Appliance Standards and Labels*, CLASP 2010;[10]
- A series of six publications by the UNEP-GEF en.lighten initiative on monitoring, verification and enforcement (MVE) focused on individual aspects of an effective MVE infrastructure and how these contribute to improved product compliance and the success of policies;[11] and
- *ECOPLIANT Best Practices Guide*.[12]

[10] CLASP 2010
[11] Available online at https://www.lites.asia/downloads/mve-guidance-notes
[12] Ecopliant 2015, available at http://www.eepliant.eu/index.php/knowledge-base?task=callelement&format=raw&item_id=23&element=f85c494b-2b32-4109-b8c1-083cca2b7db6&method=download

2. Establishing Market Surveillance Programs

Well-designed market surveillance programs effectively detect non-compliant products already on the market or about to enter the market. They consider national circumstances such as existing legislation, budget potential, market entry barriers, and more.

2.1. Legislative and Administrative Framework

To be most effective, the design of a national market surveillance framework should take into account the national legislation, requirements for placing products on the market (or entry level conditions), the availability of testing facilities, and the origin of products (presence of local manufacturing or imports only). Annex 1 provides an overview of this in each ASEAN Member State.

Legislative Foundation and Administrative Guidelines

Market surveillance powers and procedures should be well defined in either national legislation or administrative guidelines. This ensures that all government institutions understand their powers and limitations, while also providing transparency to industry, so that industry stakeholders understand where and how they may interact with the national compliance authorities.

Box 2: Case Study - Malaysia procedures based on the existing legislation

Malaysia has a legal framework to address non-compliance with energy efficiency labeling program requirements. The new Electricity (Amendment) Regulation 2013, regulation 109A, states that the Energy Commission of Malaysia (ST) may conduct market surveillance activities to inspect whether products have the energy label. The ST can also select product samples at random for verification testing. The regulation also details actions to be taken in cases of non-compliance. If a product found in the market has no energy label, according to Electricity Regulations 1994, Regulation 98, the ST may remove or seize the product from the market.

Source: ASEAN SHINE and Energy Commission.

Assess Existing Legislation for Market Surveillance

All existing legislation, powers, guidelines, and compliance authorities should be assessed to determine whether they can apply to or form the foundation of an energy efficiency market surveillance framework. For example, product safety legislation can be easily adapted for product energy efficiency. This analysis can save significant resources by showing how industry responds and adheres to existing regulatory practices, and how market surveillance models work with other legislation and agencies.

Box 3: Case study - Existing product safety legislation in Cambodia

Rather than redesign a legal framework for the appliance energy efficiency regulations, Cambodia can refer to the regulatory framework for Safety Label for Electrical and Electronic Household Products, which can be adapted to address non-compliance with energy efficiency requirements. The existing legislation includes provisions for safety and quality inspection procedures, offences, and enforcement actions. The legal authority to enforce product safety is with the Ministry of Industry and Handicraft and the Ministry of Mines and Energy, which can utilize their experiences and transfer them to appliance energy efficiency.

Source: UNEP 2016.

Develop or Revise Suitable Legislation

It is important to ensure that the national market surveillance scheme is aligned and consistent with existing policies, including local legislation, requirements, and national conditions.

Legislation must include information on the requirements for suppliers, as well as the offences and penalties for non-compliance. It should also include information on the powers of the authority to oversee compliance, including inspection, monitoring, and investigation. These powers may include:

- Use of search warrants;
- Evidence seizure, handling, and retention;
- How and when powers will be exercised;
- Suppliers' rights during monitoring activities; and
- Appropriate monitoring activities (such as market surveillance, verification testing).[13]

Provisions for using foreign verification results can be included in law to support regional compliance activities by legitimizing any information collected at a regional level and authorizing sharing of information between national compliance authorities. This can include requirements to adopt or use regional product registration systems to track compliance actions.

Develop Administrative Guidelines

Administrative or operational guidelines are effective complementary tools to legislation and offer benefits to all ASEAN Member States. They compile in one place various documents and processes for market surveillance (and other compliance steps), providing clear and consistent guidance to centralized or provincial staff conducting product and market inspections. Administrative or operational guidelines provide greater flexibility for compliance actions because they are generally easier to update than legislation: they outline the steps for different types of market surveillance efforts and include information on how to respond to potential cases of non-compliance. They can also list the toolkit of enforcement actions that compliance authorities can use to address non-compliance, which can even prove more effective than legal proceedings since informal action are less costly and time consuming for all parties.

These guidelines can be made available to all program stakeholders to provide transparency into the compliance process. Documenting requirements and procedures and making them publicly accessible to program participants improves the prospects of compliance. However, administrative guidelines are not enforceable. The intention of these guidelines is to support legislation, not replace it.

[13] More information can be found in the UNEP-GEF en.lighten Enforcement Guide (UNEP 2016): https://www.lites.asia/files/otherfiles/0000/0453/Enforcing_Efficient_Lighting_Regulations_February_2016.pdf

Box 4: Case Study – India's Operational Guidelines to the Energy Conservation Act of 2001

The Energy Conservation Act, 2001, amended in 2010, provides a legal framework, institutional arrangement and regulatory mechanism for the national S&L scheme. The Act describes the Bureau of Energy Efficiency (BEE) and state governments' powers to carry out compliance activities for S&L. It also defines the roles and responsibilities of key stakeholders, including manufacturers, BEE, state Governments and state designated agencies (SDAs) among others.

BEE has developed, in collaboration with CLASP, Operational Guidelines for the national standards and labeling program for energy efficient appliances to complement the Act. These Guidelines are the first of their kind in India and are expected to serve as an example for other schemes run by the Bureau. They provide transparency and credibility to the program, while addressing inconsistencies or grey areas experienced in program implementation. The Guidelines help streamline operational procedures and provide more clarity on legislative definitions, roles and responsibilities of program administrators, and suppliers' requirements. Specific components of the Guidelines are made available online to ensure that industry stakeholders are familiar with and well informed on their responsibilities as well as the consequences of non-compliance.

The Guidelines cover S&L program administration and feature compliance information. The Bureau is also developing a complementary manual focused on India's enforcement regime.

For more information on the Indian compliance program, see http://www.beestarlabel.com

Sources: UNEP 2016.

Roles and Responsibilities

An institutional framework should be well defined before implementing a market surveillance scheme, with set roles and responsibilities for ministries, agencies, customs, and other stakeholders working on compliance. This ensures functional relationships and collaborative communication between different bodies from the outset, which is critical for program success. The institutional framework should be designed to respond to market needs, for example:

- Larger manufacturing markets may require more action at the provincial level, with oversight from a centralized body; and
- For import markets with robust entry conditions, a centralized approach to market surveillance may suffice, with most checks taking place at customs.

In each case, the roles of those carrying out market surveillance need to be determined, and relevant staff should be well-trained and have the necessary legal authority to execute their mandate. The responsibilities of program participants and stakeholders should also be understood, particularly where voluntary or industry self-regulated measures are in place. These roles and responsibilities should be set out in legislation, and guidance should be provided in any operational or administrative guidelines.

When defining roles and responsibilities, policymakers should consider the following aspects:

- Whether any existing compliance authorities or inspectors are able to deliver the market surveillance needs of the program.[14] For example, authorities with experience in product safety regulation or consumer protection may also build capacity to address energy efficiency policies;
- How agencies and/or market inspectors at the national or provincial level work together;

[14] "Regulators should be of the right size and scope, and no new regulator should be created where an existing one can do the work" (Hampton 2005).

- What role industry or civil society play, and how they can contribute to the program;
- Whether in-house personnel should be used for all market surveillance activities or if external expertise should be used for selected efforts (e.g., monitoring in stores, monitoring online, testing, etc.); and
- How to cooperate on market surveillance with national customs authorities and link with tools used by customs in market surveillance.

Cooperation with national customs authorities can be an effective way to prevent non-compliant products from entering the market. However, customs offices and personnel often have other priorities and activities, which prevents them from questioning the compliance of imported products under energy efficiency legislation. National customs authorities should be trained or provided simple guidance material about the regulations and relevant product requirements in force.

Box 5: Case Study – Malaysia coordination on electrical appliances product database and customs database

In Malaysia, the Energy Commission (ST) developed an online system for applying for a Certificate of Approval (CoA) for imported or manufactured products that are displayed, sold or advertised. The e-permit system, operated by Dagang Net Technologies Sdn Bhd, went into effect in 2010. The manufacturer or importer completes the CoA application via this e-permit system. Once the permit application is approved, it is routed to Sistem Maklumat Kastam (where applicable) for validation and cross-referencing against the customs declaration.

The database that lists registered products is available for public access here: http://edik.st.gov.my/publicenquiry/search.aspx

Source: Approval of Electrical Equipment, Information Booklet, 2016 Edition.

2.2. Funding for Market Surveillance

A well-developed market surveillance program at the regional, national, or provincial level should have a distinct annual budget allocation, but not every program requires the same amount of funding. Although a larger budget is preferred, even a modest budget can support impactful activities to monitor the market and contribute to the development of a comprehensive program.

