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

<table>
<thead>
<tr>
<th>#</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Introduction and roundtable</td>
</tr>
<tr>
<td>1</td>
<td>Planning energy efficiency programmes</td>
</tr>
<tr>
<td>2</td>
<td>Selecting products for MEPS and Labelling programmes</td>
</tr>
<tr>
<td>3</td>
<td>Assessing efficiency performance and setting MEPS</td>
</tr>
<tr>
<td>4</td>
<td>Industry transformation</td>
</tr>
<tr>
<td>5</td>
<td>Stakeholder involvement and communication</td>
</tr>
<tr>
<td>6</td>
<td>The relationship between product efficiency and price</td>
</tr>
<tr>
<td>7</td>
<td>Modernising energy efficiency through digitalisation</td>
</tr>
<tr>
<td>8</td>
<td>Insights into energy labels</td>
</tr>
<tr>
<td>9</td>
<td>Monitoring, verification and enforcement</td>
</tr>
<tr>
<td>10</td>
<td>Monitoring and evaluating policies and programmes</td>
</tr>
<tr>
<td>11</td>
<td>Roundtable discussion, review and report back</td>
</tr>
</tbody>
</table>
Resources – What is MV&E

Source: U4E

https://www.youtube.com/watch?v=u8xFhcFYhw
Scenario

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.

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

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

What are some of the ways to increase compliance rates?
What are the Options?

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..........

Encourage Voluntary Compliance

Deter Non-compliance
Steps to encourage voluntary compliance

stakeholders understand their obligations + simple to demonstrate compliance = Greater voluntary compliance
Encouraging Compliance

- 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
Example: Singapore

Mandatory Energy Labelling was introduced for analysable goods since 1 January 2006. Under the Energy Conservation Act (Cap 192), all analysable goods must carry energy labels.

Under Section 13 of the Act, no person shall, in the course of any trade or business, supply any analysable goods in Singapore on or after the effective date unless the analysable goods are registered and labelled in the prescribed manner. The analysable goods must meet the minimum energy efficiency standards where prescribed.

Under Section 13 of the Act, any importer and manufacturer who imports, in the course of any trade or business, any analysable 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 register any analysable goods, which the importer or manufacturer intends to supply in Singapore.

The regulations governing these requirements are:

- Energy Conservation (Regulatable Goods) Order 2013
- Energy Conservation (Classification of Appliances) Regulations 2013
- Energy Conservation (Labeling for Regulatable 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 introduced. The minimum performance requirements were also updated to reflect improvements in technology.
Example: MEPS Verification Process: Singapore
Example: Australia

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/lOZ6RCXz18Q?t=19
Compliance Best Practice

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

b) **Deter non-compliance**
Steps to 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

- Market surveillance
- Verification testing
- Increase risk
- Communicate compliance activity
- Report enforcement action
Market Surveillance: labelling display and registration monitoring

• 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

Random sampling – one model picked from the market – cost is borne by BEE

If model is PASS – process ends

BEE buys two models for Witness Testing – cost is borne by manufacturer

If model is PASS – process ends

If model is FAIL

1st check testing

Direct manufacturer to correct the label level & changes information on advertising material

If model is FAIL

2nd check testing

If manufacturer fails to comply

BEE will inform consumers about failure of model through Advertisement in newspaper and request to initiate penalty proceedings

Label withdrawn from the manufacturer and inform to SDA and advertising in newspaper
Published check testing results – Example from India
Verification testing

• 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
Test products most likely to be non-compliant

• 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?
Co-ordinate or share testing with other countries

• 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
Example – European surveillance coordination

- 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

Ensure internal procedures are clear

Ensure staff responsibilities & decision making are clear

Ensure options for corrective actions are appropriate
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
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

- Plans for compliance activity
- Results of market surveillance
- Testing activity and results (once resolved)
- Enforcement actions taken

High Visibility
Reporting testing results

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 for registration purposes.

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.

<table>
<thead>
<tr>
<th></th>
<th>Air-conditioner</th>
<th>Refrigerator</th>
<th>Clothes Dryer</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of models tested</td>
<td>20</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>No. of models that passed Stage 1 VT</td>
<td>19</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>No. of models that failed Stage 1 VT</td>
<td>1</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2: Summary of Stage 1 VT results
## Reporting enforcement actions

### List: Suspended or Cancelled GEMS Registrations

<table>
<thead>
<tr>
<th>Category</th>
<th>Compliance</th>
<th>Date</th>
<th>Manufacturer</th>
<th>Model Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incandescent lamp</td>
<td>22/09/2015</td>
<td>Osram</td>
<td>64543 A ECO 42W 240V B22D</td>
<td></td>
</tr>
<tr>
<td>Incandescent lamp</td>
<td>22/09/2015</td>
<td>Osram</td>
<td>64544 A FR ECO 53W E27</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>11/09/2015</td>
<td>Olsent</td>
<td>3P414-ES-40K,</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>17/08/2015</td>
<td>Envirolux</td>
<td>XEU48-15R80 E27 2700K</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>13/08/2015</td>
<td>Envirolux</td>
<td>XEU48-15R80 E27 4000K</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>30/07/2015</td>
<td>Olsent</td>
<td>FE-RSB-18W 2700K</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>30/07/2015</td>
<td>Olsent</td>
<td>FE-AU-15W 2700K</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>09/07/2015</td>
<td>E-Star</td>
<td>E5SP9W27E27 8w Mini Twist warm white 6500K</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>26/06/2015</td>
<td>Arlec</td>
<td>FT24</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>26/06/2015</td>
<td>Osram</td>
<td>Mini Twist 13W/827 E27</td>
<td></td>
</tr>
<tr>
<td>Self-ballasted compact fluorescent lamp</td>
<td>11/06/2015</td>
<td>Philips</td>
<td>Ambiance ASS 11W WW</td>
<td></td>
</tr>
<tr>
<td>Computer monitor</td>
<td>18/05/2015</td>
<td>Philips</td>
<td>284EQ</td>
<td></td>
</tr>
<tr>
<td>Double-capped fluorescent lamp</td>
<td>05/01/2015</td>
<td>NEC</td>
<td>FL30SSEK-N-HG-36 : 30W T8 Tri-Phosphor Natural 5000K</td>
<td></td>
</tr>
</tbody>
</table>
Example: Suspended products Hong Kong
### Two types of testing models

