United Nations Environment Programme
en.lighten Initiative

Policy Options Overview: MEPS and MVE

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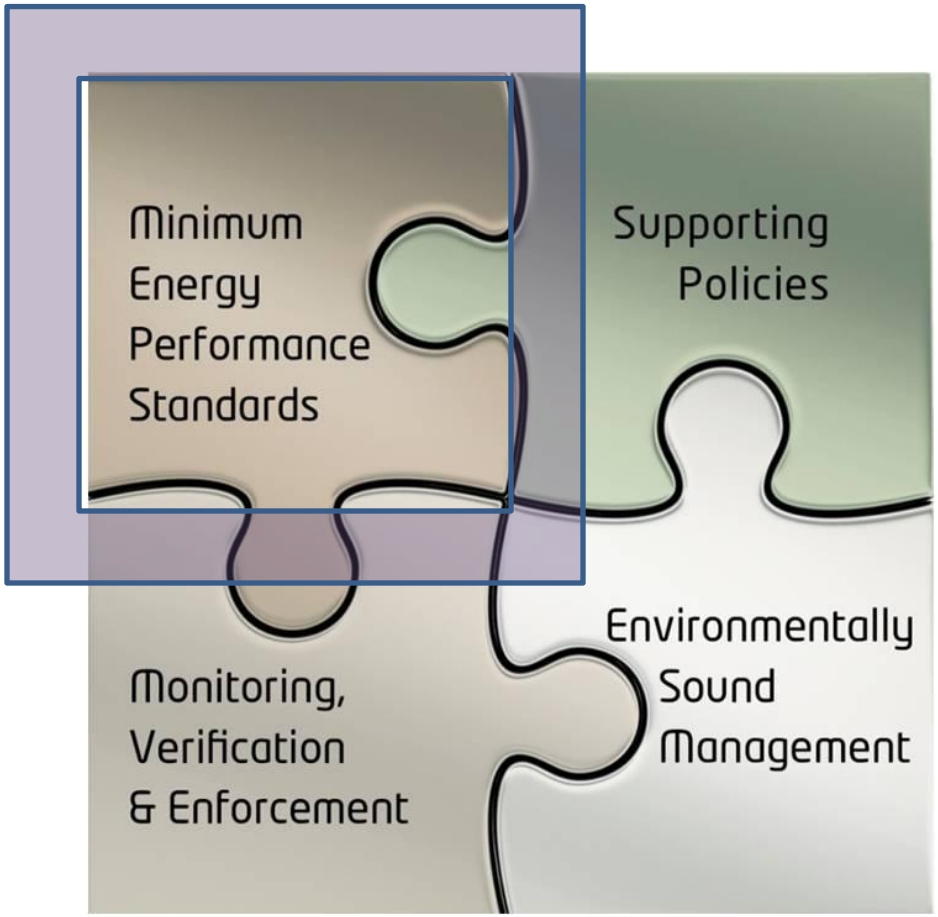
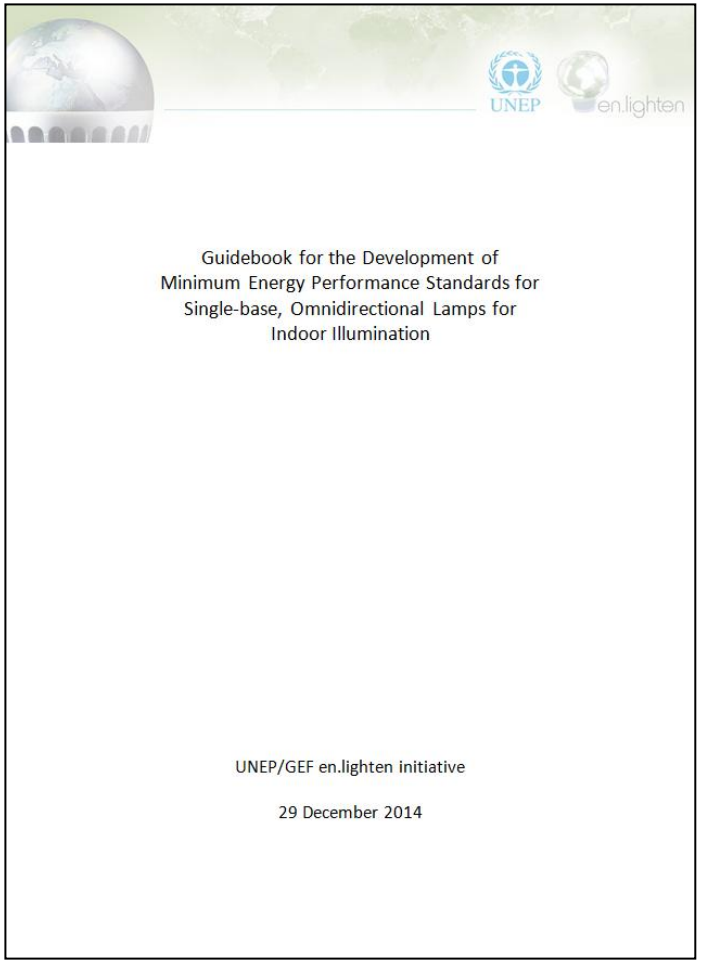
National Efficient Lighting Strategy

To permanently remove inefficient products from the marketplace and to promote the uptake of high efficiency products