In order to justify the allocation of funding for market surveillance, it is important to understand the cost-benefit of enforcement. For example, if 10 to 40 percent of regulated products do not meet policy standards, improving compliance for existing standards may be more cost-effective to increase energy savings than regulating a new product category.

The main costs incurred in market surveillance include:

- **Establishment costs –** capital costs for setting up central or field offices, purchasing office, investigator, or testing equipment, and developing new procedures, guidelines, or software;
- **Labor costs –** capacity building and training for locally- and centrally-based staff, as well as customs staff, to ensure they understand new requirements;
- **Travel costs –** operating costs for program staff to inspect retail markets within sub-national or local markets; and

- **Testing costs –** all costs involved in the verification testing process, including those for product laboratory testing, as well as product procurement, transport, and disposal.

Box 6: Case Study – Thailand/EGAT budget for market surveillance

Thailand's Demand Side Management and Planning Division (DSM) office under the Energy Generating Authority of Thailand (EGAT) is mandated to administer and implement a market surveillance program. EGAT fully funds the market surveillance program from its budget.

In 2017, the annual budget for in-store inspections for all products under the labeling program was about 3 million Thai Baht, which did not include program administration and reporting. In the same year, EGAT spent around 1.5 - 2 million Thai Baht to purchase about 60 AC models for verification testing. EGAT conducts market inspections, which include inspection of labels and purchase of samples, more than 15 times a year:

- Five (5) regions: 5 times a year (4-5 days per region);
- Metropolitan area: more than 10 times.

EGAT brings with them to retail stores a list of pre-defined AC models for sample purchasing – they collect only one sample per selected model for testing. EGAT uses a convenience sampling method to select retail stores, which they then randomly inspect – averaging around 2-3 stores a day.

The annual cost of verification testing is about 1.2 - 1.4 million Baht. To test the models at the Electric and Electronics Institute (EEI) lab costs 16,250 Baht for fixed-speed ACs and 23,750 Baht for variable-speed ACs.

To minimizing costs associated with verification testing, in 2018 EGAT started to implement a new practice of requiring manufacturers/importers to cover the cost of purchasing the product. After EGAT makes an advanced payment for a randomly selected sample, the manufacturer or importer is required to pay back EGAT, as well as take the product back after testing. If the sample fails verification testing, then EGAT allows the manufacturer or importer to select another sample (of the same model) randomly for a second round of verification testing. The manufacturer or importer is also required to cover costs of purchasing and testing a second product sample.

Source: EGAT, 2018.

The budget and scale of the market surveillance efforts can depend on the type of conformity assessment process required to place the product on the market. Investment can be lighter if the government implements a more rigorous approach at the beginning to assure greater product compliance as products enter the market. When entry conditions are less robust, investment in market surveillance activities will have to be significantly higher to protect the market from non-compliant products. For example:

- A larger manufacturing market with a less stringent conformity assessment process, or minimal entry conditions, will have a higher risk of non-compliant products entering the market, and will therefore require more staff and market surveillance activities to identify and respond to cases of non-compliance; and
- An import market with a more robust conformity assessment process, or rigorous entry conditions, may address many cases of non-compliance at customs, and compliance authorities may be able to leverage market surveillance results from neighboring countries, or within the region, and therefore not have to invest as much in a comprehensive market surveillance program.

Every market is different, so the budget should be flexible and adaptable to meet the specific market's needs.

Stringent Market Entry Conditions in Thailand and Malaysia	Medium Market Entry Conditions in Indonesia, Philippines, Singapore, and Vietnam	Program Under Development in Brunei, Cambodia, Lao PDR, and Myanmar
Status: • More rigorous approach upon market entry ensures greater compliance	**Status:** • Less rigorous approach upon market entry requires more investment to protect markets from non-compliance	**Status:** • Certification and registration process not yet determined
Recommendation: ➔ Lower investment in market surveillance needed	**Recommendation:** ➔ Higher investment in market surveillance needed	**Recommendation:** ➔ Consider implementing stringent checks upon market entry ➔ Lower investment in market surveillance needed if applying rigorous market entry conditions

Identify potential funding sources

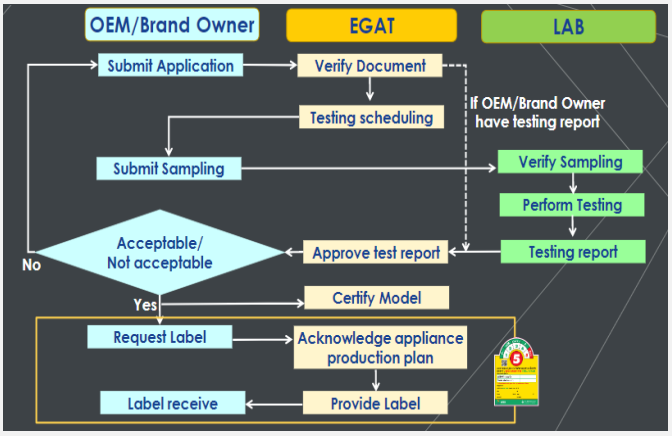
A successful market surveillance program requires secure and sustainable funding for all activities. There should be a distinct annual budget allocation for market surveillance, as well as other compliance activities. Various funding options may be considered:

- **Government funding –** If seen as a priority by government, resources can be allocated to cover the market surveillance budget;
- **Penalties –** Penalties or fines may enable the authority to recover the costs of any successful prosecution; or if a product is found to be non-compliant, the responsible program participants can refund the costs of testing (also known as cost-sharing);
- **Product registration fees –** Fees generated through product registrations can contribute to or comprise the market surveillance budget; and
- **Stakeholder contributions –** Collaboration and cooperation with industry or civil society may provide additional resources – through joint testing programs, by providing expertise, supporting data collection and sharing, or even providing testing facilities – that reduce the cost of program management. Goals for cooperation should be established prior to engaging in this form of collaboration, as some contributions may not be admissible as a foundation for legal action (for example, there may be a conflict of interest in using industry funding to legally prove non-compliance of competitors in the market. This will depend on national regulatory restrictions and requirements).

Box 7: Case Study – Thailand's process for obtaining the label

Step-by step process of how manufacturers obtain the product label in Thailand:

1. Manufacturer or importer submits the application form to EGAT
2. EGAT checks the document
3. EGAT collects product samples and notifies manufacturer or importer of the testing date
4. Manufacturer or importer provides the product samples
5. The testing laboratory tests product samples for compliance with standards and produces a test report



6. EGAT informs the manufacturer or importer of the test results
7. If the product complies with standards, EGAT approves the report; if the test result is NOT passing, the manufacturer or importer must begin again with a new application submission
8. EGAT provides the test label to the manufacturer or importer

The manufacturer or importer may submit their own test report, which allows them to bypass the testing scheduled by EGAT.

Source: EGAT 2018.

For a comprehensive review on establishing compliance and market surveillance frameworks, the following resources provide practical information based on the experiences of existing S&L programs, including:

- *Enforcing Efficient Lighting Regulations: Guidance Note*, UN Environment, 2016;[15] and
- *Compliance Counts, A Practitioner's Guidebook on Best Practice Monitoring, Verification, and Enforcement for Appliance Standards and Labels*, CLASP 2010.[16]

[15] https://www.lites.asia/files/otherfiles/0000/0453/Enforcing_Efficient_Lighting_Regulations_February_2016.pdf
[16] CLASP 2010

3. Conducting Market Surveillance

Many ASEAN Member States have adopted S&L policies but have not yet initiated market surveillance activities. Organizing a nascent program can be overwhelming, especially given the amount of effort and resources that go into planning a market inspection or verification testing. However, focusing solely on S&L development and adoption will not secure anticipated program savings. Even a small effort on market surveillance can have a significant impact, as the slightest risk of being caught can deter non-compliance.

