Glossary

Accurate	Up to +/-5% maximum permissible error in-situ operation as per Compliance Compact and MAF2 requirements.
AS4747-compliant meter	A non-urban water meter that has met the requirements of AS4747 and has been issued with a Pattern Approval certificate.
Basin state or state	Each of New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory.
Australian Standard 4747 (AS4747)	The Australian standard which covers meters for non-urban water supply, and by which said meters are tested and Pattern Approved.
Certified Person; Certified Meter Installer; Duly Qualified Person	A person certified by an accredited organisation to undertake meter installation, maintenance and validation activities in accordance with codified industry practices and Australian Standards.
Closed Conduit meters	Meters intended for the metering of water in full flowing pipes.
Grandfathered or Contemporary meter	An installed water meter is likely to meet the ±5% accuracy range and which has a manufacturer's certificate of accuracy of ±2.5% and has been installed to manufacturer's specifications.
Murray–Darling Basin Compliance Compact (Compliance Compact)	The 2018 agreement between the Australian Government and the Murray–Darling Basin States, setting priorities and obligations on the governments for water compliance effort and for the integrity of Murray–Darling Basin water management.
Metrological Assurance Framework 2 (MAF2)	Rules and guidance for the use and regulation of non-urban water meters https://www.agriculture.gov.au/sites/default/files/documents/metrological-assurance-framework-2.pdf
Meterable take	Licensed water take, as defined at clause 7 of the best practice guidelines for minimum metering thresholds as agreed by Basin jurisdictions. Note – exemptions are defined in Clause 8. See: https://www.agriculture.gov.au/sites/default/files/documents/mdb-best-practice-guidelines.pdf
National Measurement Institute (NMI)	The National Measurement Institute (NMI) is Australia's peak measurement body responsible for biological, chemical, legal and physical measurement.
Open-Channel meters	Meters intended for the metering of water in open channels and partially filled pipes.
Pattern Approval	Evaluation of a design of a measuring instrument (such as a water meter) by an impartial body which examines the pattern of an instrument against a set of national or international metrological specifications, which determine whether an instrument manufactured in accordance with that design is capable of retaining its calibration over a range of conditions.
Pattern approval certificate	A certificate, published by the NMI, which describes the design (including type and size) of the meter, which is Pattern Approved, and any conditions for the installation, maintenance and use of the meter.
Telemetry	Involves automatically recording data and sending it electronically from the meter to another place for monitoring and analysis.

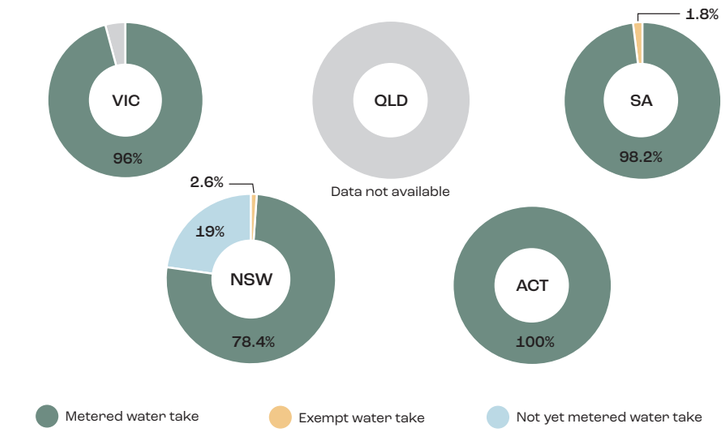
Australian Government

Inspector-General of Water Compliance

Murray-Darling Basin – Metering and Measurement Report Card

01 Jul 2020 – 30 Jun 2021. Data as at 30 June 2021. Work has commenced on gathering data for the 2021–22 Report Card.

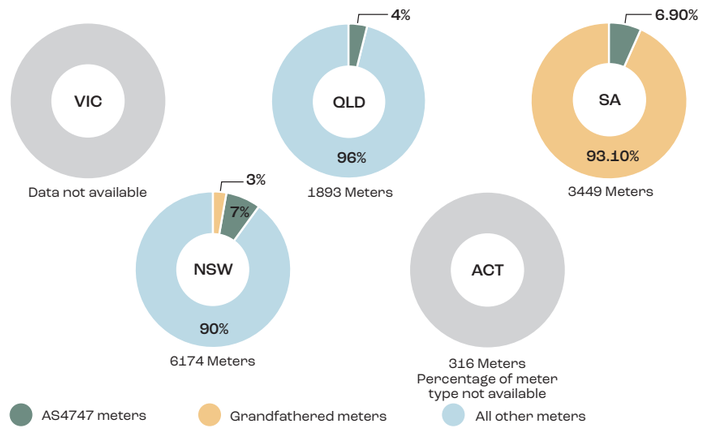
Percentage of water take metered by state



This measure is reported to highlight percentage of meterable water take across the Murray-Darling Basin by each State that is metered.

