Efficient Lighting MVE capacity building

Steve Coyne

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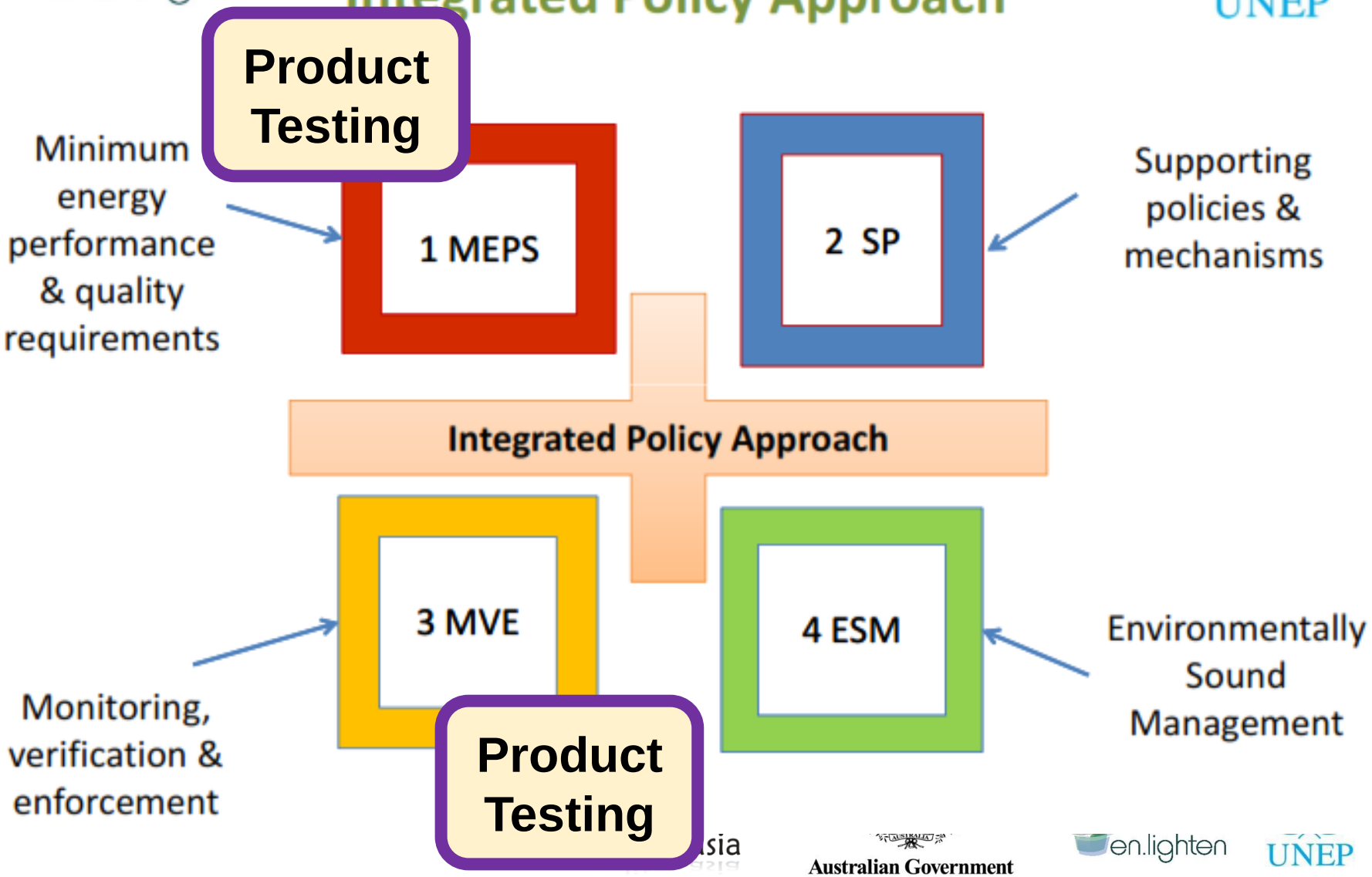
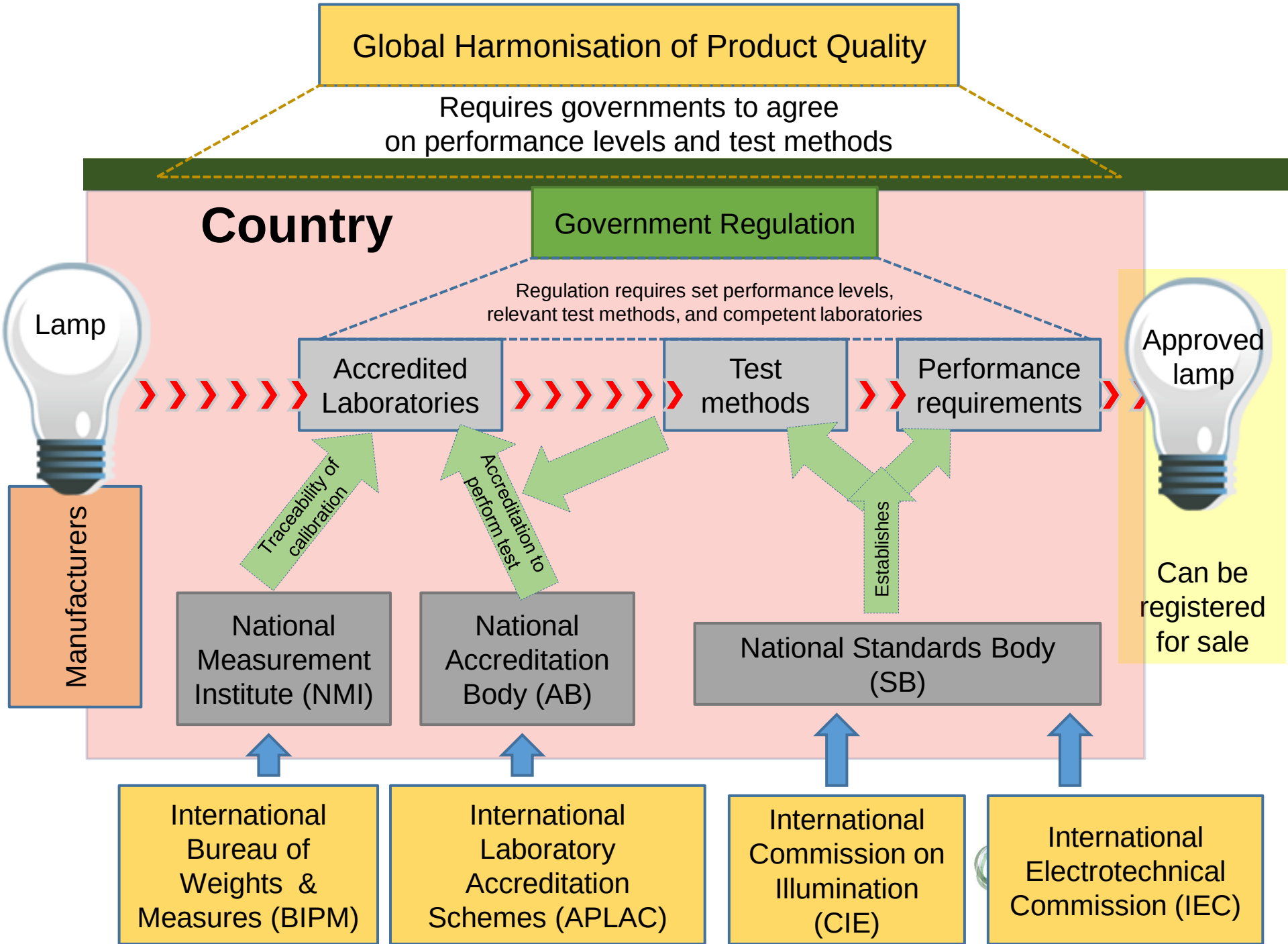
Integrated Policy Approach




Global Harmonisation of Product Quality
Requires governments to agree
on performance levels and test methods
Country
Government Regulation
Regulation requires set performance levels,
relevant test methods, and competent laboratories
Lamp
Manufacturers
Accredited Laboratories
Test methods
Performance requirements
Approved lamp
Can be registered for sale
Traceability of calibration
Accreditation to perform test
Establishes
National Measurement Institute (NMI)
National Accreditation Body (AB)
National Standards Body (SB)
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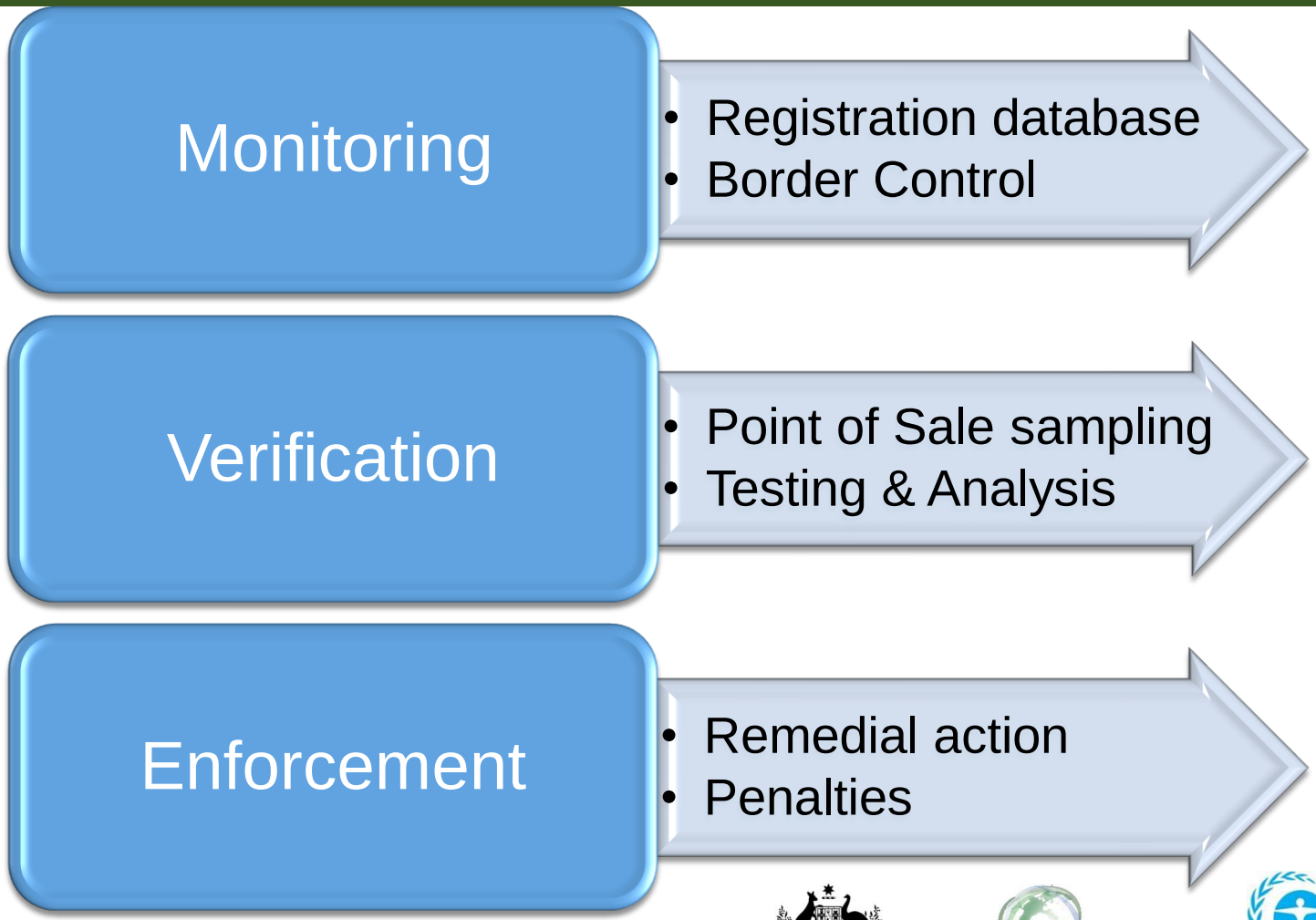
International Laboratory Accreditation Schemes (APLAC)
International Commission on Illumination (CIE)
International Electrotechnical Commission (IEC)

