11 April 2024

ATTN: Genevieve Schulz – Project Leader
Australian Energy Markets Commission
Level 15 – 60 Castlereagh Street
Sydney NSW 2000

Dear Ms Schulz,

RE: Unlocking CER benefits through flexible trading (REF ERC0346) – IPWEA Submission on Draft Determination with Respect to Street Lighting & Other Street Furniture

IPWEA welcomes the AEMC's Draft Determination on 'Unlocking CER Benefits Through Flexible Trading' and remains open to further consultation with the AEMC, AEMO and other stakeholders as needed over the coming months to help finalise this important review.

IPWEA is the peak association for infrastructure asset managers and professionals who deliver public works and engineering services. Our members, as the road authorities and as the local government authorities, have primary responsibility for decisions about most Australian public lighting including whether to light, to what level to light to and in what manner to light roads and other public spaces. With our members' interest in mind, IPWEA's Street Lighting & Smart Controls (SLSC) Program was founded in 2016 to accelerate the efficient adoption of modern street lighting and smart controls technologies and best practices throughout Australia and New Zealand.

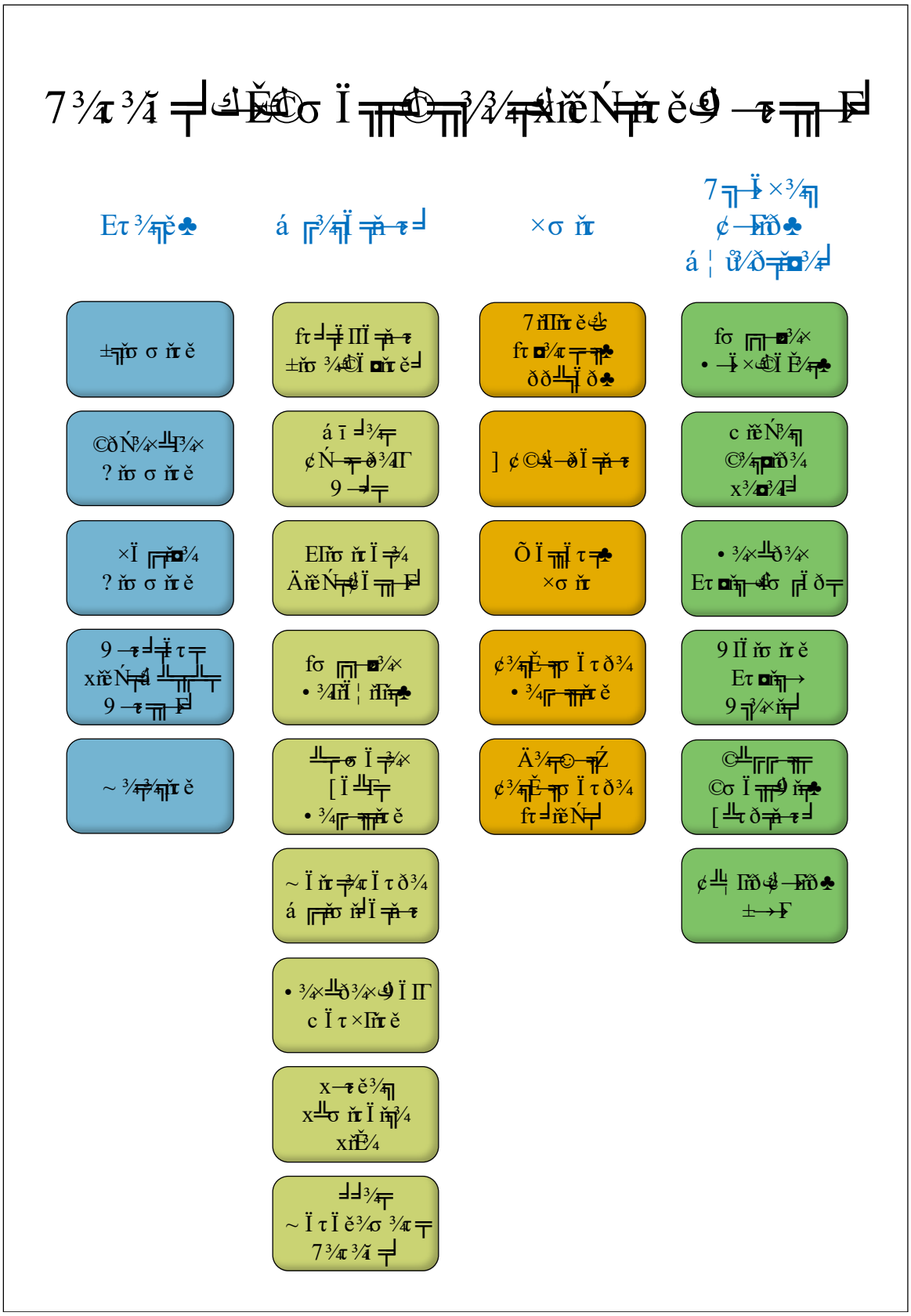
This submission focuses on the questions in the Draft Determination as they relate to street lighting and other street furniture (e.g., Chapter 5 Questions 1-6). It should be read in conjunction with IPWEA's previous February 2023 and September 2023 submissions in response to the AEMC review. The content of this submission has been prepared with input from a range of street lighting customer and supplier organisations.