Refer to individual State Report Cards for detailed explanation.
Data owner/sources: State regulators

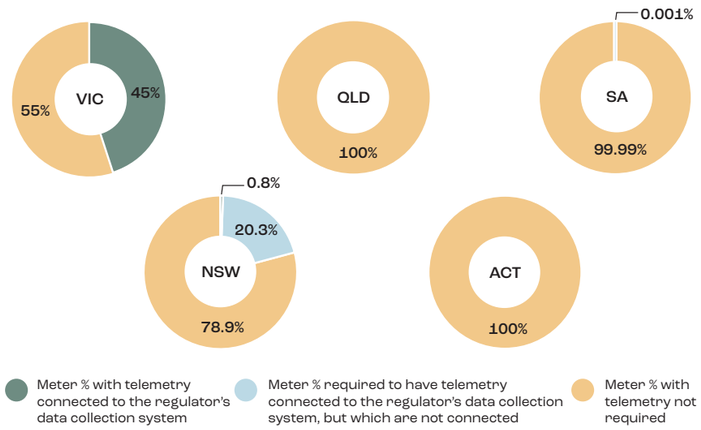
Metering accuracy by state



This measure is reported to identify the percentages of meters that comply with the State's metering policy and are therefore deemed accurate (including AS4747 and grandfathered meters).

Refer to individual State Report Cards for detailed explanation.
Data owner/sources: State regulators

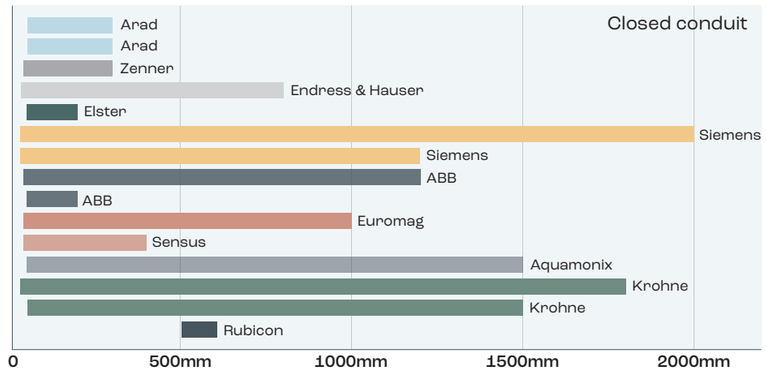
Telemetry coverage



This measure is reported to identify the percentage of meters with telemetry connected to the regulator's data system across the Murray-Darling Basin.

Refer to individual State Report Cards for detailed explanation.
Data owner/sources: State regulators

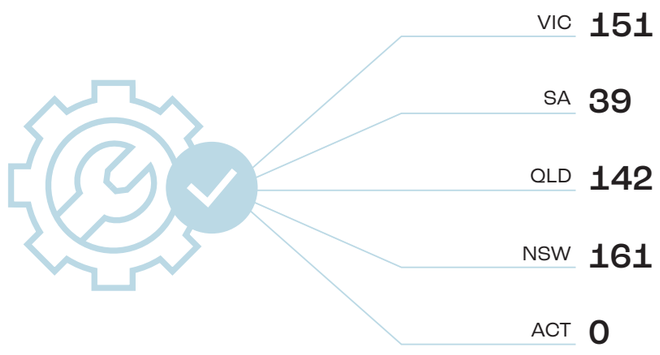
Pattern approved meters



This measure is reported by the National Measurement Institute as at 30 June 2021. The objective of the measure is to signal the market availability of pattern approved meters and models by manufacturer and pump size. The number of pattern approved meters has gone up by 7 meters between July 2019 and June 2021 (end of this reporting period) predominantly due to the NSW Government signalling the market in December 2018 when it introduced its new non-urban water metering framework.

Data owner/sources: National Measurement Institute

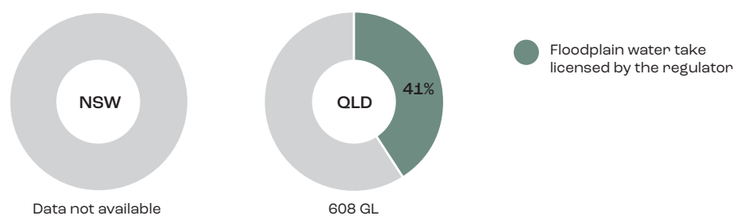
Count of qualified meter installers



This measure is reported by State in order to highlight the availability of active certified meter installers (CMI's) that are qualified to install, certify and validate compliant meter installations, as at 30 June 2021.

Data owner/source: Irrigation Australia

Floodplain water take



This measure is reported to understand the volume of floodplain harvesting (called overland flow in QLD) take and how progressed states are in licensing that volume.

In the QLD portion of the Murray-Darling Basin, high risk overland flow take is subject to water licensing. The total volume of overland flow water taken in QLD is 608 GL, 41% of which is licensed by the regulator (Lower Balonne high priority overland flow take). Due to a licensing process underway in the Border Rivers and Moonie WRP area, the total licensable volume for overland flow is changing and will not be available until the process has been completed. QLD is also developing an approach for measuring and accounting for the take of overland flow water.

