



Toolkit

Monitoring, verification and Enforcement (MV&E)

Session 9

Kevin Lane and Emily McQualter, IEA - Bangkok, 3 April 2019



#energyefficientworld

Overview of the appliance and equipment training sessions

#	Session	
0	Introduction and roundtable	<input checked="" type="checkbox"/>
1	Planning energy efficiency programmes	<input checked="" type="checkbox"/>
2	Selecting products for MEPS and Labelling programmes	<input checked="" type="checkbox"/>
3	Assessing efficiency performance and setting MEPS	<input checked="" type="checkbox"/>
4	Industry transformation	<input checked="" type="checkbox"/>
5	Stakeholder involvement and communication	<input checked="" type="checkbox"/>
6	The relationship between product efficiency and price	<input checked="" type="checkbox"/>
7	Modernising energy efficiency through digitalisation	<input checked="" type="checkbox"/>
8	Insights into energy labels	<input checked="" type="checkbox"/>
9	Monitoring, verification and enforcement	<input type="checkbox"/>
10	Monitoring and evaluating policies and programmes	<input type="checkbox"/>
11	Roundtable discussion, review and report back	<input type="checkbox"/>

Source: U4E

<https://www.youtube.com/watch?v=u8xPFhcFYhw>

You've been given \$300,000 to improve compliance rates in your S&L programme

How do you go about deciding on the most effective ways to spend this?

How would you spend this?

Why is compliance important?

Ensure that **consumer** receive the performance they are paying for

Ensure **suppliers** who invest more in energy efficiency do not lose market share to unscrupulous competitors

Compliance

Ensure **governments** get the outcomes they expect (programme objectives)

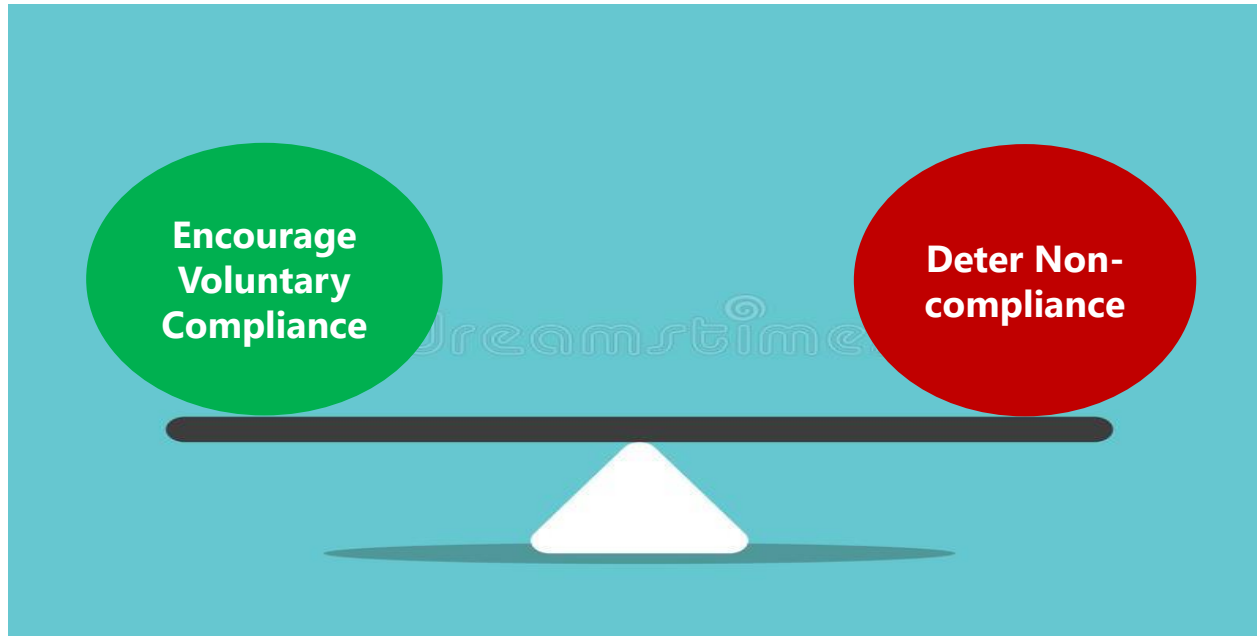
Safeguards the integrity of the programme – hard to win back confidence once lost

What are some of the ways to increase compliance rates?



1. Test more products
2. Build a better laboratory
3. Better educate product suppliers
4. Publish list of offenders & actions taken
5. Inspect more labels in stores
6. Improved powers to act (legislation)
7. Improve the range of sanctions available
8. Publish rules / enforcement policy document
9. Make it easier for suppliers to demonstrate/report compliance
10. Improve targeting of testing
11. Develop in-house manual for staff
12. Publish testing targets in advance
13. Ensure that enforcement action is taken swiftly
14. Add requirements for retailers

Effective Compliance Frameworks aim to.....







- Are the requirements for suppliers and retailers clear and accessible?
- Are they understandable (not 'legalese')
- Is registration (or alternatives) simple and effective, online, includes FAQ and guides?
- Is it clear what documentation is required?
- Are all the relevant documents relating to MV&E clearly identified on the website?
- Are enforcement procedures and sanctions obvious?
- Are all staff clear about their roles and responsibilities? e.g. Is there a staff 'operations manual'?
- Are you reaching 'new' stakeholders as they enter the market?

Benefits

- Avoids time-consuming questions to busy staff
- Avoids wasting time on unresolved cases, delayed action





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About Mandatory Energy Labelling

About Mandatory Energy Labelling	Registration of Suppliers	Test Report	Testing Laboratories
Registrable Goods	Registration and Renewal of Registrable Goods	The Energy Label	Database of Registered Goods (Revised Energy Ratings)
Minimum Energy Performance Standards	Verification Testing	Tick Rating	Contact Us

Mandatory Energy Labelling was introduced for registrable goods since 1 January 2008. Under the Energy Conservation Act (Cap. 92C), all registrable goods must carry energy labels.