Summary of Key Points from Previous IPWEA Submissions

For background, the following are the key points from IPWEA's February and September 2023 submission on the AEMC's Consultation Paper:

- IPWEA strongly welcomes the proposal to adopt an opt-in Type 9 regime in the National Electricity Market (NEM).
- There is a broad and compelling public benefits case to introduce a simple, effective and efficient regime that recognises the metering capabilities of smart street lighting controls and encourages their widespread adoption across some 2.5 million street lights and other similar devices. Reform would greatly improve metering accuracy in this largely unmetered segment of the electricity market but also facilitate energy savings, operational savings, administrative improvements (including the important market-related benefits of greater accuracy and providing a clear

incentive for improved efficiency), road / public safety improvements, a range of environmental gains and other public policy benefits (see figure below summarising this wide array of benefits).



- As per previous IPWEA submissions, the business case for smart street lighting controls is substantially influenced by the energy savings that they can deliver. These savings account for perhaps 45-60% of the easily realisable financial benefit. The current absence of a regime in the NEM that recognises the metering data from smart street lighting controls has hampered adoption of these systems. As energy efficiency and emissions reduction becomes an ever more important societal priority (and an important part of the NEO), it is crucial to recognise that smart street lighting controls are the ONLY widely proven technology able to further reduce energy consumption from street lighting once LEDs have been installed.
- There is solid precedent internationally for recognising the metering capabilities of smart street lighting controls. Such reforms have been a key enabler of widespread adoption in markets such as the United Kingdom, parts the United States and in New Zealand.
- A key feature of successful regulatory reforms elsewhere is that they have adopted a streamlined version of their metering regime to apply to smart street lighting controls, setting aside or modifying aspects of their regimes that are not relevant to the nature of the small loads being measured.
- IPWEA welcomes AEMO's proposals to set-aside a number of aspects of the current NEM Type 4 metering approach and the AEMC's support for this. IPWEA suggests that, as the proposed approach develops, further consideration should be given to other aspects that may not be relevant, necessary or could inadvertently impose unreasonable, complex and costly requirements on a Type 9 metering approach that would discourage widespread adoption. Detailed consultation with major suppliers is essential in this respect.
- The average street light now uses less than 100W (with residential roads lighting typically using 13-20W and making up 70% of street lighting while the most common lighting categories on main road lighting 75-150W with a very small percentage using higher Wattages). The average street light consumption, when all lights are converted to LEDs, is likely to be around 50W based on current technology (which continues to improve in efficiency). It is therefore vital that the cost of adopting and complying with the regime is very low on a per lighting point basis if adoption is to be encouraged. If too costly or complex, there will be little take-up and a significant lost opportunity to materially improve metering of these currently unmetered devices and help deliver a wide array of other broader public benefits that smart street lighting controls offer.

QUESTION 1: What should the flow limit be for type 8 meters (when considered per year)? Is 750 MWh per annum per connection point appropriate?

The Draft Determination in Section 5.2.1 suggests that the volume limit of 750 MWh per annum would also apply to Type 9 metering (e.g., devices such as public lighting). As we understand it, this would result in medium to large sized councils having multiple accounts in place of what is currently one account. If DNSP-owned lighting, parsing of data under their one Central Management System would be required not just by council (as currently happens with existing inventories and billing systems) but into multiple bundles for each council. We have not been able to identify any comparable international precedent for this type of requirement applying to smart street lighting controls and question its benefit and necessity. Indeed, it may entail additional cost and complexity for DNSPs, customers and suppliers.

For reference, current DNSP street lighting accounts for local governments (and some road authorities) may cover from 1,000 to 100,000 street lights under one NMI. A Type 9 limit of 750

MWh per annum would suggest that something like a maximum of 1,500 to 3,000 lights could be on any one NMI. Most medium to large councils would therefore end up with many more NMIs and accounts for street lighting under this approach.

QUESTION 2: What role, if any, should Meter Providers have in installing and managing type 8 and type 9 meters?

We would agree with the AEMC (as per Section 5.2.2) that the Metering Provider should have no role in providing or installing smart street lighting controls.

We note that most of the commissioning of smart street lighting controls on to the Central Management System (CMS) happens in an automated or semi-automated manner at the time of installation in the field by DNSP staff or lighting contractors working for DNSPs, councils or road authorities. The supplier who manages the CMS may also be involved at the back end with properly commissioning each light point controller onto its system. Given this, we are therefore unclear what role a Metering Provider could usefully play in "commissioning" these systems.

