Department of Climate Change, Energy, the Environment and Water

Non-urban metering

Focus topic:
Self-installations

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Manager Metering Implementation

Public webinar
4 December 2025

Acknowledgement of Country

The Department of Climate Change, Energy, the Environment and Water acknowledges that it stands on Aboriginal land.

We acknowledge the Traditional Custodians of the land and water, and we show our respect for Elders past, present and emerging.

We do this through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Artist and designer Nikita Ridgeway from Aboriginal design agency – Boss Lady Creative Designs, created the People and Community symbol.

Contents

Who to talk to about what?

Water Group

Makes the rules

Responsible for making the rules and regulations
Manages corporate customer accounts and water licensing

WaterNSW

Implements the rules

Always contact first with a water enquiry

Manages most customer accounts and water licensing

NRAR

Enforces the rules

The independent regulator responsible for enforcing the rules and regulations

What informs the rules?

- *Water Management Act 2000*
- Water Management (General) Regulation 2025, and
- Your water sharing plan

You need approval to take water in NSW

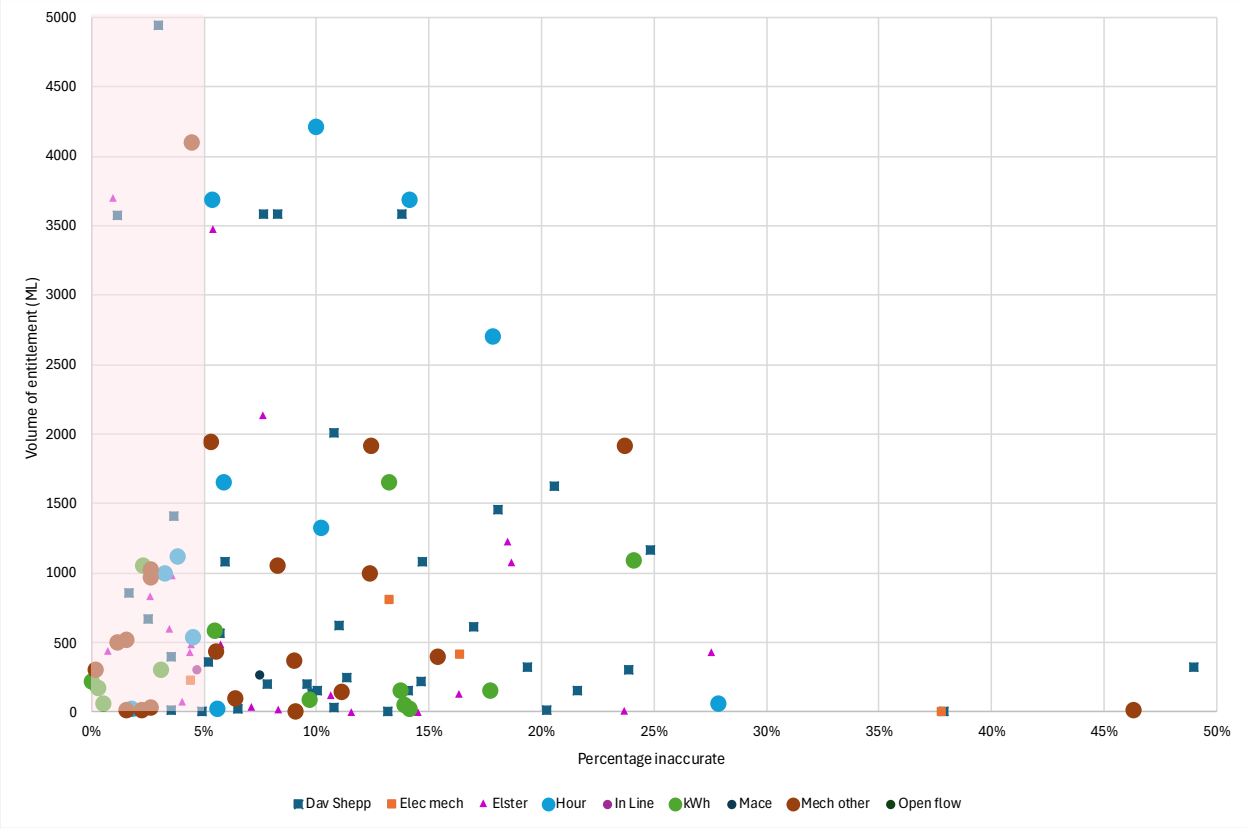
- A water access licence (WAL) or a valid exemption
- Water supply works (WSW) approval
- Water use approval