Under Section 12 of the Act, no person shall, in the course of any trade or business, supply any registrable goods in Singapore on or after the effective date unless the registrable goods are registered and labelled in the prescribed manner, and meet minimum energy efficiency standards where prescribed.

Under Section 13 of the Act, any importer and manufacturer who intends, in the course of any trade or business, to supply any registrable goods in Singapore on or after the effective date shall apply to the National Environment Agency (NEA) to be registered as a registered supplier and to register any registrable goods, which the importer or manufacturer intends to supply in Singapore.

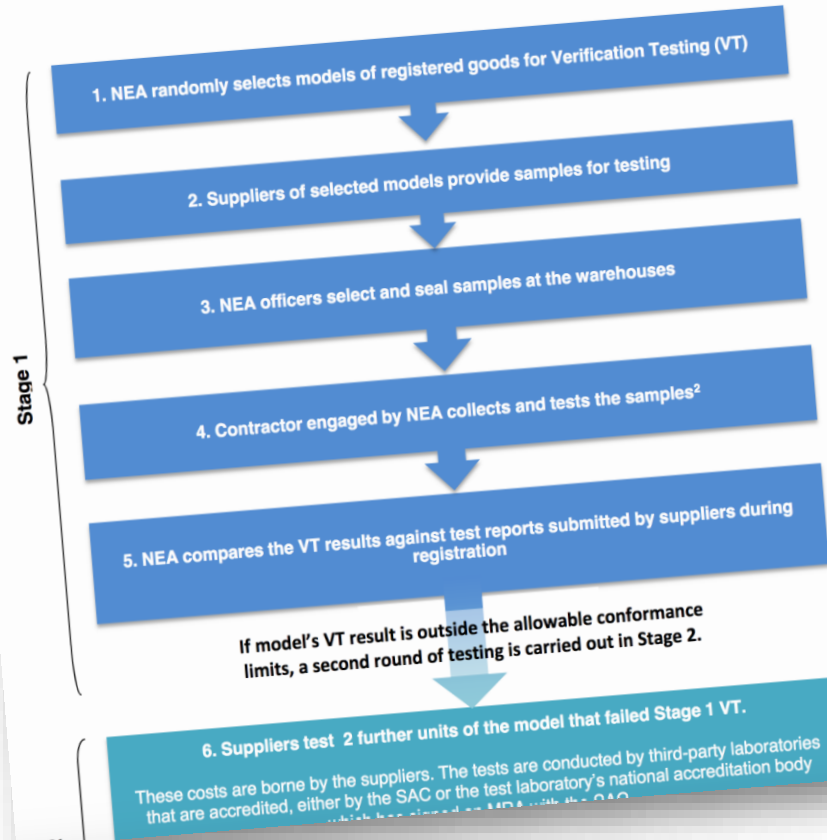
The regulations governing these requirements are:

- Energy Conservation (Registrable Goods) Order 2013
- Energy Conservation (Energy Labelling and Minimum Performance Standards For Registrable Goods) Regulations 2013
- Energy Conservation (Composition of Offences) Regulations 2013
- Energy Conservation (Exemption for Registrable Lamps) Order 2015

Over the years, the energy performance of products offered in the market improved and a wide range of models with differing levels of energy efficiency were categorised together in the same tick rating band. There was little incentive for suppliers to develop and offer more efficient models as they would be given the same tick rating as other models already in the market.

Example: MEPS Verification Process: Singapore

ANNEX A – Verification Testing Process



[http://www.nea.gov.sg/docs/default-source/energy-waste/energy-efficiency/report-on-vt-results-\(updated\).pdf](http://www.nea.gov.sg/docs/default-source/energy-waste/energy-efficiency/report-on-vt-results-(updated).pdf)



▶ Video: What suppliers need to know

How the E3 Program affects suppliers of products regulated for energy efficiency in Australia.

If you cannot see the video try viewing it on [YouTube](#) or download a [transcript](#).

<https://youtu.be/IOZ6RCXz18Q?t=19>

ENERGY RATING
THE MORE STARS
THE MORE SAVINGS

CONSUMERS RETAILERS & TRADIES SUPPLIERS ABOUT THE E3 PROGRAM 🔍

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▶ **注册流程**

合规 ▶

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注册流程 ▶

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常见问题 - 注册之前 ▶

常见问题 - 注册产品 ▶

常见问题 - 注册管理 ▶

重要文件 ▶

监管标准 ▶

词汇表 ▶

1 **EDUCATE**
Assisting responsible parties to understand their obligations.

2 **MONITOR**
Monitoring responsible parties' compliance with the requirements.

3 **INVESTIGATE**
Assesses each instance of suspected or alleged non-compliance and, where appropriate, conducts an investigation.

4 **RESPOND**
Actively pursuing non-compliance with a range of educative, administrative, civil, and criminal response options.

产品注册

本部分为希望通过澳大利亚监管人注册产品的进口商、制造商和供应商提供分步指示。

澳大利亚和新西兰的 **能效监管产品** (Products regulated for energy efficiency) 必须经注册, 且满足一些法律要求, 然后才能销售或供应。

如果你正在考虑向新西兰进口、制造或供应产品, 请访问EECA网站 (EECA website) (link is external) 或, 因为相关指南和条例略有不同。

- S&L compliance frameworks are designed to:
 - a) Encourage voluntary compliance, and
 - b) Deter non-compliance**

Deterrence theory:

- There must be a credible likelihood of detecting violations*
 - Swift, certain, and appropriate sanctions upon detection*
 - A perception among the regulated firms that these detection and sanction elements are present*
-
1. Increase the risk that instances of non-compliance will be discovered
 2. Take corrective action quickly to minimise damage (to all)
 3. Make penalties proportional to the extent of transgression but sufficient to be an effective deterrent
 4. Ensure corrective action is visible - to deter others

Which is the better deterrent?