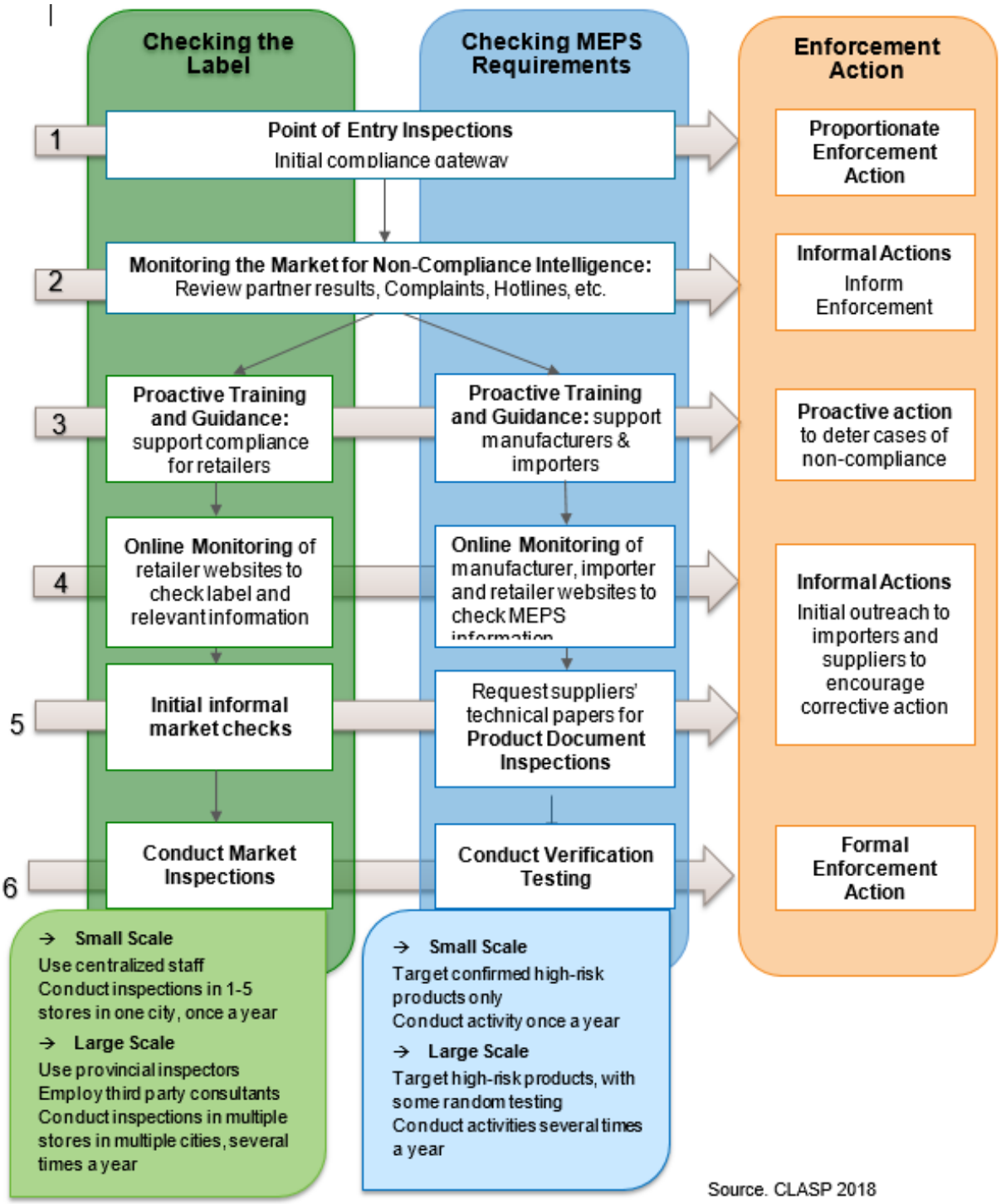
When planning a market surveillance strategy, compliance authorities should consider:

- Identifying realistic and achievable goals for market surveillance;
- Targeting products at risk of non-compliance to accomplish more with less;
- Starting with lower-cost and lower-resource efforts to identify non-compliance; and
- Using the results of these activities to initiate enforcement discussions with the relevant stakeholders before launching into more resource-intensive activities to prove non-compliance.

The Market Surveillance Decision Tree in Figure 2 provides a step-by-step approach to conducting market monitoring and inspection activities. This can be used by compliance authorities interested in understanding which activities can initially be carried out with a lower budget and when and how to undertake more resource-intensive and rigorous market inspection or verification testing activities. It also indicates the types of enforcement responses that compliance authorities can use to respond to cases of non-compliance. For example, compliance authorities can use initial complaints to engage with suppliers and understand why their products are non-compliant and whether the infraction can and will be easily addressed. This can remove the need for further verification testing. However, if the supplier does nothing, the compliance authority can escalate their market surveillance efforts and conduct more resource-intensive verification testing. The authority can then use the results to prove non-compliance and the supplier must take action to rectify non-compliance.[17]

[17] CLASP 2018

Figure 3. Market Surveillance Decision Tree



3.1. Effective and Resource Efficient Market Surveillance

A huge number of products are sold on ASEAN Member State markets every day. Not only are there numerous products for sale, there are also countless retailers selling these products, resulting in innumerable opportunities for non-compliance. No program budget is vast enough to check all stores for accurate display of labels, nor to test every appliance on the market. Well-thought-out targeting techniques should be applied when selecting product categories, brands, and models for compliance inspection.

There are typically three approaches to checking markets for non-compliance:

- **Risk-based –** this **best practice** is the most cost-effective approach, by using market monitoring intelligence to target market inspections and testing. Risk-based sampling is a selection approach for products, brands and/or models based on a set of factors related to a perceived increased risk of failing the compliance requirements. In general, it is more common to select products according to a set of criteria rather than choose a random sample for testing – especially where resources e.g. budgets for testing are constrained. The risk-based approach can miss cases of non-compliance;[18]
- **Random –** this practice can be costly and may not find or correct many cases of non-compliance, but can act as a strong deterrent to non-compliance. Products or retail outlets are selected at random for testing and market inspections. This approach is typically used when there is no data available or the authority has no previous experience with the specific product sector or regulation;[19] and
- **Targeting all products available (or placed) on the market –** this is not a good practice. It can be incredibly costly and resource intensive to test all products and inspect all stores, even though it eliminates any potential for non-compliance and provides a statistical representation of compliance rates on the market.

Stringent Market Entry Conditions in Thailand and Malaysia	Medium Market Entry Conditions in Indonesia, Philippines, Singapore, and Vietnam	Program Under Development in Brunei, Cambodia, Lao PDR, and Myanmar

Recommendation:

➔ Prefer a risk-based approach to target products or retailers at high-risk of non-compliance

Developing a Strategic Market Surveillance Program

A market surveillance program will be most effective if it is clearly set out in a market surveillance plan and strategy, which:

- First **gathers market data and intelligence** through various low-effort methods to help identify products at risk of non-compliance (for instance, reviewing consumer or competitor complaints);
- Then **conducts lower-cost market inspections** to confirm products at high-risk of non-compliance (for instance, conducting product document inspections); and
- Finally, uses the market data and intelligence gathered to **select products** or retailers at high-risk of non-compliance **for verification testing** and market inspections to confirm non-compliance.

Monitoring the Market for Non-Compliance Intelligence

[18] IEA Policy Pathways: Monitoring, Verification and Enforcement 2010, p.29
[19] Ibid.

While many ASEAN Member States may not have resources to conduct larger scale market surveillance activities, it is essential that each country collect market intelligence through monitoring activities. Governments can use the following low-cost methods to collect data and help identify opportunities for more robust retail and product checks:

- Gathering market intelligence from partners and stakeholders that have conducted their own market checks can serve as a valuable resource to compliance authorities;
- Complaints, reports, or other forms of intelligence from external parties about possible non-compliant products can be an important targeting method;
- Gathering market and product data from customs or certification and registration platforms can help identify at-risk products; and
- Monitoring online retail and supplier markets can help identify questionable label and product performance information that requires further examination.

Each of these methods can provide an opportunity for the relevant authorities to communicate with and informally engage the supplier at risk of non-compliance. This offers the supplier an opportunity either to prove their product is compliant, or to rectify the non-compliance, without having to resort to formal enforcement, which can be costly and time-consuming for the compliance authority.

3.2. Market Surveillance and Product Inspection Approaches

The primary role of market surveillance is to check for potential product non-compliance on the market. It is a precursor to verification testing to prove non-compliance. Market surveillance helps to ensure that:

- All products in the market covered by mandatory labeling are registered and display the label;
- All products carrying the voluntary label are registered;
- Labels are displayed correctly on appliances as per the regulation and fake labels are not being used on products; and
- Performance levels and other product characteristics mentioned on the label and in the accompanying technical documentation match with the registered model.[20]

In a budget-constrained scenario, it is very important to develop clear procedures and tools for conducting different market surveillance approaches. The selection of different approaches and mechanisms for conducting market inspections depends on the regulation and available resources. Some of the approaches are listed below, ordered by lower cost / lower resources to higher cost / higher resources.

1. **Product checks through customs –** In countries with a large proportion of imported products, customs authorities can help improve compliance rates and reduce transaction costs for governments and industry. Customs authorities should be informed and trained about the products under the S&L program and the relevant requirements to check before allowing a product to enter the country. They may also be provided with a checklist with all the parameters to identify potential non-compliance in import markets.
2. **Online market surveillance –** For internet sites, it is important to ensure that the websites display label information and correct performance claims alongside the product information on web pages. This is a low-cost measure and does not require highly technical staff.
3. **Complaint based market surveillance –** Complaints can provide a valuable resource to program administrators, and successful complaint handling can be a powerful tool. Complaints about suspicious products can come from any stakeholders that have purchased, investigated, or installed the air

[20] Annex 2 contains a table of different cases of non-compliance. Market surveillance activities should be defined so that they catch these cases.

conditioners, such as consumers, competitors, civil society and installers. Creating different complaint reporting mechanisms, such as telephone hotlines, emails, websites, or complaint boxes in the stores can enable market participants and the public to report on non-compliance. Local cultures and norms will dictate the approach most suited to the national market.

