



Market engagement policy for metering and telemetry

Non-urban metering and floodplain harvesting measurement rules

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Introduction

Purpose

Transmitting water users' water take data via telemetry-enabled devices – known as local intelligence devices or LIDs – connected to water meters is a cornerstone of NSW's non-urban metering and floodplain harvesting rules.

We have, through a competitive tender process, engaged a private provider, *eagle.io*, to develop a system – a data acquisition service – to receive this information.

We are aiming, as far as possible, to take an open market approach to developing LIDs and other goods and services that enhance or complement its telemetry system.

This will give water users choice, create opportunities for product manufacturers and encourage innovation.

This document describes:

- how we will engage with providers of 'telemetry' and metering solutions, including physical devices, that support the non-urban metering and floodplain harvesting measurement rules
- the process and criteria for assessing whether these solutions can operate within the government's telemetry system for non-urban metering and floodplain harvesting measurement.

Objectives

The objectives of this policy are to:

- support an open market approach to developing telemetry solutions that support or complement our non-urban metering and floodplain harvesting measurement rules by providing benefits to water users, government or other parties
- provide a fair and transparent basis for prioritising the development and assessment of solutions that address key gaps in the market
- provide flexibility to allow assessment of innovative solutions to operate within the existing telemetry system without compromising the data integrity, security or functionality needed to support business functions
- ensure the costs associated with engaging the market, assessing and making operational solutions are allocated fairly.

Scope

The scope of this policy is as follows:

- **Part 1** of this policy applies to all telemetry solutions. It describes how we will engage with the market to provide opportunities to develop telemetry solutions to support or complement the existing telemetry system.
- **Part 2** of this policy applies specifically to physical devices, known as 'local intelligence devices' (LIDs) that are intended to use existing means of transmitting data to the government's data acquisition services. This part will describe the process and criteria for assessing whether these solutions are compatible with the existing telemetry system and can be made available to consumers on this basis.

- **Part 3** of this policy applies to all other telemetry solutions not covered in Part 2. For the purpose of this framework, these are referred to as ‘other telemetry solutions’. This part will describe the process and criteria for assessing whether these solutions are compatible with government’s existing telemetry system and can be offered to consumers on this basis.
- **Part 4** of this policy applies specifically to storage meter devices; devices that measure the water level within the storage and are used to determine the storage volume. This part describes the process for assessing whether a storage meter solution meets the minimum specifications for storage meters as described in the Floodplain Harvesting Measurement Policy.

Telemetry

Telemetry is a cornerstone of the NSW Government’s non-urban metering and floodplain harvesting measurement rules.

Under the non-urban metering rules, around 4,500 works will need to be fitted with LIDs that transmit water take data to government agencies via telemetry. Another 18,000 works will need to be fitted with dataloggers that are capable of storing water take data for periodic collection. Water users with these works may voluntarily use the telemetry capability of their LIDs to reduce their compliance burden.

Under the floodplain harvesting measurement rules, around 1,000 storages will also need to be fitted with LIDs that transmit water take data via telemetry.

The primary purpose of these requirements is to provide reliable information to help the Natural Resources Access Regulator undertake its compliance and enforcement functions. It is essential that all aspects of the telemetry system meet high standards of security, data integrity and functionality.

The existing telemetry system

The NSW Government has developed a telemetry system that involves a physical LID transmitting water take information via a secure Telstra 4G (CAT-M1 and NB-IoT) sub-network to a cloud-based data acquisition service (DAS).

Components of the end-to-end telemetry are:

- the eagle.io platform
- an Amazon S3 bucket
- field equipment typically comprising of:
 - water meter (primary sensor configured by others)
 - data logger
 - telemetry modem and antenna
 - power supply
 - instrument enclosure(s)
 - power and signal cabling
 - mounting hardware
 - tamper-evident seals
- downstream agency business systems that make use of the DAS data (configured by others)
- agency workflows and processes
- ‘duly qualified person’ workflows and processes.