Full implementation of the NSW Floodplain Harvesting Policy including licensing and commencement of measurement was due in June 2021, however delays in implementing the legislative reform have meant that licensing and measurement of floodplain harvesting have not yet taken place in NSW.

Data owner/sources: State regulators

The IGWC makes no claim as to the accuracy of the data shown on this page. Data is collated and supplied directly from the states.

Murray-Darling Basin – Metering and Measurement Report Card

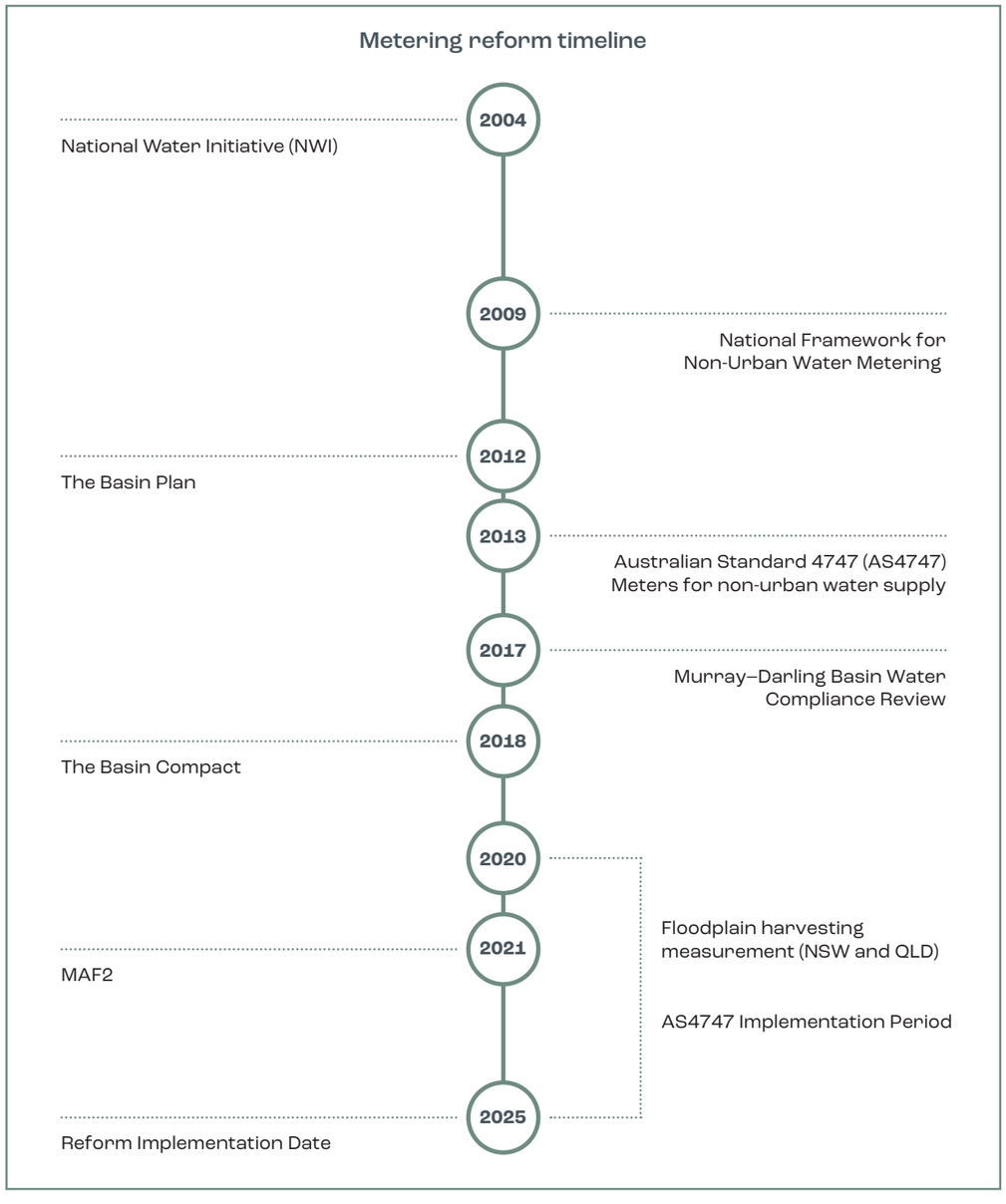
01 Jul 2020 – 30 Jun 2021

Metering and measurement in the Murray-Darling Basin

Metering is fundamental to trust in water accounting and compliance. Metering standards need to be consistent to make sure water take is fair for everyone across the Basin. The timeline below demonstrates the commitments to better metering.

Metering reform timeline

Each Basin State must have compliant meters based on the AS4747 standard by July 2025, or have relevant exemptions or grandfathering in place.