4. **Product documentation inspection –** This approach can be used as a product targeting technique prior to laboratory testing. The documents and label on the products should be reviewed to ensure compliance before they are subjected to full verification testing. Key documents to check are the product fiche and the testing reports provided for certification purposes. Inspections of product brochures, catalogues, labels and any other relevant documents may also be informative. This process is explained in more detail below.
5. **Screening tests –** These tests are typically used to provide a preliminary assessment of products and do not include complete testing. Screening tests provide a reasonable indication of energy performance at a lower cost and more quickly than through a full verification test. These can be a low-cost targeting tool for the selection of products with a higher probability of being non-compliant. Screening tests should however not be used to start any formal enforcement actions. This inspection approach may not be applicable for air conditioners but can be used for other product categories.
6. **Retailer and stakeholder training –** Retailers are the first point of contact and have a role in influencing consumer purchase decisions. Retailers should be held accountable for ensuring that the products in their stores carry the label correctly. It is important for compliance authorities to provide training programs in regulatory compliance for manufacturers and suppliers and label interpretation for retailers. There should be clear guidance on the roles, responsibilities, and enforcement actions relevant to retailers. Governments may consider outreach activities that bring these issues to the attention of product retailers.
7. **Conducting label inspections in stores –** This approach comprises inspections at retailer or dealer shops or warehouses to ensure that the product carries a label that is compliant with the applicable regulations or rules. This may include periodic visits to the stores, surprise visits to the manufacturing facility to review the process of applying the label and visits to a manufacturer's test laboratory. This strong deterrent to non-compliance is one of the most comprehensive forms of market surveillance, especially when supported with subsequent verification testing for select products. This process is explained in more detail below.

All of the above proposed approaches serve as valuable tools in market surveillance and should be considered according to the ASEAN Member State's respective compliance budgets. Two of these approaches are explained in more detail below, as they are highly applicable to certain ASEAN economies, very effective in determining non-compliance, and often undertaken by compliance authorities in other countries.

Conducting Document Inspections

This approach to market surveillance is particularly suitable for ASEAN Member States that require self-declaration and certification. It offers an opportunity for compliance authorities to conduct market surveillance at a centralized level, with staff checking for ambiguities, energy efficiency miscalculations or non-compliance in product documentation submitted by importers or retailers.

Additionally, this approach can be effective for smaller import markets with few resources to carry out market surveillance activities. They can focus their efforts on checking documentation for imported products coming through customs and enforcing the regulations by not allowing non-compliant products onto the market.

This activity can take place either when products enter the market, or when they are already available. Document inspection is a stand-alone activity: if the documentation of a product does not meet the requirements of its corresponding regulation, then there is a non-conformance. Compliance authorities can also use document inspection as a method to select products for further compliance verification through laboratory testing, when documentation is ambiguous or deemed unreliable.

The product document inspection process involves the following:

- Before starting, the regulator should review the regulations to identify which documents need to be provided with the product or by the supplier, and what the information and minimum performance requirements are;
- The technical documentation file should include an identity declaration - a list of all the equivalent models or products covered by the same technical file, and the products that rely on the same model to derive their compliance by calculation or interpolation; and
- It is necessary to check that the manufacturer has not used measurement tolerances prescribed in the legislation to achieve a more favorable score or classification than the test reported in the documentation.[21]

Where possible, ASEAN Member states should align their approaches to document inspections. This means that a manufacturer/importer can send the same documentation to different compliance authorities and have the results apply in all countries.

Stringent Market Entry Conditions in Thailand and Malaysia	**Medium Market Entry Conditions** in Indonesia, Philippines, Singapore, and Vietnam	**Program Under Development** in Brunei, Cambodia, Lao PDR, and Myanmar
Status: • Require third-party testing for market entry which typically provides more certainty on validity of product performance claims	**Status:** • Require self-declaration and certification for which document inspections are particularly suitable	**Status:** • No market entry conditions and small import markets with nascent programs for which document inspections are particularly suitable
Recommendation: ➔ Low priority to conduct document inspections given reliability of third-party testing	**Recommendation:** ➔ High priority to conduct document inspections	**Recommendation:** ➔ High priority to conduct document inspections

Checking Labels with In-Store Market Inspections

Conducting in-store market inspections can be cost intensive. These inspections involve sending staff to visit retailers around the country and conducting in-store market surveys or questionnaires. They check whether the retailer met relevant labelling requirements and investigate any suspicious or non-compliant products on display in the stores.[22]

In a resource-constrained environment, it is important to establish a robust sampling mechanism for selecting relevant retailers, so that even with fewer inspections the market is well represented.

The frequency of market inspection surveys should be determined by the maturity of the program. Initially, compliance authorities may need to conduct surveys more frequently, undertaking them following the introduction of labelling for new product categories. Once the compliance rate for a product category reaches

[21] Ecopliant 2015
[22] A sample of Market Surveillance Checklists from CLASP 2010 is included in Annex 3.

a satisfactory level, authorities can conduct surveys less frequently, or target geographical areas or retailers that have demonstrated historically lower rates of compliance.

Compliance authorities should consider the following, for conducting successful in-store inspections:

- It is not possible to check all shops and products on the market. Prior to the visit, the authority should prepare a plan specifying the expected number of visits per year, the types of shops to be visited, and product categories to be checked;
- Depending on the budget, selection of a representative sample can be performed by applying different criteria such as climatic zones and regions, type and size of stores, stores with a history of non-compliance, among others;
- Compliance authorities should visit selected shops/retailers/dealers/stockyards/warehouses without prior intimation. The surveillance may also include surprise visits to the manufacturing facility to review the process of applying the label and visits to manufacturers' test laboratory;
- The proper label display for the products should be recorded following the checklist;
- Since they do not require technical knowledge, many compliance programs contract third parties to undertake these surveys, often contracting businesses that already visit retail outlets to provide monitoring services. Alternatively, local authorities or consumer groups may undertake surveys within their region depending on available budget;
- Compliance authorities may carry out inspections through a pre-defined surveillance sheet and a checklist with the parameters for inspection and the information to collect in each shop. A structured/semi structured questionnaire may also be prepared for the face-to-face interviews with retailers/suppliers/dealers on their attitude towards the label, handling difficulties, the availability of the labeled products from the manufacturers; and
- Post inspection, compliance authorities should carry out the assessment and evaluation of the results. They may report the results back to the shops. Compliance authorities should take measures against non-compliant samples and stores, depending on the regulation of respective countries.

Box 8: Case study – Thai checklists and survey documents to guide inspections

EGAT uses the following checklist to survey energy label regulatory compliance:

- Is there a label?
- Does the product identification on the label match the product to which it is attached?
- Is the label displayed in the required place?
- Is the overall design in accordance with the requirements?
- Is all the required information provided?
- Is this product subject to a registration requirement?
- Has this product been registered in accordance with the requirement?
- Upon examination, do the registration particulars appear compliant with the requirements?
- Is the model correctly identified?
- Are the required performance level(s) equal to or better than the label values?

Refer to Appendix 3 for a survey form, *Interview Questions for Random Testing of No. 5 Energy Label Products.*

Source: EGAT.

National compliance authorities should report on the level of market surveillance checks and share aggregated results with stakeholders. In some cases, detailed results of market surveillance may also be reported once all

compliance efforts have been undertaken and completed. Careful consideration must be given as to whether this is legally possible and culturally appropriate.

Stringent Market Entry Conditions in Thailand and Malaysia	**Medium Market Entry Conditions** in Indonesia, Philippines, Singapore, and Vietnam	**Program Under Development** in Brunei, Cambodia, Lao PDR, and Myanmar
Status: • Conduct in-store market inspections every year or after revision of MEPS or labeling categories, and on frequency determined by compliance rates	**Status:** • Occasionally conduct in-store market inspections after revision of MEPS or labeling categories, and on frequency determined by compliance rates	**Status:** • No market inspections undertaken
Recommendation: ➔ Prioritize based on results of past inspections	**Recommendation:** ➔ Prioritize based on results of past inspections	**Recommendation:** ➔ High priority after program launch

Other resources that include additional detail on conducting market surveillance include:

- *Compliance Counts, A Practitioner's Guidebook on Best Practice Monitoring, Verification, and Enforcement for Appliance Standards and Labels*, CLASP 2010;[23]
- *ECOPLIANT Best Practices Guide*;[24] and
- *Enforcing Efficient Lighting Regulations: Guidance Note*, UN Environment, 2016.[25]

[23] CLASP 2010
[24] http://www.eepliant.eu/index.php/knowledge-base?task=callelement&format=raw&item_id=23&element=f85c494b-2b32-4109-b8c1-083cca2b7db6&method=download
[25] UN Environment 2016

4. Conducting Verification Testing

Verification testing is the process to determine whether the declared energy performance of the product available on the market is accurate. It is the cornerstone of compliance related activities.

Compliance authorities are encouraged to apply a 'risk factor' to select products for verification testing (or more detailed in-store inspections). Specific criteria that can help identify a high-risk factor for specific product categories, brands and models include:

- Newer models, as they remain on the market for a longer period compared to older models;
- High energy consumption and new legislation covering a product;
- High market share, given the greater impact on energy use compared to models with lower sales;
- History of non-compliance in other regulations (ex. product safety or counterfeiting) for brands.
- Suppliers with a demonstrated record of check testing non-compliance: because of the likelihood of a continuation of such historical trends;
- Models with the highest claims for energy efficiency (e.g. high star ratings): because of the market's higher expectations with respect to the performance of these models as compared to models with low ratings;
- Models about which complaints have been received from third parties such as competitors, consumers, consumer groups, or regulatory agencies;
- International and local complaints or market intelligence – ASEAN markets will share identical or similar products and so testing in once country can inform action in another. ACE will be developing a regional database to support information sharing across borders; and
- Ambiguities in the supplied technical documentation that is provided with the entry conditions, or certification and registration.

