EXPLANATORY STATEMENT

Issued by the authority of the Assistant Minister for Climate Change and Energy

Greenhouse and Energy Minimum Standards Act 2012

Greenhouse and Energy Minimum Standards (LED Lamps) Determination 2025

Purpose and Operation

The *Greenhouse and Energy Minimum Standards (LED Lamps) Determination 2025* (the determination) introduces minimum energy performance standards (MEPS) and labelling requirements for light emitting diode (LED) lamps, which are common energy-efficient lighting products. Testing is to be conducted in accordance with the relevant lighting test standards. The determination aligns with the European Union (EU) Ecodesign standards where possible and will encourage the supply and purchase of more energy efficient lighting products, thereby reducing greenhouse gas emissions and energy costs for consumers.

Products regulated for energy efficiency by the determination must be registered with the GEMS Regulator before they can be sold or offered for supply in Australia.

Background

The *Greenhouse and Energy Minimum Standards Act 2012* (the Act) establishes a national framework for regulating the energy efficiency and labelling standards of appliances and equipment supplied or used within Australia. The Act allows the Australian Government to set mandatory minimum efficiency requirements for certain products, supporting the move towards greater energy efficiency. The Act also allows the Australian Government to set nationally consistent labelling requirements, to increase Australians' awareness of options to improve energy efficiency and reduce energy consumption, energy costs and greenhouse gas emissions. Further, the Act provides for the imposition of requirements relating to product performance and the effect of relevant products on the environment or human health.

A key driver for this determination is that on 20 April 2018, the former Council of Australian Governments (COAG) Energy Council agreed to further improve lighting energy efficiency regulation. It was agreed to phase out inefficient incandescent lamps (light bulbs) in Australia and introduce minimum standards for LED lamps in Australia and New Zealand, aligned with EU Ecodesign lighting efficiency regulations.

The timing for introduction of the determination was agreed to align with the introduction of the Commission Regulation (EU) 2019/2020 of 1 October 2019 (EU Regulation). Finalisation of the EU Regulation was delayed by 12 months (published in the Official Journal on 5 December 2019 to come into effect in September 2021). Further information about the EU regulation is included at **Attachment B**.

Following availability of the EU Regulation, work commenced on the development of a draft test standard for LED lighting (AS/NZS 5341) and a revised MEPS standard

for incandescent and halogen lighting (AS 4934-2 – Australia only), through a joint trans-Tasman Standards Australia process. Both were published in March 2021.

Legislative Authority

Section 23 of the Act provides that the Minister may, by legislative instrument, make a determination (a GEMS determination) that specifies one or more classes of products that it covers, if the products in those classes use energy or affect the amount of energy used by other products.

A GEMS determination is the vehicle by which energy efficiency requirements (GEMS level requirements), labelling requirements (GEMS labelling requirements) and other requirements are established for a product class covered by the determination.

Under section 25 of the Act, the GEMS level requirements specified in a GEMS determination may be:

- requirements relating to one or more of the following:
    - the amount of energy used in operating products in the relevant product class;
    - the amount of greenhouse gases resulting from operating products in the relevant product class;
    - the effect of those products on the amount of energy used by operating other products; and
- requirements for conducting tests in relation to products in the relevant product class in order to determine whether the products meet the specified requirements.

Under section 26 of the Act, the GEMS labelling requirements specified in a GEMS determination may be:

- requirements relating to the information that must be communicated in connection with supplying or offering to supply products in the relevant product class;
- requirements relating to the manner in which that information must be communicated; and
- requirements for conducting tests in relation to products in the relevant product class in order to rate them against certain specified criteria.

Under section 27 of the Act, other requirements that may be specified in a GEMS determination are:

- requirements for products in the relevant product class to meet a specified level (the high efficiency level);
- requirements relating to the performance of products in the relevant product class;
- requirements relating to the impact of products in that product class on the environment or on the health of human beings;
- requirements of a kind specified in the regulations; and

- requirements for conducting tests in relation to products in the relevant product class to determine whether the products meet requirements of the kind specified above.