State progress on meter accuracy, coverage and timeliness of data capture

Requirement	QLD	NSW	ACT	VIC	SA
AS4747 compliant metering policy published including implementation plans	Yes but do not require new and replacement meters above 600mm size to be Pattern Approved	Yes	No	Yes	Yes
Full AS4747 implementation compliance due date by jurisdiction	Currently no published commitment to full AS4747 compliance	2023	2025	New installations or in life replacement	New installations or in life replacement
Telemetry policy published by jurisdiction, including strategic targets for deployment	No	Yes	No	Yes (Water Authority dependent)	No

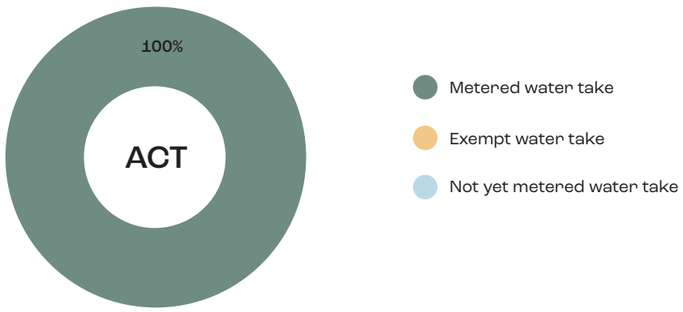
Australian Government

Inspector-General of Water Compliance

Murray-Darling Basin – Australian Capital Territory Metering Report Card

01 Jul 2020 – 30 Jun 2021

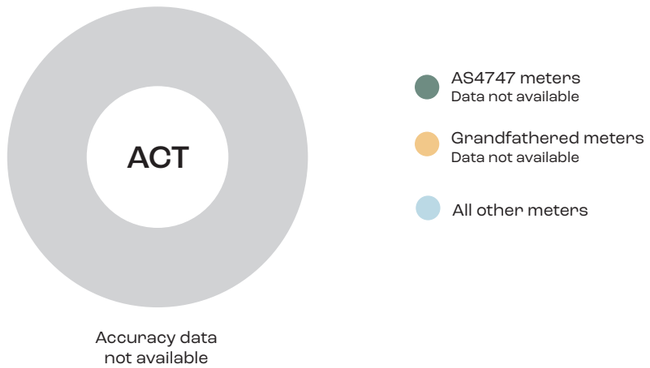
Percentage of water take metered in the ACT



This measure is reported to highlight percentage of meterable water take across the Murray-Darling Basin by each State that is metered.

Data owner/sources: State regulators

Metering accuracy in the ACT



This measure is reported to understand the percentages of meters that comply with the State's metering policy and are therefore deemed accurate (including AS4747 and grandfathered meters). The percentage of AS4747 meters in the measure is intended to show progress basin states are making in the roll-out of AS4747 metering. The percentages of meter types are not currently available in the ACT.

Data owner/sources: State regulators

State overview

The contribution of ACT non-urban water use within the Murray-Darling Basin context is relatively small and of low risk to the Basin Plan outcomes. One water user (ICON Water) accounts for most of that water take.

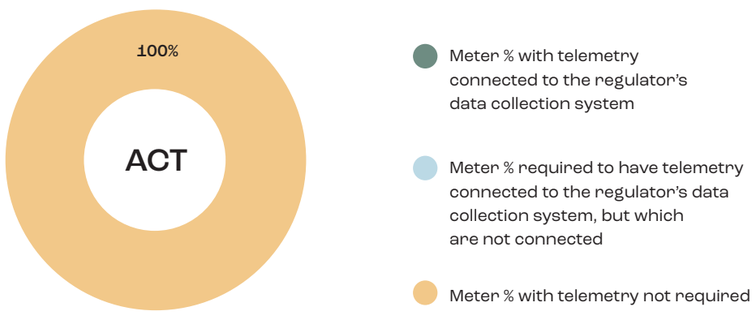
The ACT has achieved 100% compliance with its current policy for water metering and grandfathering arrangements as all water take is measured.

All licensed water extraction points in the ACT are metered. A total of 316 water meters measure water use of the 185 active individual ACT Licenses To Take Water. The ACT reports the number of inspections of meters to determine compliance with AS4747 has been affected by the impacts of Covid-19 and staff movements.

Future development and implementation of the ACT water metering policy in line with AS4747 and MAF2 requirements will inform progress towards AS4747 meters in the ACT in the short to medium term, as the policy will apply to future replacement or new installation of water meters.

The ACT does not require telemetry to be fitted to any meters. The volume of water used by each licence holder is analysed annually via an accounting process and compliance with licence conditions (supply of data, amount of water used) is checked during the accounting process. Information provided by licence holders is validated by an inspection program that aims to check water meters at least once every three years and more frequently for higher risk water users.

Telemetry coverage



This measure is reported to identify the percentage of meters with telemetry connected to the regulator's data system.