To avoid criticism or bias from industry stakeholders, the criteria used for targeting products should be indicated in the administrative or operational guidelines and published by the compliance authorities.[26]

Compliance authorities can randomly select a certain percentage of models. Many seemingly different models of a product may turn out to be essentially the same model with minor cosmetic differences only. The use of market research to determine whether a single model is representative of all different models could provide cost savings or enable extending a verification program to a larger range of products.

[26] IEA Policy Pathways: Monitoring, Verification and Enforcement 2010

Box 9: Case Study – Australia's criteria-based verification testing

Australia's Greenhouse and Energy Minimum Standards (GEMS) Regulator is responsible for testing more than 24 product types for compliance. Annually testing every registered model from all product types is not feasible, so GEMS Regulator selects a cross-section of models on the market for verification testing. The GEMS Regulator has developed a criteria-based approach to verification testing focused on market intelligence and risk, and seeks to prioritize models for verification testing based on:

- Information and intelligence on the model's actual energy efficiency performance
- Brands with a history of non-compliance or lack of verification testing history
- Product types with a history of non-compliance
- Test labs with a history of publishing inaccurate test reports
- Models with a large market share
- Product types that use more energy or produce more greenhouse gases
- Models making high energy efficiency claims relative to competitor models
- Newly regulated products
- Models not recently tested by the GEMS Regulator

From July 1, 2016 to June 30, 2017, the GEMS Regulator checked eighty-six models across twelve products regulated under the GEMS Act. In total, thirteen air conditioner models were tested. Eleven models (85%) passed the Stage 1 testing and the two models (15%) that underwent Stage 2 testing failed and had their registrations canceled. By utilizing a criteria-based approach, Australia can identify and test those models with a higher risk of non-compliance and those products which, if non-compliant, will have a large impact on energy consumption and greenhouse gas emissions. A random approach to model selection may have prevented identification of the two non-compliant models detected in the 2016-2017 round of verification testing.

Source: Australian Government GEMS Regulator.

Box 10: Case Study – Thailand's criteria-based approach for selecting models for verification testing

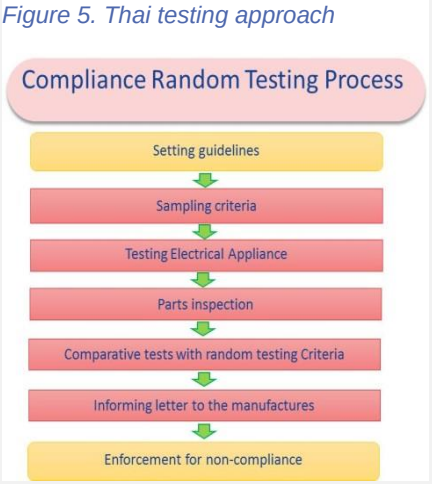
I. Criteria for selecting models for sampling:
   - All brands participating in the program;
   - Models with high volume of labeling;
   - New models in the market;
   - Model with a history of non-compliance;
   - Model with claimed high performance rating.

II. Samples of selected models are randomly purchased from retailers and sent to accredited laboratory for testing.

III. Appliance testing is performed at the Electrical and Electronics Institute (EEI).

IV. Parts inspection; comparative testing for testing criteria (SEER, net cooling capacity and power) and performance levels are conducted.

Figure 5. Thai testing approach



Source: EGAT, 2018.

Box 11: Case Study – U.S. ENERGY STAR - market surveillance conducted by 3rd party

In order to preserve the integrity of the ENERGY STAR label, the US Environmental Protection Agency (EPA), through a public consultation process, devised a system of conformity assessment requiring test reports from accredited test laboratories and that products be certified by certification bodies (CBs). The system went into effect in 2011.

In addition to certifying that products meet the pertinent ENERGY STAR criteria before arriving in the market, EPA also directed the recognized CBs to implement a market surveillance or verification program to ensure that qualified products continue to meet the minimum requirements of the program on an ongoing basis. Under the verification program, CBs are required to obtain and re-test a subset (either 5% or 10% of certified models depending on the product category) of the products that they have certified. Products are selected through a nomination process as well as by random. The CB must then go out into the marketplace to purchase samples that are commercially available and test them in an EPA-recognized 3rd party laboratory. Each CB submits a detailed report of their verification testing efforts to EPA every six months. The CBs identify products found not in compliance with the ENERGY STAR requirements to EPA for further enforcement actions. It should be noted that manufacturer participation in the verification program is a requirement of each ENERGY STAR partner manufacturer.

According to EPA's 2017 summary, 1,702 unique ENERGY STAR qualified products underwent verification testing with 93% determined to be in compliance, indicating that ENERGY STAR's system of 3rd party certification for products before they enter the market, is succeeding in keeping non-compliant products from using the ENERGY STAR label.

Sources: UL & EPA, 2018.

4.1. Product Sampling for Verification Testing

Compliance authorities should purchase product samples for testing from the market, rather than obtain them directly from the manufacturer. Even though doing so is cost intensive, it guarantees that there is no golden sample. A golden sample is a sample produced by a manufacturer that is perfect in almost all ways, so that when evaluated (by clients, competitors, inspectors, media, etc.) it can be tested and receive a high standard review.

If compliance authority obtains samples directly from the producer/importer, it must ensure that the samples chosen are not specially prepared golden samples. There are several different ways to do this, including:

- Purchasing products directly from the market, which requires some funds and guarantees no golden sample will be purchased. In some cases, the costs of purchasing the samples can be recovered if the product is found to be non-compliant;
- Seizing products directly from the market or warehouses for testing, which requires certain enforcement powers, but no funds. This approach also guarantees no golden sample will be procured. This would require certain powers to be written into legislation; and
- Selecting products from the manufacturer or importer from a representative list of product model numbers, which requires an agreement with the manufacturer or importer that no payment is required. There is a risk of selecting a golden sample with this approach.

4.2. Product Procurement

Compliance authorities should develop clear guidance on procurement and transport of samples to ensure safe delivery to the test laboratory for verification testing. This is important to ensure a secure chain of evidence from purchase through to testing guaranteeing that products have not been tampered with and that the testing results can be trusted.

When procuring samples, compliance authorities should follow the following steps:

- Prior to each procurement, prepare the list of models and required samples after the market surveillance body has identified models for purchase. If the models for procurement will be determined in the field, prepare a template table to collect this data;
- Keep an invoice or receipt of procured products for record keeping purposes;
- Take photographs of all the samples, packaging, purchase receipts, and retail location to provide a proof of sample procurement;
- Verify label correctness;
- Ensure there is no tampering of products before they reach the test laboratory; and
- Mark and package the sample with a unique identifier code or number. This helps track individual samples back to their point of sale.

The samples should be packed and transported to avoid damage during handling and transportation. The packaging should be strong enough to endure drops and impact. Optionally, compliance authorities can hire professional packing services to ensure compliance and safety. The packages should be clearly identifiable with recipient and sender details. A packing list with details of all the samples should be prepared and signed by samplers for accuracy and completeness. The test laboratories should be communicated with regarding the transit and receipt of samples to ensure smooth transfer.

A globally recognized best practice is to develop a comprehensive, robust and transparent record keeping system. This helps document the acquisition process with details of the samples procured including: performance; communications with the testing laboratory; the testing requirements; and the outcomes of testing.

4.3. Product Verification Testing

Compliance authorities should select test laboratories with managerial accreditation under *ISO/IEC 17025 for General requirements for the competence of testing and calibration of laboratories,* and technical accreditation for testing a specific product, and for testing the selected parameters to ensure competence, reliability and repeatability of test results.