Incorporated material

The determination incorporates by reference the following Australian/New Zealand test and performance standards, as in force on the day the determination commenced:

- AS/NZS 5341:2021 – LED lamps – Test methods – Energy and functional performance
- AS/NZS 62471:2011 – Photobiological safety of lamps and lamp systems

These standards are incorporated in accordance with subparagraph 14(1)(b)(i) of the *Legislation Act 2003* (Legislation Act).

Commercial users who have determined that they are likely to be covered by the determination (which is possible from reading the determination in isolation) would be expected to purchase these standards in order to comply with the determination. The standards can be purchased from Standards Australia Ltd.

Standards Australia also provides non-commercial access to Australian Standards for personal, domestic or household use through their Reader Room which is freely accessible at https://readerroom.standards.org.au/.

Other interested parties may be able to access the Australian/New Zealand standards without cost through the National Library of Australia, including by interlibrary loans. Standards Australia Ltd is working on improving access to Australian/New Zealand Standards, and the Skills National Cabinet Reform Committee is working to ensure greater access to standards generally.

The determination also incorporates by reference the following material as in force on the day the determination commenced:

- Commission Regulation (EU) 2019/2020 of 1 October 2019, which sets out ecodesign requirements for light sources and separate control gears. The regulations are copyright European Commission.
- International Electrical Commission (IEC) Standards, which are copyright IEC:
    - IEC 62776:2014 Double-capped LED lamps designed to retrofit linear fluorescent lamps – Safety specifications, which specifies the safety and interchangeability requirements together with the test methods and conditions required to show compliance of double-capped LED lamps with G5 and G13 caps, intended for replacing fluorescent lamps with the same caps;
    - IEC 62931:2017 GX16t-5 capped tubular LED lamp – Safety specifications, which specifies the safety and interchangeability requirements together with the test methods and conditions required to show compliance of certain non-integrated tubular LED lamps, intended for general lighting purposes;

    - IEC TR 61547-1:2020 – Equipment for general lighting purposes – EMC immunity requirements – Part 1: An objective light flickermeter and voltage fluctuation immunity test method, which describes an objective light flickermeter which can be applied for measurement and testing purposes;
    - IEC TR 62778:2014 Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires, which relates to the evaluation of blue light hazard;
    - IEC TR 63158:2018 Equipment for general lighting purposes – Objective test method for stroboscopic effects of lighting equipment, which relates to the evaluation of stroboscopic effects of lighting equipment.
- Commission Internationale de L'Eclairage (CIE) (International Commission on Illumination) Standard CIE S 025/E:2015 – Test Method for LED Lamps, LED Luminaires and LED Modules, which is copyright CIE. The standard provides requirements to perform reproducible photometric and colorimetric measurements on LED lamps, modules and luminaires.
- Commonwealth regulations and instruments made under them, which are copyright Commonwealth of Australia:
    - *Civil Aviation Safety Regulations 1998*;
    - Defence Aviation Safety Regulation (DASR) 139 – Aerodromes, published by the Australian Government Defence Aviation Safety Authority (DASA);
    - Defence Aviation Safety Design Requirements Manual, published by DASA.

These materials are incorporated in accordance with subparagraph 14(1)(b)(i) of the Legislation Act.

On the day the determination commenced, the texts of these materials were available as follows:

- Commission Regulation (EU) 2019/2020 of 1 October 2019 – freely available at https://eur-lex.europa.eu;
- IEC standards – available for purchase from the International Electrotechnical Commission at https://webstore.iec.ch/;
- CIE S 025/E:2015 – available for purchase from the Commission Internationale de L'Eclairage (International Commission on Illumination) at www.cie.co.at;
- *Civil Aviation Safety Regulations 1998* – freely available at www.legislation.gov.au;
- DASA instruments—freely available at https://dasa.defence.gov.au.

The determination contains a copyright notice that clarifies the permitted use of the particular material by those seeking to comply with their obligations under it. The international standards below are not copyright of the Commonwealth of Australia.