Compliance program requires



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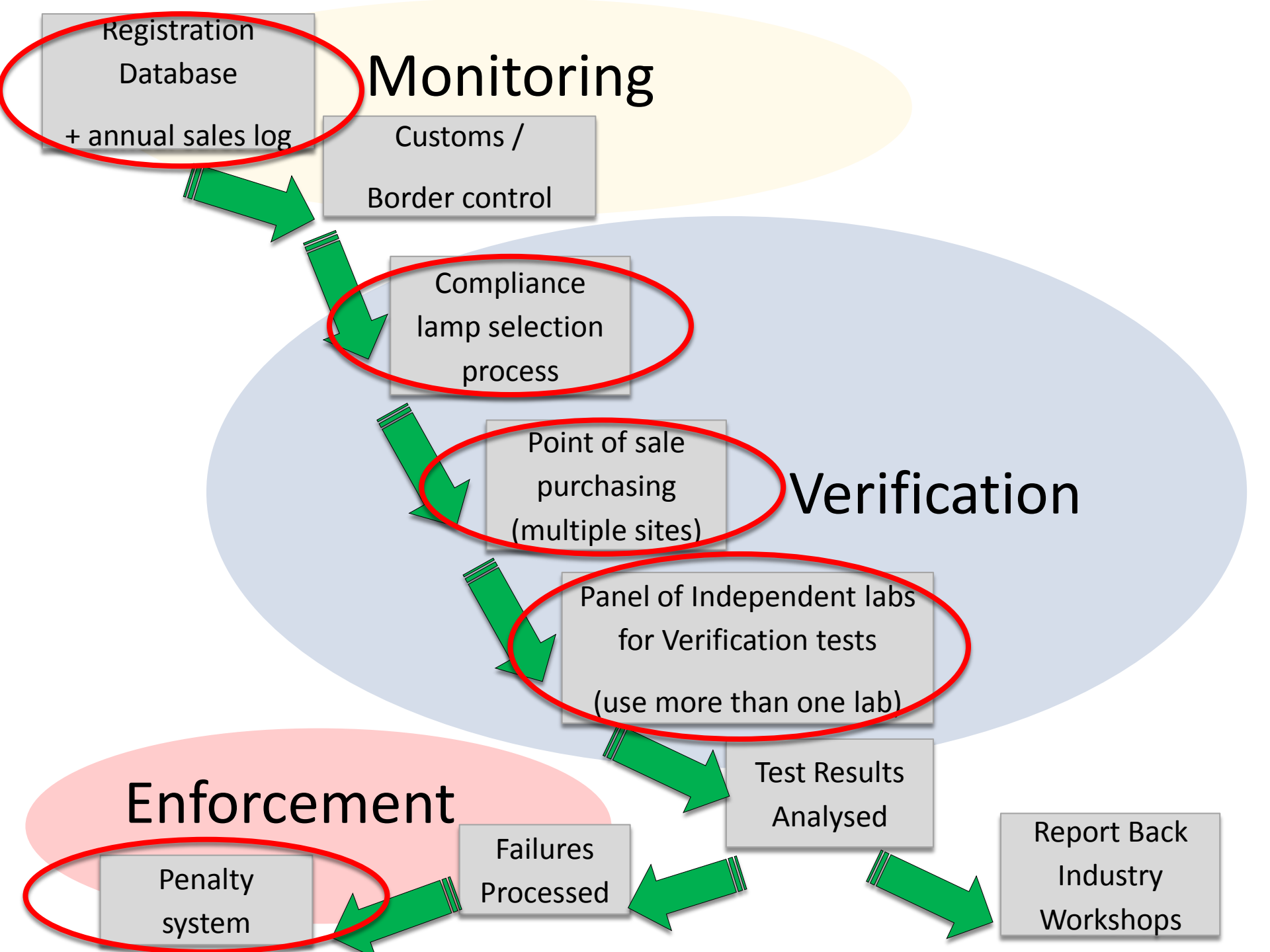
Registration Database
+ annual sales log
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Panel of Independent labs for Verification tests
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Test Results Analysed
Report Back Industry Workshops
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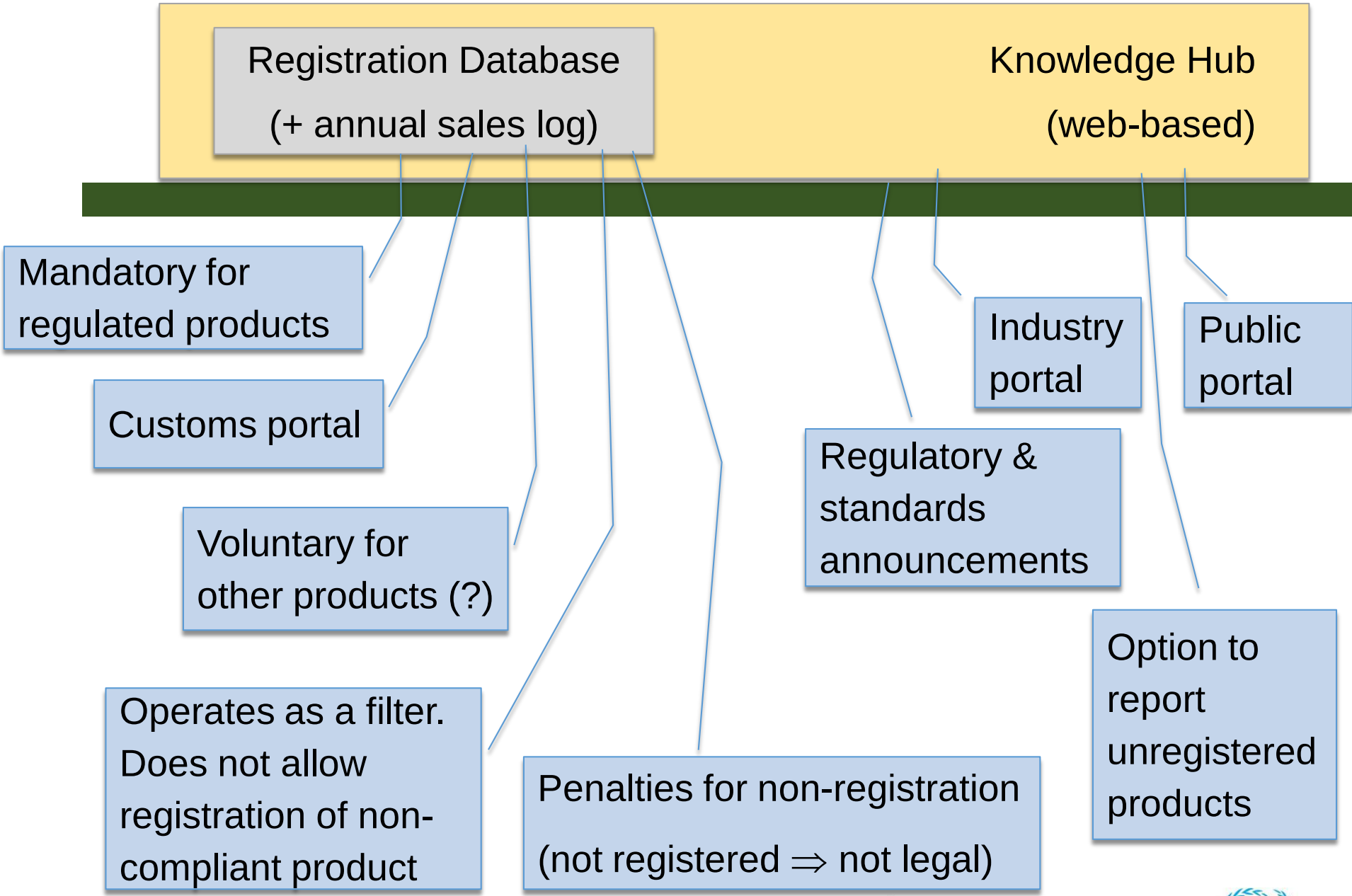
Failures Processed
Penalty system