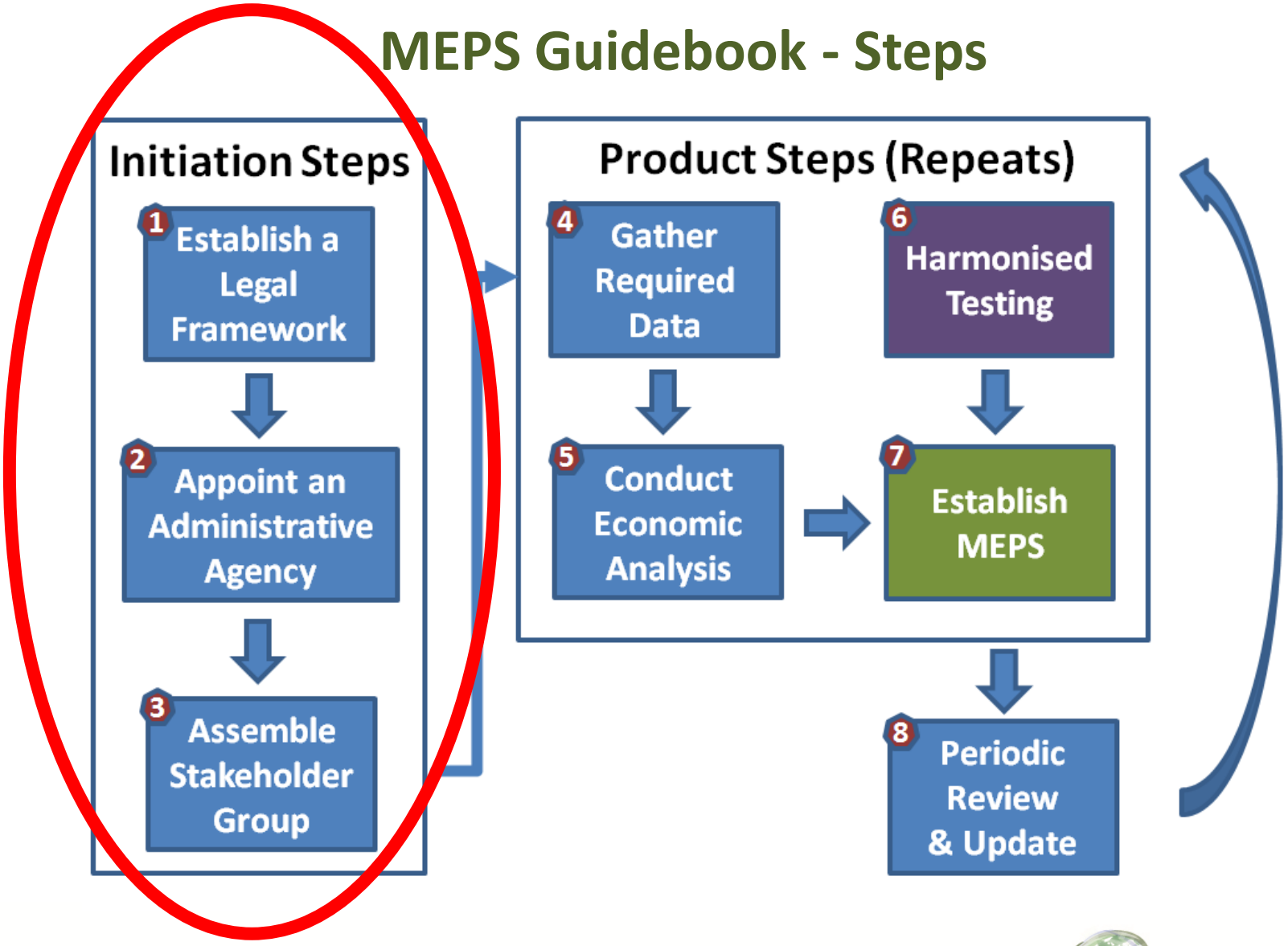


MEPS Guidebook

- UNEP en.lighten prepared a guide to give policy-makers a step-by-step process for establishing MEPS
- The Guide focuses on lighting products, as this is a good first product to start
  - Establish the legal framework
  - Responsible parties / Ministries
  - Policy development process
  - Implementation
  - Review
- Lighting, but principles the same for any product type

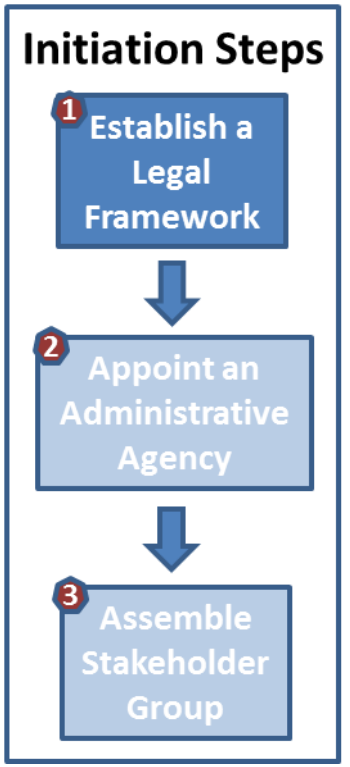


MEPS Guidebook - Steps



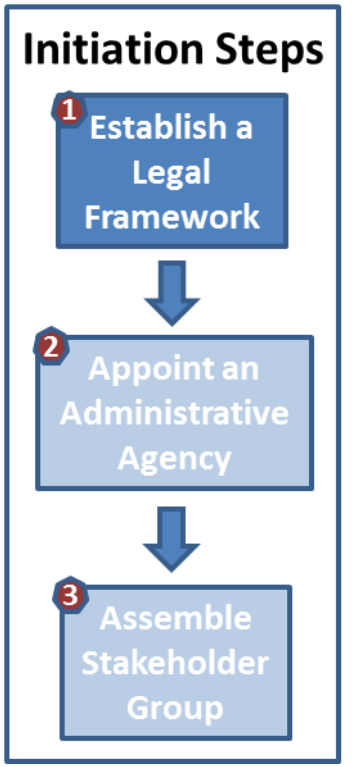
Step 1 – Establish a Legal Framework

- Foundation of any MEPS programme
- Establishes legal authority for market regulation
- Develop framework legislation to create legal basis and political commitment to MEPS. Examples:
  - Europe - Ecodesign Directive 2009/125/EC
  - USA Energy Policy and Conservation Act of 1975
- Examine issues such as:
  - Membership in the IEC; status of test standards?
  - Government agencies – authority and scope?
  - Existing laws regulating products - safety, consumer protection?



