Australian Government
Department of Industry, Innovation and Science

National Measurement Institute

Electricity Meter Regulations

Smart Street Lighting Stakeholder Forum

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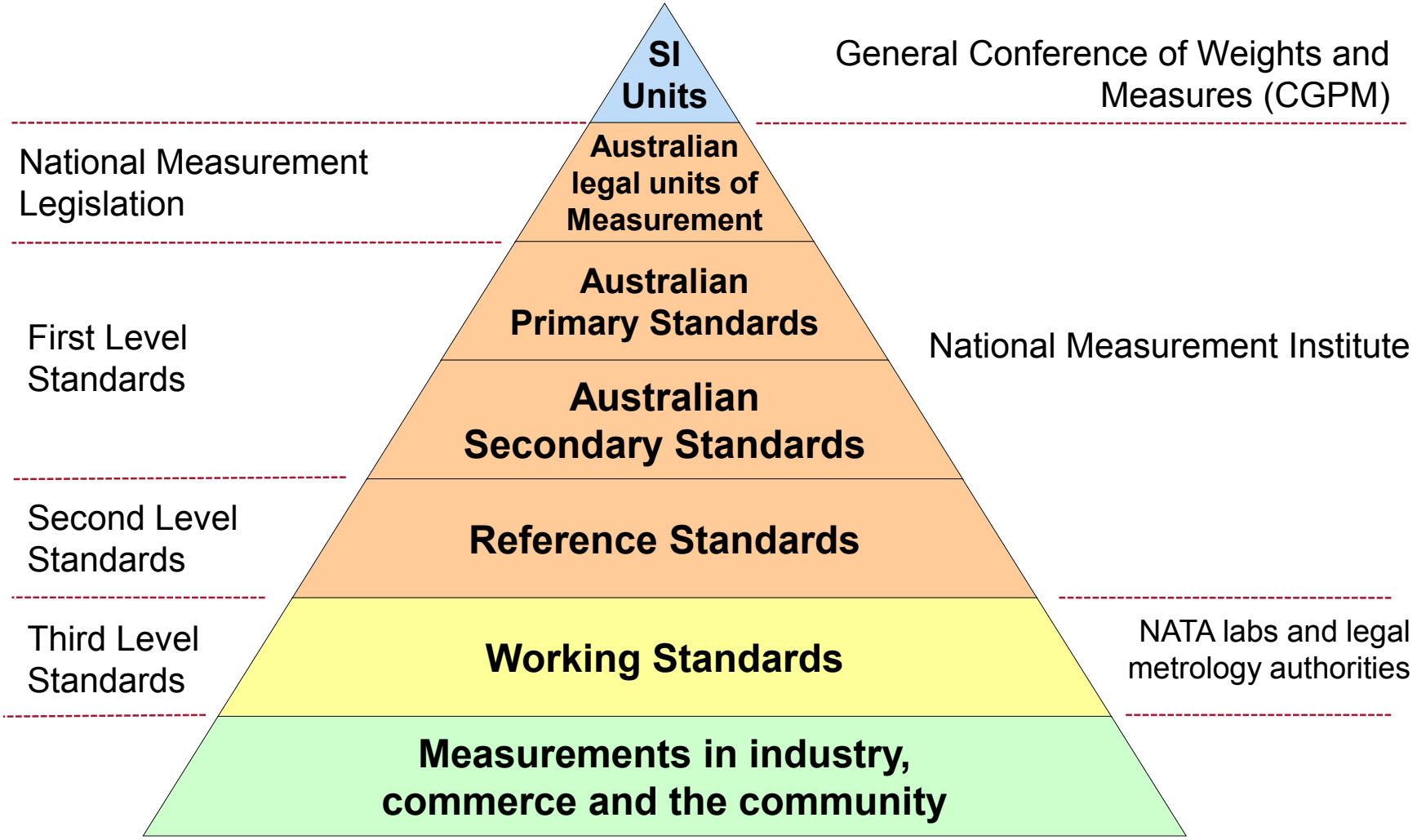
Who is the National Measurement Institute?