An 'open market' approach to telemetry

We are aiming to take, as far as possible, an open market approach to developing LIDs and other goods and services that enhance or complement its telemetry system. This will give water users choice, create opportunities for product manufacturers and encourage innovation.

We encourage vendors to develop physical LIDs that are compatible with our DAS. We have published the following technical specifications for LIDs, inviting vendors to submit physical LIDs for testing and funding several rounds of bench testing:

- [Data Logging and Telemetry Specifications 2020](#)
- [DAS Logged Data Format Guidelines](#)

The government has provided in-kind support to vendors, including bench testing services, to help stimulate the market. As the market matures, we will look to play a more passive role in the testing process.

We also recognise that there may be opportunities to build on this open-market approach to foster the development of LIDs or other telemetry solutions that enhance benefits to water users, government or other parties.

These may include solutions that:

- address existing coverage blackspots
- are likely to be offered at a significantly lower price point than existing solutions or can connect to multiple meters
- leverage 'on farm' telemetry services to provide 'upstream' benefits, such as discharging telemetry obligations under the metering rules.

Storage meters

Under NSW's Floodplain Harvesting Measurement Policy, storages used to take water under a floodplain harvesting access licence will need to be fitted with a storage meter that meet standards approved by the Minister.

We have published technical standards for storage meters and encourage vendors to develop storage meters that meet these standards.

To give water users greater confidence about devices or solutions that have been confirmed as being compliant with the floodplain harvesting measurement rules, we will maintain a list of devices that have been tested and found to meet the relevant specifications.

Part 1 - Engaging the market

We are providing an ongoing market engagement pathway for vendors with proposed telemetry or storage meter solutions that may support or complement the existing telemetry system or floodplain harvesting measurement rules and deliver benefits to government, water users and/or the general community.

The nature and level of market engagement will depend on whether we consider a solution addresses a priority gap in the market and the availability of resources.

Approach for a solution that addresses a priority gap

Through the Department of Planning, Industry and Environment, we may choose to proactively engage the market and offer incentives to encourage the development of solutions that fit gaps in the telemetry or storage meter market. This may be via a competitive process or, subject to relevant policies and if the department is satisfied that it is justified, direct negotiation with a proponent.

Providers of solutions that meet telemetry or storage meter gaps can at any time submit their proposed solutions for assessment through the relevant assessment pathway, described in parts 2 to 4 of this document.

If the department is satisfied that the proposal meets a critical gap in the market, it may – at its absolute discretion and subject to resourcing availability – offer support, on a case-by-case basis, such as:

- undertaking or contributing to the costs of technical review and testing
- assigning a case manager to the proposal
- fast-tracking the assessment of the proposal.

Otherwise, proponents will need to cover costs associated with the development, technical review and testing, and making operational their solution.

Approach for a solution that does not address a priority gap

Proponents of solutions that do not address a priority gap can at any time submit their proposals for assessment through the relevant assessment pathway, described in parts 2 to 4 of this document.

The proponent will need to cover costs associated with the development, technical review and testing, and making operational their solution.

The department will consider proposals for these solutions in the order in which they are submitted but reserves the right to prioritise proposals that address a priority gap in the market.

Part 2 – Assessment process for local intelligence devices

A LID is a physical device installed on a meter or other measurement device that is capable of storing and transmitting water take data via Telstra’s 4G (CAT-M1 and NB-IoT) terrestrial sub-network to the government’s data acquisition service.

Stage 1 – Acquire an understanding of the DAS

1. Before submitting a proposal, proponents should acquire an understanding of how the DAS relates to the NSW non-urban metering framework and Floodplain Harvesting Measurement Policy by reviewing the following documentation on the DPIE website:
 - the NSW Non-Urban Water Metering Policy
 - the NSW Floodplain Harvesting Measurement Policy
 - the metering-related provisions of the Water Management (General) Regulation 2018
 - the metering-related provisions of the *Water Management Act 2000*
 - Data Logging and Telemetry Specifications 2020
 - DAS Logged Data Format Guideline
 - DAS base-typing survey.