<table>
<thead>
<tr>
<th></th>
<th>Post-market verification</th>
<th>Third-party certification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry conditions</strong></td>
<td>Independent tests, in-house testing, calculation or self declaration</td>
<td>Third-party verification and/or certification</td>
</tr>
<tr>
<td>Government/Programme</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Industry Participant</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Consumers</td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
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Total costs ≈ same
## Value of improving non-compliance

### Assumptions

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</thead>
<tbody>
<tr>
<td>Fridge market p.a.</td>
<td>200,000</td>
</tr>
<tr>
<td>Av. Energy consumption (kWh/year)</td>
<td>400</td>
</tr>
<tr>
<td>Non-compliance rate</td>
<td>15%</td>
</tr>
<tr>
<td>Extent of non-compliance</td>
<td>15%</td>
</tr>
<tr>
<td>Lifetime (years)</td>
<td>12</td>
</tr>
<tr>
<td>Cost of electricity ($/kWh)</td>
<td>0.2</td>
</tr>
</tbody>
</table>

### Outcomes

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Reducing non-compliance rate to 10%</td>
<td></td>
</tr>
<tr>
<td>Saving after one year</td>
<td>$1.44 million</td>
</tr>
<tr>
<td>Cost-benefit ratio (if $300k MVE programme), one year</td>
<td>1:4.8</td>
</tr>
<tr>
<td>Cumulative savings after ten years</td>
<td>$144 million</td>
</tr>
</tbody>
</table>

Value of lost electricity savings after one year: $4.32 million
Cumulative after ten years: $430 million
The Value of Better Compliance – for $300k per year

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

• How would you spend $300,000 on improving compliance?

• [Write down on a piece of paper, not to share]
What would I do?

<table>
<thead>
<tr>
<th>Item</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated compliance staff</td>
<td>110,000</td>
</tr>
<tr>
<td>- Drafting enforcement policy</td>
<td></td>
</tr>
<tr>
<td>- Drafting internal procedures</td>
<td></td>
</tr>
<tr>
<td>- Testing selection criteria</td>
<td></td>
</tr>
<tr>
<td>- Managing tests, reporting on results</td>
<td></td>
</tr>
<tr>
<td>- Organising legislative change if necessary</td>
<td></td>
</tr>
<tr>
<td>Highlight compliance on website, promotion of enforcement</td>
<td>25,000</td>
</tr>
<tr>
<td>policy</td>
<td></td>
</tr>
<tr>
<td>Labelling survey</td>
<td>25,000</td>
</tr>
<tr>
<td>Round-robin tests</td>
<td>60,000</td>
</tr>
<tr>
<td>Compliance tests</td>
<td>80,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$300,000</strong></td>
</tr>
</tbody>
</table>
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
Sources of further information

CLASP

https://clasp.ngo

Sources of further information

EEPLIANT

Energy Efficiency Compliant Products 2014

Work Package 2: Implementing Best Practices

Best Practice Guidelines for Coordinated and Effective Ecodesign and Energy Labelling Market Surveillance

Version 3, April 2017

Resources

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

https://www.youtube.com/watch?v=u8xFhcFYhw
Performance testing of lighting products

TABLE OF CONTENTS

ABBREVIATIONS AND DEFINITIONS ........................................ 7
GLOSSARY ............................................................................. 8
EXECUTIVE SUMMARY .......................................................... 10

1 - INTRODUCTION .............................................................. 12
2 - PERFORMANCE TESTING OF LAMPS .............................. 14
   2.1 - Identify testing objectives ..................................... 14
   2.2 - Determine where to test your products .................. 14
   2.3 - Adopt appropriate lighting standards .................... 18
   2.4 - Select key parameters to test ................................ 20
   2.5 - The testing process .............................................. 22

3 - INTERPRETATION OF TEST RESULTS ......................... 28
   3.1 - Uncertainty ............................................................ 28
   3.2 - Traceability of measurements ............................... 30
   3.3 - Determination of pass and fail .............................. 30

4 - USING TEST RESULTS .................................................. 32
   4.1 - Test results for compliance activities ..................... 32
   4.2 - Test results for developing regulations and cost-benefit calculations ..... 33
   4.3 - Resource Sharing .................................................. 35
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

1. Standard Laboratory Test
   - FAIL
   - Non-compliant product
     - Does it perform similarly under normal conditions?
       - NO
         - Unrealistic test method
       - YES
         - Possible fraudulent product
   - PASS
     - Compliant product
Reporting targets for compliance activity

**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