- The National Measurement Institute (NMI) is a division of the Department of Industry, Innovation and Science.
  - Maintain primary standards
  - Calibrations
  - Sports Drugs Testing
  - Analytical Services
  - Nanometrology
  - **Trade Measurement System**

Hierarchy of Standards



The National Measurement Legislation

National Measurement Act

1960

- The Act establishes a framework for the regulation of measuring instruments.
- The Act requires measuring instruments used for trade to be **pattern approved** and **verified**.

National Measurement Regulations

1999

National Trade Measurement Regulations

2009

- The Regulations provide further detail on the application of the Act.

What are the regulations for measuring instruments?

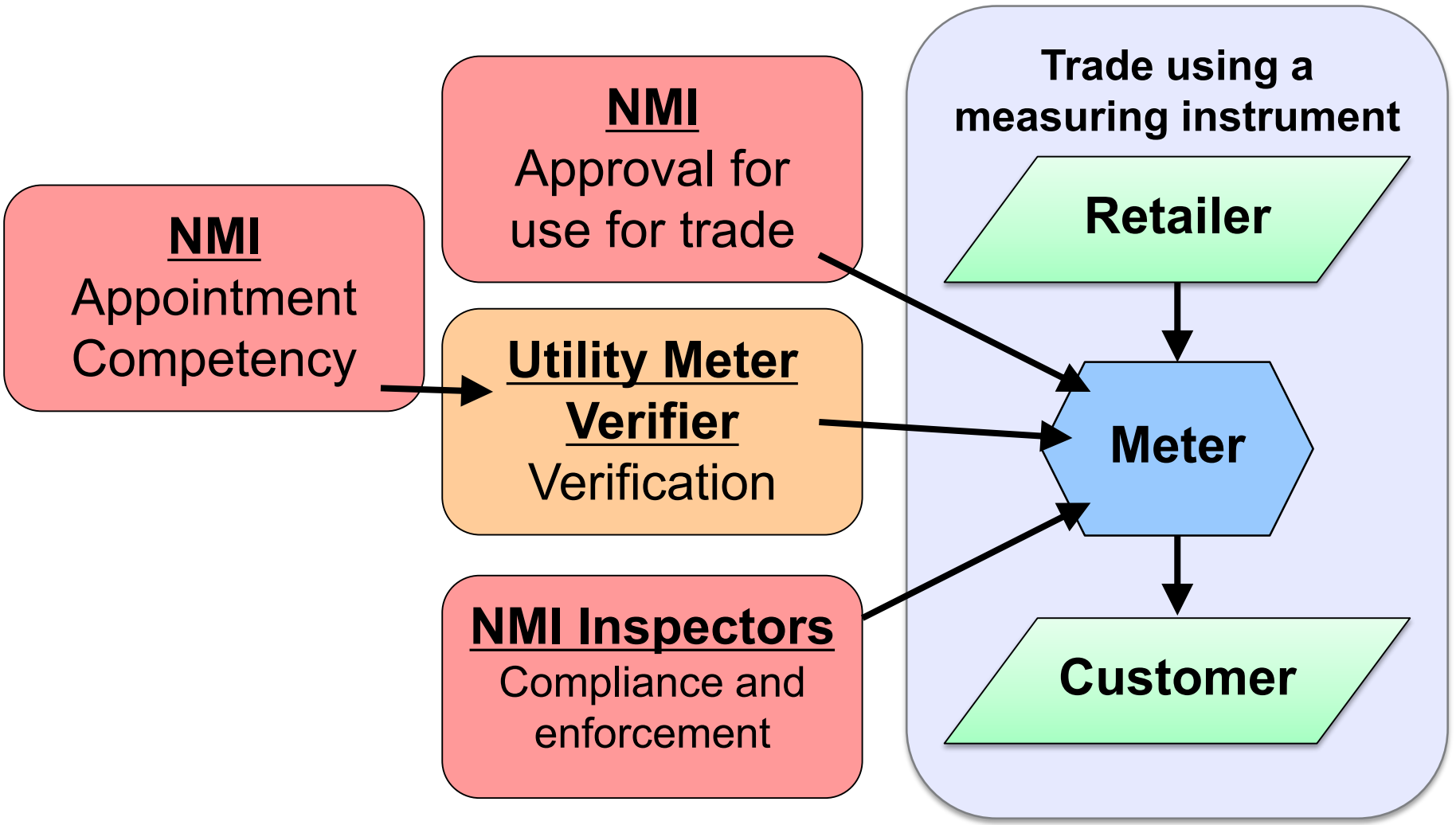
National Measurement Act

1960

- **Meters must be of an *approved pattern* and *verified***
  - Offence to use a meter that is not verified.
  - Offence to install a meter that is not of an approved pattern.
  - Offence to supply a meter that is not of an approved pattern.

