Morse Micro Submission to AEMC Consultation – Real-Time Data from Smart Meters

Project Reference: ERC0399
Date: October 2025
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This document provides Morse Micro's responses to the Australian Energy Market Commission's (AEMC) consultation questions on the Draft Determination: Real-Time Data from Smart Meters (September 2025). Morse Micro strongly supports the AEMC's intent to provide consumers with real-time access to smart meter data and emphasises the critical role of both traditional Wi-Fi and long distance Wi-Fi HaLow (IEEE 802.11ah) as enabling technologies for achieving secure, cost-effective, and interoperable connectivity around smart meters at the grid edge of Australia's evolving energy ecosystem.

Q1. Would the draft rule encourage consumers and service providers to access real-time data from smart meters? What is the benefit?

Yes. By mandating clear pathways for real-time data access, the draft rule removes one of the largest barriers to consumer engagement. The key enabler will be ubiquitous, open, and interoperable wireless connectivity. Traditional 2.4GHz Wi-Fi is pervasive across Australian properties, but will not reach many of the current or future smart meters that are often installed in challenging RF locations or away from the main property. Wi-Fi HaLow is the new global standard that resolves this coverage issue and extends the proven Wi-Fi ecosystem into sub-GHz frequencies. This new standard can provide kilometre-range, low-power, and secure IP-based communication ideal for real-time energy data exchange. Consumers will be able to gain live insight into usage, solar generation, and pricing; and this grid edge intelligence can be used by energy service providers to orchestrate loads dynamically. Together, these drive behavioural change, grid flexibility, and system-wide efficiency.

Q2. Should new meters from 2028 support both wired and wireless real-time connectivity? Would this increase benefits while keeping costs low?

Absolutely. Dual connectivity is future-proof and technology-neutral. Wired interfaces suit legacy or high-noise environments, while wireless connectivity—particularly standards-based Wi-Fi and Wi-Fi HaLow—enables frictionless access without the cost or complexity of physical installations. Wi-Fi HaLow chipsets are low-cost and scalable, integrating seamlessly into existing Wi-Fi infrastructure. This delivers the AEMC's objectives of inclusivity and low-cost innovation, with negligible additional cost compared to proprietary or bespoke solutions.

Q3. Are the CBA cost estimates reasonable, and will costs decline over time?

Yes. The AEMC's estimated incremental cost (~$15 per meter, equivalent to $1 per meter per year across a 15 year useful life for a meter) aligns with the typical costs for integrating traditional Wi-Fi and Wi-Fi HaLow modules at production scale. Because both Wi-Fi and Wi-Fi HaLow leverage existing semiconductor supply chains and global certification frameworks (Wi-Fi Alliance), costs will decrease notably as volumes rise. Over time, long range Wi-Fi connectivity will become a standard embedded feature rather than an optional add-on, driving long-term efficiency and consumer value.

Q4. What is the benefit of enabling more consumers to access real-time data at no charge sooner?

Early, cost-free access drives adoption and accelerates innovation. Wi-Fi-enabled smart meters can instantly connect to home routers, gateways, or smartphones—no proprietary hubs, no app-specific hardware, and no installer visits. This ease of onboarding expands participation, enabling energy retailers, aggregators, and home-energy-management systems (HEMS) to deliver visible, real-time benefits—faster integration of Consumer Energy Resources (CER) like rooftop solar, batteries, and electric vehicles into the national electricity system will result in informed decision making and lower bills for consumers, as well as better load balancing and grid management for utilities.

Q5. What information helps consumers assess the benefits of real-time access and the reasonableness of upgrade costs?

Consumers should receive:

- Connectivity clarity — confirmation that the meter supports traditional 2.4GHz Wi-Fi or long distance Wi-Fi HaLow for instant device pairing.
- Use-case illustrations — examples showing how real-time data lowers bills via load shifting and renewable optimisation.
- Cybersecurity assurance — explanation of WPA3 encryption and consumer-controlled access.

Clear Wi-Fi-based connectivity standards simplify the consumer experience, enabling plug-and-play access rather than solutions requiring costly professional integration or cellular based options which have ongoing monthly charges.

Q6. Could other regulatory mechanisms better enable universal, low-cost access?

Three mechanisms would reinforce the rule's intent:
1. Technology-neutral performance standards that explicitly recognise IEEE 802.11ah (Wi-Fi HaLow) as a compliant path for long distance, real-time connectivity to work alongside traditional 2.4GHz Wi-Fi connectivity.
2. Certification incentives for using globally interoperable Wi-Fi solutions, reducing custom testing overheads for DNSPs and metering providers.

3. Industry alignment via AEMO procedures, specifying open-standard data access profiles built on IP transport, ensuring low-cost, future-proof implementation across vendors.

Q7. Does the proposed definition of real-time data and AEMO's procedure framework provide sufficient clarity?

Yes. The definitions are clear and workable. They should, however, explicitly acknowledge the role of standard IP-based wireless communication layers—such as Wi-Fi and Wi-Fi HaLow—in achieving sub-5-second latency without proprietary middleware. This reinforces transparency, simplifies compliance testing, and ensures that real-time access can be achieved via consumer devices already on-site, such as routers or smartphones.

Q8. Will the rule's implementation responsibilities support a good customer experience?

Yes—particularly if Wi-Fi HaLow connectivity is embedded from the outset. The long distance, high penetration connectivity of Wi-Fi HaLow will enable whole of property coverage for 99% of Australia's properties. This will open up more affordable, wireless connectivity for all behind the meter devices such as solar panels, EV chargers, and HVAC machines.

Additionally, all Meters using Wi-Fi and Wi-Fi HaLow can be provisioned via secure QR code or app onboarding, just like other Wi-Fi devices, providing immediate data visibility to the consumer without waiting for technician visits or retailer coordination. Retailers, metering coordinators, and AEMO can then focus on data governance and service enablement, not physical installation barriers—creating a seamless and transparent experience aligned with consumer expectations.

Q9. Does the draft rule include appropriate security protections?

Yes. Security provisions are robust and can be further strengthened through the explicit inclusion of WPA3-grade encryption and mutual authentication protocols, which meet or exceed AEMO's draft security control expectations. This grade of security is included as standard in all Wi-Fi and Wi-Fi HaLow devices. Wi-Fi standards benefit from global certification, regular updates, and established penetration-testing ecosystems—ensuring that consumer energy data remains encrypted end-to-end while access control remains in the consumer's hands. This standards-based approach ensures both compliance and resilience against evolving cybersecurity threats.

In summary, embedding traditional Wi-Fi and the newer, long distance Wi-Fi HaLow, within the AEMC's 2028 minimum specification framework would enable secure, interoperable, and cost-effective real-time data access across Australia's smart meter fleet. It leverages open standards, supports Australian semiconductor innovation, and accelerates the nation's energy transition.

One final point to note, the global leader in Wi-Fi HaLow semiconductor technology is an Australian company, Morse Micro Pty Ltd (ABN 31 614 230 189). Morse Micro have their

global head office in NSW, over 75% of their global employee base are in Australia and they are the world's largest privately owned fabless semiconductor company. It would be a matter of national interest, pride and Australian national security to embed this leading technology at the heart of Australia's energy infrastructure.