Commission Internationale de L'Eclairage (CIE), International Commission on Illumination, Standards, are copyright CIE. CIE Standards are available for purchase

from the CIE. Requests and inquiries concerning other reproduction and rights pertaining to standards should be directed to www.cie.co.at.

This instrument also includes material from International Electrical Commission (IEC) Standards, which are copyright IEC. Complete IEC Standards are available for purchase from https://webstore.iec.ch.

Consultation

Prior to preparation of the determination, the Australian Government undertook industry consultation in development of the Consultation Regulation Impact Statement (RIS), Decision RIS in 2018, and the new Standard AS/NZS 5341 LED lamps – Test methods – Energy and functional performance.

A draft of the determination was made available for public comment between 15 December 2022 and 15 March 2023. Comments received from a range of stakeholders were taken into consideration during the completion of drafting. Most stakeholders supported the increase in MEPS levels for incandescent/halogens and a majority supported introducing MEPS on LEDs. Submissions were published on the Department's consultation hub on 10 July 2023.

As a result of public and targeted consultations received, the draft determination was amended to reflect the objective of minimising regulatory burden by agreeing to industry's request for more models to be allowed in a family registration (increased from 50 to 100), removing the requirement that glass bulb shapes be the same (from single capped), and removing tube length requirements (for double-capped lamps) when registering models together in a family.

Regulatory Impact

A comprehensive Decision RIS (for COAG) was prepared as part of the process of developing the determination. In April 2018, COAG Energy Council Ministers agreed on the preferred option in the Decision RIS.

The Office of Best Practice Regulation (now the Office of Impact Analysis (OIA)) assessed the Decision RIS as compliant under the Regulatory Impact Assessment Guide for Minister's Meeting and Standard Setting Bodies framework (OIA reference 20892).

The Decision RIS considered costs and benefits to businesses, consumers, government and the environment.

Details

The determination is a legislative instrument for the purposes of the Legislation Act.

Further details on the determination are provided at **Attachment A**.

Exemption from sunsetting and disallowance

Subsections 44(1) and 54(1) of the Legislation Act provide that instruments are not subject to disallowance and sunsetting where the enabling legislation:

(a) facilitates the establishment or operation of an intergovernmental body or scheme involving the Commonwealth and one or more States or Territories; and
(b) authorises the instrument to be made by the body or for the purposes of the body or scheme.

The GEMS Act underpins and facilitates the operation of an intergovernmental scheme for product energy efficiency, giving effect to the Inter-governmental Agreement for the GEMS Legislative Scheme. The Act also expressly provides for the participation of multiple governments. Given this, and the fact that the Act authorises the determination to be made under subsection 23(1), the determination is not subject to disallowance or sunsetting under the Legislation Act. Further details are provided at **Attachment C**.

Statement of Compatibility with Human Rights

In accordance with subsection 15J(2) of the Legislation Act, as the determination is not a disallowable instrument, a statement of compatibility prepared under subsection 9(1) of the *Human Rights (Parliamentary Scrutiny) Act 2011* is not required.

ATTACHMENT A

Details of the *Greenhouse and Energy Minimum Standards (LED Lamps) Determination 2025*

Part 1 – Preliminary

Section 1 - Name
This section provides that the name of the determination is the *Greenhouse and Energy Minimum Standards (LED Lamps) Determination 2025* (the determination).

Section 2 - Commencement
This section provides that the determination commences on the day specified in column 2 of the table.

Section 3 - Authority
This section provides that the determination is made under section 23 of the *Greenhouse and Energy Minimum Standards Act 2012* (the Act).

Section 4 – Definitions—standards and other instruments referred to in this instrument
This section sets out definitions for the various standards and other instruments referred to in the determination.

Section 5 – Definitions – other expressions used in this instrument
This section defines key terms used in the determination.

Section 6 – Definition – reference control settings
This section defines 'reference control settings', which is relevant to LED lamps that allow the user to control certain settings (such as the luminous intensity and beam angle of the lamp).