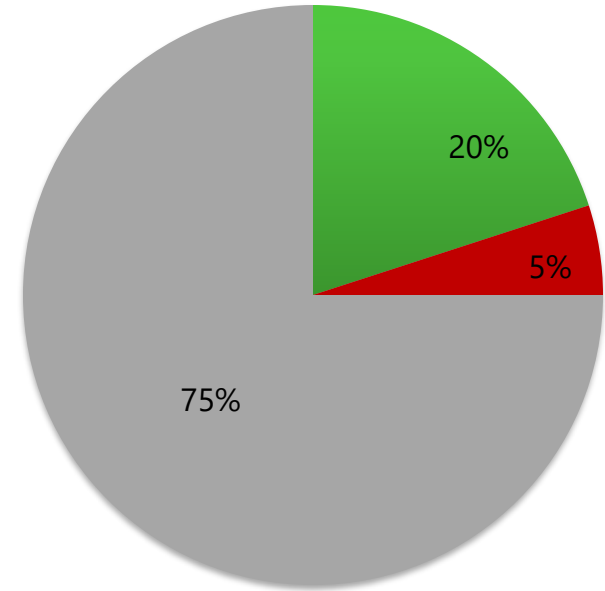


VISIBILITY IS IMPORTANT!

1. Increase the risk that non-compliance will be discovered

In most regulated markets:

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



1. Increase the risk that non-compliance will be discovered



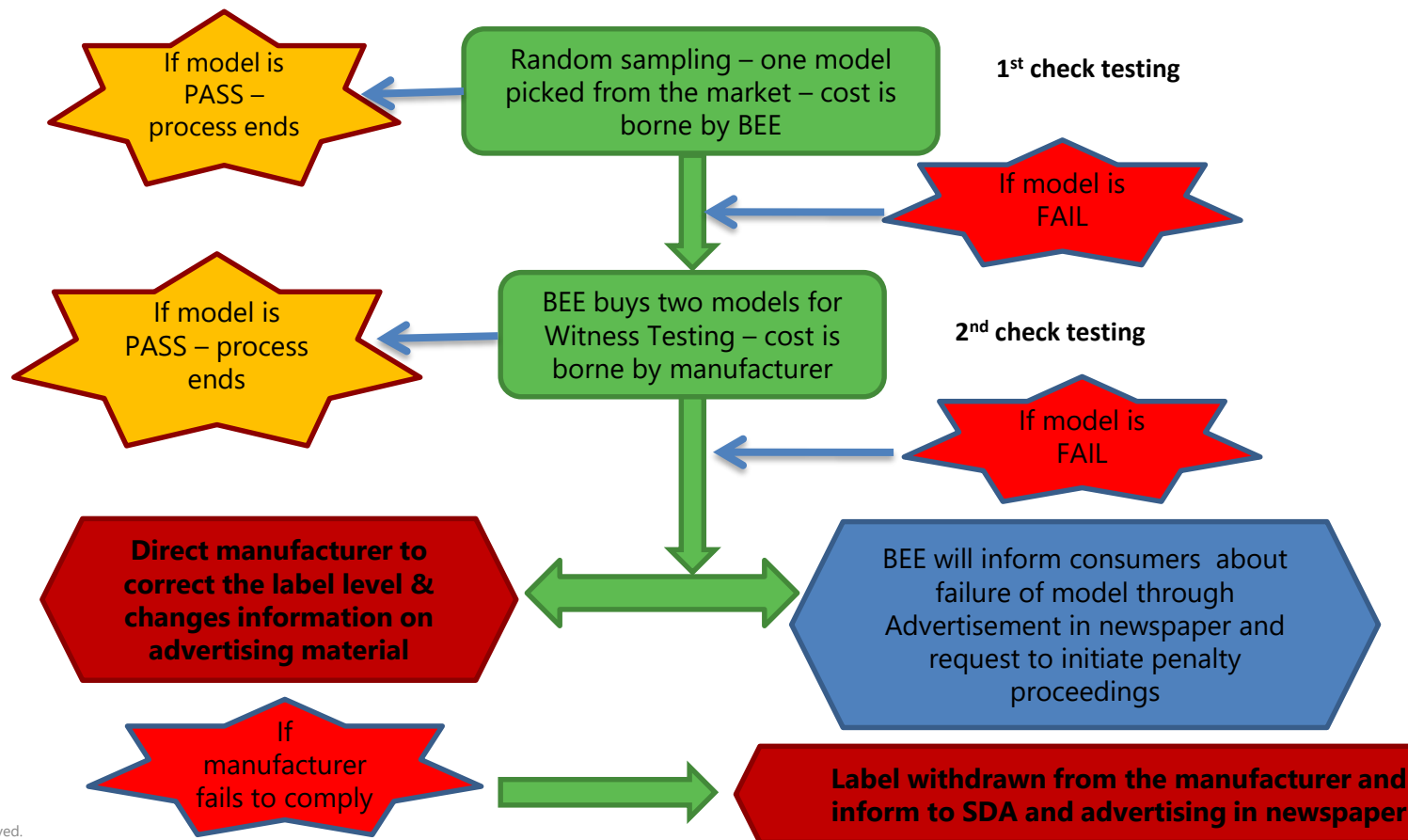
- Periodically monitor products within a sample of stores to check that:
 - All required products are correctly labelled,
 - All labels conform to requirements,
 - Fake labels are not being used
 - Products on the market are registered (where required)
- Market surveillance can be undertaken by:
 - Government staff, Consumer groups, Contractors
- Respond to any observed instances of non-compliance & publish results





Benefit

- Early detection of labelling errors can avoid more serious non-compliance
- Demonstrates to suppliers and retailers that government is being vigilant

How to check label compliance? Example from India



Published check testing results – Example from India



Attention Consumers

FOLLOWING AIR CONDITIONERS FAILED TO MEET THE ENERGY CONSUMPTION DECLARED ON THEIR LABEL:

S. No.	Manufacturer Logo	Manufacturer/Company Name	Brand	Model	Star Rating	EER as per BEE record	Test Results (EER)	Result
							Sample 1 Sample 2	
1		Samsung India Electronics Pvt. Ltd.	Samsung	AR18FCSTAUR	3	3.01	2.75 2.88	FAIL
2		Panasonic India Pvt. Ltd.	Panasonic	CS-UJ3BPEY	2	2.82	2.38 2.44	FAIL
3		Godrej & Boyce Mfg. Co. Ltd.	Godrej	GSC18FC3WMAZ	3	2.94	2.51 2.76	FAIL



EER represents Energy Efficiency Ratio

This notice has been issued in compliance with the provision of regulation 7 of the Bureau of Energy Efficiency (Particulars & Manner of their Display on Labels of Room Air Conditioners) Regulations, 2009.

SECRETARY
BUREAU OF ENERGY EFFICIENCY (BEE)
Ministry of Power, Government of India
Plot No. 2, Sector 10, Connaught Place, New Delhi - 110028
Tel: 011-23321000 Ext. 200 Fax: 011-23321002
For any queries and complaints: www.beeindia.gov.in

SAVE ENERGY. SAVE MONEY



Attention Consumers

FOLLOWING AIR CONDITIONERS FAILED TO MEET THE ENERGY CONSUMPTION DECLARED ON THEIR LABEL:

S. No.	Manufacturer Logo	Manufacturer/Company Name	Brand	Model	Star Rating	EER as per BEE record	Test Results (EER)	Result
							Sample 1 Sample 2	
1		IFB Industries Limited	IFB	ACS3BAC3TC	3	3.03	2.65 2.70	FAIL
2		Videocon Industries Limited	Videocon	VSSCAWM-MCA	3	2.96	2.55 2.71	FAIL
3		Whirlpool of India Limited	Whirlpool	SARBE33MO	3	3.04	2.68 2.88	FAIL

EER represents Energy Efficiency Ratio

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SECRETARY
BUREAU OF ENERGY EFFICIENCY (BEE)
Ministry of Power, Government of India
Plot No. 2, Sector 10, Connaught Place, New Delhi - 110028
Tel: 011-23321000 Ext. 200 Fax: 011-23321002
For any queries and complaints: www.beeindia.gov.in

SAVE ENERGY. SAVE MONEY

- Testing is expensive!
- Needed, but only worth it if:
 - It is done to required level of accuracy
 - Is defensible
 - Is acted upon
- Since you can only test a small proportion on models on the market – how do you increase cost-effectiveness?
 - Test products most likely to be non-compliant
 - Co-ordinate or share testing with other countries
 - Ensure tests are enforceable

- Random selection represents an inefficient allocation of resources
 - End up testing high proportion of compliant products
- Identify 'risk factors' for products most likely to be non-compliant and have most impact, e.g.
 - High market share
 - Does the brand have a good record of compliance?
 - What is the quality of evidence for claims – is the test lab known and credible?
 - Have competitors provided evidence of non-compliance?
 - Are the claims of performance excessively high - unbelievable?

- Numerous options to minimize costs and increase effectiveness:
- Co-ordinate joint market surveillance with neighbouring economies
- Share results of market surveillance to better target future actions
- Use quality laboratories in neighbouring economies
- Commission tests in product country of origin

- Various EU-wide (EU funded) projects
- EEPLIANT
 - 13 Market Surveillance Authorities (MSAs) from EU
 - Organises coordinated MV&E activities, including product testing of LEDs, printers and heaters
 - Electronic database allows MSAs to share plans and results of market surveillance activities in confidence
 - Publication of Best Practice Guide
- Industrial and Tertiary Product Testing and Application of Standards (INTAS)

2. Take corrective action quickly to minimise damage

- Any delay in taking corrective actions means non-compliant products remaining in the market
 - More energy savings lost
 - Higher household expenditure
- Most non-compliance can be quickly resolved, with minor enforcement



3. Make penalties proportional to the extent of transgression



Programmes need a range of enforcement tools

- To act appropriately and quickly to suspected transgressions to minimise damage

• Example - UK response to non-compliance

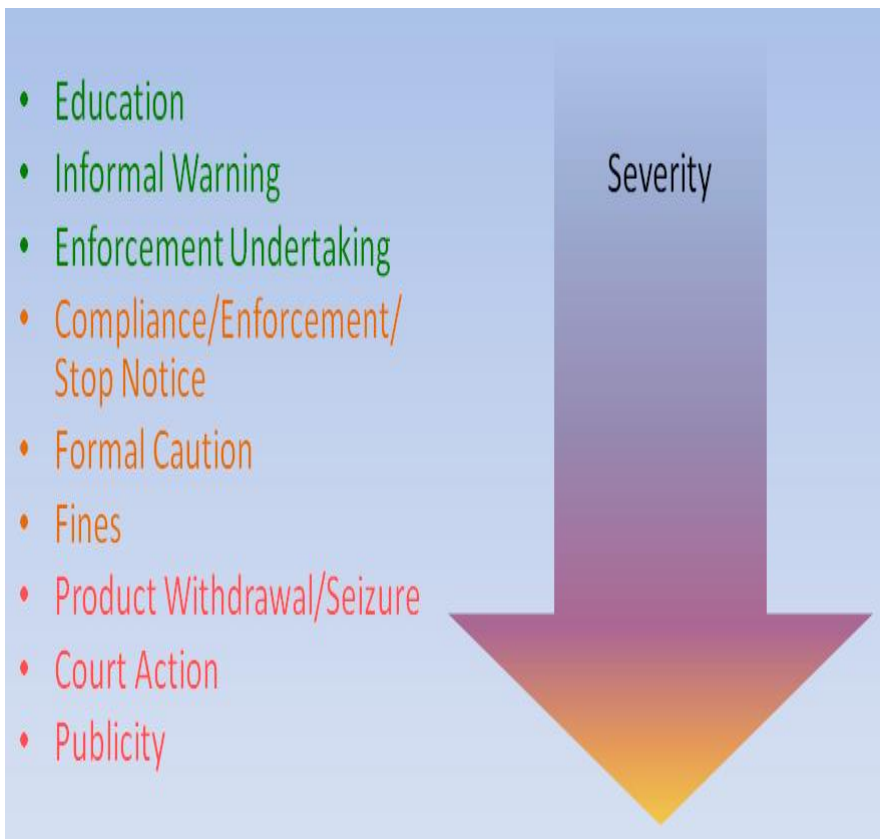
We operate in accordance with the Regulators' Code, which requires us to:

- support compliance and growth
- engage with those we regulate
- base our activity on risk
- share information
- offer clear guidance
- be transparent.