Your specific conditions are outlined in your Statement of Approval (for your works approval)

You can also check your conditions on the NSW Water Register waterregister.waternsw.com.au

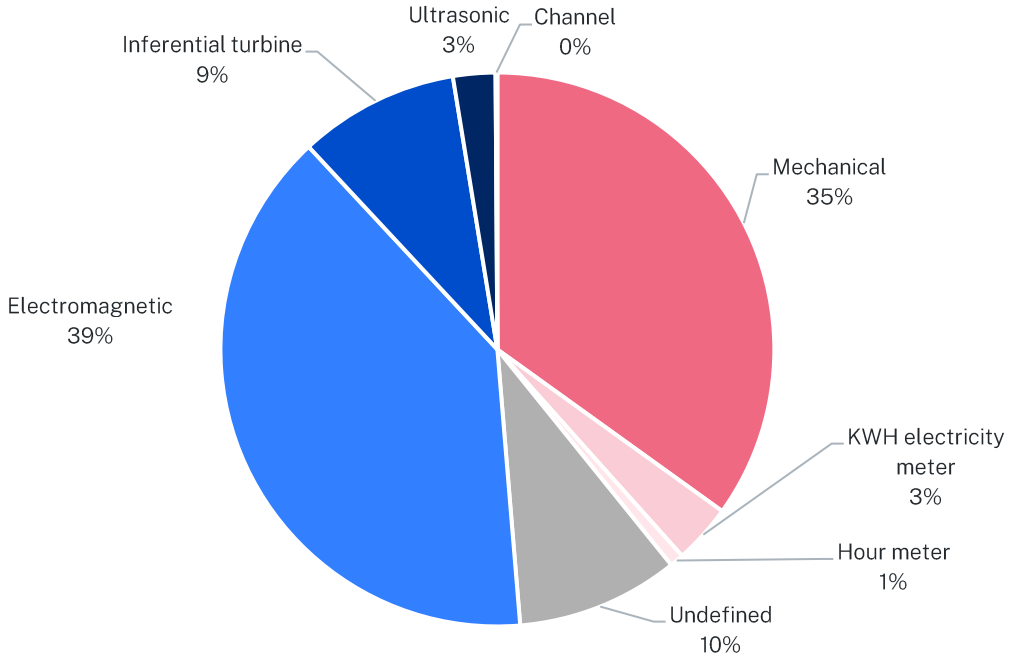
Why metering matters

Meter accuracy survey before commencement of metering reform



Note: Graph has been limited to 5,000 ML and 50% inaccurate to improve visual inaccuracy > possible over extractions > reduced allocations.

Types of meters currently installed on NSW works



39% need an upgrade
10% are unknown
51% are compliant or could be

Who needs to comply and when

Works	Pattern-approved meter	AS4747 meter	LID & telemetry	DQP validation	Compliance date
Surface water pumps ≥500 mm diameter					Must comply now
Nominated by entitlement ≥100 ML *Work size-based exemptions may apply*					**Inland** Must comply now **Coastal** 1 December 2026 *(unless pre-existing condition applies)*
Nominated by entitlement >15 ML to <100 ML *Excludes surface water pumps ≥500 mm diameter* *Work size-based exemptions may apply*		Optional	Mandatory recording & reporting *(applies now)*	Optional	1 December 2027 or work approval renewal date *(whichever is later)*
Nominated by entitlement ≤15 ML *Excludes surface water pumps ≥500 mm diameter*	Optional *Unless trading water*	Not applicable	Mandatory recording & reporting *(applies now)*	Not applicable *Unless trading water*	1 December 2027 *(if trading water)*

All works must comply with the non-urban metering rules unless an exemption applies.
Volume-based exemptions do not apply for pumps 500 mm or greater.