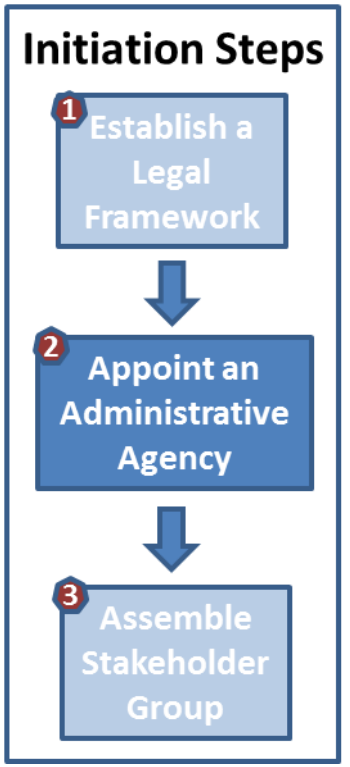
What should Legal Framework Legislation contain?

- Defined programme objectives;
- Authorised types of intervention (mandatory standards and/or voluntary targets);
- Criteria for determining which products are covered;
- Criteria for level of ambition (e.g., payback periods, life-cycle cost, or regional harmonisation);
- Schedule of implementation;
- Procedural rules and deadlines; and
- Requirement to evaluate the programme's impact, including effects on manufacturers, consumers and the country.



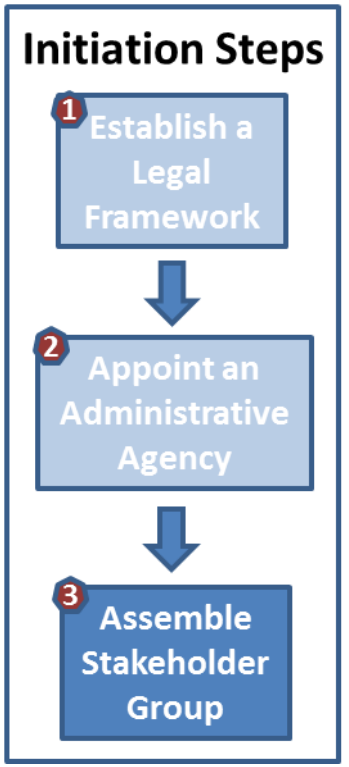
Step 2 – Appoint an Administrative Agency

- Assess existing institutional capacity for developing, implementing and maintaining a programme
- Develop an overall standards and labelling plan
- Assign one government agency with primary responsibility
- Examine issues such as:
  - Financial resources – government operations, manufacturer/importer fees, donor assistance
  - Personnel resources – expertise in testing, programme administration, market monitoring



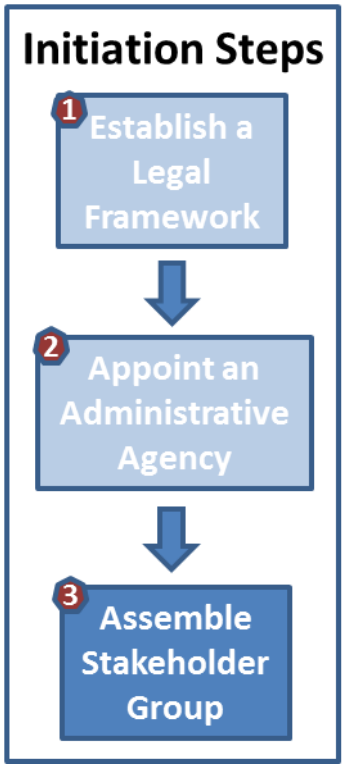
Step 3 – Assemble a Stakeholder Group

- Identify the stakeholders in your market who would be interested and/or impacted and invite them
- There are winners and losers, and broad representation will help ensure a robust outcome
- Include parties from three key areas:
  - Institutional and Governmental
  - Private Sector
  - End-Users / Consumers
- Example – in Europe, the EC has assembled a Consultation Forum with over 200 participants and organisations. All are informed.