Section 7 – Families of models
Section 28 of the Act provides that a GEMS determination must specify, for each product class covered by the determination, the circumstances in which two or more models in that product class are in the same family of models. Section 7 defines these circumstances for the purposes of the product classes covered by this determination.

Subsection 7(1) provides that two or more models will be in the same family of models when:

- they are members of a family that has been declared to the GEMS Regulator, and
- the requirements of the section are satisfied in relation to the models and the family.

Subsection 7(2) sets out a list of requirements for the purposes of the second dot-point above. Generally, these require the models to have a range of common features (eg, they must be in the same product class and have the same declared voltage).

Subsection 7(2) (d)-(f) allows models to be included in the same family if their performance characteristics for the parameters of colour rendering index (CRI) and $L_{70}B_{50}$ lifetime fall within one of the specified ranges. For example, models in a family registration do not all have to have exactly the same CRI, however the CRI for each model in a family must fit within the same range set out in 7(2)(d). Lamps with CRIs no less than 70 but less than 80 may be within the same family (other requirements being satisfied), however a model with a CRI of 83 could not be in the same family as the first two, as it would fall within the next range of CRI no less than 80 but less than 90.

Subsections (3) provides further specification about which models in a family should be used for testing of particular parameters in order to provide evidence of test reporting required under 2(b).

Subsection (4) allows limited use of *special purpose families* of up to ten models. Each supplier may declare only *one special purpose family* within a particular product class. The inclusion of models in a special purpose family is not subject to the limitations in 7(2) and 7(3), allowing for more diversity of models to be included. A test report must be supplied for every model in the family at the time a registration is applied for under section 41 of the Act.

Subsection (5) prevents more than 100 models from being included in a family.

Section 8 – Product category
Section 29 of the Act requires that a GEMS determination specify whether the products it covers are category A or category B products. Category B products are subject to higher penalties than category A products for certain offences under the Act, on the basis that category B products have a high impact on energy use or greenhouse gas production.

Section 8 specifies that LED lamps covered by the determination are category A products.

Part 2 – Products covered by this instrument

Section 9 – Purpose of this Part
This section states that the purpose of the Part is to specify the classes of products that are and are not covered by the determination.

Section 10 – Classes of products that are covered by this instrument
This section defines the class of products that are covered by the determination. To be covered, broadly speaking, a lamp must meet the general technical specifications in subsection (4), and fall within either subsection (5) (single-capped lamps) or (6) (double-capped lamps). Lamps covered by subsection (5) form a different 'product class' to those covered by subsection (6).

Section 11 – Classes of products that are not covered by this instrument
This section specifies the classes of products that are not covered by this determination. These are set out in Schedule 1.

Part 3 – GEMS level requirements

Section 12 – Purpose of this Part
This section provides that the purpose of the Division is to set out GEMS level requirements for the purposes of various provisions of the Act.

Section 13 - Ecodesign requirements – energy efficiency
This section requires LED lamps covered by the determination must meet or exceed the 'minimum required efficacy', and sets out how to calculate the relevant values. It also sets caps on the permissible 'standby power' and 'networked standby power' for certain LED lamps.

Part 4 – GEMS Labelling Requirement

Section 14 - Purpose of this Part
This section sets out the purpose of Part 4, which is to specify labelling requirements in accordance with section 26 of the Act.

Section 15 – Information to be displayed on the LED lamp itself
This section specifies the information that must be displayed on the surface of the LED lamp and the action that can be taken if there is insufficient room on the surface to include all values without unduly obstructing the light emission.

Section 16 – Information to be visibly displayed on the packaging
This section specifies the information that must be displayed on the packaging of an LED lamp that is supplied, or offered for supply, in packaging that contains information that will be visibly displayed at a point of sale before the lamp is purchased.