Data owner/sources: State regulators

How is meter data collected where telemetry is not used

Data provided by licence holder as per frequency set in licence conditions

This measure is reported to identify how meter data is collected and how often when telemetry is not being used.

Data owner/sources: State regulators

The IGWC makes no claim as to the accuracy of the data shown on this page. Data is collated and supplied directly from the states.

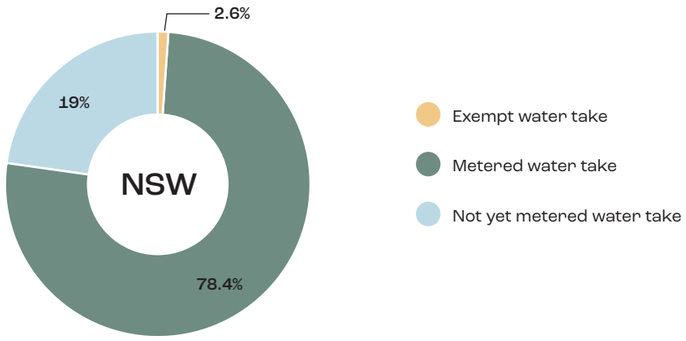
Australian Government

Inspector-General of Water Compliance

Murray-Darling Basin – New South Wales Metering Report Card

01 Jul 2020 – 30 Jun 2021

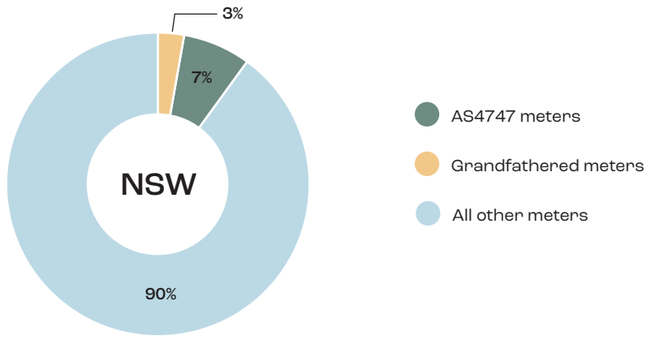
Percentage of water take metered in New South Wales



This measure is reported to highlight percentage of meterable water take across the Murray-Darling Basin by each State that is metered.

Data owner/sources: State regulators

Metering accuracy in New South Wales

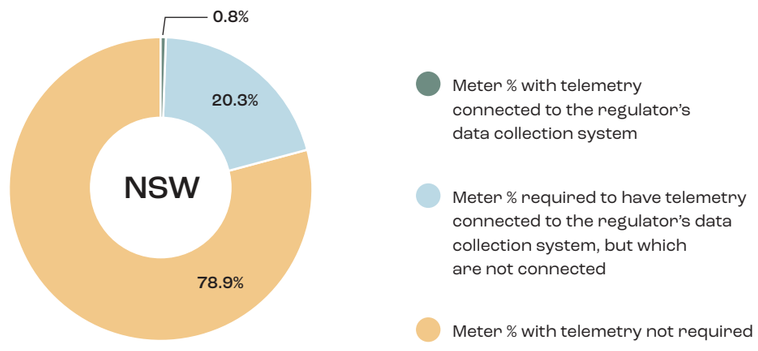


6174
Meters

This measure is reported to understand the percentages of meters that comply with the State's metering policy and are therefore deemed accurate (including AS4747 and grandfathered meters). The percentage of AS4747 meters in the measure is intended to show progress basin states are making in the roll-out of AS4747 metering.

Data owner/sources: State regulators

Telemetry coverage



This measure is reported to identify the percentage of meters with telemetry connected to the regulator's data system.

Data owner/sources: State regulators

How is meter data collected where telemetry is not used

Approval holders submit meter reads to WaterNSW as per the schedule below. When submitting meter reads, if no water is taken that also needs to be declared. Non-telemetered meters have their data loggers annually downloaded by WaterNSW. Logbooks with meter records must also be kept for five years.

	Recording frequency	Report monthly	Report annually
Works required to meter before the metering reform compliance date (Stage One – 1 December 2020)	Licensed water take is manually recorded by the water user in a logbook each time water is taken. Some exemptions apply in some areas where an operational meter and data logger is installed.	N/A	WaterNSW reads the meter at least annually (and in some cases meters are read quarterly, such as for regulated rivers)
Works required to meter after the metering reform compliance date (Stage One – 1 December 2020)	Licensed water take is automatically recorded by Local Intelligence Device (logged hourly)	Approval holder submits a meter read	WaterNSW downloads Local Intelligence Device data annually

This measure is reported to identify how meter data is collected and how often when telemetry is not being used.

Data owner/sources: State regulators

State overview

Metering requirements were first introduced in NSW in the early 1980s for regulated rivers and 2003 for major inland alluvial groundwater sources.