We always act proportionately, depending on the nature of the non-compliance.

We are approachable and do not take enforcement action just because a business asks us a question or tells us that they have a problem.

Source: BEIS (2017)



4. Ensure corrective action is visible - to deter others





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Environment Building
Singapore 228231
Tel: 1 800 2255 632
Fax: 62352611
Email: contact_nea@nea.gov.sg
www.nea.gov.sg

Results of Verification Testing of Registrable Goods Under the Mandatory Energy Labelling Scheme

The National Environment Agency (NEA) carried out verification testing (VT) on a selection of air-conditioner, refrigerator and clothes dryer models registered under the Mandatory Energy Labelling Scheme (MELS). This report summarizes the results of the VT exercise, which was conducted in 2019.

Background

2 Under the Energy Labelling Act, manufacturers are required to register their products and declare their energy performance. Manufacturers are also required to affix energy performance labels on their products when they are marketed in Singapore. This ensures that consumers can make informed choices when purchasing energy-efficient products.

3 VT is a process to verify the energy performance of products registered under the MELS. It involves testing the products in a laboratory to ensure that they meet the energy efficiency requirements of the scheme.

4 In this first report, the results of VT for 10 models for VT are presented. These models were subject to VT in 2019.

Stage 1 VT Results

5 VT results were compared against suppliers' test reports submitted during registration. The energy performance of 87% (40 out of 46) of the registered goods tested were found to be within the allowable conformance limits (refer to Table 3 of **Annex B**). By appliance category, the compliance rates were 95% for air-conditioners, 75% for refrigerators and 100% for clothes dryers.

	Air-conditioner	Refrigerator	Clothes Dryer
No. of models tested	20	20	6
No. of models that passed Stage 1 VT	19	15	6
No. of models that failed Stage 1 VT	1	5	0

Table 2: Summary of Stage 1 VT results

ENERGY RATING

CONSUMERS

RETAILERS & TRADIES

SUPPLIERS

ABOUT THE E3 PROGRAM

Home / Documents / List: Suspended or Cancelled GEMS Registrations

30 MAY

LIST: SUSPENDED OR CANCELLED GEMS REGISTRATIONS

Download xlsx

Category: Compliance Date: 30/05/2016

22/09/2015	Incandescent lamp	Osram	64543 A ECO 42W 240V B22D
22/09/2015	Incandescent lamp	Osram	64544 A FR ECO 53W E27
11/09/2015	Self-ballasted compact fluorescent lamp	Oslent	3P414-ES-40K,
17/08/2015	Self-ballasted compact fluorescent lamp	Envirolux	XEU48-15R80 E27 2700K
13/08/2015	Self-ballasted compact fluorescent lamp	Envirolux	XEU48-15R80 E27 4000K
30/07/2015	Self-ballasted compact fluorescent lamp	Oslent	FE-IISB-18W 2700K
30/07/2015	Self-ballasted compact fluorescent lamp	Oslent	FE-AU-15W 2700K
09/07/2015	Self-ballasted compact fluorescent lamp	E-Star	ESSP9W27E27 8w Mini Twist warm white 6500K
26/06/2015	Self-ballasted compact fluorescent lamp	Arlec	FT24
26/06/2015	Self-ballasted compact fluorescent lamp	Osram	Mini Twist 13W/827 E27
11/06/2015	Self-ballasted compact fluorescent lamp	Philips	Ambiance A55 11W WW
18/05/2015	Computer monitor	Philips	284E5Q
05/01/2015	Double-capped fluorescent lamp	NEC	FL30SSEX-N-HG-36 : 30W T8 Tri-Phosphor Natural 5000K

Clear Fancy Round
2T GU5.3 ELV
D0
logen ELV Reflector

Example: Suspended products Hong Kong

Mandatory Energy Efficiency Labelling Scheme
**Look for the Energy Label
Save Electricity, Save Money**

PRODUCT LISTS
Models with Reference Numbers Removed

ABOUT MEELS UNDERSTANDING THE LABEL PRODUCT LISTS HOUSEHOLDS SUPPLIERS' CORNER PUBLICITY & FUN FAQs

Refrigerating Appliances

Energy Label Information before Removal of Reference Number

Brand	Model	Reference No.	Year (*)	Annual Energy Consumption (kWh)	Fresh Food Volume (litre)	Frozen Food Volume (litre)	Energy Consumption Index (Ic)	Energy Efficiency Grade (1 to 5) (before 25 Nov 2015)	Energy Efficiency Grade (1 to 5) (from 25 Nov 2015)	Date of Removal of Reference No.
SHARP	SJ-188-H	R090113	2009	409	120	31	67.58	2	4	14/06/2012
SHARP	SJ-188-S	R090112	2009	409	120	31	67.58	2	4	14/06/2012
SHARP	GR-H908	R090083	2009	206	87	55	77.59	2	5	16/08/2012
TOSHIBA	BV320EW	R120058	2012	375	185	88	42.14	1	3	18/09/2013
CRISTAL	YI-218W	R120054	2012	311	125	88	42.14	1	2	29/04/2014
YOMI	HY-218L	R120033	2012	311	125	78	61.57	1	4	16/08/2012
HYUNDAI	SR-361NT	R100119	2010	522	251	78	61.57	1	4	16/08/2012
SANYO	SR-360R	R100118	2010	522	251	78	61.57	1	4	16/08/2012