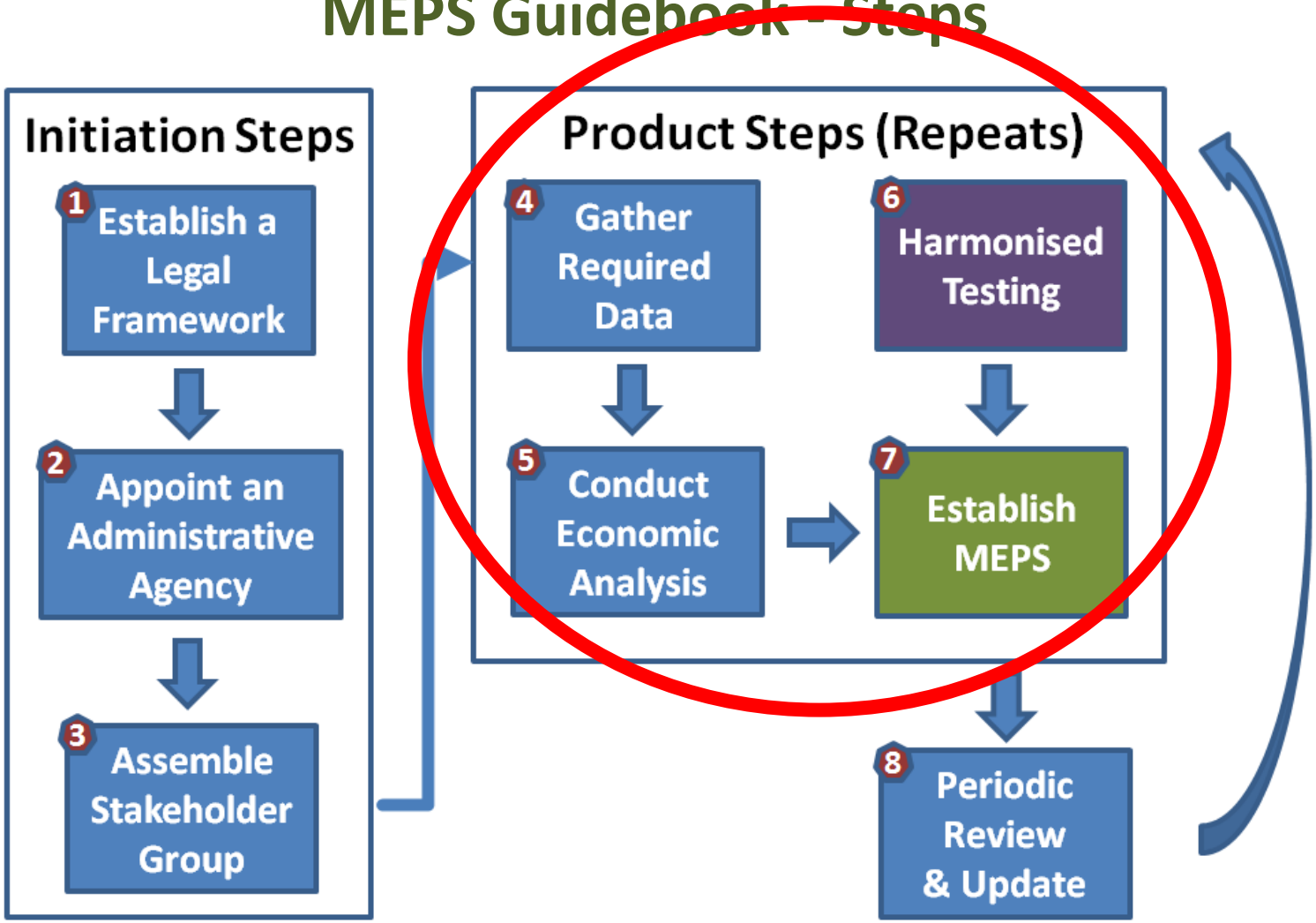


Step 3 – Examples of Stakeholders (Lighting)

- **Institutional and Governmental**
  - Governments – federal, provincial and local
  - Electric utilities and network operators
  - Test standards organisations
  - Customs authorities
  - Testing laboratories
  - Trade unions
- **End Users**
  - Customers
  - Civil society
  - Consumer and community associations
- **Private Sector**
  - Manufacturers
  - Wholesaler distributors
  - Retailers
  - Electrical contractors
  - Specifiers
  - Building owners and managers (e.g., of multi-family dwellings)
  - Architects and lighting designers
  - Industry associations
  - Electric utilities and network operators

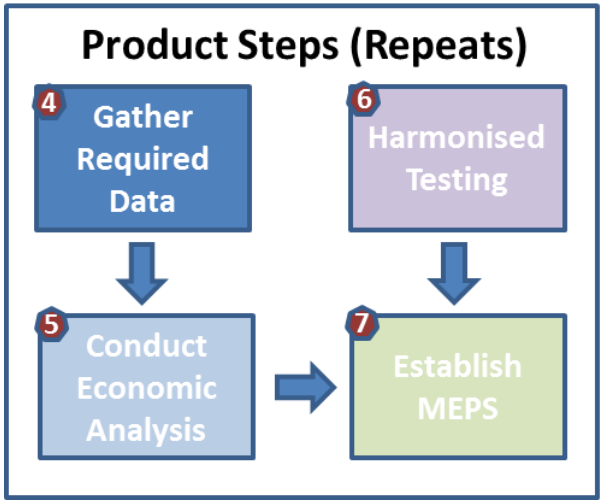


MEPS Guidebook - Steps



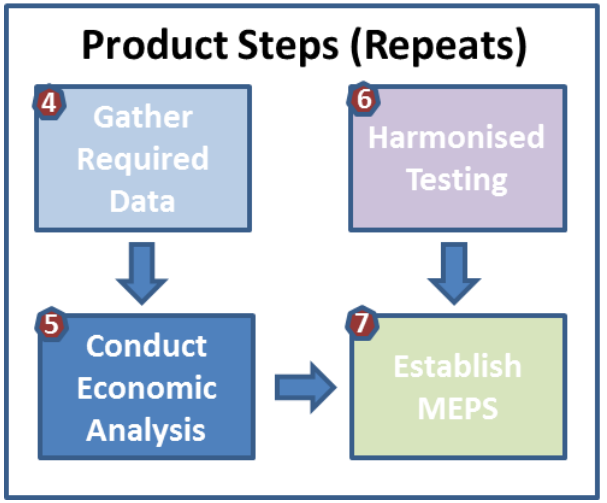
Step 4 – Gather Required Data

- Identify data needs and develop a plan for collecting data to support analysis
- Generally, data is needed on:
  - Markets – volume, prices, local production, import/export, sales channels
  - Engineering – cost vs. efficiency
  - Usage – how much the product is operated
  - Behavioural – features offered by products, attitudes towards efficiency
  - Ancillary – forecasts of energy prices, utility capacity, changing fuel mix, macro-economic factors



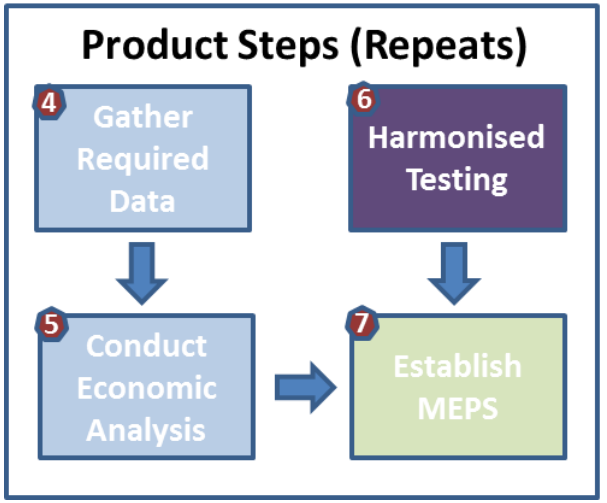
Step 5 – Conduct Economic Analysis

- Assess cost-effectiveness to determine appropriate level of regulatory ambition
- Economic analysis starts from:
  - Baseline model – typical product
  - Design options – higher efficiency levels
- Using data from Step 4, consider the cost-effectiveness of these levels, including:
  - Life-cycle costs
  - Payback periods
  - Internal rate of return
- Estimate savings – electricity, CO_2, financial savings