In December 2018, the NSW Government introduced a new non-urban water metering framework to ensure robust and fair water management across the state. The framework requires all water supply works to have metering equipment that complies with the Australian Standard (AS4747), unless an exemption applies. Existing meters can be retained provided they are validated as accurate to AS4747 requirements (+/-5% field accuracy).

The new water metering framework is being rolled out in 4 stages, with each stage occurring annually between 2020 and 2023. The purpose of these stages is to ensure all water users have enough time to comply with the new rules and the focus is on the highest risk categories first. As the annual rollout date is 1 December, these report card metrics are derived at the halfway point for each stage. On 1 December 2020, Stage 1 commenced which applies to surface water pumps 500mm and greater.

The uptake of water metering equipment for works in Stage 1 in this Report Card period (July 2020 - June 2021) was impacted by the infancy of the metering reforms and the availability at the time of suitable metering equipment for large works. Despite a comprehensive and active engagement campaign for these water users, metering uptake was slow.

NSW reports that compliance rates increased considerably into the next reporting period (July 2021 – June 2022), following the Natural Resources Access Regulator's (NRAR) compliance program of monitoring and investigative activities, supported by further engagement and communication undertaken by the Department with WaterNSW and NRAR. The NRAR compliance program found that 90% of meters for works in Stage 1 were compliant by the end of the reporting period.

In August 2021, it was announced that the Australian and NSW Governments launched a $36.1 million suite of programs to support uptake of telemetry and metering across NSW. NSW is continuing to implement its non-urban metering reforms and the 2021/2022 Report Card will demonstrate an improvement in meter coverage as each stage is being rolled out across the state.

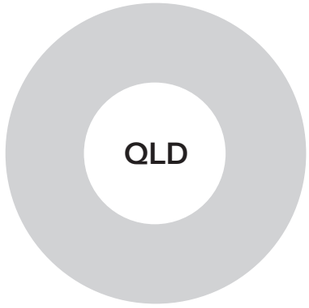
Australian Government

Inspector-General of Water Compliance

Murray-Darling Basin – Queensland Metering Report Card

01 Jul 2020 – 30 Jun 2021

Percentage of water take metered in Queensland



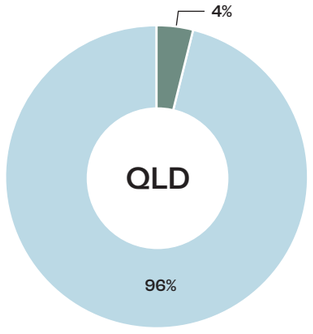
Data not available

- Metered water take
  Data not available
- Exempt water take
  Data not available
- Not yet metered water take
  Data not available

This measure is reported to highlight percentage of meterable water take across the Murray-Darling Basin by each State that is metered.

Data owner/sources: State regulators

Metering accuracy in Queensland



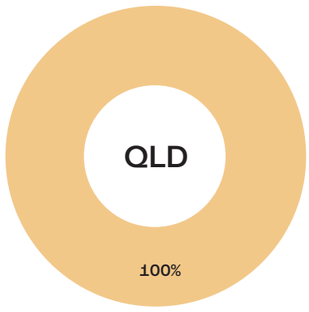
1893
Meters

- AS4747 meters
- Grandfathered meters
- All other meters

This measure is reported to understand the percentages of meters that comply with the State's metering policy and are therefore deemed accurate (including AS4747 and grandfathered meters). The percentage of AS4747 meters in the measure is intended to show progress basin states are making in the roll-out of AS4747 metering.

Data owner/sources: State regulators

Telemetry coverage



- Meter % with telemetry connected to the regulator's data collection system
- Meter % required to have telemetry connected to the regulator's data collection system, but which are not connected
- Meter % with telemetry not required

This measure is reported to identify the percentage of meters with telemetry connected to the regulator's data system.

Data owner/sources: State regulators

How is meter data collected where telemetry is not used

Self meter reads provided to the department at the following intervals for identified take:

- Groundwater (21% of meters/14% of volume) read six monthly;
- Supplemented water meters (36% of meters/18% of volume) read monthly or quarterly
- Unsupplemented water meters (22% of meters/12% of volume) read annually
- Overland flow and water harvesting (21%/56% of volume) measured throughout take events

This measure is reported to identify how meter data is collected and how often when telemetry is not being used.

Data owner/sources: State regulators

State overview

In October 2022, QLD released a strengthened water measurement policy to increase the standard and coverage of water meters across the state. The strengthened policy replaces QLD's former 'Non-urban Water Metering Policy for Unsupplemented Water Extractions' (2019). At present, best available data indicates that approximately 74% of the total volume of water entitlements in the QLD portion of the Murray-Darling Basin is metered. When the strengthened water measurement policy and implementation plan take effect, estimates of numbers of new meters to be installed can be determined.

All take required to be metered under the former QLD policy and Water Act (QLD) (2000) as at 30 June 2021 is metered. Data is not currently recorded in departmental systems for exempt take.

A strengthened water measurement standard aligned with the National Metrological Assurance Framework 2 (MAF2) is already in place. Existing meters undergoing revalidation, and new and replacement metering, are adhering to this strengthened standard.