Stage 2 – Submit a proposed LID solution

1. The proponent pays WaterNSW the relevant processing fee.
2. The LID vendor is supplied with a copy of the ‘testing and assessment agreement’, including a list of the testing fees.
3. The LID vendor completes the DAS base-typing survey and returns it along with ‘the testing and assessment agreement’ and supporting documentation such as:
 - design and configuration guides
 - supporting certificates
 - references
 - other relevant supporting materials.
4. WaterNSW undertakes a desktop review of the LID proposal, completed base-typing survey and supporting documentation. WaterNSW may require a proponent to provide additional information or clarifications before their LID can progress to the physical testing phase.

Note: we will not progress submissions where LID survey responses are not complete or assessed as likely to require a significant amount of additional development.

5. Following notification of a successful desktop review, the LID solution can progress to Stage 3. WaterNSW will provide the proponent with the LID functional testing documentation.

Note: if a proponent does not meet the requirements of a desktop review and wishes to continue to participate in the assessment process, they may need to submit a new proposal and pay a new processing fee.

Stage 3 – Proponent undertakes pre-testing of the LID

1. WaterNSW will provide the proponent with a SIM card (terrestrial devices only), connection details and eagle.io user interface access to enable the proponent to connect a test LID to confirm operability with the DAS.

Note: LID development or troubleshooting time is not allowed for as part of the testing process.

2. The proponent undertakes the DAS component testing, simulated from a LID at the proponent's premises, to ensure correct operation of the LID as detailed in the LID functional testing documentation.
3. The proponent notifies WaterNSW when it has completed the pre-testing of the LID and operability with the DAS is confirmed, including submitting the LID functional testing documentation completed with test results and observations.
4. Once WaterNSW has received this confirmation and the completed LID Functional Testing documentation evidencing the test was successful the proponent will be notified to proceed to Step 4 and provided with instructions on where to send the LID for physical testing.

Stage 4 – Proponent submits the LID for testing

1. The proponent pays WaterNSW the relevant testing fee.
2. The proponent submits to WaterNSW:
 - the LID, inclusive of data logger, telemetry modem, antenna, power supply, cabling, suitable enclosure and security features that can be pre-assembled and configured for installation in the field.
 - product information, including:
 - product specifications that describe the device name, model number, firmware version and nominated vendor contact person for the duration of the test period
 - assembly drawings
 - parts list
 - user manual
 - installation guide (including instructional video material if available).

Stage 5 – Undertake LID testing

1. WaterNSW will confirm receipt of the LID and documentation and will check that the proponent has supplied all the production documentation (listed above) so that testing can commence.
2. WaterNSW will conduct bench testing of the LID using the LID functional testing documentation
3. If a LID fails a test, WaterNSW will contact the vendor to check the unit setup. The vendor's advice and final preference for any further testing is required within three working days, otherwise a test fail will be reported. A maximum of four hours per LID is allowed for confirmation with the LID vendor.
4. On completion of the functional testing of the LID, WaterNSW will continue extended simulation over a four-week period. WaterNSW will monitor this information and will record the results in a spreadsheet file (.csv file or similar) from the received time series data at completion of the test period.

5. Once WaterNSW has completed the testing it will prepare a functionality report and issue the results to the proponent and the department.

Note: If a proponent alters the LID in any way throughout the testing process in Stage 5, they will need to refer to WaterNSW to see if any additional testing is necessary and any changes need to be made to the test report. Any additional LID testing will result in further fees.