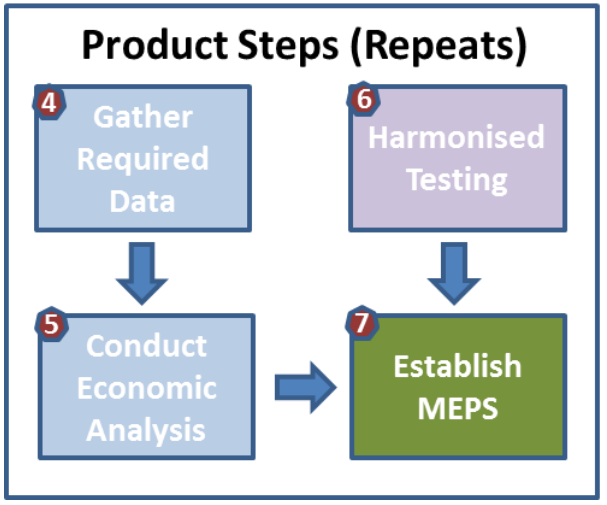
Step 6 – Harmonised Testing

- Product testing underpins all energy-efficiency programmes and policies
- Harmonisation lowers costs for manufacturers and enhances quality assurance; consider IEC
- Test standards should achieve:
  - Coverage – scope of test should include regulated products
  - Metric – determine input power demand, efficiency, other..
  - Accurate – minimise random or systematic errors
  - Representative – reflect in-situ energy use
  - Repeatable – same result product tested in same laboratory
  - Reproducible – same result product tested in different labs
  - Low Cost – not too expensive or time consuming



Step 7 – Establish MEPS

- MEPS will increase the efficacy of lamps in a market by blocking the sale of any models below a certain performance level
- Determine the technically feasible, economically optimal regulatory level
- Invite stakeholders to comment and refine MEPS; must be cost-effective for consumers

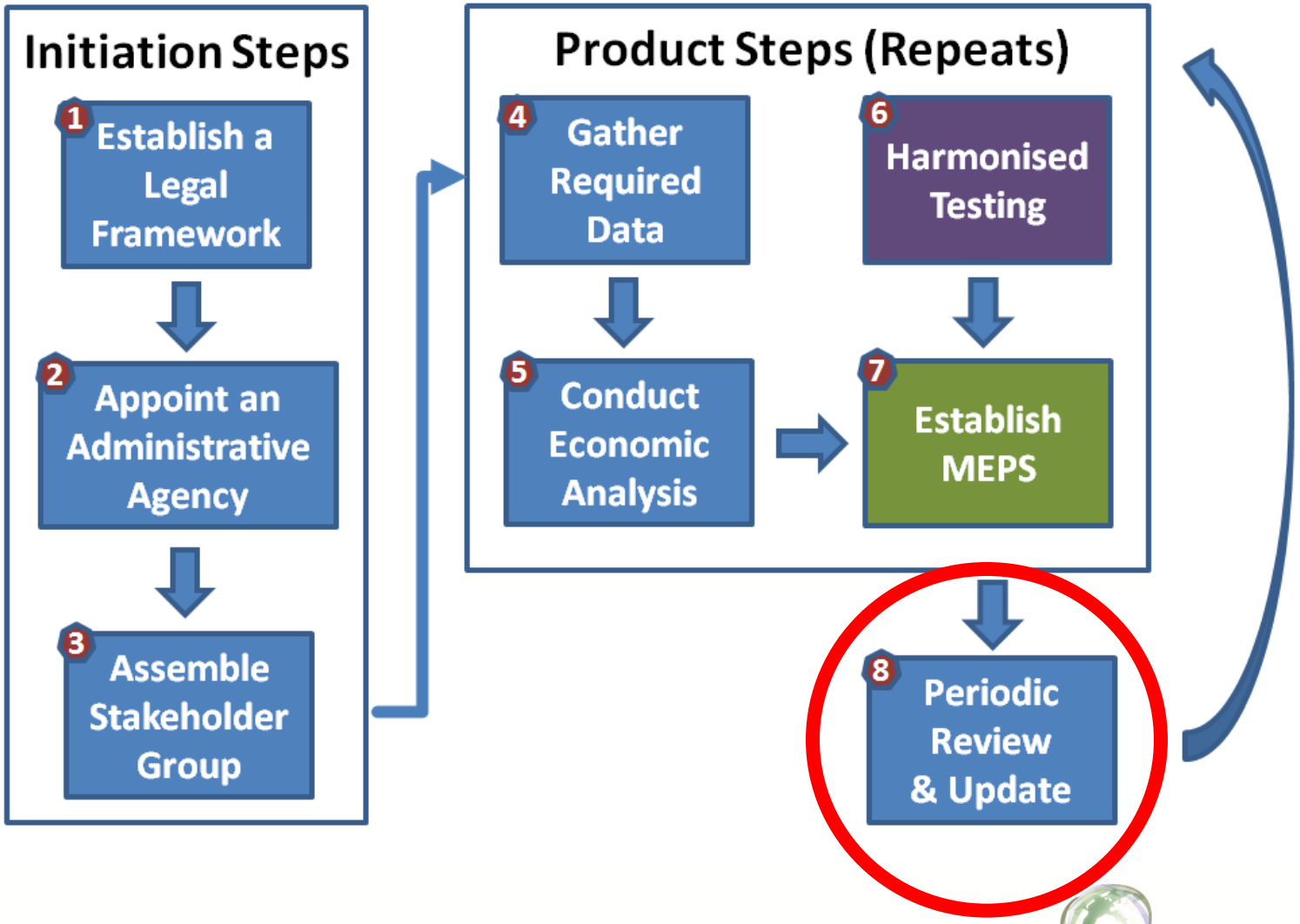


- Secure political endorsement, publish regulatory notice and give future date when MEPS will take effect
- Consider most appropriate mechanisms for introducing measures - can be all at once; or phased-in by wattage, year, etc.
- Link to “market-pull” activities as well as communications initiatives and outreach
- See the Global Policy Map for examples