Exemptions from the requirement to meter

- the work is used solely to take water under a *basic landholder right*; harvestable rights, domestic & stock rights and native title rights
- the work is *not nominated* by a water access licence (WAL)
- the works is classified as not taking water
- the work is nominated by *total nominated entitlement of 15 ML or less*
- the work is below *the size-based exemption;* single and multiple works thresholds apply
- the work is solely nominated by a *floodplain harvesting WAL*
- the work *can not physically comply* with the non-urban metering rules (available by application to the Minister)

Type of work	Number	Maximum size
Surface water (pumps)	1 pump	99 mm
Surface water (pumps)	2 pumps	74 mm
Surface water (pumps)	3 pumps	49 mm
Surface water (pumps)	4 pumps	39 mm
Groundwater (bores)	1 bore	199 mm
Groundwater (bores)	2 bores	159 mm
Groundwater (bores)	3 bores	129 mm
Groundwater (bores)	4 bores	119 mm

Works Classifications

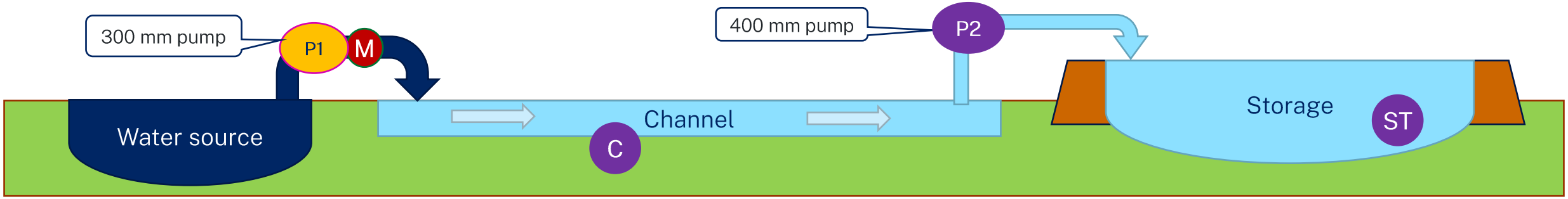
If a work is classified as:

- Constructed, non-taking work
- Constructed, basic landholder rights only
- Constructed, approval holder declared not taking water
- Not constructed
- Decommissioned

Works not classified or classified as constructed are required to be metered

The work is exempt from metering requirements, with no physical modifications required.

However, they are **conditioned not to take water** (excluding Constructed, BLR only that is permitted to take water under a basic landholder right).