Section 17 - Impact of replacement determination
This section provides a mechanism, in the event that this determination is replaced in the future, to allow a transitional labelling provision to be specified in that replacement determination (the new determination) with the effect that complying with its requirements will be taken to be compliance with the labelling requirements of this determination. This is to prevent the situation arising, in circumstances where a registrant chooses to register to the new determination between the time it is made and when it comes into force (as allowed by section 44 of the Act), of a product needing to comply with the labelling requirements of both determinations.

Part 5 – Other Requirements

Section 18 – Purpose of this Part
This section states that the purpose of Part 5 is to specify 'other' requirements for an LED lamp in a product class covered by the determination for the purposes of section 27 of the Act – specifically, performance, health and related testing requirements.

Section 19 – Other Requirements - Performance requirements
This section prescribes the performance requirements that need to be met against listed attributes (colour rendering, displacement factor, lumen maintenance factor, survival factor and colour consistency) for LED lamps covered by the determination.

Section 20 – Other requirements - impact on human health
This section prescribes the health requirements that need to be met against listed attributes (flicker, stroboscopic effect for MLL, and UV and blue light hazard) for LED lamps covered by the determination. It also specifies testing requirements that are relevant to demonstrating whether a product meets the health requirements, and states when certain kinds of testing will not be required.

Part 6 – Testing requirements

Section 21 - Purpose of this Part
This section provides that the purpose of the Part is to set out lamp test conditions for conducting tests for the purposes of various provisions of the Act.

Section 22 - Testing Requirements – general
This section prescribes the standards that a person must apply when testing a product to determine whether it complies with the determination. The relevant standard will usually be AS/NZS 5341, but alternative standards can sometimes be used.

Section 23 – Use of reference control settings
This section prescribes that if a lamp has specified reference control settings, then testing must occur under these settings.

Section 24 – Testing in reference control settings
This section prescribes how a lamp is to be tested if reference control settings are specified.

Section 25 – Circumvention of testing

Subsection 25(1)
This section specifies that circumvention devices must not be used in any compliance testing specified in this determination.

Subsection 25(2)
This subsection defines ‘circumvention device’.

Section 26 – Lamp ageing and lamp operating orientation
This section prescribes how lamps are to be aged prior to testing and the physical orientation of the lamp during testing.

Schedule 1 - Products not covered by this instrument
This schedule outlines product classes not covered by the determination. The product classes are aircraft lamps, aeronautical ground lights and other LED lamps with specified characteristics.

Schedule 2 – Incandescent or halogen equivalence claims
The packaging of an LED lamp may include a representation that the lamp’s brightness is equivalent to an incandescent or halogen lamp of a certain power level. Item 3 of column 2 of the table to section 20 requires any such claims to meet minimum accuracy standards. Specifically, it requires that the initial luminous flux of

a relevant tested sample of the LED lamps must not be less than the minimum luminous flux listed for the claimed power of the equivalent incandescent or halogen lamp, as set out in Schedule 2. Accordingly, Schedule 2 sets out the minimum luminous flux figures for this purpose.

European Lighting Efficiency Regulation

The Commission Regulation (EU) 2019/2020 of 1 October 2019 (EU Regulation) is the European Commission's single lighting regulation under the Ecodesign Directive. The EU Regulation sets out mandatory product performance and quality requirements on a wide range of lighting products (light sources and separate control gears) placed on the market in Europe starting on September 2021.

The EU Regulation:

- sets out ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council; and
- repeals Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012.

The scope of the standards contained in the EU Regulation is much broader than the minimum energy performance standards (MEPS) in the *Greenhouse and Energy Minimum Standards (LED Lamps) Determination 2025* (the determination). In addition to the LED lamps, the EU Regulation also covers incandescent, fluorescent, high intensity discharge, organic light emitting diodes (OLED) and integrated luminaires whereas the determination does not. The EU Regulation also covers separate control gear (e.g. transformers, ballasts and drivers) while the determination does not.

The EU Regulation applies to light sources:

- within a specified range of chromaticity coordinates;
- below a specified luminous flux density at the light-emitting surface;
- within a specified range of luminous flux; and
- with a colour rendering index greater than 0.