MEPS Requirements – Primary and Secondary

Primary	• Efficacy – performance requirements are written into the law • Can be an equation based on wattage (Europe) or a requirement by wattage bin (USA) • Specify a test method for measurement (demonstrating compliance)
Secondary (Optional)	• May specify lumen maintenance over time • May give guidance on "equivalency" to incandescent lamps • May require minimum lamp life, or a declaration of rated life; product warranty may be required or encouraged • May have power quality requirements - power factor, THD • May have light quality requirements - correlated color temperature; color rendering index; color consistency • May limit or ban materials, e.g., heavy metals As, Cd, Hg, Pb • Safety: Electrical, fire, health and communications

MEPS Guidebook - Steps

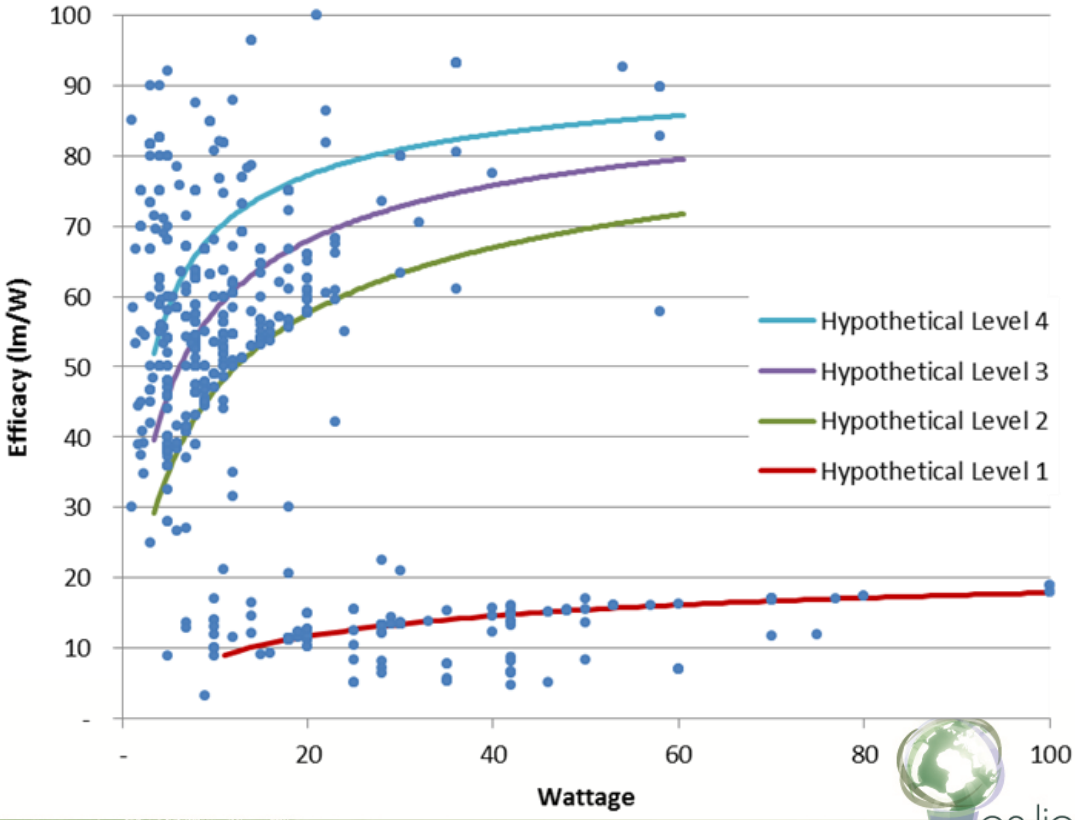


Step 8 – Periodic Review and Update

- Plan to periodically review and update the regulations every few years, to ensure they remain appropriate and relevant.

8 Periodic Review & Update

Hypothetical example for lighting



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Harmonising MEPS: Regional Benefits

- Set same requirements ("harmonise") as other ASEAN countries
- Lower costs for consumers – allows more product choices (more competition) and lowers costs of compliance for manufacturers
- Lowers national costs for preparing a test methods and MEPS
- Comparative test results for products sold domestically and in neighbouring economies
- Easier to ensure Market Verification and Enforcement
- Faster and less expensive testing – for compliance and other purposes – as harmonised testing creates a larger choice of laboratories who can conduct product tests

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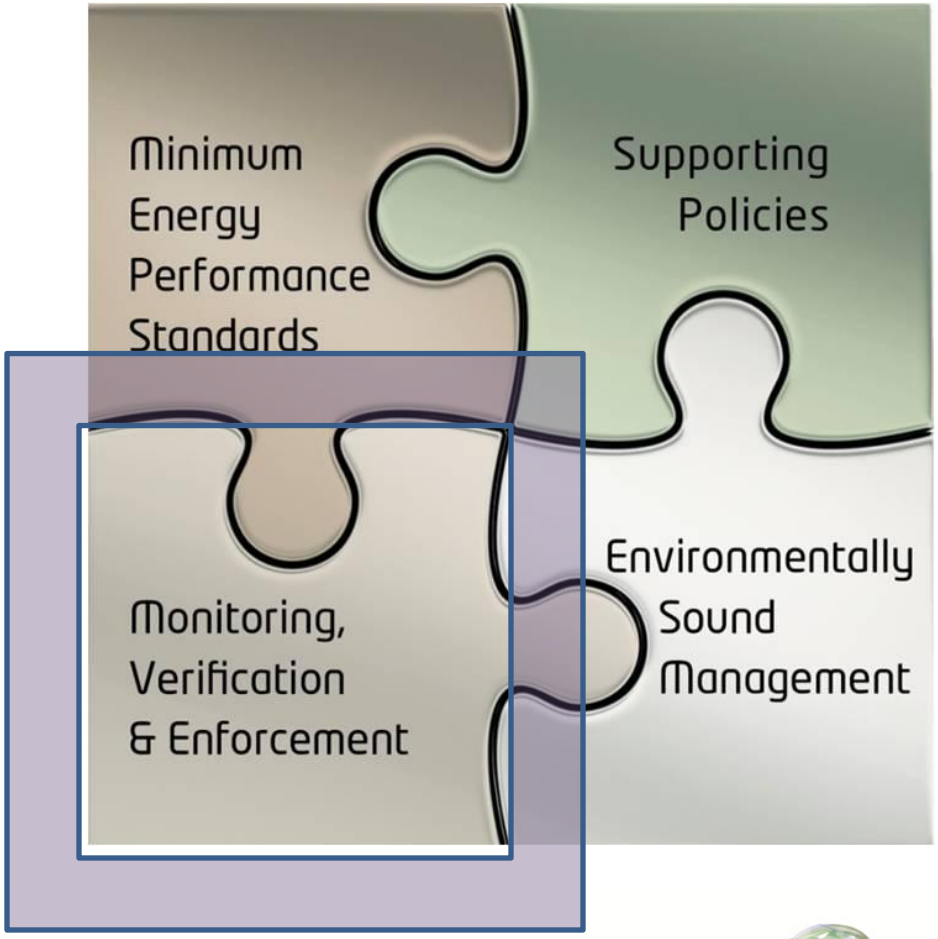
National Efficient Lighting Strategy