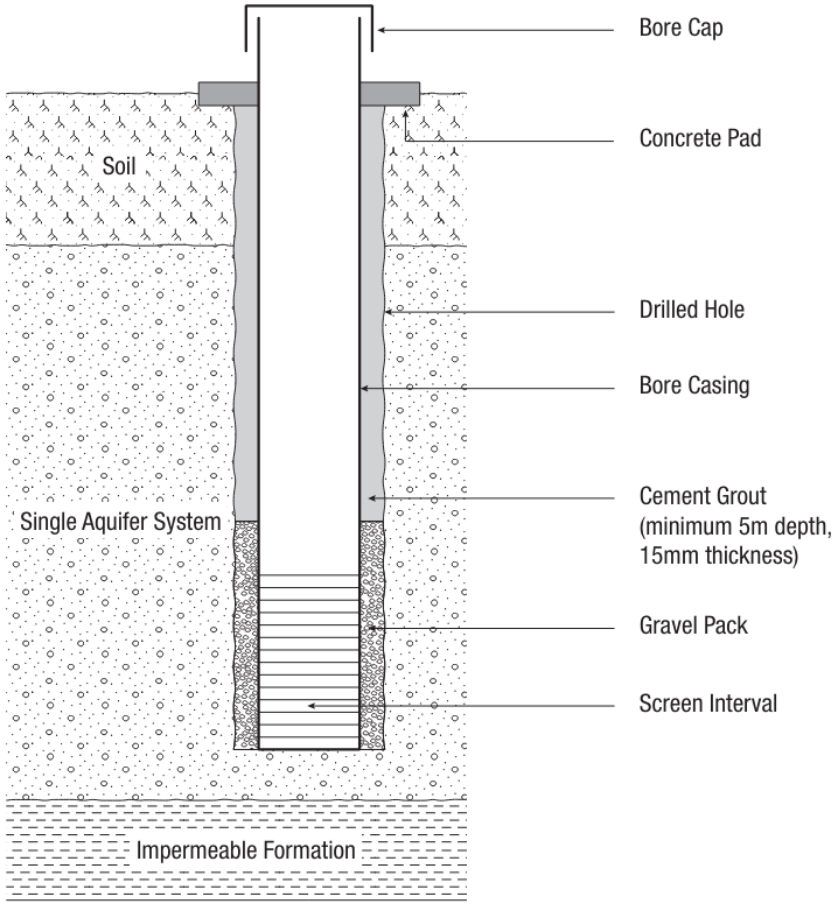


Groundwater works and metering requirements

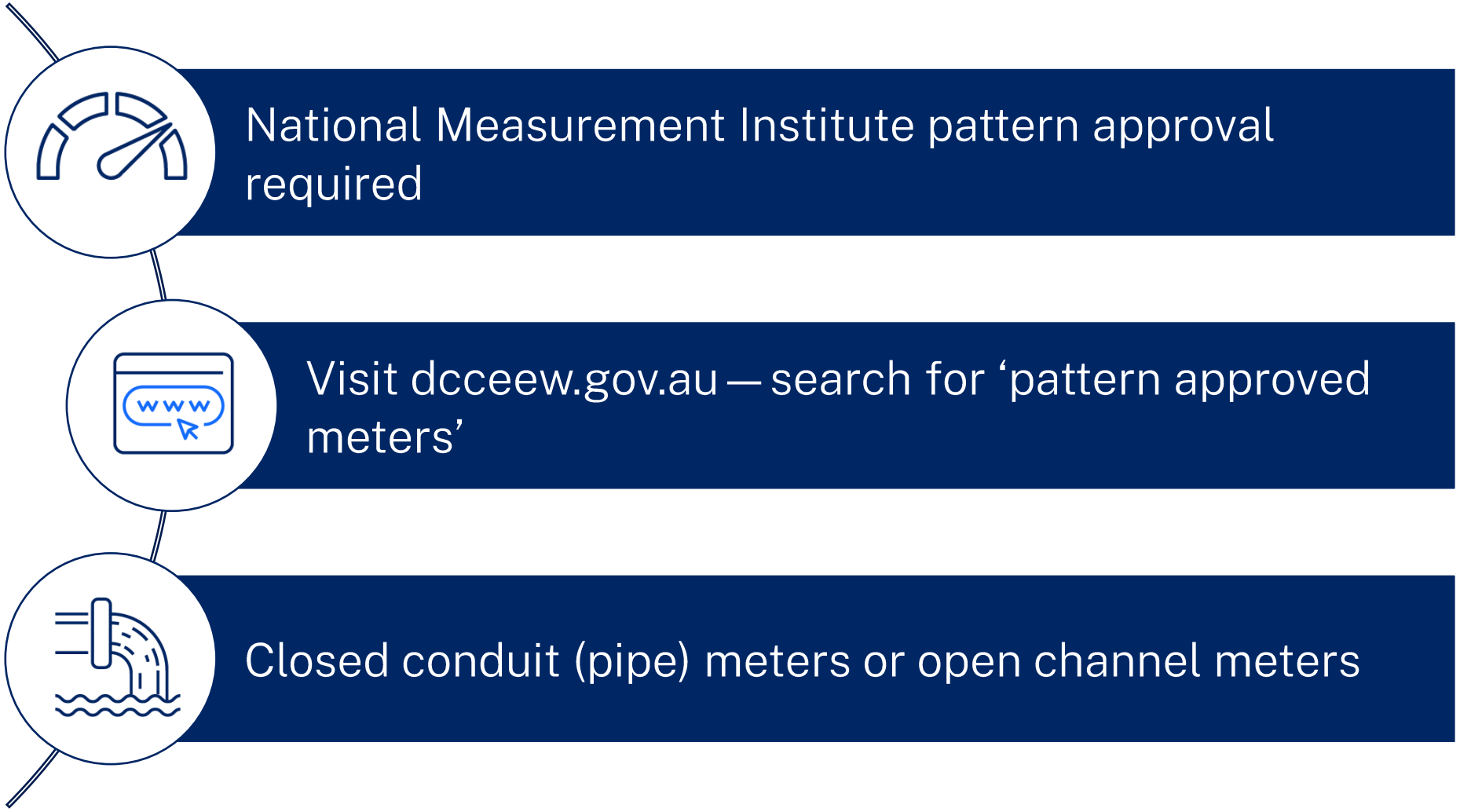
- Bore, wells and spearpoints are all types of bores for the assessment of the size-based exemptions
- Diameter is measured using the external diameter of the bore casing