The EU Regulation sets a minimum energy efficiency level using an equation that sets maximum power levels depending on the luminous flux of the light source (subject to eleven product design adjustment factors and twenty technology specific adjustment factors). The EU Regulation also includes up to eight other performance requirements (for LED and OLED mains voltage light sources):

- Colour rendering;
- Displacement factor (also known as Fundamental Power Factor);
- Survival factor (endurance);
- Lumen maintenance factor;
- Colour consistency;
- Flicker (visible);
- Stroboscopic effect; and
- Standby power and networked standby power.

Products exempted from all or part of the EU Regulation are defined and are not all included in the determination (note that many of the exemptions listed in the EU Regulation are outside the narrower scope of the MEPS in the determination).

The EU Regulation also specifies a range of product marking and package information requirements.

Aligning with EU Lighting Regulation

It is acknowledged the EU Regulation is intended for use within the European legislative context. Adaptions were needed to conform with the Australian legislative framework as:

- there are aspects of the EU Regulation that are not relevant as the EU scope is broader than the scope of the determination;
- some relevant matters are not included in the EU Regulation because they are already addressed in other European regulation; and
- in some cases, more flexible, alternative approaches to demonstrate compliance have been included in the determination.

Stakeholder views were sought and incorporated, in particular, on 9 issues associated with aligning with the EU Regulation. Those views are discussed below.

1. Scope and LED Lamp Definition

The broader scope of the EU Regulation is the key difference between it and the Australian LED MEPS. In order to narrow the scope, the concept of a lamp is used in the determination, focusing on two main lamp types:

a. single capped lamps (encompassing non-directional and directional); and
b. tubular (linear) LED lamps.

2. Measurement of Luminous Flux

Compliance with the EU Regulation requires a decision as to whether a lamp is directional (criteria: at least 80% of the luminous flux is in a cone angle of 120°) and then if so, measurement of 'useful' luminous flux which, for directional lamps is measured within a cone angle of either 90° (for a beam angle less than or equal to 90°) or 120° (for a beam angle greater than 90°) rather than all forward facing lumens (i.e. cone angle of 180°).

Current Australian MEPS lighting regulations for other lighting types allows the use of a simple integrating sphere measurement method to determine the forward facing lumens of a directional lamp. This results in reduced test costs for both suppliers and regulators.

This method has been included as an alternative in the determination (alongside the EU method) and is particularly relevant for products not manufactured for the EU market.

To support this approach, a new definition for Directional Lamp based on a beam angle limit rather than the EU definition (percentage of luminous flux in a cone) is included in the determination.

To account for the higher quantity of forward facing luminous flux, alternative adjustment factors are used in the calculation of minimum efficacy level for lamps measured in this way. These values have been calculated based on analysis of test results of LED lamps with a range of beam angles from 12° to 136°, comparing results of test data from measurement via both useful luminous flux and forward facing lumens.

Suppliers will be required to make a statement concerning use of this alternative measurement as part of product registration.

3. Reference Control Settings

The availability of LED lamps which may be controlled by the user to adjust characteristics such as luminous flux, colour temperature and beam angle has resulted in the EU Regulation introducing the concept of reference control settings – being the control setting or a combination of control settings that is used to verify compliance.

The recommended approach is for this setting to use the out-of-the-box values (taking into account any automatic software update during first installation). However, the EU Regulation provides that in some instances where use of the out-of-box settings is not feasible, the reference control setting is to be specified in technical documentation. The powers in the *Greenhouse and Energy Minimum Standards Act 2012* (GEMS Act) in relation to specifying information in documentation are not as broad as in the EU legislative framework. The determination provides options in how this information can be supplied.

4. Colour Consistency

This criterion aims to ensure that all lamps and luminaires of the same claimed colour temperature have a similar colour appearance when installed. The chromaticity (i.e. colour appearance) difference of light sources has often been expressed by the step size of MacAdam ellipses plotted in the CIE 1931 (x,y) chromaticity diagram. While the MacAdam ellipses served for many years for fluorescent lamps with only six nominal correlated colour temperatures (CCTs), this method does not serve well for LED lamps, which are more versatile in formation of colour appearance.