Stage 6 – Decision to include on list of compatible devices

1. WaterNSW will make recommendations to the department based on the outcomes of testing.
2. Based on WaterNSW's recommendations, the department will decide whether to include the proposed LID on its list of devices and solutions that are compatible with the telemetry system.
3. If the department decides to include the proposed LID on its list of compatible devices and solutions, the proponent will need to provide the following information:
 - a high-resolution image of the LID as a JPEG file
 - LID vendor contact details including:
 - phone number
 - email address
 - product landing page – a webpage or weblink that provides water users and duly qualified persons with further information about the LID. This could include product data sheets, installation manuals, instructional videos, pricing, etc.
4. The proponent will be responsible for bearing the costs of making their solution operational.

Changes to LID firmware and hardware

Only the LID firmware and hardware versions submitted for testing and found to meet the functional and security requirements of the DAS will be deemed as 'compatible devices'.

If a vendor decides to update firmware or hardware for their LID, they will be required to submit a proposal for new firmware or hardware changes, stating the reasons for the change. Depending on the nature of the amendment to the LID, this may involve no testing, partial testing, or a full retest. The vendor should contact WaterNSW to confirm how these changes will be assessed.

Retiring a LID

LID vendors may choose to retire a listed product. LID vendors will need to submit a request via email to WaterNSW detailing the reasons why. Once this information is received and processed, the listed LID will be removed from the list on the department's website. LID vendors will also need to remove any references on their product's web pages that indicate that the product is listed as a compliant LID. Even if a LID vendor retires a listed product, they may continue to be subject to requirements under Australian Consumer Law, such as honouring warranty periods for installed devices.

Part 3 – Assessment process for ‘other telemetry solutions’

Telemetry-related goods or services proposed for use with the DAS that do not involve the transmission of data from a local intelligence device via Telstra’s 4G (CAT-M1 and NB-IoT) terrestrial sub-network, to the government’s data acquisition service are known as ‘other telemetry solutions’.

Other telemetry solutions may include, for example, a telemetry system for ‘on-farm’ management activities or a telemetry system that uses an alternative means of communicating data, such as satellite.

Stage 1 – Acquire an understanding of the DAS

Before submitting a proposal, proponents should acquire an understanding of how the DAS relates to the NSW non-urban metering framework, by reviewing the following documentation:

- the NSW Non-Urban Water Metering Policy
- the metering-related provisions of the Water Management (General) Regulation 2018
- the metering-related provisions of the *Water Management Act 2000*
- Data Logging and Telemetry Specifications 2020
- DAS Logged Data Format Guideline.

Stage 2 – Submit initial proposal, including assessment methodology

Proponents of other telemetry solutions will need to submit an initial proposal and pay the relevant processing fee. The proposal will need to include a:

- summary of the proposed solution and how it will meet the relevant outcome statements, described in Table 1
- proposed assessment methodology, including physical testing if needed, for verifying that the solution meets the relevant assessment criteria, described in Table 1.

Notes:

- If a solution includes a component that is in effect a LID, then that component will be assessed against the process for assessing LIDs, described in ‘Part 2 – Assessment process for local intelligence devices’
- Because the nature and characteristics of solutions may vary, not all outcome statements may apply in each case. For example, a solution that does not include any physical components will not need to meet outcome statements that apply to physical components.

Table 1 Outcomes and assessment criteria for 'other telemetry solutions'