Note

- If a bore cannot access the size-based exemption it may be able to access the low volume exemption ≤ 15 ML
- If a bore doesn't have a diameter specified it is required to meter



Metering equipment requirements



What is a local intelligence device?

A local intelligence device or LID is a combined data logger and telemetry unit

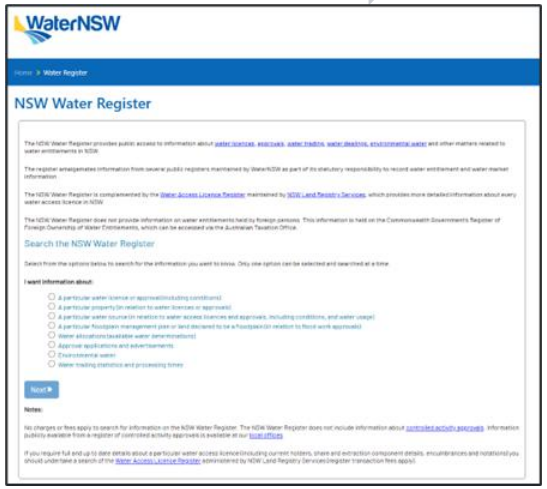
It is used to record and transmit water take data to WaterNSW via a cloud-based platform known as the Data Acquisition Service (DAS)

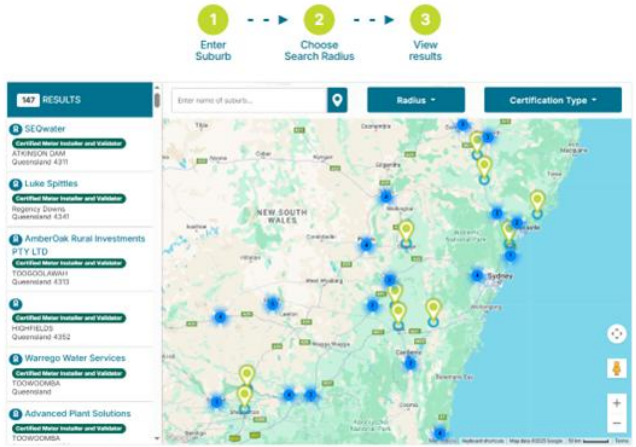
3 steps to become metering compliant

Step 1 Check the NSW Water Register

Step 2 Use the Metering Guidance Tool

Step 3 Contact a DQP today





Focus session: Self installations

Self Installation

Are you eligible (and able)?

- Works nominated by total entitlement volumes less than 100ML (not otherwise exempt)
- Although not obliged to engage a DQP, self-installation still requires a level of technical ability

Which works are NOT eligible?

- Surface water pumps >500mm diameter
- Works nominated by total entitlement volumes greater than 100ML
- Works intended for use in temporary trading

What is required

- Install a Pattern Approved meter
- Standard recording and reporting requirements

How to approach meter self-installation

Select and install a **Pattern Approved** meter

- Visit the MDBA website or search “pattern approved meters” on dcceew.gov.au.
- Choose a pattern-approved meter.
- Install the meter according to the manufacturer's instructions AND the pattern-approval certificate.

Choosing the right meter for your system

- Meter technology
- Expected maximum flow rate (Q_3)
- Pipe size (DN), pipe material and fitting the meter to existing pipework
- Orientation and room to work with
- Other considerations, e.g. water quality, site access, environmental exposure, etc.)