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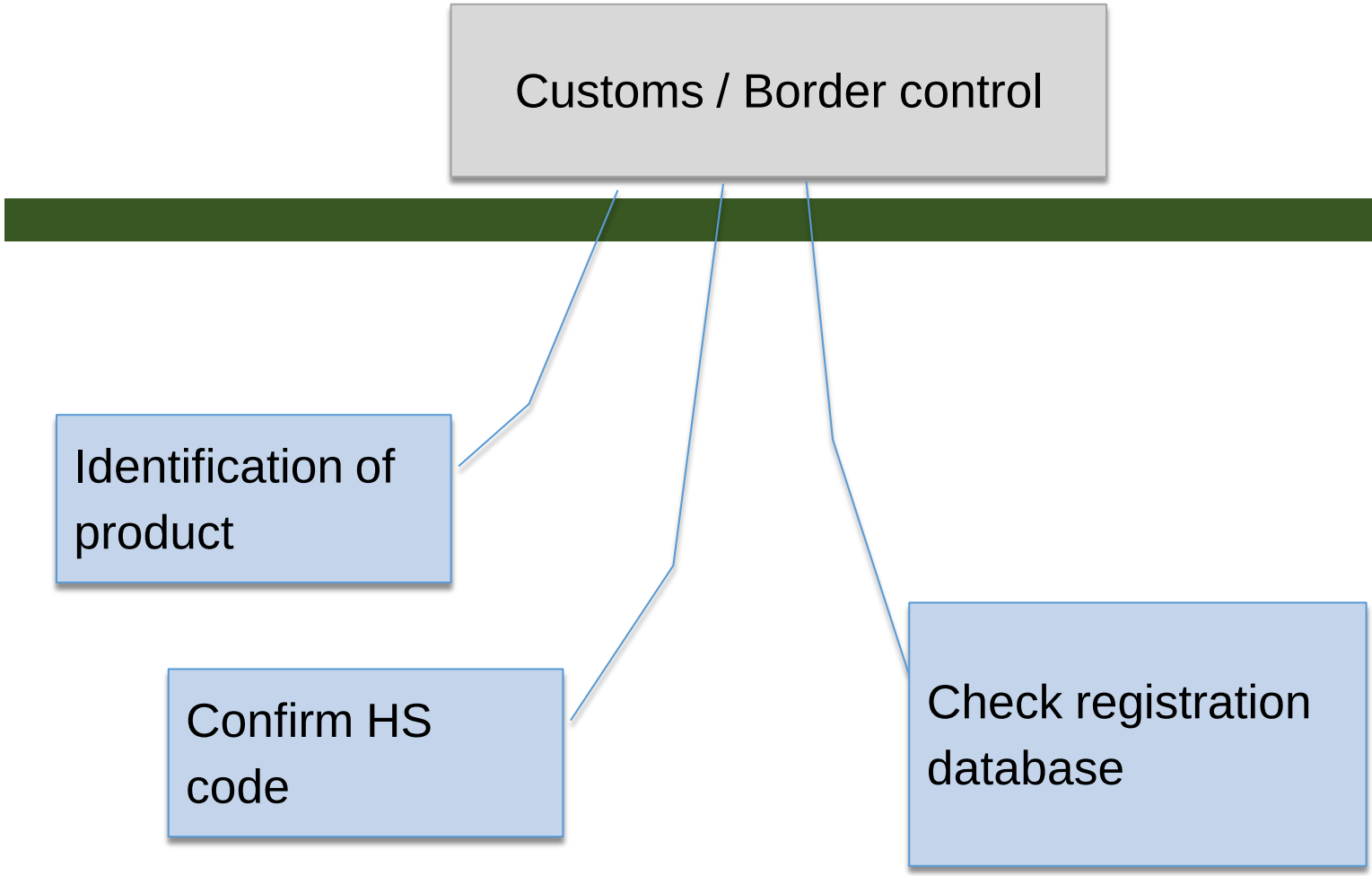
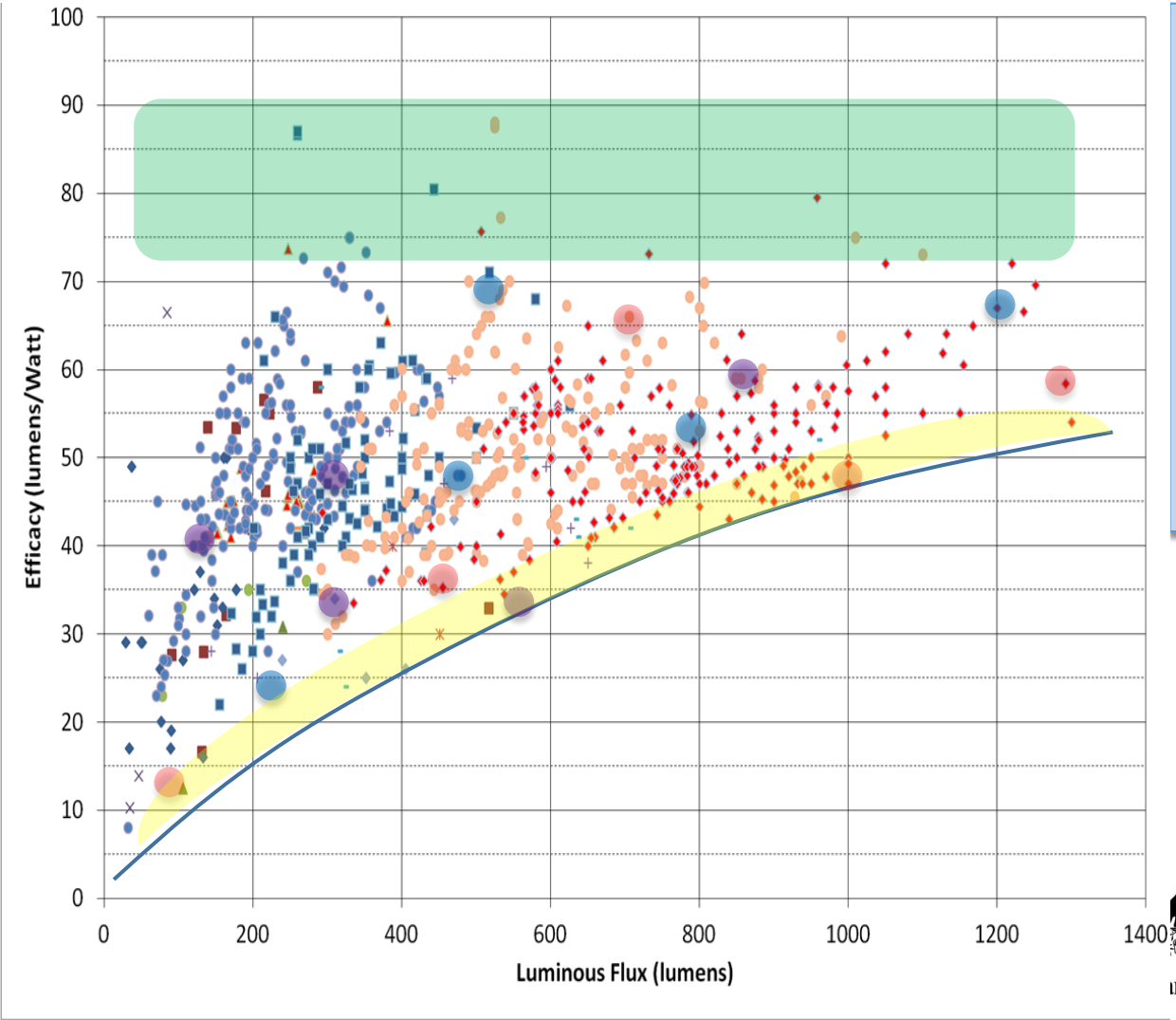


Compliance lamp selection process



- % highest claims
- % random
- % borderline
- % new entries
- % previous offenders

= 100%

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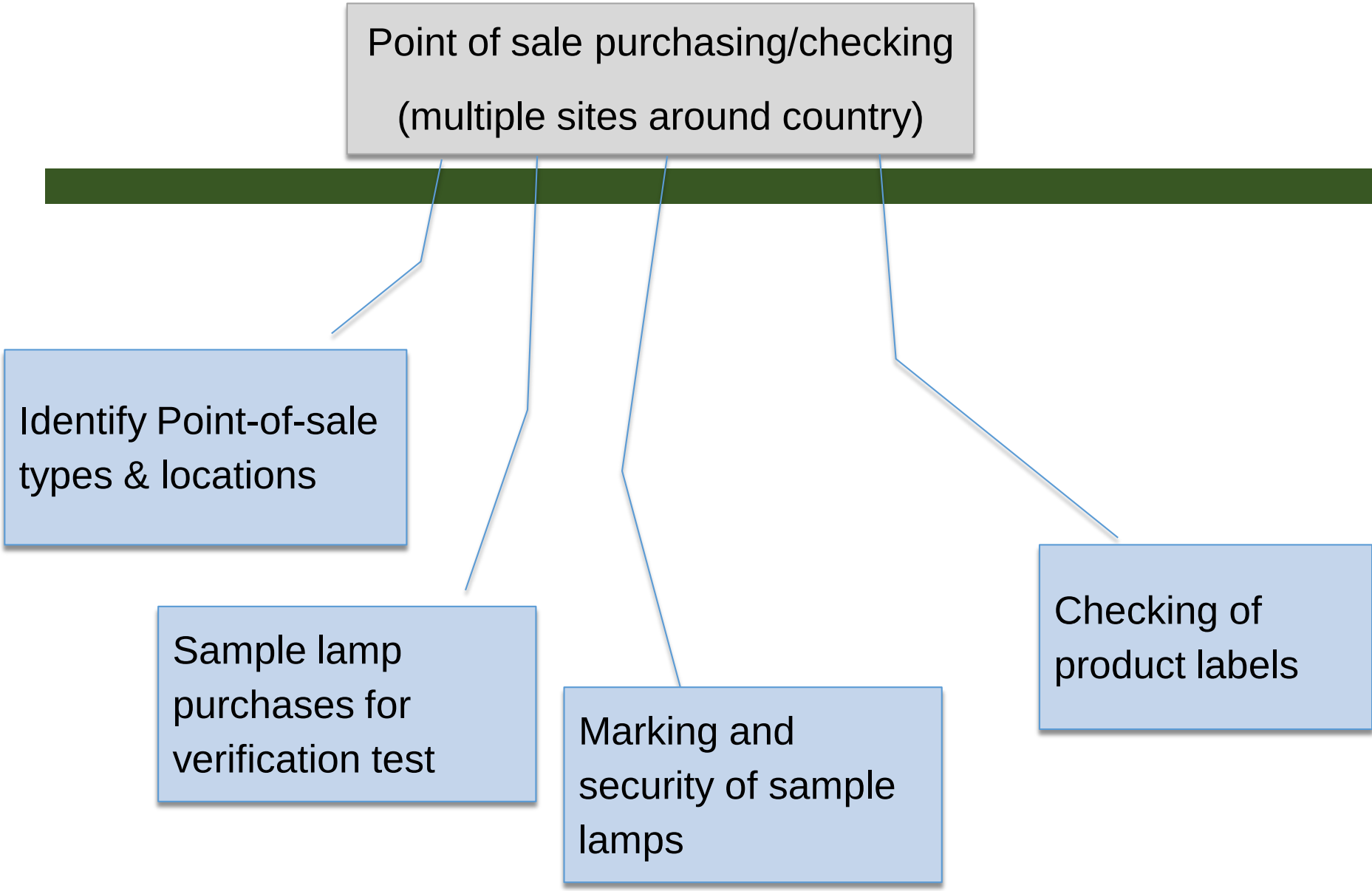