As per *ISO 5151 Non-ducted air conditioners and heat pumps -- Testing and rating for performance,* the ACs can be tested using two testing methods: 1) calorimeter test method, and 2) air-enthalpy test method. The calorimeter test method (with balanced ambient room-type calorimeter) provides greater measurement accuracy (±5%) and should be used, when available, for verification testing. When selecting laboratories, compliance authorities should:

- Set clear objectives, including requiring the accreditation of test laboratories under the relevant national and international test procedure/standard;
- Ensure the accredited test laboratory is independent and does not involve the manufacturers without express permission from the compliance authority;

- Understand the cost of testing products in one laboratory versus another, and whether there are any opportunities for negotiating preferable rates for testing conducted by government clients;
- Explore alternative testing options. National government supported test laboratories are sometimes preferred, but not always necessary. Many private sector test laboratories are well positioned to tackle testing for air conditioners and other products. This allows the government to focus its efforts and resources on implementing standards and conducting compliance efforts, rather than building and running a costly government test laboratory;
- Explore and set up MRAs with other countries. MRAs recognize verification test results between countries, which can save money. Countries that import most of their products should seek MRAs for regional level product testing laboratories;
- Ensure accreditation, competence, and reliability of test results. A round robin testing exercise effectively builds capacity as participant laboratories identify corrective measures for improvement in their processes if necessary, or ratify the quality of current practices, thereby building competence and reliability of test results;
- Collaborate on compliance. By collaborating on testing, countries may learn from each other's program experiences and develop best practices. This could lead to additional collaboration on reducing program costs, and more;
- Develop a financial plan. The costs of verification testing will vary depending on the scope of the program as well as local or regional factors, such as labor and services costs. When planning for costs, more resources should be allocated towards addressing cases of non-compliance that cause the most impact and that occur most frequently. However, cases with low frequency or impact should also have resources allocated to address them;
- Consider timing of testing. A compliance authority may face a backlog of testing if there is limited capacity or if they are conducting verification testing at a peak testing time (for example, as manufacturers place air conditioners on the market for the summer season); and
- Where testing is conducted by another country, or in a foreign test laboratory, ensure the appropriate handling of evidence in line with national processes, to allow tests results to be admissible as a foundation for legal action.

Box 12: Case Study – Countries with local or government test laboratories: Thailand requests test reports from laboratories with TISI license or accreditation

The Electricity Generating Authority of Thailand (EGAT) requires all verification testing to be conducted by Thai testing institutes or laboratories with TIS 17025-2548 accreditation. This promotes and supports local and national testing institutes and laboratories that hold the required accreditation.

EGAT currently collaborates with Electrical and Electronics Institute (EEI) to perform testing for most products under the Label No.5 Program.

Traditionally, under the Label No.5 Program, a test laboratory was selected through an annual tendering process to seek institutes able to provide the scope of accreditation required by the program, with the required testing capacity and reasonable fees.

Source: EGAT, 2018.

Box 13: Case Study – Verification testing in Singapore

Singapore's verification testing process consists of two stages:

- In Stage 1, the National Environment Agency (NEA) selects a random sample of registered goods for verification testing. Suppliers of the selected models provide NEA with samples for testing, which NEA selects and seals at the warehouses. NEA engages a contractor to collect and test the samples, either locally or abroad, and then compares the verification test results against the test reports submitted by suppliers during registration. If a sample model's results are within conformance limits, which generally fall within 10-15% of supplier's declared test result, the verification testing for that sample is completed.
- Stage 2 of the verification testing process initiates further testing for samples that fail the Stage 1 testing. Suppliers are required to provide two additional units of the product for testing: if the average energy performance results for the two new samples are within conformance limits, the model is considered to have passed the verification testing. If the results are outside of the conformance limits, the NEA cancels the product's registration.

For the first verification testing process conducted in 2014, NEA randomly selected 46 registered products on the market and acquired samples from suppliers. They then engaged a Singapore Accreditation Council (SAC) accredited local laboratory, TÜV SÜD PSB Pte Ltd (TÜV SÜD), to perform the verification testing. TÜV SÜD tested 26 products locally, and contracted a laboratory in Guangzhou, China to test 20 air-conditioner models. Singapore was able to cost-effectively export some of the testing to China, because the testing company in Guangzhou was accredited by the China National Accreditation Service for Conformity Assessment (CNAS), and CNAS had signed an MRA with the SAC in Singapore. MRAs are a useful tool for Singapore in the verification testing process.

Sources: CLASP, NEA.

Box 14: Case Study – Mutual Recognition Agreements (MRA's) in Energy Efficiency Standards and Labeling Programs

The MRA's are used predominantly in the safety testing and the telecommunications industries where global trade in these goods is ubiquitous. While currently not as widely used in energy efficiency standards and labeling programs, they are becoming more popular as global product supply chains become more diffuse. In the United States, the ENERGY STAR program leverages MRA's to identify laboratories and certification bodies that have been accredited to the relevant international standards such as ISO 17025 for testing laboratories and ISO 17065 for certification bodies. According to the U.S. Environmental Protection Agency (EPA) that administers the ENERGY STAR program, "Referencing the ILAC MRA took the EPA off the hook for developing a lot of criteria for laboratories or conducting our own lab oversight. And, by working with only ILAC signatories, we have the confidence that the laboratories have been appropriately assessed. We now recognize 27 ILAC-signatory accreditation bodies around the world." In addition to providing a level of trust that conformity assessment bodies have the technical expertise needed to evaluate the products, MRA's facilitate global trade by removing the need for duplicative calibration, testing, and accreditation of organizations. The impact of MRA's fully implemented is that the results from an accredited conformity assessment body under the MRA are able to be recognized by each country that is a signatory to the MRA.

Sources: UL, 2018.

Additional information on verification testing can be found in other S&L guidance materials, including:

- *Compliance Counts, A Practitioner's Guidebook on Best Practice Monitoring, Verification, and Enforcement for Appliance Standards and Labels*, CLASP 2010;[27] and
- Chapter 4: Energy Testing for Appliances, in *Energy-Efficiency Labels And Standards: A Guidebook For Appliances, Equipment, And Lighting*, CLASP 2005.[28]

4.4. Product Disposal

After completion of verification testing, the product should be disposed of properly. In the case of air conditioners, disposal is critical given the safety and environmental concerns arising from the release of refrigerants. Some cases may call for legal consultation to assess which approaches work in-country. There are several options for disposal, some of which include:

- **Resale / charity –** Products that are tested and shown to be compliant may be sold or installed in government buildings or given to charity. However, liability could be an issue, especially where there are safety concerns;
- **Repurchasing by manufacturer –** Samples, specifically non-compliant products, may have to be repurchased by the manufacturers after verification testing. Disposal becomes their responsibility and liability;
- **Research & development –** Samples may also be used in R&D for tests and programs; and
- **Disposal/destruction –** Government may engage the services of any approved agency for the disposal of tested samples as per the disposal guidelines.

Box 15: Case Study Thailand repurchasing scheme for non-compliant manufacturers

Thailand requires manufacturers to repurchase non-compliant appliances within 15 days following receipt of the failed test invoice. Manufacturers must adjust the appliance labels with real test results confirmed by EGAT and return old invalid labels within one month. Manufacturers must bear the costs of printing the new label and must notify EGAT when they have returned the old labels.

Source: EGAT 2018.

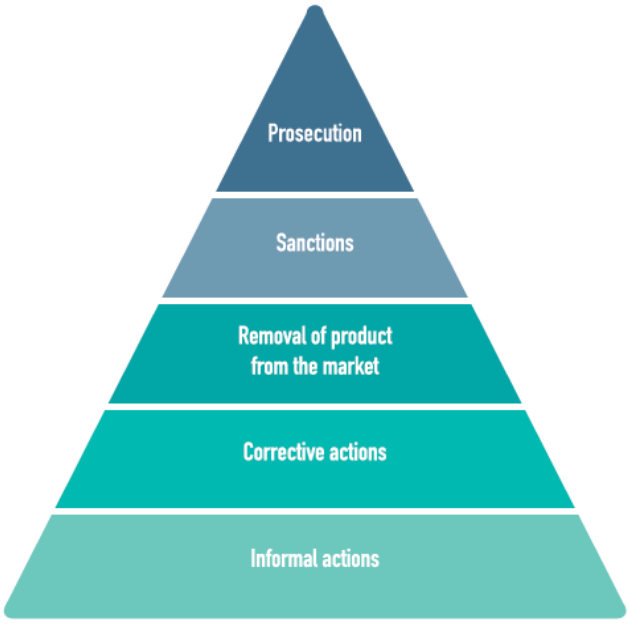
[27] CLASP 2010
[28] Available at https://s3.amazonaws.com/clasp-siteattachments/SLGuidebook_eng_1_FullGuidebook.pdf

5. Enforcement

Compliance authorities should consider the degree of non-compliance when addressing cases of non-compliance, in order to respond with a proportionate enforcement action. Available enforcement actions should be flexible, allowing the compliance authority to assess the severity and intent behind the offence and initiate a timely and proportionate enforcement or corrective action. For this reason, the penalties and powers of the compliance authority to conduct enforcement should be set out in law. A toolkit that provides information on the powers and actions available for enforcement should also be outlined in administrative procedures or operational guidelines.

Many compliance authorities develop an “Enforcement Pyramid” to inform and manage their enforcement response strategies (see Figure 4). The bottom of the pyramid features more informal enforcement actions to take in response to the least severe cases of non-compliance, and the top of the pyramid includes the most severe enforcement responses to the most serious cases of non-compliance. The pyramid can be most effective for the national enforcement strategy if populated in accordance with the legal requirements and resources available to the enforcement authority, and the characteristics of the program and its participants and stakeholders.

Figure 7. Pyramid of escalating enforcement



Source: UN Environment 2016

Box 16: Case Study – Thailand's approach to non-compliance with No. 5 Energy Label program and removing fake labels from the market

In cases of non-compliance with *EGAT's No.5 Energy Label Use Guidelines for Air Conditioners* requirements to display/advertise the No.5 label on a product, and misusing information about the energy performance value on the label, EGAT uses the following measures starting with least severe and proceeding to a more severe response:

- **Step 1:** EGAT gives a warning for correction
- **Step 2:** EGAT cancels the participation of that manufacturer/importer in the No.5 Label program for one year for non-compliant models already granted No.5 labels.
- **Step 3:** EGAT cancels participation of manufacturer/importer in the No.5 Label program for one year for all models already granted No.5 labels. EGAT also holds press conference and announces non-compliance on their website.