Focus area	Outcome statement	Assessment criteria
1. Data integrity	Data is not accessed, deleted, corrupted, modified or falsified during rest or transmission	<p>The platform has adequate mechanisms in place to ensure data cannot be intercepted or altered during transmission.</p> <p>The platform has adequate mechanisms in place to ensure that any data stored for provision to the eagle.io DAS is not altered and includes fully auditable (by WaterNSW) event logging of any data changes.</p>
1. Data integrity	Physical devices and infrastructure are capable of detecting and deterring tampering and interference	<p>Physical devices and cable connections can be fitted with NSW Government seals.</p> <p>The LID/metering equipment is capable of reliably generating and transmitting a tamper alarm to the eagle.io DAS when the housing or enclosure is opened.</p> <p>The LID/metering equipment is secured from unauthorised changes to configuration.</p>
1. Data integrity	The LID and the meter are configured to correctly measure the flow or storage levels	Configuration data for field devices is visible and auditable to WaterNSW.
2. Security	Data and system components are protected against unauthorised access	The vendor has established and implemented robust security policies and procedures for mitigating cyber security risks (i.e. ISO27001 or equivalent) and included appropriate controls.
3. System availability	The solution has a high level of availability and reliability	<p>All system components required for data collection and provision from a meter/LID to the third-party telemetry platform have a 99.5% uptime.</p> <p>The third-party telemetry platform data exchange interface to the eagle.io DAS has a 99.9% uptime.</p>
4. Data retention and availability	Information and system configuration data stored in the platform is backed up and capable of being restored in a timely manner	Information and system configuration data stored in the platform is capable of being restored within six hours after any event that results in data corruption or data loss.
5. Disaster Recovery	All system components can be recovered within acceptable timeframes, including in a disaster recovery scenario	A disaster recovery plan is in place with appropriate measures and a supporting architecture designed to meet or exceed the system availability uptimes.
6. Functionality	There is a single, integrated data acquisition service	The solution can connect to the eagle.io DAS platform.
6. Functionality	There are appropriate transmission frequencies, uptime and methods.	The solution is capable of transmitting data into the DAS via one of the transport methods and at the uptime and frequencies required under the Data Logging and Telemetry Specifications 2020.

Stage 3 – confirm assessment methodology

The department will undertake a desktop review of the proposed solution and the proposed assessment methodology.

The department will then confirm the assessment methodology for this solution, having regard, where relevant, to the existing assessment methodology for LIDs.

Stage 4 – undertake testing in accordance with assessment methodology

Once the department has confirmed the detailed methodology for assessing the proposal, WaterNSW, an independent third party commissioned by WaterNSW or the proponent will test the solution against the confirmed assessment methodology.

The proponent will bear the costs of this testing, unless otherwise agreed.

WaterNSW will make recommendations to the department based on the outcomes of testing.

Stage 5 – decision to include on list of compatible devices and solutions

Based on WaterNSW's recommendations, the department will decide whether to include the proposed device or solution on its list of devices and solutions that are compatible with the telemetry system.

Stage 6 – negotiations, as needed, with operator of DAS platform

The proponent will be responsible for bearing the costs of making their solution operational, including, if needed, negotiating on commercial terms with eagle.io, which operates the DAS platform.

Part 4 – Assessment process for Floodplain Harvesting storage meters

The Floodplain Harvesting Measurement Policy 2020 for the northern Murray–Darling Basin enables floodplain harvesting to be accurately measured and water taken in accordance with the individual licensed volumes and legal limits. To ensure high-quality data informs compliance with the legal limits, the department requires landholders to install minimum-standard telemetry-enabled storage metering devices fitted with tamper-evident seals.

The assessment of storage meters against the minimum specifications will be undertaken by Manly Hydraulic Laboratory (MHL) at the vendor's expense. An outline of the assessment process is provided below.

The assessment process also applies to storage sensors that have been previously assessed and will need to be reassessed if the supplier considers their device now meets the minimum standards. The department expects that nominated devices are proven technology with no further development work required to meet the specifications.

Vendors that have a fully integrated storage meter and telemetry solution will need follow the Local Intelligence Device assessment process as described in Part 2 of this document.

Stage 1 – Acquire an understanding of floodplain harvesting measurement

1. Before submitting a storage meter for assessment, proponents should acquire an understanding of Floodplain Harvesting by reviewing the following documentation on the DPIE website:
 - the NSW Floodplain Harvesting Measurement Policy (2020)
 - the metering-related provisions of the Water Management (General) Regulation 2018
 - the metering-related provisions of the *Water Management Act 2000*
 - Data Logging and Telemetry Specifications 2020
 - DAS Logged Data Format Guideline
 - Storage meter technical specification survey response template.