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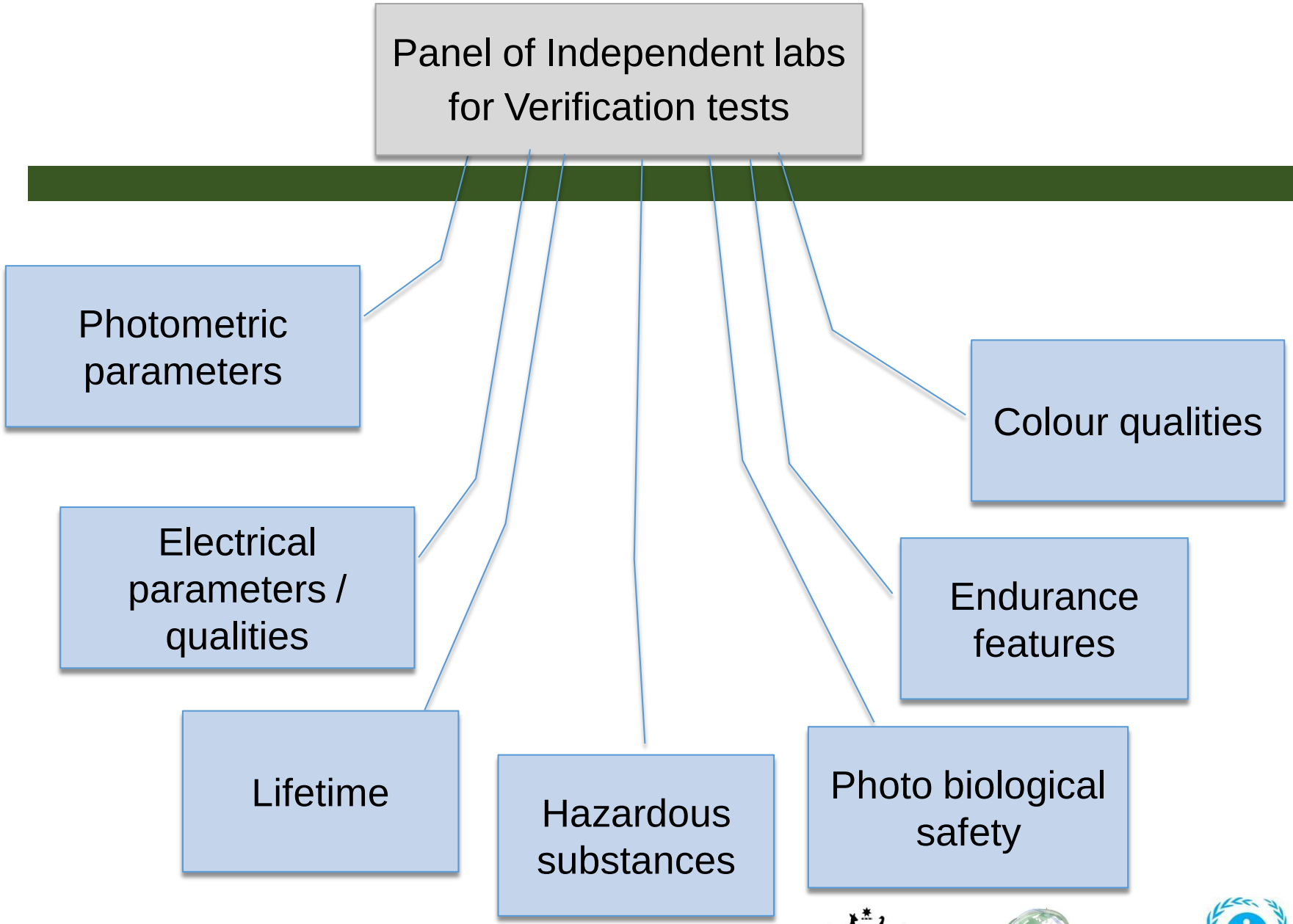

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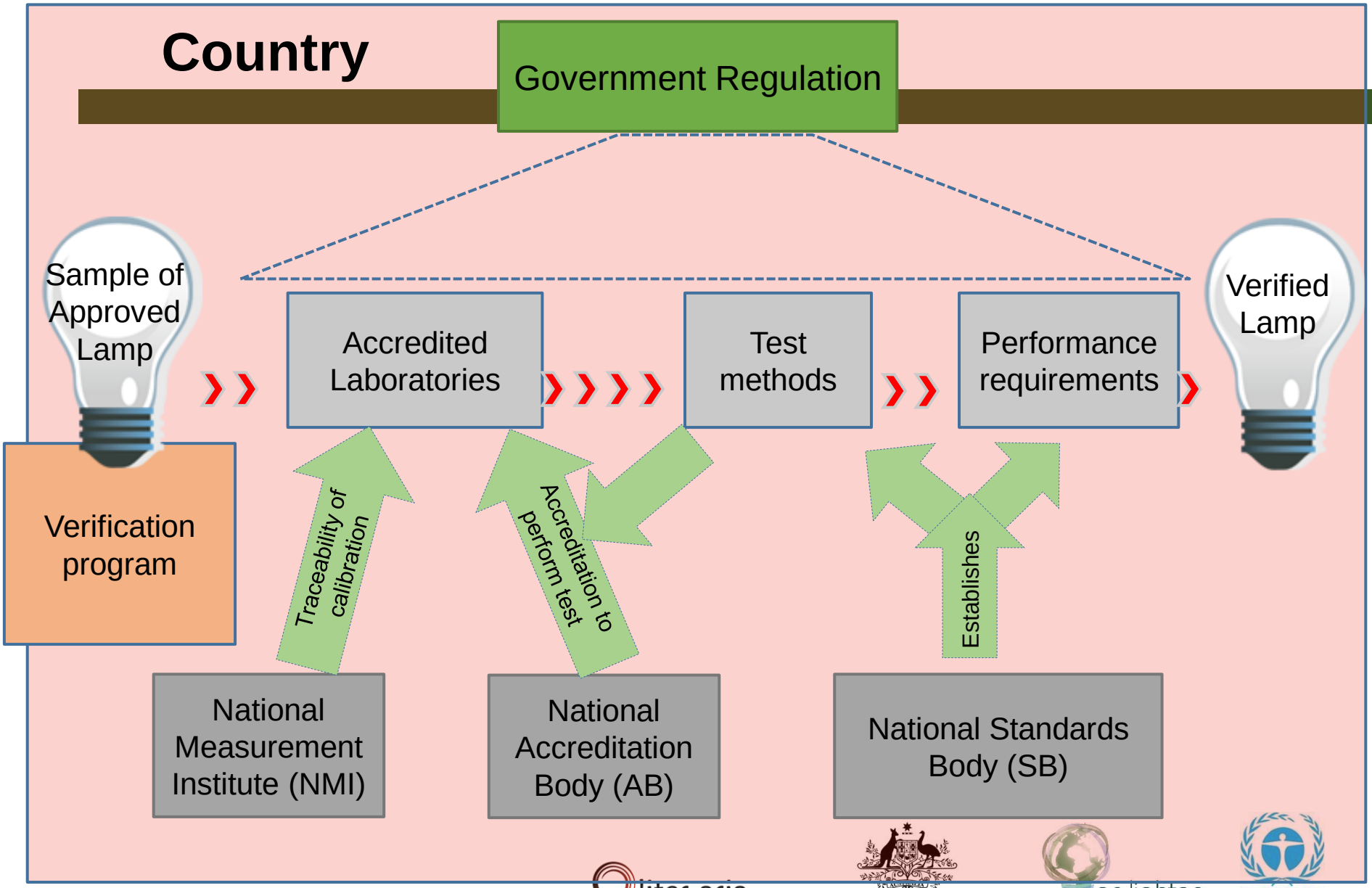

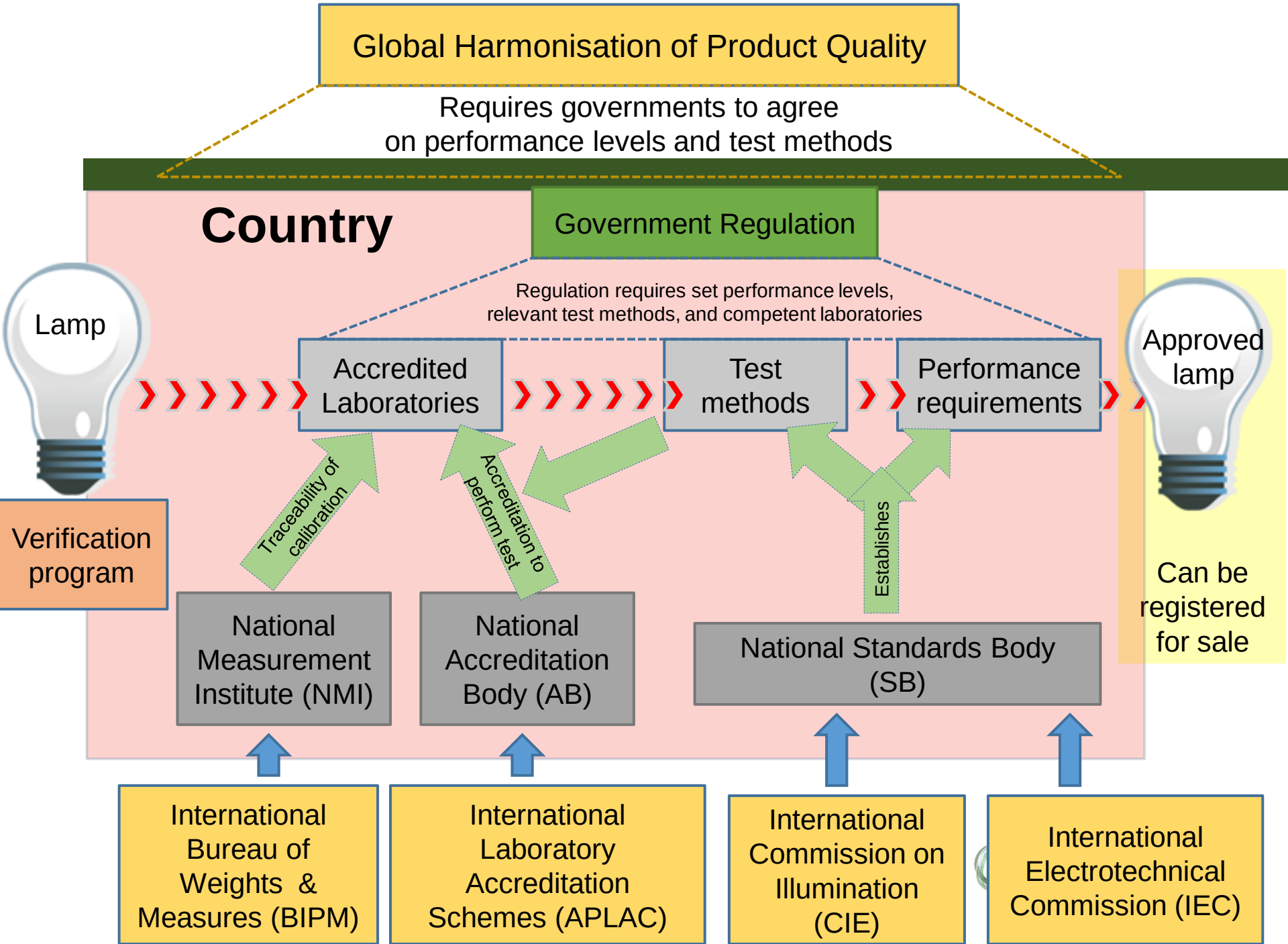
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International Electrotechnical Commission (IEC)

Key Issues for Recognition of Laboratories

- Traceability of calibration

- Accreditation of labs to perform test procedures

Traceability

- Calibrations trace back to **the** Standard International Unit

  "The candela is the luminous intensity, in a given direction, of a source that emits monochromatic radiation of frequency 540×10^{12} hertz and that has a radiant intensity in that direction of 1/683 watt per steradian."