Certificate of Approval number	Meter technology	Approved Q3 range (m^3/h)	Approved nominal Sizes (DN)	Approved orientation
NMI 14/3/34	Inferential turbine	25 - 2000	DN40 – DN400	Horizontal only
NMI 14/3/36	Electromagnetic	25 - 3600	DN40 – DN1000	Horizontal only
NMI 14/3/42	Ultrasonic	1313	DN600	Horizontal Only
NMI 14/3/44	Woltman	63 - 1000	DN50 – DN300	Horizontal only
NMI 14/3/49	Electromagnetic	16 - 25000	DN25 – DN1800	All
NMI 14/3/50	Electromagnetic	63 - 10000	DN50 – DN300 DN350 – DN2000	All Horizontal only
NMI 14/3/52	Electromagnetic	63 - 1000	DN50 – DN200	Horizontal only
NMI 14/3/53	Electromagnetic	16 - 6300	DN25 – DN800	All
NMI 14/3/54	Woltman	25 - 1000	DN50 – DN300	Horizontal and Vertical Note: orientation alters the approved flow rate range
NMI 14/3/57	Inferential turbine	35 - 800	DN50 – DN300	Horizontal only
NMI 14/3/61	Ultrasonic	160 - 1000	DN80 - DN200	All
NMI 14/3/68	Ultrasonic	40 - 1000	DN50 – DN300	All
NMI 14/3/71	Ultrasonic	40 - 160	DN50 – DN100	Horizontal

The table above shows a selection of Pattern Approved non-urban water meters listed on the dcceew.gov.au website (with brand information removed). Note: **‘Pattern approved’ means approval under NMI 10-1 (Meters Intended for the Metering of Water in Full Flowing Pipes).**

Meter specifications – pattern approval certificate

NMI [redacted]
Rev 1

TECHNICAL SCHEDULE No [redacted]

1. Description of Pattern

A DN50 sized [redacted] model water meter used to measure water supplies for trade.

The Pattern and Variants are manufactured by [redacted]

1.1 Field of Operation

The field of operation of the measuring system using the DN50 [redacted] model water meter is determined by the following characteristics:

Minimum flow rate, Q_1:	0.20 m^3/h
Transition flow rate, Q_2:	0.32 m^3/h
Maximum continuous flow rate, Q_3:	25.00 m^3/h
Overload flow rate, Q_4:	31.25 m^3/h
Flow rate ratio, Q_3/Q_1:	125
Maximum admissible temperature:	50 °C
Temperature Class:	T50
Maximum admissible pressure:	1600 kPa
Pressure loss class:	Δp 10
Accuracy class:	2
Flow profile sensitivity class:	See clause 1.3.1
Environmental class:	B & O (indoor & outdoor)
Orientation:	Horizontal
Flow Direction:	Forward only

1.3 Conditions

1.3.1 Installation Conditions:

No external flow straightener or flow conditioner is required.

The meter body housing incorporates an integrated flow conditioner located at the inlet (Figure 3).

For Accuracy Class 2 (NMI R 49-1), the flow profile sensitivity class is U0/D0.

For Accuracy Class 2.5 (NMI M 10-1), the installation conditions, based on meter size, are specified in Table 1 and Table 2.

Table 1 Minimum pipe lengths required by flow disturbance type:
DN50 meters

Disturbance Type (*)	Minimum number of upstream pipe lengths (DN)	Minimum number of downstream pipe lengths (DN)
1	5	2
2	5	2
3	5	2

Table 2 Minimum pipe lengths required by flow disturbance type:
DN65-DN300 meters

Disturbance Type (*)	Minimum number of upstream pipe lengths (DN)	Minimum number of downstream pipe lengths (DN)
1	10	5
2	10	5
3	10	5

(*) For information on the different types of flow disturbances which are examined as part of pattern approval, refer to NMI M 10-2.