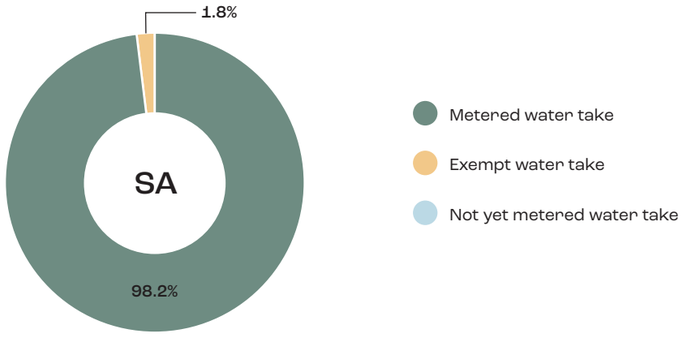
Under this new policy, telemetry on meters will be required for the taking of water under high-risk water entitlements in the highest risk areas. This means that as a priority, telemetry will be required for surface water entitlements in the Queensland portion of the Murray-Darling Basin. Queensland is completing work to develop a telemetry standard and during 2023, with the support of a telemetry subsidy, will commence the requirement for the installation of telemetry devices in the Queensland portion of the Murray-Darling Basin.

As work to strengthen water measurement in QLD proceeds, it is anticipated that QLD will be able to more effectively report against the metrics in future iterations of this Report Card.

Murray-Darling Basin – South Australia Metering Report Card

01 Jul 2020 – 30 Jun 2021

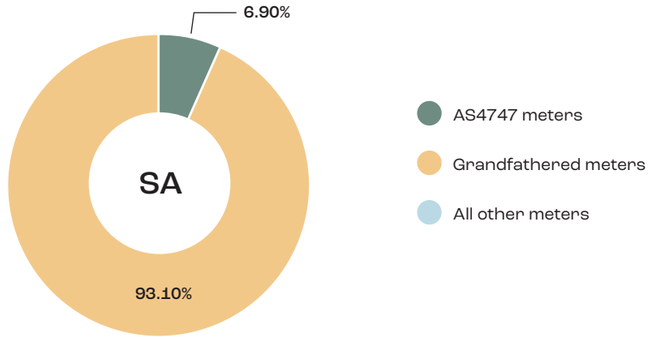
Percentage of water take metered in South Australia



This measure is reported to highlight percentage of meterable water take across the Murray-Darling Basin by each State that is metered.

Data owner/sources: State regulators

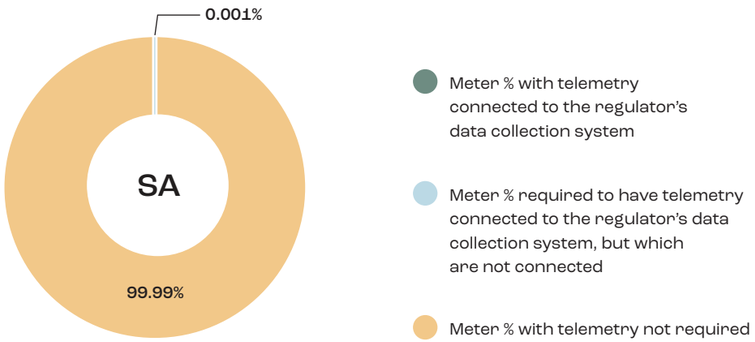
Metering accuracy in South Australia



This measure is reported to understand the percentages of meters that comply with the State's metering policy and are therefore deemed accurate (including AS4747 and grandfathered meters). The percentage of AS4747 meters in the measure is intended to show progress basin states are making in the roll-out of AS4747 metering.

Data owner/sources: State regulators

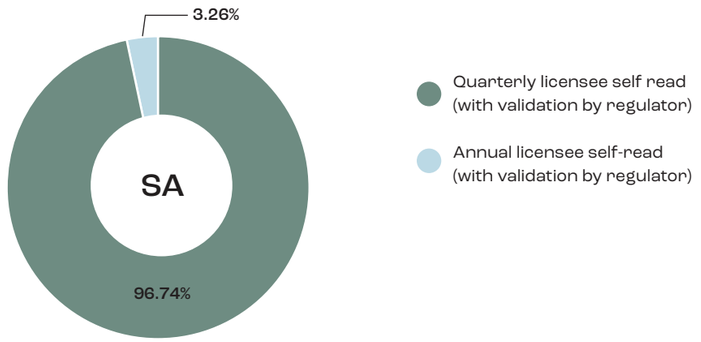
Telemetry coverage



This measure is reported to identify the percentage of meters with telemetry connected to the regulator's data system.

Data owner/sources: State regulators

How is meter data collected where telemetry is not used



This measure is reported to identify how meter data is collected and how often when telemetry is not being used.

Data owner/sources: State regulators

State overview

South Australia was an early adopter of metering approximately 50 years ago, which has since been expanded to all prescribed resources in the State.