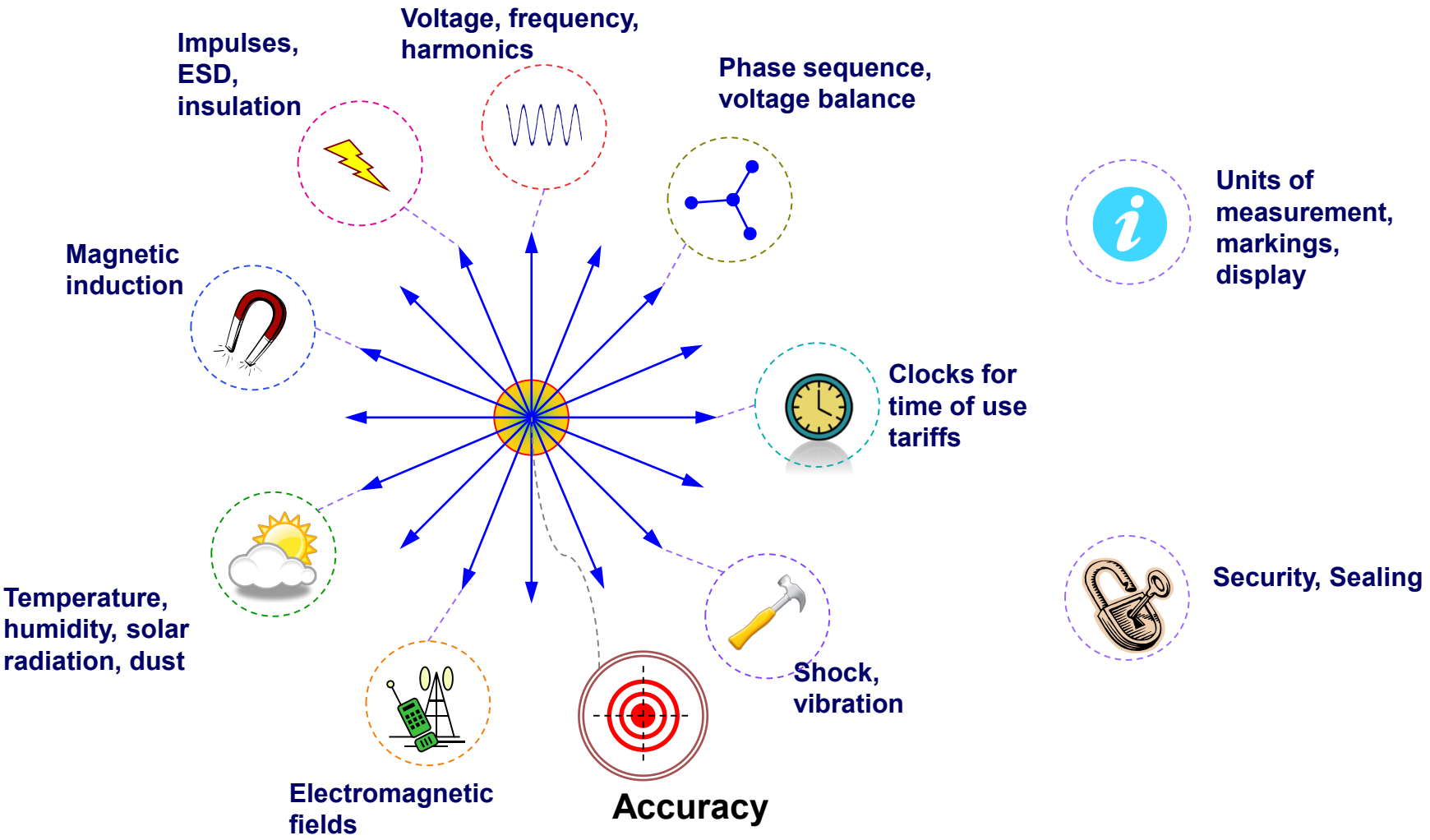
- **Inaccurate use**
  - Offence to use a meter in a way that gives inaccurate measurement or information.
  - Offence to use a meter that gives inaccurate measurement or information.