Compact Fluorescent Lamps (CFLs)

Dehumidifiers

Test Result 2015 [PDF format (124KB)]
Test Result 2012 [PDF format (123KB)]
Test Result 2011 [PDF format (111KB)]
Test Result 2010 [PDF format (142KB)]

Compact Fluorescent Lamps
Test Result 2017 [PDF format (154KB)] (new)
Test Result 2016 [PDF format (127KB)]

Two types of testing models

	Post-market verification	Third-party certification
Entry conditions	Independent tests, in-house testing, calculation or self declaration	Third-party verification and/or certification
Government/Programme	\$	\$
Industry Participant	\$	\$
Consumers	\$	\$

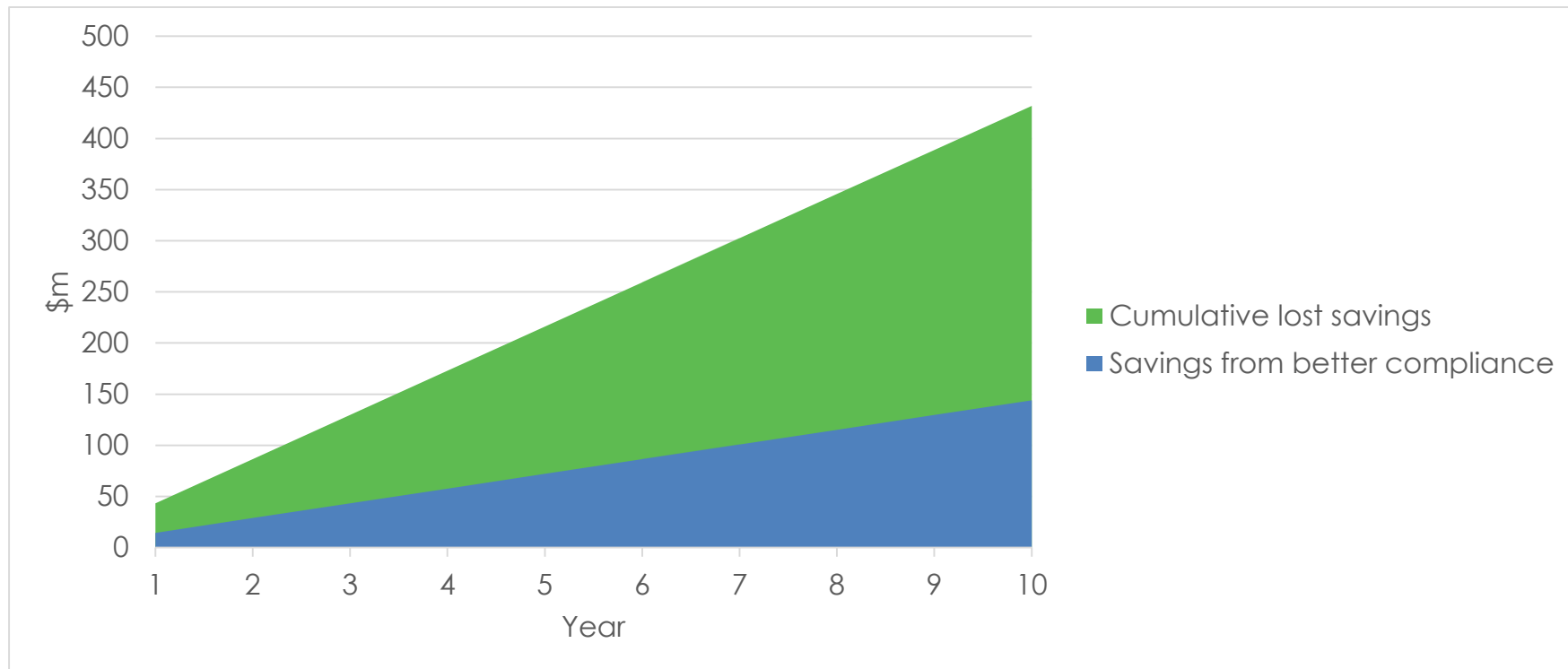
Total costs \approx same

Value of improving non-compliance

Assumptions	
Fridge market p.a.	200,000
Av. Energy consumption (kWh/year)	400
Non-compliance rate	15%
Extent of non-compliance	15%
Lifetime (years)	12
Cost of electricity (\$/kWh)	0.2
Value of lost electricity savings after one year	\$4.32 million
Cumulative after ten years...	\$430 million

Outcomes	
Reducing non-compliance rate to 10%	
Saving after one year	\$1.44 million
Cost-benefit ratio (if \$300k MVE programme), one year	1:4.8
Cumulative savings after ten years	\$144 million

The Value of Better Compliance – for \$300k per year



\$144m saved after 10 years, for \$300k MVE programme

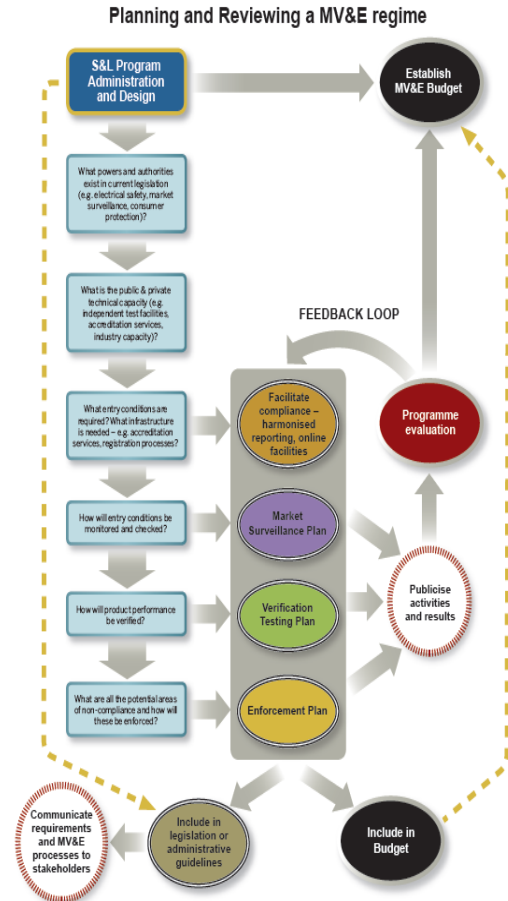
- How would you spend \$300,000 on improving compliance?
- [Write down on a piece of paper, not to share]

What would I do?