- Each level of calibration incorporates the uncertainty of measurement from the levels above

http://www.pyrometro.com/calibration.html

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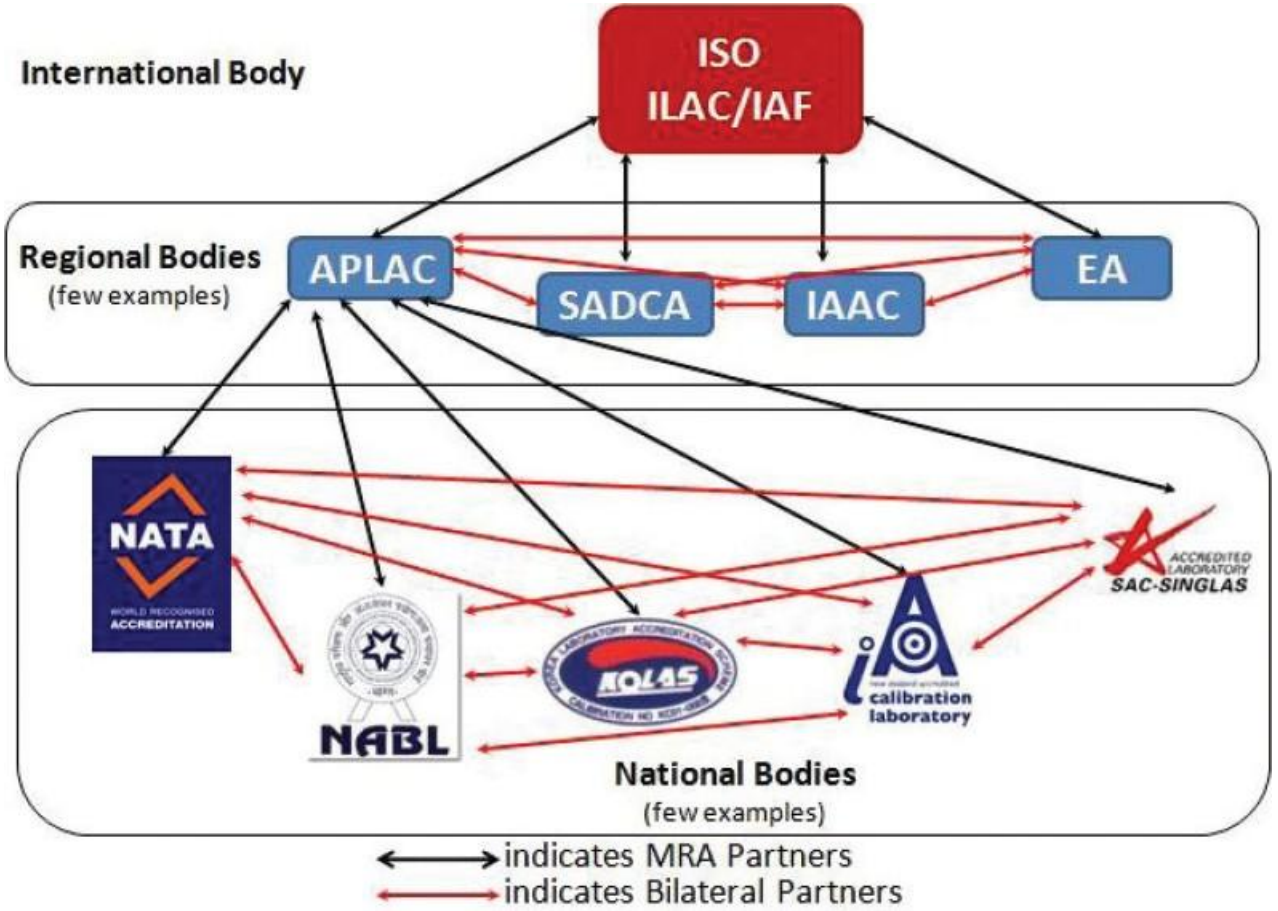
International Accreditation System

- International recognition of lighting testing and reports from laboratories within a country is achieved by having the national accreditation body accrediting these labs meet the requirements of a global, mutual recognition arrangement framework.
- The International Laboratory Accreditation Cooperation (ILAC)
- Asia Pacific Laboratory Accreditation Cooperation (APLAC) is a regional accreditation body (www.aplac.org). APLAC is recognized by the Asia Pacific Economic Cooperation (APEC) as one of five Specialist Regional Bodies (SRBs) that support the work of the APEC Sub-Committee on Standards and Conformance.AC) heads this arrangement framework (www.ilac.org).

International Accreditation System



International and Regional Accreditation Bodies Relationships. (Wadhwa V, Rai S, Thukral T, Chopra M. Laboratory quality management system: Road to accreditation and beyond. Indian J Med Microbiol 2012;30:131-40)

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Authenticity of Test Reports

- Confirm accreditation status
- If in doubt contact AB
- Check scope of lab

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 500041-0

Cree SSL Laboratory
Durham, NC

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

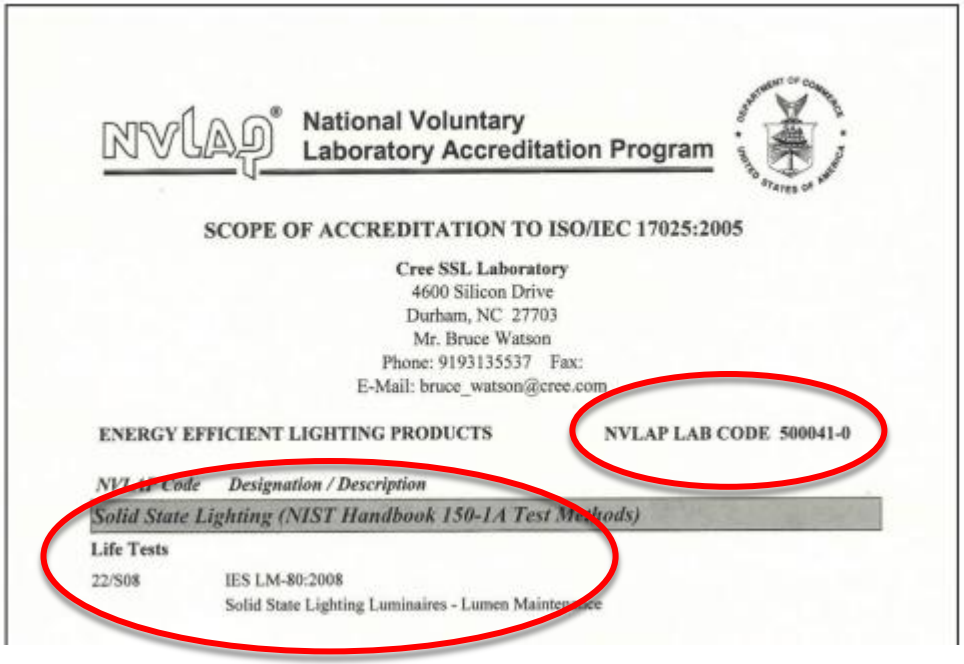
ENERGY EFFICIENT LIGHTING PRODUCTS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2011-02-07 through 2011-12-31
Effective dates

Sally S. Bruce
For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)



NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

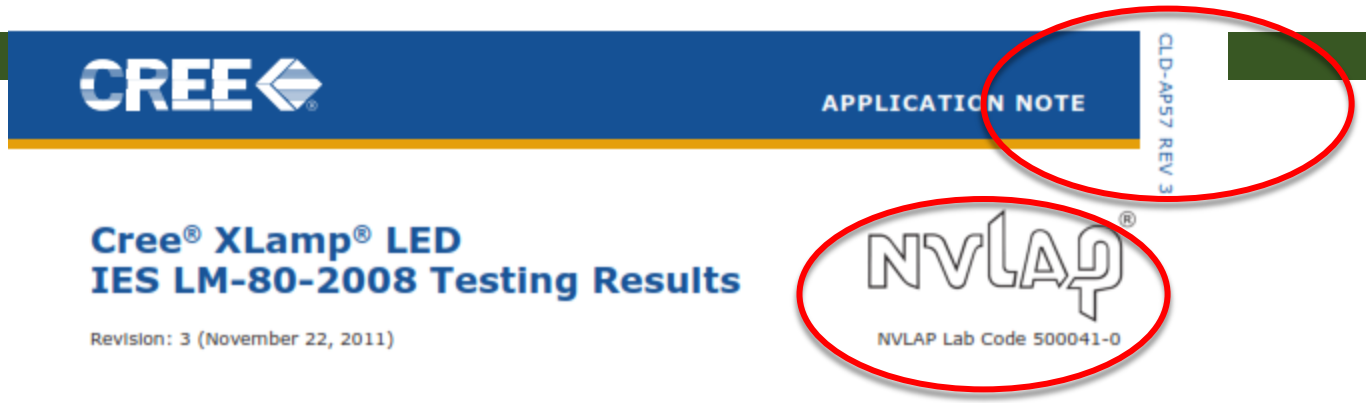
Cree SSL Laboratory
4600 Silicon Drive
Durham, NC 27703
Mr. Bruce Watson
Phone: 9193135537 Fax:
E-Mail: bruce_watson@cree.com

ENERGY EFFICIENT LIGHTING PRODUCTS

NVLAP LAB CODE 500041-0

NVLAP Code	Designation / Description
	Solid State Lighting (NIST Handbook 150-1A Test Methods)
Life Tests	
22/S08	IES LM-80:2008 Solid State Lighting Luminaires - Lumen Maintenance

Authenticity of Test Reports



CREE

APPLICATION NOTE

CLD-AP57 REV 3

Cree® XLamp® LED IES LM-80-2008 Testing Results

Revision: 3 (November 22, 2011)

NVLAP®

NVLAP Lab Code 500041-0

INTRODUCTION

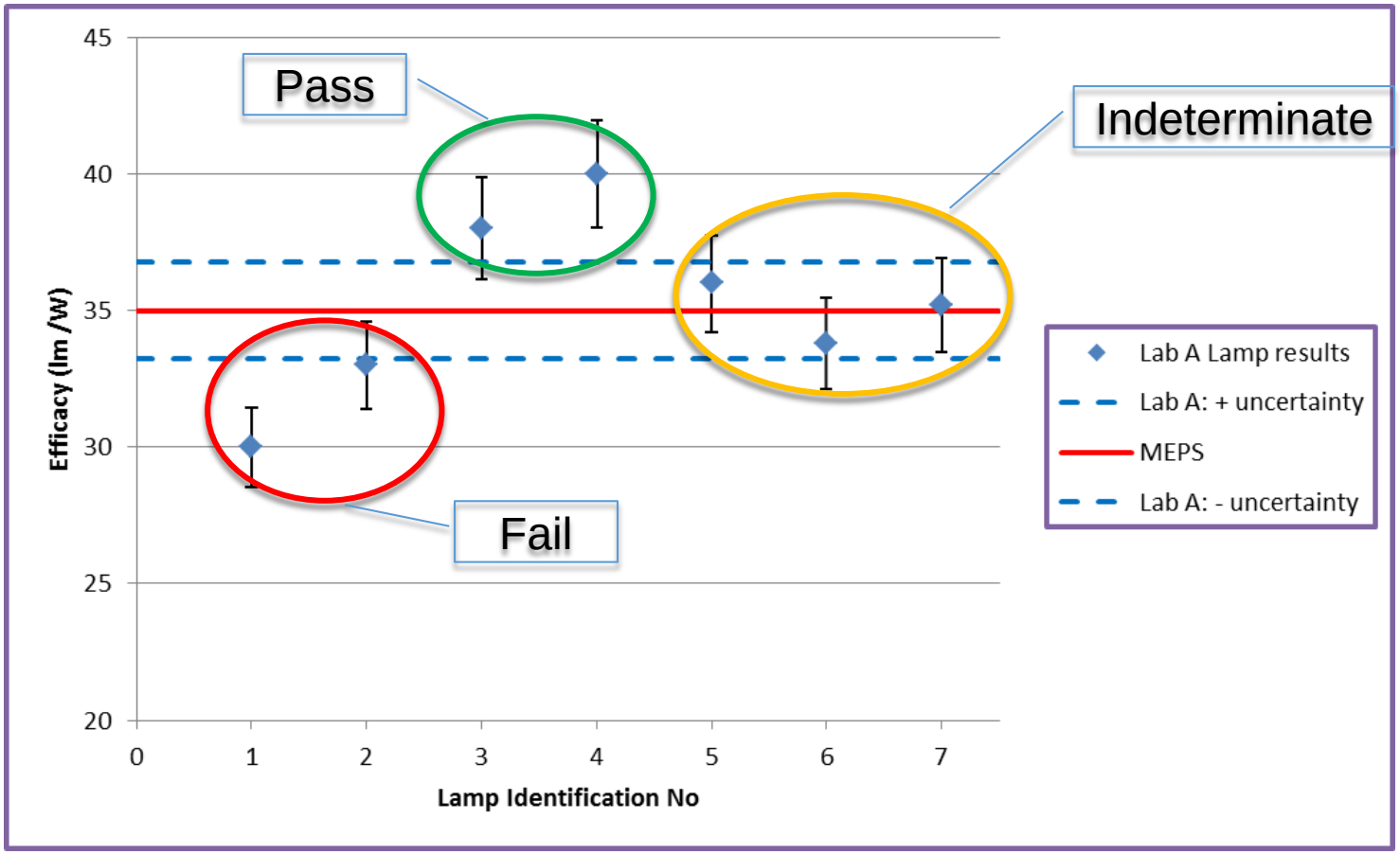
This document provides the results of Cree's IES LM-80-2008 ("LM-80") testing on XLamp LEDs. Cree is providing this data so that the public can verify the reliability of Cree LEDs as part of a complete LED lighting system.