Trade Measurement System for Measuring Instruments



Q: What is Pattern Approval? (It is NOT calibration)

A: *Assessment of influences and disturbances*



International Objectives

- International harmonisation of legal metrology procedures to reduce technical barriers to trade.
- Represent Australian industry and consumers on the international stage to support Australia's interests.

OIML

- The International Organization of Legal Metrology (OIML) is an intergovernmental treaty organization and an “international standard-setting body”.
- It was established in 1955 in order to promote the global harmonization of legal metrology procedures.
- OIML Members has 60 member states and 63 corresponding member states.
- Website: oiml.org

OIML

- OIML develop international recommendations which member states are expected to adopt.
- Recommendations are developed through technical committees.
- Australia actively participates in these committees and facilitates Australia's representation through mirror committees and wider consultation in Australia.
- Australia holds the secretariat for OIML TC 12 "Instruments for measuring electrical quantities".

Developments for electricity metering

Date	Event	Comments
April 2000	First publication of pattern approval standard following consultation	NSC M 6
Mid-2000s	Australia becomes the secretariat for OIML TC 12	Developing OIML R 46
1 July 2010	Second edition of approval standard published following consultation	NMI M 6
July 2012	Latest edition of approval standard published following consultation	NMI M 6-1
2012	OIML publish international standard for electricity meters (by OIML TC 12)	OIML R 46:2012
1 Jan 2013	Exemption lifted – approval and verification are mandatory for < 750 MWh per year	Reg 5.6 of National Trade Measurement Regulations

Developments for electricity metering

Date	Event	Comments
2012-2013	Transitional arrangements for existing meters held in stock.	Grandfathering
2013	Consultation on sub-metering. Result: NMI will accept OIML R 46 test for impulse voltage (still accept NMI M 6-1 test)	Impulse Voltage Test
2015	Consultation on pattern approval standard(s) for electricity meters	Ongoing. Options RIS required.
2016	NMI participating in Standards Australia: • Roadmap for Advanced Metering Forums and Workstreams • Reconstituted EL-011 committee	Standards Australia
May 2016	International Meetings: • IEC TC 13 WG 11 • OIML TC 12	Harmonisation

Issues

- Appropriateness of the exiting standard(s) for smart street lighting.
  - **Meter displays.** On the light pole? Any use for anybody? How will the customer access energy consumption information?
  - **System Metering**. Multiple nodes, communication. Is it one meter, and a collection of many meters? How is it treated by AEMO? If one system meter, is it > 750 MWh per year?
  - **Accuracy class.** How accurate can it be? What accuracy is needed?
  - **Others issues?**
- Are suitable international standards available? OIML, IEC, ANSI?
  - Need to develop national standard or modify?

Future work/options for electricity metering Short-Term

Complete consultation processes with RIS.

Potential options (to be determined and costed, with further consultation)

- Direct adoption of OIML R 46
- Adopt OIML R 46 AND one or more standards (likely based on IEC)
- Modified adoption of OIML R 46. Amendments to tests/requirements/scope?

- Other applications to consider:
  - Solar PPAs, Electric vehicle charging stations, sub-metering/billing.

Future work/options for electricity metering Long-Term

Represent Australia at OIML to review/develop harmonised international standards.

Potential option (to be discussed in May at OIML TC 12)

- Joint project(s) with IEC to develop standards.

Participate in Standard Australia.

- Work to eliminate (or minimise) any inconsistencies between NMI requirements and Australian Standards (e.g. Safety standards).

THANK YOU

Department of Industry, Innovation and Science | **National Measurement Institute**

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