The EU approach to colour consistency, referencing MacAdam ellipses, presents potential problems as to how it can be successfully applied across the range of LED products in scope. The EU Regulation refers to variations within a 6-step MacAdam's ellipse or less, using x and y coordinates. These six ellipses would not satisfactorily encompass the range of LED lamps within scope. The verification tolerances allow an infinite range of centre points around which the MacAdam ellipses are drawn.
A less restrictive requirement allows chromaticity u'v' circles to be used. The determination accepts, as an alternative, claims made on the basis of conformance with 6-step u'v' chromaticity circles.

If this alternative is used, it must be specified as part of product registration or on the product package.

5. Minimum Lighting Efficiency

The EU Regulation sets the minimum energy efficiency by applying an equation that sets the maximum allowed lamp power for the luminous flux of the product. To align with the approach taken in existing lighting Determinations, the determination changes the orientation of the equation to set the minimum luminous flux permitted for the lamp power of the product. The minimum efficiency outcome in the European and Australian approaches is the same for all products.

Existing lighting determinations are the:

- *Greenhouse and Energy Minimum Standards (Incandescent Lamps for General Lighting Services) Determination 2024*;
- *Greenhouse and Energy Minimum Standards (Double-capped Fluorescent Lamps) Determination 2017*;
- *Greenhouse and Energy Minimum Standards (Self-ballasted Compact Fluorescent Lamps for General Lighting Services) Determination 2017*; and
- *Greenhouse and Energy Minimum Standards (Incandescent Lamps for General Lighting Services) Determination 2016*.

6. Colour Rendering - CRI

The EU Regulation sets a minimum CRI of 80 but provides for an exemption on this CRI level where lamps are:

> "…. intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI<80, when a clear indication to this effect is shown on the light source packaging and in all relevant printed and electronic documentation …"

In the context of the broader EU scope, this partial exemption would have primarily been necessary to allow for some non LED products (e.g. some high intensity discharge (HID) lamps) which have a very low CRI. Consultation with industry technical experts identified that, for LED lamps within scope of the determination, only a small range of products required a specific allowance for CRI ≥70 and this has been provided for in the determination.

7. Proposed Additional Parameter: Photo-biological safety

Excessive blue light in LED lamps can cause retinal damage in some circumstances and UV exposure can cause harm to vulnerable groups. Photo-biological safety is not included in the EU Regulation as it is required in EU safety regulation (2014/35/EU) which refers to EU Standard EN 62471.

The determination includes a photo-biological safety requirement (referencing international standards IEC 62471 / CIE S009). The scope of matters for which the Minister may make determinations under the GEMS Act includes impact of products on environment or human health (subsection 27(3) of GEMS Act).

The Australian electrical safety regulation addresses photo-biological safety only for mains voltage lamps and does not extend to low voltage lamps. Therefore the

requirement for photobiological safety in the determination only applies to lamps of ≤ 50V a.c. r.m.s. or ≤ 120 V ripple-free d.c,:.

8. Product and Package Information Requirement

Market research has shown that consumers often lack knowledge about estimating the electricity use, equivalency and running costs for different lighting technologies. They may also make decisions based on incorrect or implied marketing information.

In a 2017 light bulb labelling consumer study a survey of 840 consumers across Australia and New Zealand found that 77% and 74% respectively referred to packaging information when making a lighting purchase. Nine in ten Australians considered it to be important for light bulb packaging to communicate the power (W). Over 80% also considered it important for the light emitted, expected lifespan, the energy efficiency and claimed incandescent equivalence to be printed on packaging. Three quarters would also like to see the estimated annual electricity cost reflected on packaging (76%).