Note that this document only provides the end results of the LM-80 tests. This is not a complete LM-80 report. Do not use this document to submit luminaires or lamps to an agency. Cree customers who need the full LM-80 reports should contact their Cree sales representative.

Cree's customers who wish to share LM-80 results with their customers have permission to link to this docu-

TABLE OF CONTENTS

Uncertainty of Measurement and Compliance



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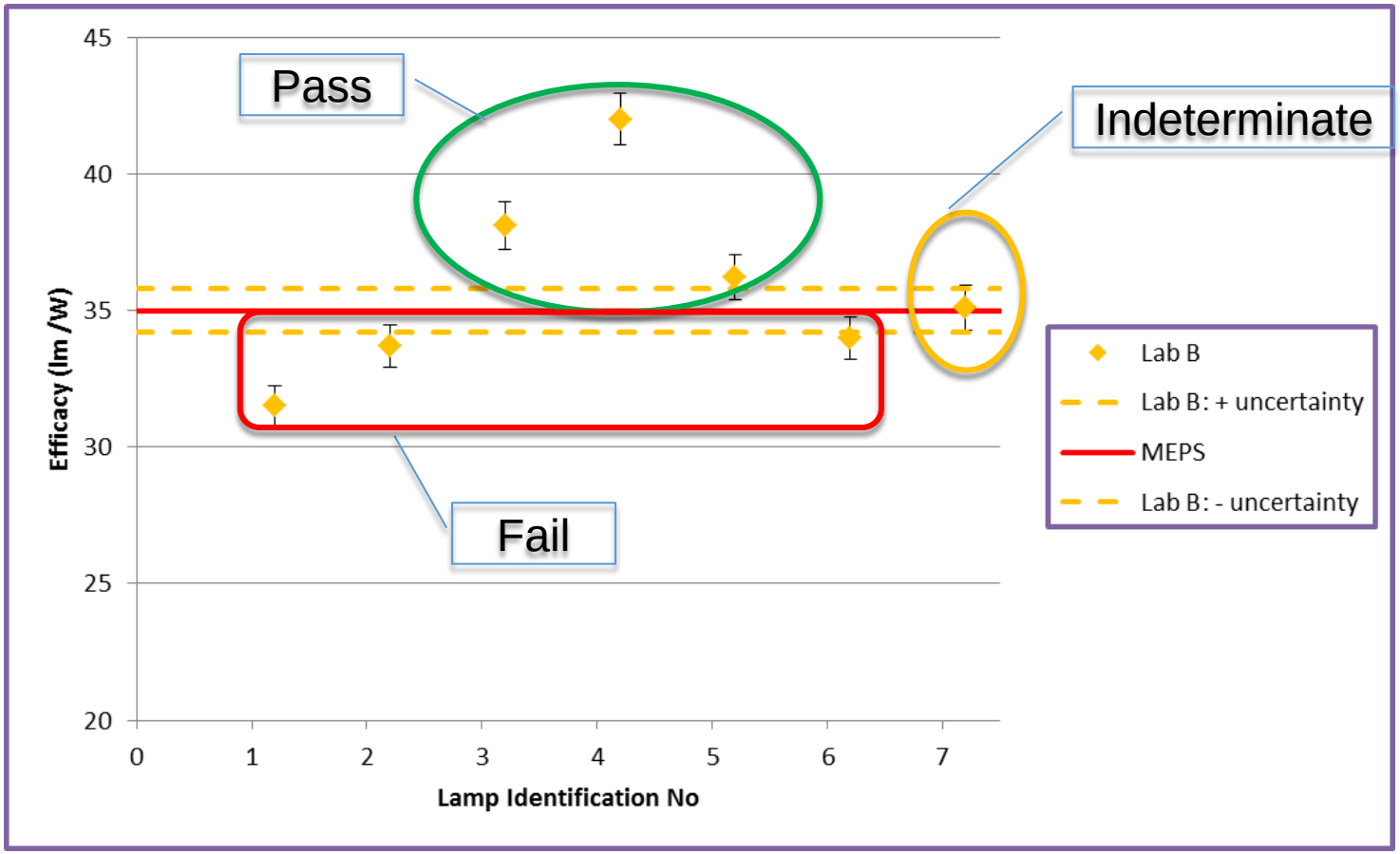
Uncertainty of Measurement and Compliance



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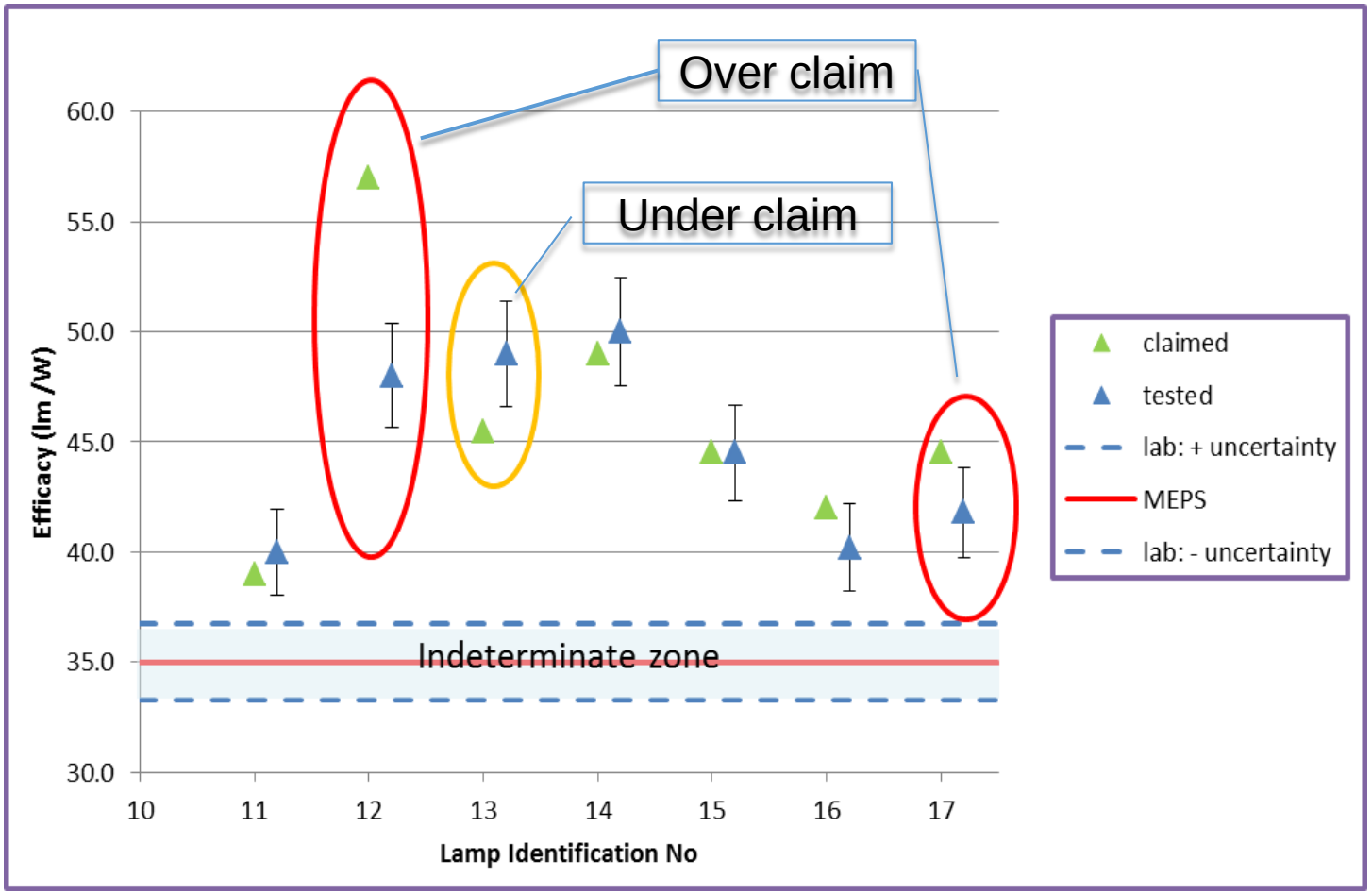
Truth in claim analysis