Item	\$
Dedicated compliance staff -Drafting enforcement policy -Drafting internal procedures -Testing selection criteria -Managing tests, reporting on results -Organising legislative change if necessary	110,000
Highlight compliance on website, promotion of enforcement policy	25,000
Labelling survey	25,000
Round-robin tests	60,000
Compliance tests	80,000
Total	\$300,000

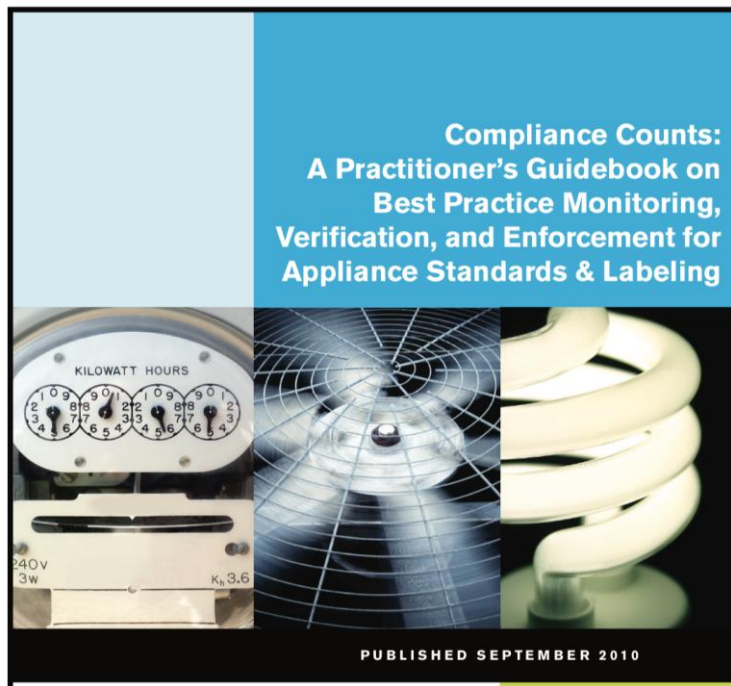
Essential elements of compliance regimes

- Mechanism to facilitate compliance
- Market surveillance
- Verification testing
- Enforcement
- Communication, reporting, feedback
- Legal and administrative framework
- Budget and resource allocation
- Evaluation processes

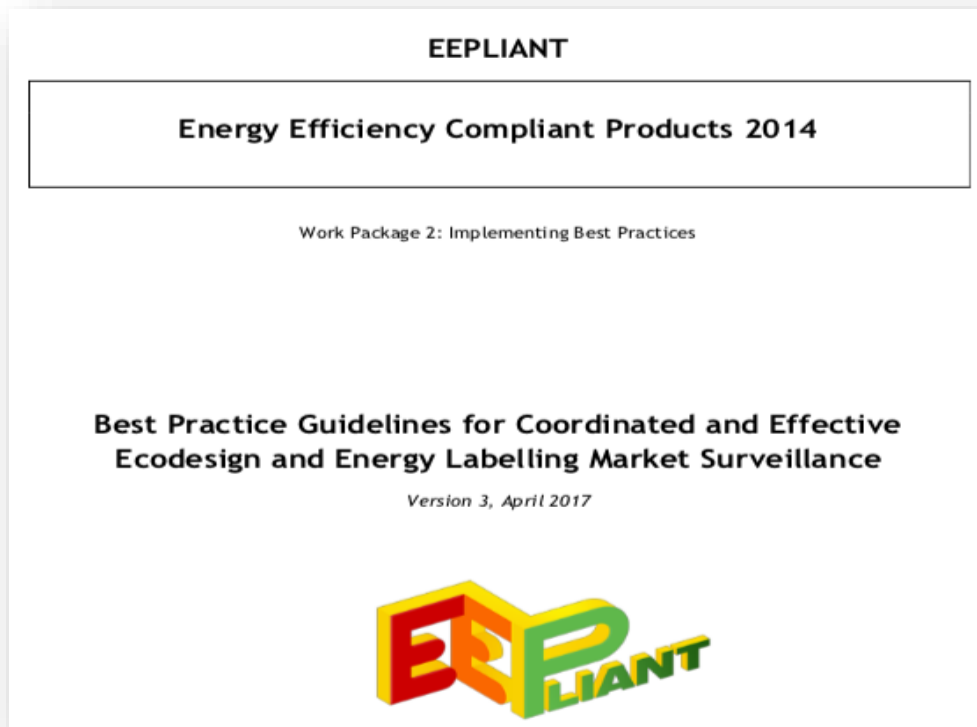


CLASP

<https://clasp.ngo>



<https://clasp.ngo/publications/compliance-counts-a-practitioners-guidebook-on-best-practice-monitoring-verification-and-enforcement-for-appliance-standards-labeling-1>



<http://www.eepliant.eu/index.php/knowledge-base/item/2017-05-16>



<https://united4efficiency.org/resources/enforcing-efficient-lighting-regulations/>