To monitor and enforce the efficient appliance policy, and ensure the energy performance and environmental benefits



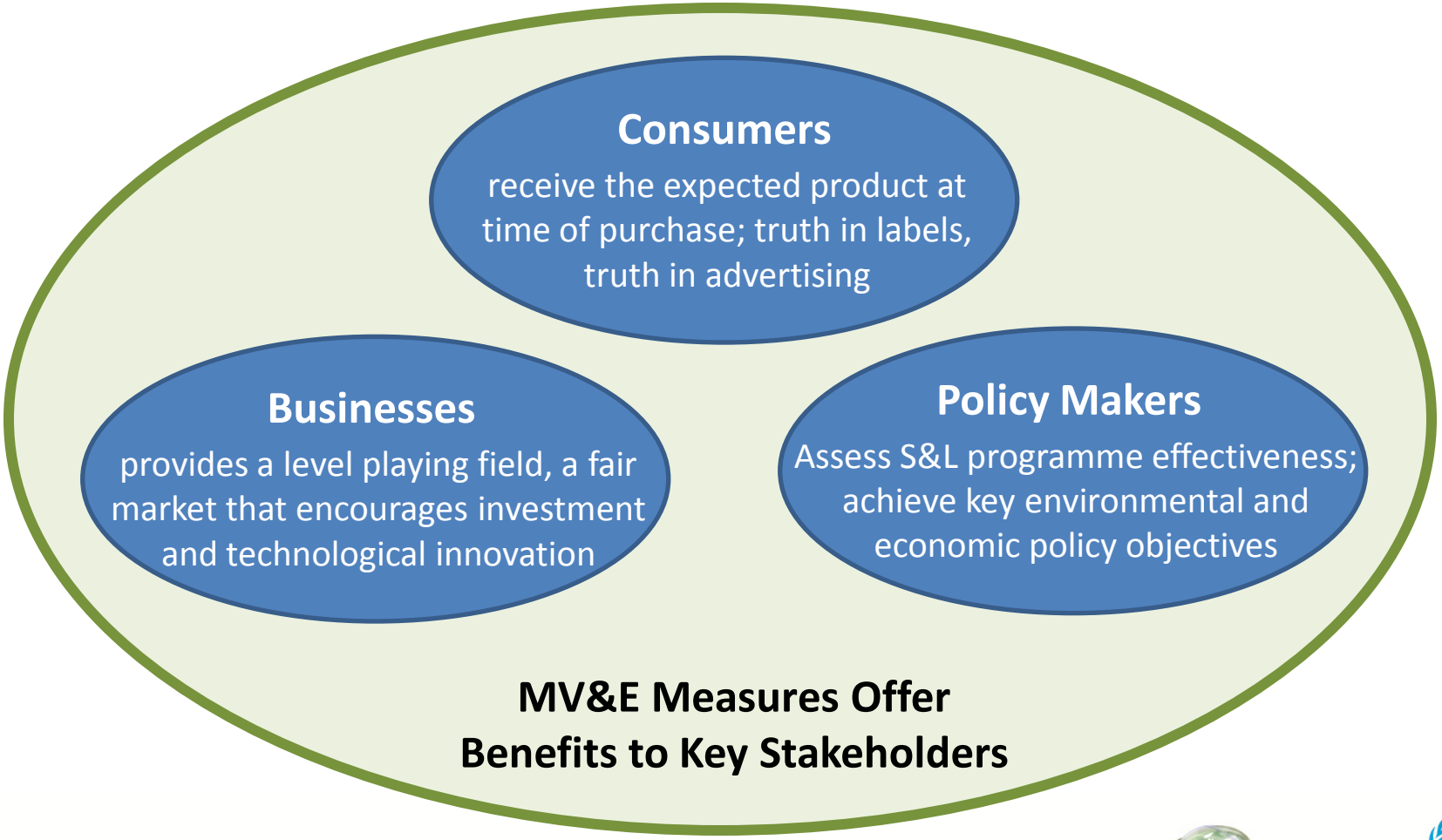
MVE - Definitions

- **M** - MONITORING - the collection and analysis of data using agreed test methods to give an accurate picture of programme progress and compliance

- **V** - VERIFICATION – determines whether a product actually performs according to its claimed energy performance value; often a third-party test

- **E** - ENFORCEMENT – action taken in response to non-compliance offences with a suite of timely and appropriate actions; built on rigorous testing and yields a high return in terms of market and consumer protection

Why is MVE Important?



What are the benefits of MVE?