Stage 2 – Submit a storage meter for desktop assessment

2. The vendor contacts MHL to discuss the assessment fee and timeframes by email at Assessment-Request@mhl.nsw.gov.au.
3. MHL sets the assessment fee structure and manage any financial matters and transactions with vendors.
4. The vendor completes the storage meter technical specification survey and returns it along with testing fee and supporting documentation such as:
 - design and configuration guides
 - supporting certificates
 - references
 - other relevant supporting materials.
5. MHL undertakes a desktop review of the completed survey and supporting documentation. MHL may require a proponent to provide additional information or clarifications.

Note: MHL will not progress submissions where storage meter technical specification survey responses are not complete or assessed as likely to require a significant amount of additional development.

6. MHL will notify the vendor and DPIE of the assessment results.
7. Storage meters that meet the assessment criteria will be listed on the DPIE website.

Changes to Storage meter firmware and hardware

Only storage meters that have been confirmed as meeting the minimum specifications for storage meters, as set out in the NSW Floodplain Harvesting Measurement Policy, will be deemed as 'compatible devices'.

If a vendor decides to update firmware or hardware for their storage meter, they will be required to submit a proposal for new firmware or hardware changes, stating the reasons for the change. Depending on the nature of the amendment to the storage meter, this may or may not involve another assessment by MHL at the vendor's expense. The vendor should contact DPIE to confirm how these changes will be assessed, before contacting MHL.

Retiring a Storage meter from the list

Storage meter vendors may choose to retire a listed product. Storage meter vendors will need to submit a request via email to DPIE detailing the reasons why. Once this information is received and processed, the listed storage meter may be removed from the list on the department's website. Storage meter vendors will also need to remove any references on their product's web pages that indicate that the product is listed as a compliant storage meter.

Even if a storage meter vendor retires a listed product, they may continue to be subject to requirements under Australian Consumer Law, such as honouring warranty periods for installed devices.

Additional information

Key contacts

Enquires that relate to the testing process, listed devices that require changes to LID firmware and hardware, or retiring LIDs, contact WaterNSW by email at Customer.Helpdesk@waternsw.com.au

Enquires that relate to the Data Logging and Telemetry Specifications or amendments to listed products including Storage meters, contact NSW Department of Planning, Industry and Environment by email at water.relations@dpie.nsw.gov.au

Enquires that relate to storage meter testing process, contact Manly Hydraulics Laboratory by email at Assessment-Request@mhl.nsw.gov.au

Glossary

Term	Description
DAS	Data acquisition system – a cloud-based platform used by the department, WaterNSW or NRAR for the purposes of acquiring and storing data from meters
DQP	Duly qualified person, as defined in the dictionary to the <i>Water Management Act 2000</i> and in clause 236 of the <i>Water Management (General) Regulation 2018</i>
eagle.io	The provider of the DAS – eagle.io manages connection, acquisition, and real-time visualisation of collected data without reliance on any third-party software
LID	Local intelligence device – combined data logger and telemetry unit that has been tested and approved by the department/WaterNSW/NRAR and published on the non-urban metering pages of the NSW Department of Planning, Industry and Environment website
Metering equipment	Includes any device used for or in connection with measuring the flow of water and any ancillary wiring, pipework, telemetry equipment or apparatus and any supporting structure
NRAR	The NSW Natural Resources Access Regulator
Pattern-approved meter	The design of these meters has been verified by the National Measurement Institute (NMI) to meet national metrological specifications
WaterNSW	The agency responsible for information about customer service and WaterNSW licensing, faulty meters, billing (including one- or two-part tariffs) and trading. WaterNSW is also responsible for the administration of the DAS and testing of LIDs
Water take data	The flow rate and cumulative volume of water taken or the height storage for floodplain harvesting data