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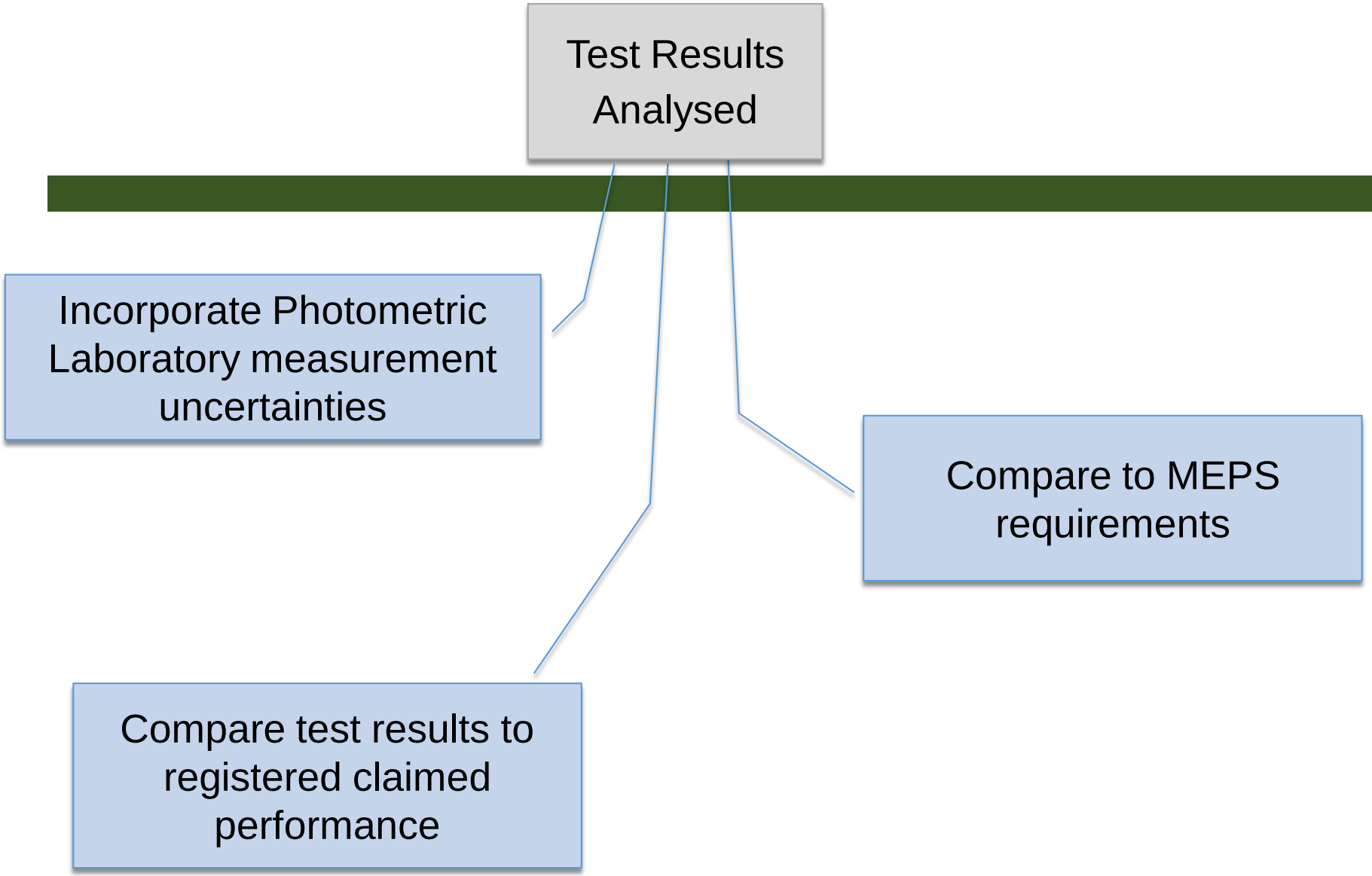
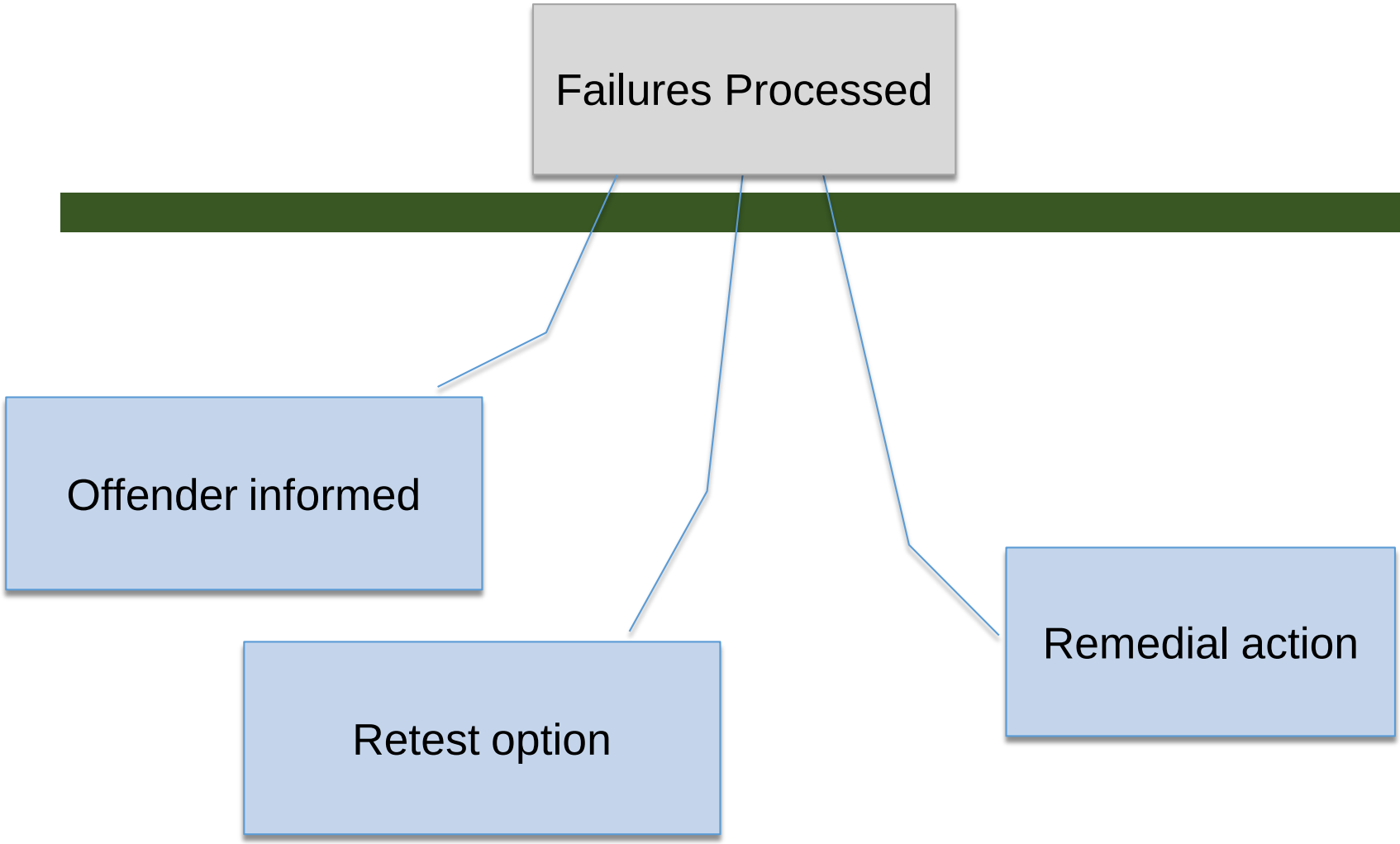
Test Lab Capacity for MVE

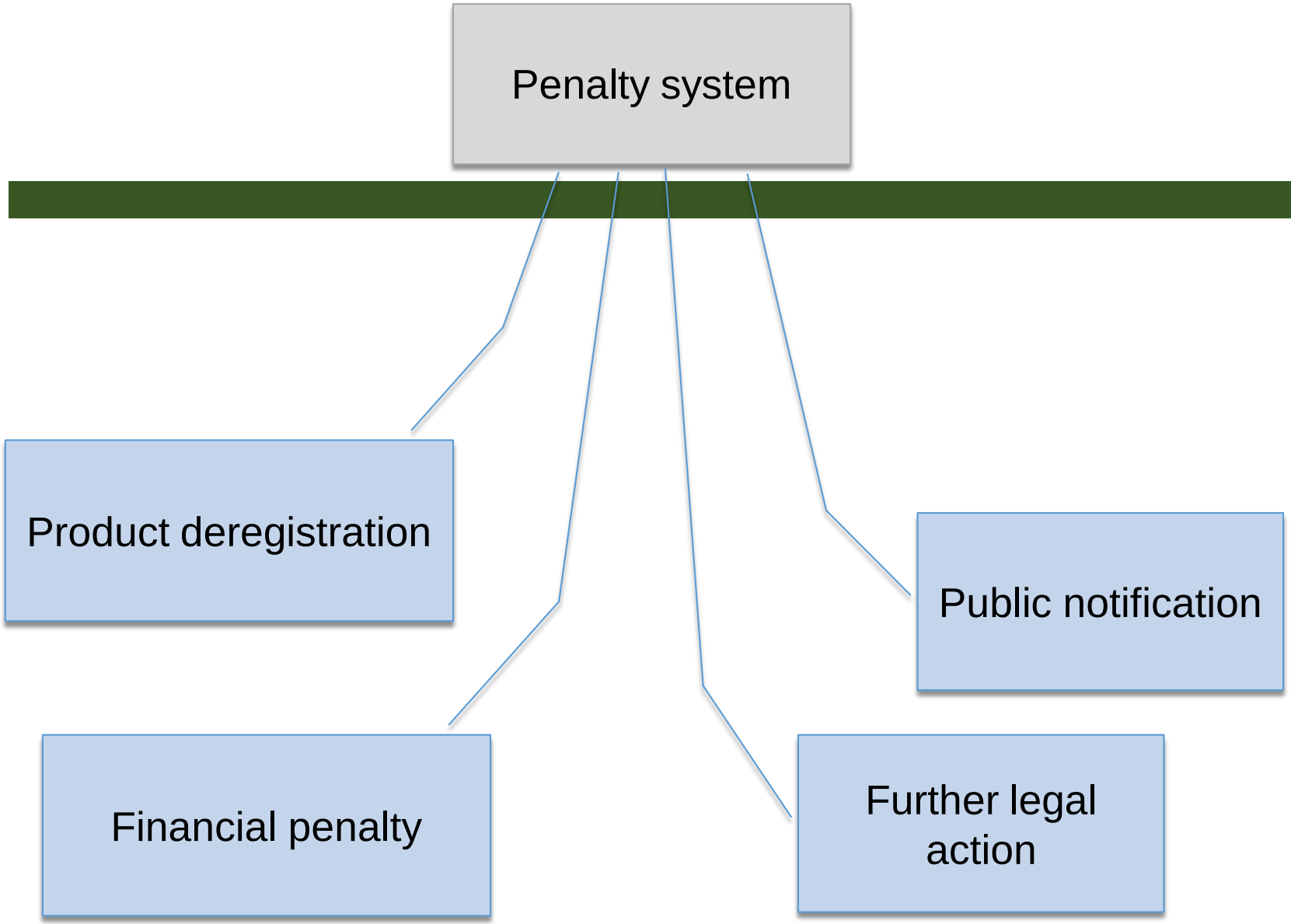
- **Making sure your test lab has the capacity**
  - **Maintaining a consistent compliance activity**