We further note that the supplier of the smart street lighting controls typically manages the CMS in an on-going manner as a secure application in the cloud while the DNSP, council or road lighting authority (or their contractors) manage the devices in the field. Again, we are unclear what role a Metering Provider could usefully play in "maintaining the installation" of these systems.

We would be pleased to help facilitate further discussions with the AEMC (and AEMO) with the major suppliers of these systems and, if useful, demonstrations of their systems.

QUESTION 3: How frequently should AEMO update its specifications and procedures for type 8 and type 9 meters? Should this review be mandated?

In the early years of a new regime and in the context of a rapidly evolving technology, the bias should be to more frequent reviews.

QUESTION 4: Are there instances in which aggregating multiple street lights under a single NMI via a central management system may create issues for settlement?

IPWEA is not aware of any issue. Street lighting is generally a highly predictable load and the approach proposed under Type 9 metering would result in much more accurate settlement data than the current Type 7 unmetered approach.

QUESTION 5: Are there other use cases for type 8 or type 9 meters which stakeholders foresee in future?

As per IPWEA's September 2023 submission to the AEMC, a wide range of other emerging public domain infrastructure may also benefit from the new metering approach being proposed. Indeed, an easy and low-cost approach to smart metering of small energy consuming devices in the public domain may help facilitate the deployment of a growing array of smart city technologies which can currently be expensive and/or complex to meter. These technologies (in addition to EV charging and bus shelters as already acknowledged by the AEMC) include:

- advanced CCTV with video analytics
- smart city sensors measuring traffic volumes, traffic speed, monitoring parking spaces, measuring environmental / climatic parameters, monitoring noise levels and many other use cases
- infrastructure supporting autonomous vehicles and other emerging ITS technologies
- public safety devices (help buttons, intercoms, sirens, PAs, loudspeakers)
- other communications infrastructure such as telephone booths, public WiFi and IoT gateways
- electronic / dynamic signage
- public charging points

QUESTION 6: Are there jurisdictional requirements for DNSPs to serve as MCs for street lights and street furniture which we should be aware of in preparing the final determination?

IPWEA is unable to comment on this question.

OTHER COMMENTS:

- The Final Determination should make clear that, where consumption of a street light is static, interval data can be calculated by interpolation of data from the smart street lighting control (as happens in other jurisdictions). This will avoid excessive data transmission requirements of redundant data that smart street lighting controls may not be capable of supporting.
- Smart street lighting controls (and photocells before them) are overwhelmingly dominated in Australia by North American NEMA/ANSI standards. Indeed, IPWEA believes that all DNSPs and road authorities follow this standard. IPWEA notes that ANSI has undertaken extensive work in recent years to develop the following relevant standard which was adopted in in 2021:

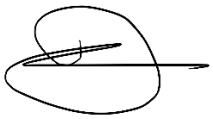
    - C136.50 - American National Standard for Roadway and Area Lighting Equipment—Energy Measurement for a Network Lighting Control (NLC) Device with a Locking-Type Receptacle

  Most of the smart street lighting controls being imported into Australia are likely to meet or have to meet this standard as ANSI standards are widely used in many parts of the world. As smart street lighting controls are produced as global products, it may therefore be inappropriate and unhelpful for the AEMC, AEMO or AMI to diverge from the detailed technical requirements in this globally influential standard. Suppliers of NEMA-based smart controls may significantly delay or may be unwilling to produce smart street lighting controls in versions solely appropriate for the Australian market.
- Existing accreditation of smart street lighting controls systems from major international jurisdictions should be factored into any domestic approvals.
- To encourage innovation and not inadvertently cause a freeze in adoption of these systems for the next two years (e.g., until a new regime takes effect), AEMC should consider allowing:

    - the grandfathering in of existing smart controls deployments (provided that they can demonstrate that they deliver superior metering data than the current Type 7 unmetered arrangements); and
    - a grace period during which existing and new smart street lighting controls deployments can be given additional time to refine initial processes and meet all compliance requirements to the satisfaction of the regulator.
- Further consultation with major suppliers and industry participants (particularly those early customers that have already deployed smart street lighting controls) regarding the practicalities of installation, commissioning, how energy consumption data is managed (eg collected, controlled, stored, securely made available to multiple parties and what specific accuracy levels can be achieved), on-going maintenance and testing requirements seems essential in formulating detailed and practical requirements. IPWEA remains more than willing to assist with such discussions.

Should you have any questions about this submission, please feel free to contact me or the IPWEA Emerging Technology Adviser, Graham Mawer (graham.mawer@ipwea.org T 0412 229 544).

Yours sincerely,



David Jenkins GAICD EMBA

Chief Executive Officer at IPWEA Australasia