In the case of **counterfeit labels**, EGAT immediately uses the measures in Step 3. Infringement of trademark or quality assurance mark "Energy Label No. 5" is regarded as a criminal offence, as well as being actionable in civil law under the Trademark Act B.E. 2534 (1991). EGAT would take legal action in this case.

Source: EGAT, 2018.

Additional information on enforcement can be found in other S&L guidance materials, including:

- *Enforcing Efficient Lighting Regulations: Guidance Note*, UN Environment, 2016;[29] and
- *Compliance Counts, A Practitioner's Guidebook on Best Practice Monitoring, Verification, and Enforcement for Appliance Standards and Labels*, CLASP 2010.[30]

[29] Available at: https://www.lites.asia/files/otherfiles/0000/0453/Enforcing_Efficient_Lighting_Regulations_February_2016.pdf
[30] CLASP 2010

6. Regional Collaboration

ASEAN Member States can strengthen their national compliance programs through regional collaboration and coordination. By sharing information and coordinating activities, compliance programs can minimize resources needed to conduct market surveillance and maximize efficiency for local authorities.

ASEAN Member States do not have an obligation to share inspection or verification testing results. However, the benefits of making this information available to other members are significant. The same product models[31] are likely sold across borders, and releasing information particularly on non-compliant products can alert other compliance authorities to take action.

Compliance authorities responsible for market surveillance should consider:

- Sharing testing plans and inspection activities;
- Sharing market intelligence on non-compliant or sub-standard products;
- Sharing inspection results, particularly for non-compliant products; and
- Sharing results of verification testing.

This information exchange may happen informally among compliance authorities on a bi-lateral basis. ASEAN shine has already facilitated information sharing at the regional level for room AC energy efficiency policies and a number of platforms and tools for information exchange and collaboration are under development.

Some of the mechanisms to foster collaboration among compliance authorities worldwide include regional networks, online discussion forums, and joint product databases. Any platform used for intra-ASEAN collaboration should consider:

- Local regulations and rules for handling confidential issues, as this may restrict sharing of information;
- Maintaining a list of contacts under the national compliance authorities to facilitate communications;
- Setting specific goals and objectives of information sharing and participation rules.

Multiple initiatives, including ASEAN SHINE[32], the Lower Mekong Initiative[33] and Asia EDGE[34] have recognized the value of this type of regional collaboration in ASEAN. These programs are currently developing tools and resources to strengthen national compliance programs, including the development of a regional network for compliance authorities and a regional product registry.

ASEAN Member States are encouraged to engage actively in these and other regional initiatives to maximize the benefits of resources deployed.

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[31] Model numbers may differ among countries; compliance authorities can request information of equivalent models from the manufacturer or importer if there is evidence of non-compliance.

[32] ASEAN SHINE, a public-private partnership between the United Nations Environment Programme (UN Environment) and the International Copper Association (ICA), currently works on standards harmonization across ASEAN for air conditioners and lighting products.

[33] The Lower Mekong Initiative enhances cooperation in the areas of environment, health, education, and infrastructure development among its partners. The air conditioning efficiency program aims to strengthen energy efficiency policy implementation and enforcement capabilities in the Lower Mekong.

[34] The Asia EDGE initiative is a U.S. whole-of-government effort to grow sustainable and secure energy markets throughout the Indo-Pacific. Asia EDGE seeks to strengthen energy security, increase energy diversification and trade, and expand energy access across the region. Asia EDGE will draw on the expertise and resources of the U.S. government, private sector, and international financial institutions. The initiative will partner with like-minded stakeholders/parties to advance the rule-based economic order that has lifted billions out of poverty and enabled unprecedented growth over the past 70 years.

6.1. Using an Online System for Data Exchange

Many countries in ASEAN are using product registration systems to facilitate compliance with entry requirements. Malaysia, Singapore, Thailand, and Vietnam use online systems where manufacturers and importers register eligible products with the regulatory authority prior to market entry. Registration systems can range from a basic list of policy-compliant products to a comprehensive and searchable online database.

The value of using this type of system to support market surveillance activities stems from the wealth of data on registered products that can provide evidence to support inspection activities and verification testing programs. Sharing similar platforms and exchanging data is facilitated and particularly effective when countries apply the same test methods and metrics, which is the case with the ASEAN Member States.

Compliance authorities responsible for market surveillance should consider:

- Using compatible registration systems to simplify the ability to share information;
- Designing a user-friendly interface that can provide support for multiple languages; and
- Recording at a minimum technical information on registered products, results of product testing, and lists of non-compliant products.

A regional online system for data exchange can be built to mirror data available in the national registration systems. For ASEAN Member States that are planning to build new registration systems, there are multiple resources providing practical guidance on how to design, establish, commission, and maintain robust and reliable registration systems including:

- UN Environment's Guidance Note on developing lighting product registration systems;[35] and
- A Prototype Lighting Product Registration System that contains the essential elements of a registration system, including user input forms, data tables and output reports.[36]

[35] Available at: http://united4efficiency.org/wp-content/uploads/2016/09/Developing_lighting_product-registration_systems_February-2016.pdf
[36] Available at: http://registrationprototype.enlighten-initiative.org/Account/Login

Box 17: Case Study - Australia and New Zealand collaborate through information sharing and a joint-product database

MEPS and labeling requirements in Australia and New Zealand are determined through separate legislative instruments. In Australia, the energy efficiency standards are issued in accordance with GEMS determinations as proscribed by the Greenhouse and Energy Minimum Standards (GEMS) Act 2012. In New Zealand, energy efficiency standards are regulated under the Energy Efficiency (Energy Using Products) Regulations 2002, a product of the Energy Efficiency and Conservation Act 2000.

The trans-Tasman Equipment Energy Efficiency (E3) Program facilitates substantial coordination between the two countries with respect to product registration. All products registered in Australia are considered registered in New Zealand, and the Trans-Tasman Mutual Recognition Arrangement (TTMRA) allows products registered in New Zealand to be sold in Australia without acquiring Australian registration.

In recognition of the large volume of intra-regional trade and the need for information sharing to enable meaningful market surveillance and compliance activities, both countries maintain a joint product registration database. The searchable database details legally registered products across 24 different product categories ranging from refrigerators and AC's to dishwashers and incandescent lamps. Easy access to registration status reduces the time and expense associated with compliance activities in both countries.

Source: E3, Australia's Department of the Environment and Energy.

6.2. Using MRAs to Enhance Access to Competent Testing Facilities

A regional network of compliance authorities could pursue the development of an intergovernmental MRA, as part of the efforts to improve monitoring and verification practices in the region.

Relevant existing MRAs in ASEAN include the APEC Electrical and Electronic Equipment Mutual Recognition Arrangement (EEMRA), the International Laboratory Accreditation Cooperation (ILAC) MRA, and the Asia Pacific Laboratory Accreditation Cooperation (APLAC) MRA. These are explained below:

EEMRA

EEMRA is an intergovernmental MRA established to facilitate trade in electrical products within the APEC region. This EEMRA has three main parts:

1. Information exchange, which requires signatories to share information on their respective requirements in a standardized format to help industry easily export to different economies.
2. Mutual acceptance of test results, where economies agree to accept test results from bodies designated by other signatories, eliminating the need for retesting.
3. Mutual recognition of certification, which enables economies to accept Certificates of Conformity from other signatory economies.

A country can sign onto just one (e.g., information exchange) or all three. Some ASEAN Member States are signatories of part 1. Only two are signatories of parts 2 and 3.[37] Non-signatory members should consider signing on to parts 1, 2, and 3 to take full advantage of the regional MRA.

ILAC MRA

ILAC, formed by laboratory accreditation bodies, regional organizations, and stakeholders from over 110 economies, set up the ILAC MRA to make use of a global network of accredited testing and calibration laboratories and inspection bodies to provide accurate and reliable results. This globally recognized system of accepting accredited test and inspection reports could be a valuable resource to ASEAN.

APLAC MRA

One of the primary aims of APLAC is to harmonize accreditation practices in the region. APLAC is also an ILAC-recognized region and most signatories to the APLAC MRA are also members of ILAC (i.e. signatories to the global ILAC Arrangement for testing and/or calibration). This MRA forms a regional network of laboratories and inspection bodies accredited by accreditation bodies that have been peer-evaluated and recognised as competent. This MRA could be recognised by energy efficiency regulation for testing purposes in ASEAN.

The process to set up or sign up to an MRA can vary significantly.[38] ASEAN Member States could explore bilateral MRA opportunities with key trading partners and other members with accredited testing facilities to facilitate evaluation of conformity.