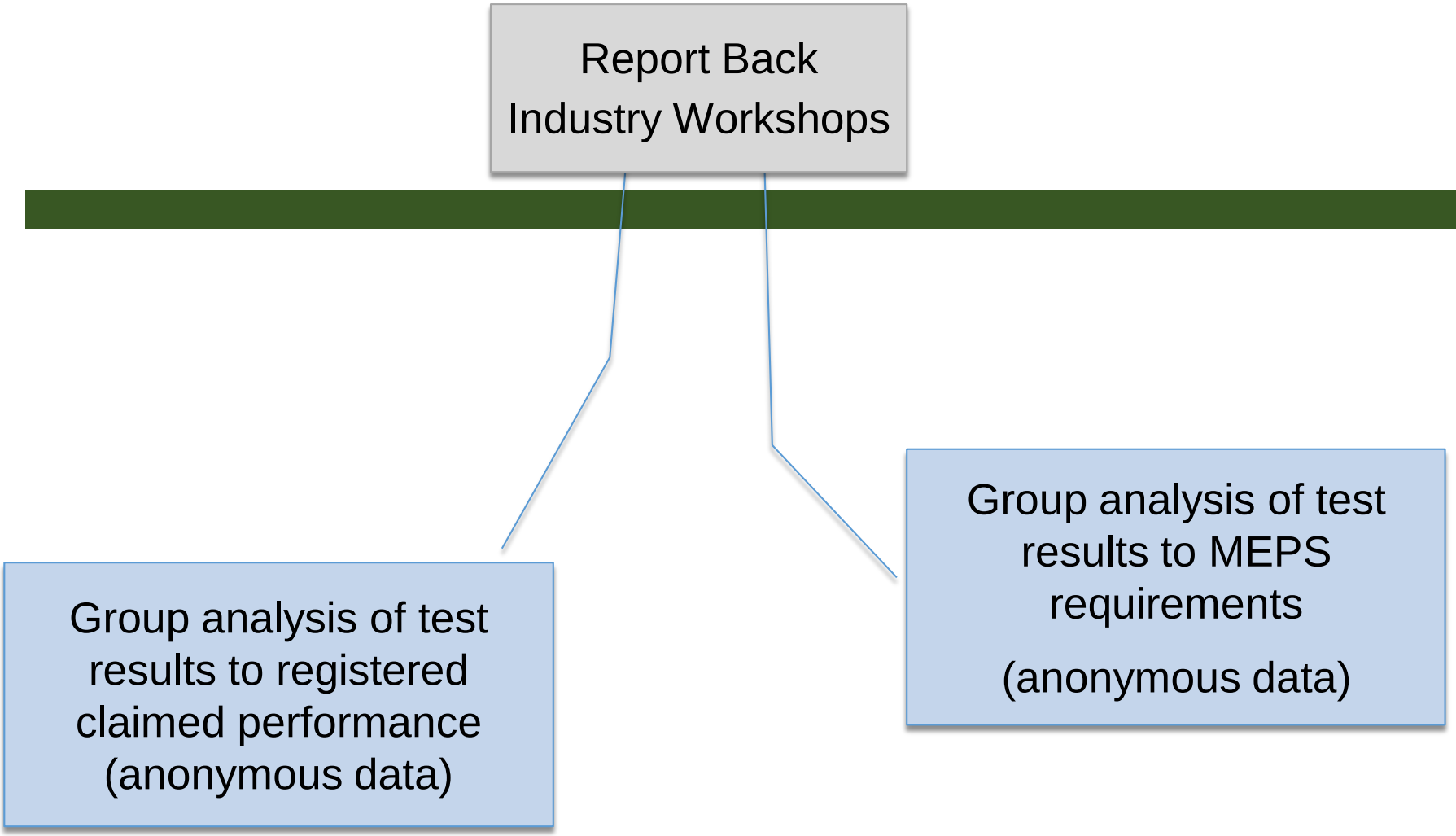
- **Use a panel of third party labs for testing**

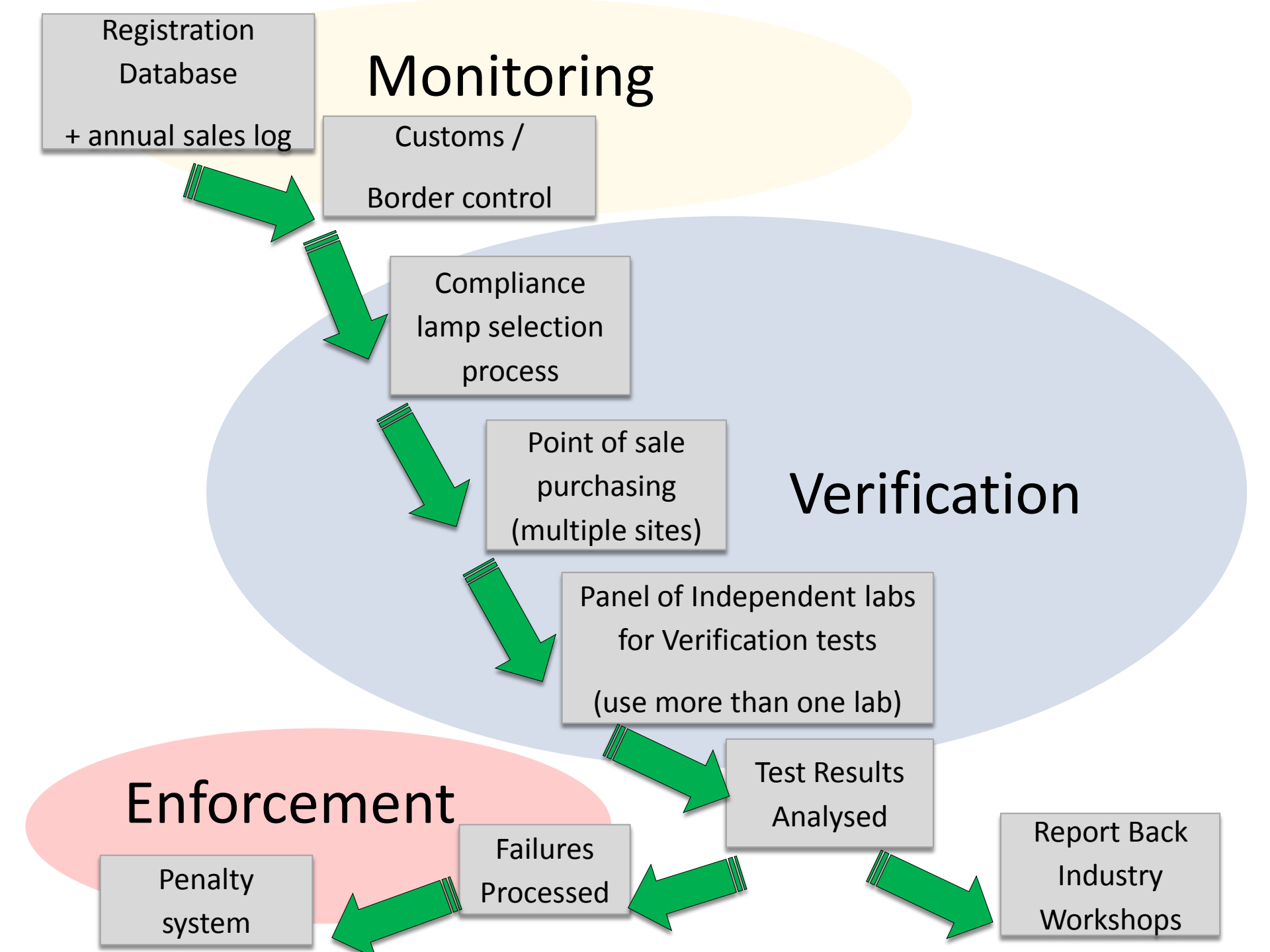
  Selection criteria to include
  - Recognised accreditation for test methods required
  - Capability to carry out the range of tests required with acceptable uncertainty of measurement
  - Capacity to conduct the work in timely manner
  - Price







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Point of sale purchasing (multiple sites)
Verification
Panel of Independent labs for Verification tests
(use more than one lab)
Test Results Analysed
Report Back Industry Workshops
Enforcement
Failures Processed
Penalty system

World Customs Organisation Harmonised System Codes

- World HS number is 6 digits long: AABBCC
- System divided into Sections: based on degree of manufacture
- HS Code:
  - Chapter AA
  - Heading AABB
  - Subheading AABBCC

HS Nomenclature 2012 Edition

http://www.wcoomd.org/en/topics/nomenclature/instrument-and-tools/hs_nomenclature_2012/hs_nomenclature_table_2012.aspx

Chapter 85

Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles

- 85.13

Portable electric lamps designed to function by their own source of energy (for example, dry batteries, accumulators, magnetos), other than lighting equipment of heading 85.12.

- 8513.10 - Lamps

Chapter 85

- 85.39

Electric filament or discharge lamps, including sealed beam lamp units and ultra-violet or infra-red lamps; arc-lamps.

Other filament lamps, excluding ultra-violet or infra-red lamps :

- 8539.21 - Tungsten halogen

Discharge lamps, other than ultra-violet lamps :

- 8539.31 - Fluorescent, hot cathode
- 8539.32 - Mercury or sodium vapour lamps; metal halide lamps

Additional national statistical codes

- Additional 4 digits at end of code provide opportunity for national refinement of product description.

Additional national statistical codes – eg Australia

- **853921 - Tungsten halogen filament lamps**

(excl. ultra-violet or infra-red)

8539210050 - with reflector, ≤ 13V

8539210051 - with reflector, > 13V but ≤ 200V

8539210052 - with reflector, > 200V

8539210053 - without reflector, ≤ 13V for motor vehicles

8539210054 - without reflector, ≤ 13V other than for motor vehicles

8539210055 - without reflector, >13V but ≤ 200V

8539210056 - without reflector, >200V

HS Nomenclature 2017 Edition

Changes:

Heading 85.39. Heading text. Delete "**arc-lamps.**" and substitute "**arc-lamps; light-emitting diode (LED) lamps.**".
New subheadings 8539.50. Insert the following new subheading : "8539.50 - Light-emitting diode (LED) lamps".

- 85.39

Electric filament or discharge lamps, including sealed beam lamp units and ultra-violet or infra-red lamps; arc-lamps; light-emitting diode (LED) lamps.

  - 8539.21 – Light-emitting diode (LED) lamps

Until 2017

Amendments to the Compendium of Classification Opinions

The following list contains the decisions taken by the Harmonized System Committee (**53rd Session – March 2014**) concerning amendments to the Harmonized System Compendium of Classification Opinions. This publication will be updated regularly.

Light-emitting diode (LED) "spot lamp" composed of several light emitting diodes, circuitry to rectify AC power and to convert voltage to a level useable by the LEDs, a heat sink and a bi-pin base.

Decision 8543.70

Light-emitting diode (LED) "bulb lamp" in the standard shape of an incandescent bulb, composed of several light emitting diodes inside of an envelope of plastics, circuitry to rectify AC power and to convert voltage to a level useable by the LEDs, a heat sink and an Edison screw base.

Chapter 85

- 85.43

Electrical machines and apparatus, having individual functions, not specified or included elsewhere in this Chapter.

- 8543.10 – Particle accelerators
- 8543.20 – Signal generators
- 8543.30 – Machines and apparatus for electroplating, electrolysis or electrophoresis
- 8543.70 – Other machines and apparatus
- 8543.90 – Parts

This is where LED lamps will be until 2017

Possibility ???
Additional national statistical codes

- **854370 – Other machines and apparatus**

85437000aa – LED omnidirectional lamps

85437000bb – LED directional lamps (mains voltage)

85437000cc – LED directional lamps (low voltage)

85437000dd – LED linear lamps (double cap)

Harmonise regionally ???