Mandatory metering of all licensed water take is required in South Australia, with the exception of low risk water use (e.g. stock and domestic and as outlined in regional Metering Implementation Plans). This means that 98.2% of the volume of water taken from the South Australian portion of Murray-Darling Basin is currently metered.

All licensed water use within the South Australian portion of Murray-Darling Basin required metering prior to the National Metering Standards (AS4747) being introduced in 2013. In response to the obligations in the Murray- Darling Basin Compliance Compact, South Australia introduced legislation in 2019 to require that all replacement meters are compliant with AS4747. The percentage of meters currently AS4747 compliant is 6.9% and this will continue to grow as meters are replaced.

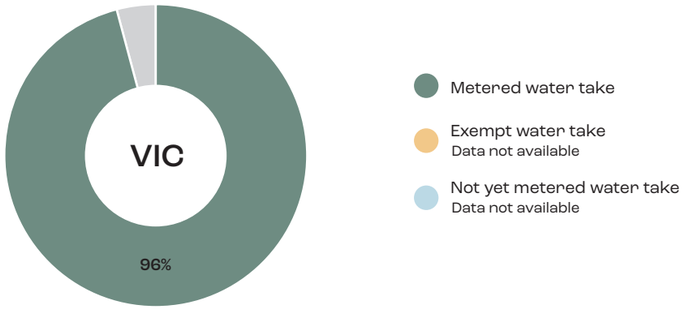
SA acknowledges that telemetry may also play a supporting role in compliance and are trialling the suitability of retrofitted telemetry technologies and on-farm water usage analytics during 2022–23.

The effectiveness of SA's compliance strategies is demonstrated through high compliance rates, which reach 98–99% across the State, underpinned by mandatory financial penalties for any use in excess of, or without, allocation. In addition, as part of South Australia's compliance program, a minimum of 10% of licensed sites are visited each year which includes meter inspections.

Murray-Darling Basin – Victoria Metering Report Card

01 Jul 2020 – 30 Jun 2021

Percentage of water take metered in Victoria



This measure is reported to highlight percentage of meterable water take across the Murray-Darling Basin by each State that is metered.

Data owner/sources: State regulators

Metering accuracy in Victoria

Data not available

This measure is reported to understand the percentages of meters that comply with the State's metering policy and are therefore deemed accurate (including AS4747 and grandfathered meters). The percentage of AS4747 meters in the measure is intended to show progress basin states are making in the roll-out of AS4747 metering.

Data owner/sources: State regulators

State overview

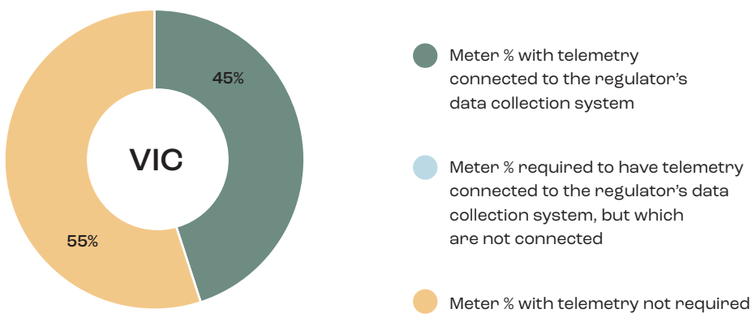
Victoria has had a high coverage of meters across the state for some time. 84% of meters in Victoria were installed prior to 2013 when the Australian Standard for non-urban Water Metering (AS4747) came into being. 96% of take in the Victorian part of the Murray-Darling Basin is metered.

Victoria does not currently have data available for the number of meters that are accurate (AS4747 compliant and grandfathered). However from an outcomes perspective, Victoria reports 87% of total take in the Victorian portion of the Murray-Darling Basin is through AS4747 compliant meters and contemporary (grandfathered) meters accurate to +/-5% in accordance with Victorian policy.

Victoria has been an early adopter of telemetry and automated control systems. In Victoria 45% of meters have telemetry and this accounts for 71% of total meterable water take.

The Victorian Government's Non-Urban metering policy (2020) is consistent with the Compliance Compact (2018). The policy is being updated to reflect MAF2 (2021) requirements.

Telemetry coverage



This measure is reported to identify the percentage of meters with telemetry connected to the regulator's data system.

Data owner/sources: State regulators

How is meter data collected where telemetry is not used

The Victorian Government's Non-urban Metering Policy (2020) requires water corporations to read meters at least once a year for low volume low risk meters, more frequently for higher volumes, and at least twice a year for surface water winter-fill licences or where there is a history of usage breaches. Victoria's Water Corporations own meter assets and are responsible for manually reading meters where telemetry is not available.

This measure is reported to identify how meter data is collected and how often when telemetry is not being used.

Data owner/sources: State regulators

The IGWC makes no claim as to the accuracy of the data shown on this page. Data is collated and supplied directly from the states.