- **Improve rates of regulatory compliance and eliminate inefficient products from your market**
- **Protect R&D investment made by compliant industries**
  - **Avoid good companies being undercut or losing market share**
- **Enhance the market credibility in your programme**
  - **Build consumer confidence, encourage greater participation rates**
  - **Failure to address non-compliance could result in long-term consequences such as the erosion of consumer confidence**
- **Track costs, benefits and effectiveness of the programme**
- **Calculate energy, financial and emission savings**

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MVE Safe-guards Successful Market Transformation

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

- Mark Ellis, Global expert on MV&E

MVE – the Policy

- Clear rationale to explain values and objectives
- Designate a legal entity responsible for operations
- Establish which entities must participate, and what products are covered
- Declare how enforcement agency will process findings of non-compliant products and impose penalties
- Publish fees, processing and testing costs or other expenses
- Develop and strengthen test laboratories and capacities

MVE - Program Entry Conditions

- Over 80% of countries have some form of compulsory entry condition
  - Canada requires a verification mark from certified organization
  - Korea requires inspection and testing of factories
  - Australia requires registration of model details prior to sale
- Majority of programs use information provided by suppliers on performance
- Product registry allows for inexpensive verification of products in marketplace

Monitoring (Market Surveillance)

- Monitoring ensures compliance once products are in market
- Online retail sales included
- Allows for compliance with legal or program requirements
- Products in market are sampled and tested on a regular basis
- Approaches include
  - Market surveillance for information accuracy on energy labels
  - Market surveillance for MEPS compliance
  - Complaint-based market surveillance (user or industry)

Testing Capacity

- Demands for testing increase with MVE adoption
- Establishing reliable laboratory capacity is expensive and time consuming
  - Requires professionals specifically trained to conduct photometric tests
- Maintaining national lamp performance test results allows for comparison against international standards
- Countries that test products can share data with other governments

Testing Activities & Services

- Testing should support manufacturing, provide market access, and ensure market protection
- Regulators should consider:
  - Adopting internationally-recognized testing protocols—International Electrotechnical Commission (IEC)
  - Encourage adoption of these protocols by local labs
  - Provide input to international testing approaches
  - Coordinate testing and calibration of testing equipment
  - Consider offering support/training to industry
- Product testing and evaluation: government and/or 3rd party
- Accreditation for laboratories (regional or national bodies)

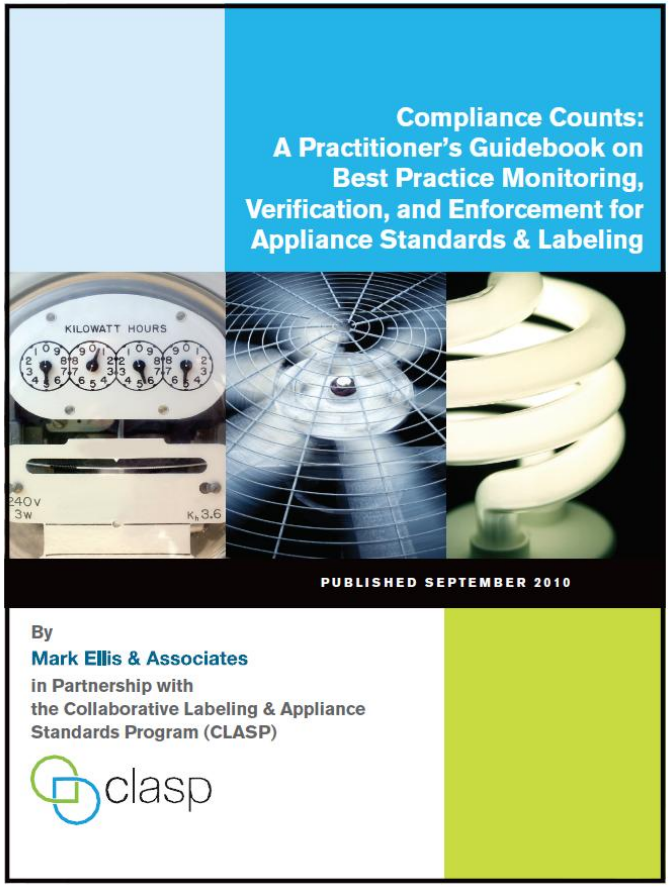
Enforcement

- Type of response depends on situation
  - Severity of problem & range of sanctions that are available
  - Type of programme (mandatory or voluntary)
  - Quality of evidence supporting the claim of non-compliance
  - Willingness of the party to respond
  - Potential to correct the non-compliance
- Can include civil and criminal sanctions, such as:
  - Notification & identifying a correction period
  - Delisting; sanctions; fines; public notices (“name & shame”)
- Enhancing compliance is highly cost-effective

MVE: Summary

- Low-quality lamps in market undermine policy objectives
- MEPS must be stringently supported with MVE
- Optimal success requires strong, long-term commitment
- Training and support for all players in market are required at each implementation level
- Regional collaboration provides numerous benefits:
  - Increased capacity and cost savings
  - Access to laboratory facilities properly accredited and equipped for specific types of tests for lighting equipment
  - Professional training: ongoing for labs and enforcement
  - MVE effectiveness: track to continually improve

MVE – More Information



- A programme design manual for policy makers, administrators and others
- Practical information on compliance frameworks from experiences of existing S&L programmes
- Offers approaches to maintain compliance
- Describes data, facilities and resources necessary
- Offers guidance on issues to consider in designing and implementing effective compliance regimes
- Recognises the important role of government to ensure a level playing field for industry, encouraging investment in efficiency, protecting consumers and saving energy

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Key Points

- **Monitoring** – collection and analysis of data
- **Verification** – determines if a product actually performs according to its claimed energy performance value
- **Enforcement** – action taken in response to non-compliance offences with timely and appropriate actions
- Benefits accrue to:
  - Consumers – receive the expected product at time of purchase, truth in labels, truth in advertising
  - Business – provides a level playing field, a fair market that encourages investment and technological innovation
  - Policy Makers – access effectiveness of energy-efficiency programme, achieve economic and environmental objectives

Thank You

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