- Cost of laboratories (SEAD report, 2019)
- What is MV&E

<https://www.youtube.com/watch?v=u8xPFhcFYhw>



Figure 1
Lamp testing programme process

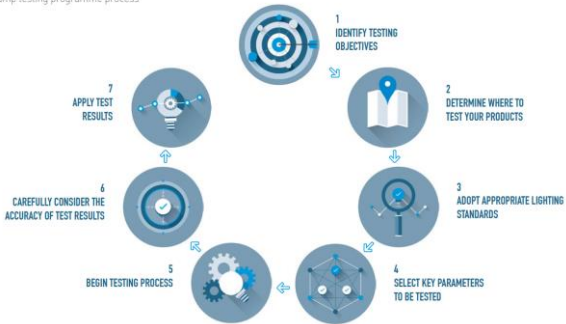


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ASEAN
THAILAND 2019

ADVANCING PARTNERSHIP
FOR SUSTAINABILITY



International
Energy Agency

Secure
Sustainable
Together



Department of Alternative
Energy Development and Efficiency

MINISTRY OF ENERGY



www.iea.org

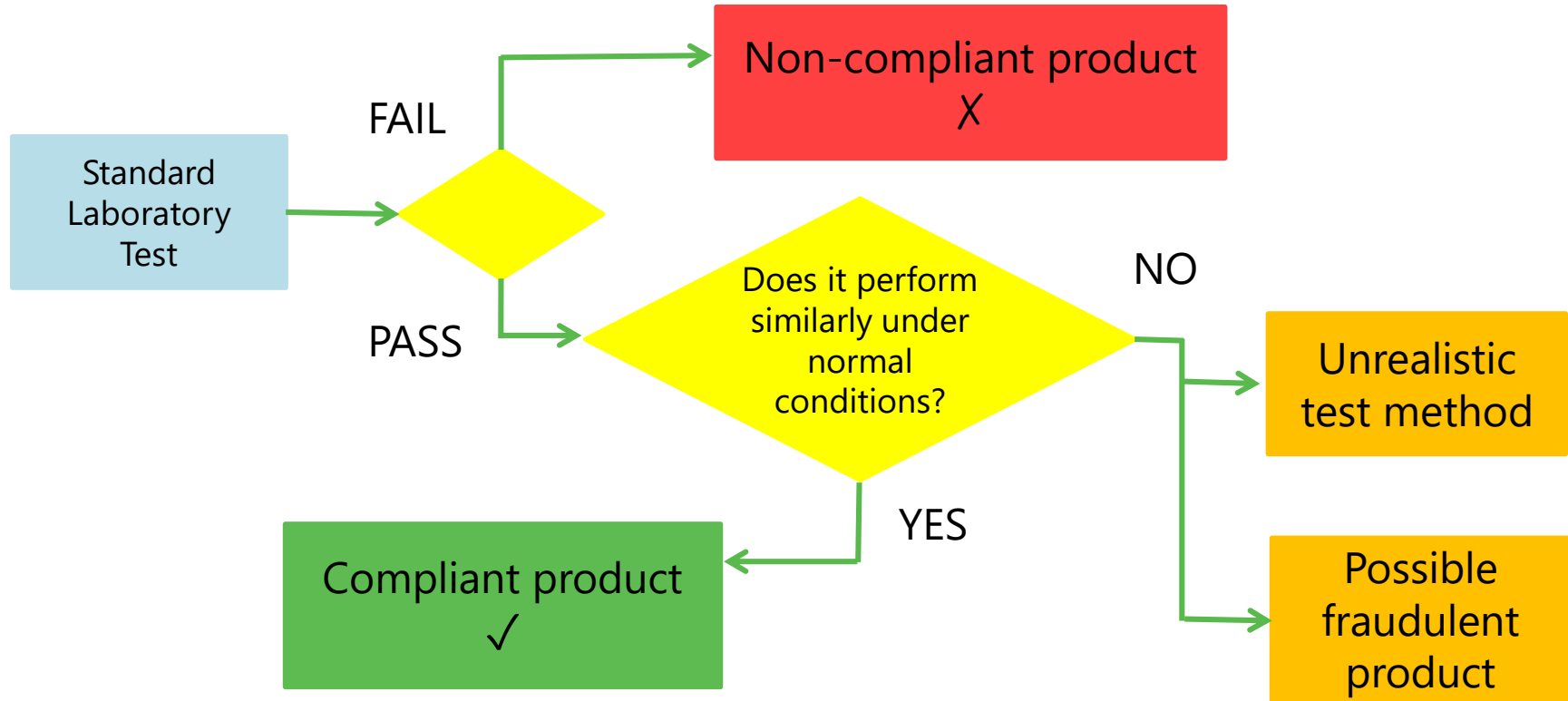



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What are fraudulent products?

- Products designed to perform differently under test to outside the laboratory.
- Include mechanisms to sense and circumvent the test procedures.
- Sometimes referred to as 'defeat' devices.
- Not strictly an issue of 'non-compliance', since they meet requirements under test conditions
- Products performing significantly worse outside the lab. leads to an adverse impact on energy consumption, consumer benefit, the environment and competition.

Test procedures: Representative, fraudulent




**ENERGY RATING**

CONSUMERS

RETAILERS & TRADIES

SUPPLIERS

ABOUT THE E3 PROGRAM




22 MAR

COMPLIANCE NEWS: MARKET SURVEILLANCE ACTIVITIES FOR MOTORS

Topic

Compliance

Electric Motors



GEMS inspectors will be conducting market surveillance activities in Western Australia in late March 2016 to ensure suppliers of three phase cage induction motors covered by the GEMS (Three Phase Cage Induction Motors) Determination 2012 are complying with registration and labelling requirements.

GEMS inspectors will also be focusing on motors contained within machines to ensure that machinery suppliers are aware of, and comply with, all GEMS requirements.

More information

GEMS compliance program | energyrating.gov.au/compliance

Electric Motors | energyrating.gov.au/products/electric-motors

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