The Decision Regulation Impact Statement; Lighting, noted that basic product and package marking requirements will be necessary in Australia to allow consumers to effectively replace lamps. However, a specific energy label has not been included, as is required for lamps and other electrical appliances in the EU and for some other non-lighting products regulated in Australia. Instead, the determination takes a simpler approach, requiring that the package be marked with the rated luminous efficacy, expressed in lumens per watt.

In addition to the EU energy label, the EU Regulation specifies a range of product marking and package information requirements. The determination takes a similar approach.

Requirements for marking of initial luminous flux differ in that both the EU Regulation and the determination require that the measured luminous flux be not less than 10% below the displayed value, while the determination also requires that the measured value be no more than 10% variation above the displayed value.

As with the EU Regulation, accuracy allowances for packaging requirements are applicable only for the purposes of determining compliance with the packaging requirements (section 16). They are not relevant to determining compliance with the requirements of other aspects of the determination.

A planned consumer education program will assist consumers in understanding information on product packages so they can make an informed choice.

9. Product Exclusions

As the Australian proposed scope is far narrower than the EU, many exemptions in the EU Regulation did not need to be listed in the determination as they are outside of the scope.

ATTACHMENT C

Details of the exemptions from disallowance and sunsetting in the *Legislation Act 2003*

Source of exemptions

Legislative instruments made under the *Greenhouse and Energy Minimum Standards Act 2012* (the GEMS Act) (excluding regulations) are exempt from disallowance under subsection 44(1) of the *Legislation Act 2003* (the Legislation Act), and from sunsetting under subsection 54(1) of the Legislation Act.

Subsections 44(1) and 54(1) of the Legislation Act relevantly provide that instruments are not subject to disallowance and sunsetting where the enabling legislation (not being the *Corporations Act 2001*) facilitates the establishment or operation of an intergovernmental scheme involving the Commonwealth and one or more States and Territories, and authorises the instrument to be made for the purposes of that scheme.

The GEMS Act creates a national framework for product energy efficiency in Australia (the GEMS Scheme) and underpins the Equipment Energy Efficiency (E3) Program. The E3 program is an initiative of the Australian, state, self-governing territory, and New Zealand Governments.

The GEMS Scheme is an intergovernmental scheme, given that:

- it was enacted and is operated to implement the Inter-Governmental Agreement;
- its activities are jointly funded by the Commonwealth and States and Territories under the Inter-Governmental Agreement; and
- key legislative instruments under the GEMS Scheme require consent from participating jurisdictions before they can be made or revoked (see sections 33 and 35 of the Act).

Legislative instruments made under the GEMS Act are made for the purposes of this intergovernmental scheme. Therefore, such legislative instruments are exempt from sunsetting and disallowance.

Justification for exemptions

Through the E3 program, the Australian Government works with states and self-governing territories and the New Zealand Government:

- to identify appliances and other products which are appropriate for regulation
- to consult with industry stakeholders and agree to requirements based on technical and product-specific considerations, and
- to set mandatory minimum energy efficiency requirements for these products, as well as consistent labelling and other requirements.

In this context, the exemptions from disallowance and sunsetting have the effect that, where the intergovernmental scheme has agreed to introduce specific regulatory requirements (including with participating jurisdictions' consent to the key requirements of GEMS determinations), the Commonwealth Parliament cannot then

override that agreement. The exemptions therefore promote confidence in the E3 program and encourage ongoing, cooperative participation from jurisdictions.

As well as implementing an intergovernmental scheme, these exemptions are justified on the bases that:

- instruments made under the GEMS Act:
    - are based on technical and scientific evidence about products' energy use and appropriate test standards, and
    - affect commercial certainty where manufacturers and importers need to adapt to new regulatory requirements; and
- the objects of the GEMS Act include to give effect to certain obligations that Australia has under particular international conventions.

In view of their detailed scientific and technical content, GEMS determinations and associated legislative instruments are confined in the matters that they deal with, and so do not deal with broad matters of policy or with politically contentious issues. The exemptions ensure that the Commonwealth Parliament cannot override the consideration given to these matters through expert and stakeholder consultation, and the collaborative E3 program.