[37] https://www.apec.org/Groups/Committee-on-Trade-and-Investment/Sub-Committee-on-Standards-and-Conformance/apec_eemra.aspx

[38] ASEAN Center for Energy (ACE) is now working with The Joint Sectoral Committee Electrical and Electronic (EE) MRA and planning to have it endorsed by The ASEAN Ministers on Energy Meeting (AMEM) at the end of 2018.

Box 18: Case Study – Mutual Recognition Agreements in ASEAN

In 2002, the ASEAN member states signed the ASEAN Sectoral Mutual Recognition Arrangement for Electrical and Electronic Equipment (ASEAN EE MRA). This MRA was intended to facilitate the standardization and acceptance of test reports and certification for new electrical and electronic equipment, by allowing testing laboratories and certification bodies to apply for accreditation as listed compliance assessment bodies (CABs). Listed CABs must meet numerous legal criteria as well as demonstrate the technical knowledge and capability to perform relevant tests according to international standards.

The regional MRA was the precursor to the 2005 Agreement on the ASEAN Harmonized Electrical and Electronic Equipment (EEE) Regulatory Regime (AHEEERR), which built upon the sharing of testing and certification capabilities. It required ASEAN member states to enact laws, enhance market surveillance and product liability requirements, and develop their EEE regulatory regimes to ensure that products on the market comply with regional health and safety standards.

As of November, 2017, there are 23 listed testing laboratories and 9 listed certification bodies in Vietnam, Thailand, Singapore, the Philippines, Malaysia and Indonesia under the ASEAN EE MRA. The MRA framework allows the ASEAN member states to efficiently test electrical and electronic appliances for the more than one hundred IEC general operational and safety standards agreed upon as a part of AHEEERR. The successful implementations of the ASEAN EE MRA and the harmonization agreement evidence the potential for an energy efficiency performance focused regional MRA to reduce the burden of testing and certifying appliances for conformance to regional energy efficiency standards.

Source: ASEAN.

Stringent Market Entry Conditions in Thailand and Malaysia	**Medium Market Entry Conditions** in Indonesia, Philippines, Singapore, and Vietnam	**Program Under Development** in Brunei, Cambodia, Lao PDR, and Myanmar
Status: • Use online product registration and certification systems • Participate in ASEAN-SHINE workshops, but no formal information sharing platform	**Status:** • Use online or paper-based registration and certification systems • Singapore uses MRAs • Participate in ASEAN-SHINE workshops, but no formal information sharing platform	**Status:** • Different product registration and certification mechanisms under consideration • Interest in setting up MRAs • Participate in ASEAN-SHINE workshops, but no formal information sharing platform
Recommendation: ➔ Consider participation in a regional compliance forum ➔ Consider setting up MRAs with other ASEAN Member States ➔ Consider future alignment or regional access to product databases	**Recommendation:** ➔ Consider participation in a regional compliance forum ➔ Consider setting up MRAs with other ASEAN Member States ➔ Consider developing a regional product database or registration and certification system	**Recommendation:** ➔ Consider participation in a regional compliance forum ➔ Set up MRAs with other ASEAN Member States and other countries where applicable ➔ Consider developing a regional product database or registration and certification system

Annex 1: State of Play in ASEAN Member States

ASEAN Member State	MEPS	Label	Entry level conditions	Local test facilities	Local manufacture
Brunei	Under development	Under development	NA	No	No
Cambodia	Under development	Under development	NA	No	No
Indonesia	Mandatory	Mandatory	Certification & Registration	Yes	Yes
Lao PDR	Under development	Under development	NA	No	No
Malaysia	Mandatory	Mandatory	Third-party testing / Certification & Registration	Yes	Yes
Myanmar	Under development	Under development	NA	No	No
Philippines	Mandatory	Mandatory	Self-declaration	Yes	Yes
Singapore	Mandatory	Mandatory	Self-declaration / Registration	No	No
Thailand	Mandatory	Voluntary	Third-party testing / Certification & Registration (Label)/ Certification & Registration (MEPS)	Yes	Yes
Vietnam	Mandatory	Mandatory	Self-declaration / Registration	Yes	Yes

Annex 2: Cases of Non-Compliance

Identifying potential cases of non-compliance – where to look

Where	Potential cases of non-compliance	Who
At point of import / placing on the market	• Failure to register a product • Failure to provide proof of testing • Failure to submit product for testing • Failure to cooperate with authorities • Falsified test reports • Missing energy label or energy performance rating information • Inaccurate energy performance information or energy label	Manufacturer or Importer
At point of testing	• Failure to provide proof of testing • Failure to submit product for testing • Failure to meet performance claims or comply with MEPS • Falsified test reports	Manufacturer or Importer
At point of sale	• Missing energy label or energy performance rating information • Misuse of a voluntary or mandatory energy label • Inaccurate energy performance information or energy label • Failure to provide required energy performance or labelling class in product catalogues, websites or other promotional media • Failure to meet performance claims or comply with MEPS	Manufacturer, Importer or Retailer

Annex 3: Market Surveillance Checklists[39]

The “Stage 1” checklist (below) can be used by anyone carrying out this initial stage of market surveillance.

Stage 1 Market Surveillance checklist – in the shop, brochure or internet site:

- *Is there a label?*
- *Does the product identification on the label match the product to which it is attached?*
- *Is it displayed in the required place?*
- *Is the overall design e.g. color scheme and information layout in accordance with requirements?*
- *Is all the required information provided?*

Where necessary, and only if whoever is carrying out the market surveillance has the necessary authority and the regulations or schemes are in place, there can follow a second and more demanding stage under which the registration details can be examined for completeness and can be compared to the declarations made on the label itself.

Whilst Stage 1 (above) can be undertaken by relatively junior staff (and at extremely low cost), application of this second stage requires greater expertise since assessing whether the specific performance declarations are correctly applied will require the assessor to have an appropriate level of technical knowledge.

For such purposes the “Stage 2” checklist (below) can be used when carrying out this secondary stage of market surveillance.

Stage 2 Market Surveillance checklist – comparison with declarations:

- *Is this product subject to a registration requirement or file retention requirements under self-certification rules?*
- *Has this product been registered in accordance with the requirements?*
- *Upon examination, do these registration particulars appear compliant with the requirements?*
- *Is model correctly identified?*
- *Are the required performance level(s) equal to or better than the label values?*
- *Has testing been performed by an approved laboratory (if applicable)?*

Alternatively, in cases of self-certification:

- *Have the self-certification details been supplied in a timely manner following their request?*
- *Upon examination, do these registration particulars appear compliant with the requirements?*
- *Is model correctly identified?*
- *Are the required performance level(s) equal to or better than the label values?*

Cases of non-compliance can then be followed up. Follow-up procedures are normally specified in the legislative regulations or scheme rules. However, often minor infringements are best responded to swiftly by notification, fines, or other sanctions that fall under administrative arrangements. In cases of mislabeled products, the evidence is usually irrefutable, and the matter solved without dispute. Only when infringements are repeated, systematic, or more severe is it necessary to escalate the response to greater sanctions.

[39] CLASP 2010

Thailand's Survey Questionnaire for Random Testing of No. 5 Energy Label Products

Interview Questions for Random Testing of No. 5 Energy Label Products

I. General Information

1. Interviewee Information

1.1 Position ・ Shop owner □ Shop Manager □ Salesperson

1.2 Gender ・ Male □ Female

1.3 Age group ・ 20-30 years □ 31-40 year □ 41-50 years

□ 51-60 years □ more than 60 years

II. Information about Air Conditioner Market

1. Percentage share of sales in the last year compared to the current period

・ Increase .....% □ Decrease .....% ・ No change

2. Percentage share of sales between "fixed speed" and "inverter" models

Fixed speed. .....% Inverter .....%

3. Understanding of energy savings of "Inverter" AC when compared with "fixed Speed"

.....

4. Who are your major customers?

.....

5. Please identify the top three deciding factors for purchasing an AC (or other electrical appliances)

1.....
2.....
3.....

III. New Energy Label of ACs with Seasonal Energy Efficiency Ratio (SEER)

1. Do you know the new label with SEER? ・ Yes □ No

2. Do you understand SEER on the new label? ・ Yes □ No

3. Do you understand about information displayed on the No.5 Label? ・ Yes □ No

4. Do you understand about estimation of electricity charge on the No.5 Label? ・ Yes □ No

IV. No.5 Mobile Application and QR code

1. Do you know if EGAT has released Label No.5 Mobile Application? ・ Yes □ No

2. Do you know what Label No.5 Mobile Application is used for?

・ Yes (if answer yes, please specify if you have ever used it) □ Yes □ No

・ No (if answer no, please explain about features of No.5 Mobile Application e.g. verification of No.5 products etc.)

3. Perception of QR code on No.5 Label

3.1 Do you know if No.5 Label has added QR code for AC and refrigerator products?

- Yes (if answer yes, please specify if you have ever used it) ▪ Yes ▪ No
- No (if answer no, please explain how to use a QR code)

3.2 Do you have any comments about QR code in terms of usefulness, user-friendly, required information or any improvements?

.....

V. Requirements about promotion of No.5 Label

.....

VI. What else would you like EGAT to do about No.5 Label?

.....

VII. Additional Comments

.....

Shop Name.....

Province.....

Telephone.....