Meter self-installation example

Existing system

- Pipe size of **100mm**
- Pump operating the system runs at **10 litres per sec (maximum).**
- The pipe is **steel and must be cut** to fit the meter
- There is **1.5m (1500mm) of horizontal straight pipe accessible**
- **A road** traverses the site. Water quality is fresh and **very clear.**

Selecting a meter and installation considerations

- The meter should fit the existing pipework, where possible (**DN100**)
- The system operates at 10 l/sec (max), which converts to **36 m^3/h**
- The must be pipe cut, and **suitable joins welded** to the straight section
- **1500mm of straight pipe limits meter selection**
- As the water is very clear, this also limits meter selection
- The meter emplacement will need to be protected from damage

Flow disturbances and straight pipe lengths

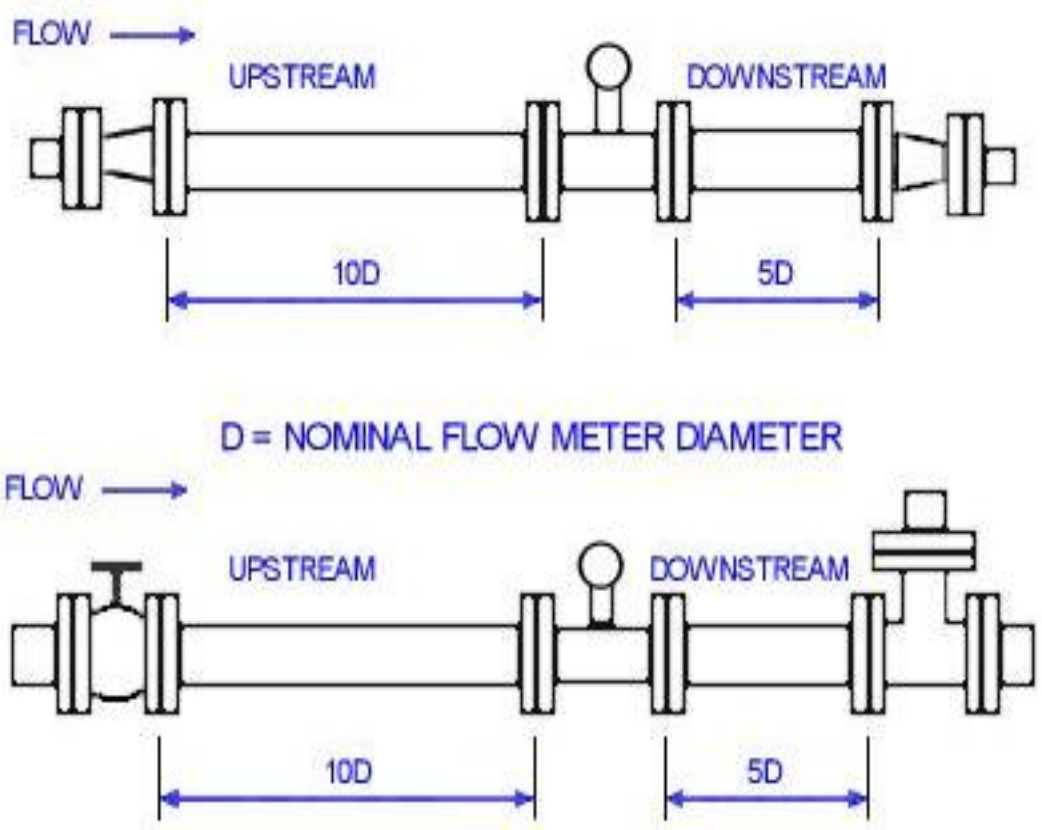


Image taken from
https://vedikapatki.wordpress.com/2012/01/18/electromagnetic-flow-meter/

- Flow disturbances create turbulence that affect a meter's accuracy and must be avoided.
- All meters have requirements for upstream and downstream straight pipe lengths. These are listed as multiples of the pipe diameter in DN, e.g. 10U/5D
- For example, if a meter has a 10U/5D requirement and the meter size is DN100 (100mm nominal diameter), the minimum required straight pipe lengths are:
  - 1000mm (1m) Upstream, as U10 = 10 x 100mm
  - 500mm (0.5m) Downstream, as D5 = 5 x 100mm
- For "major disturbances" these distances may be greater. Major disturbances are broadly defined as swirl inducing or throttling effects on flow.

Flow rates and measurement accuracy

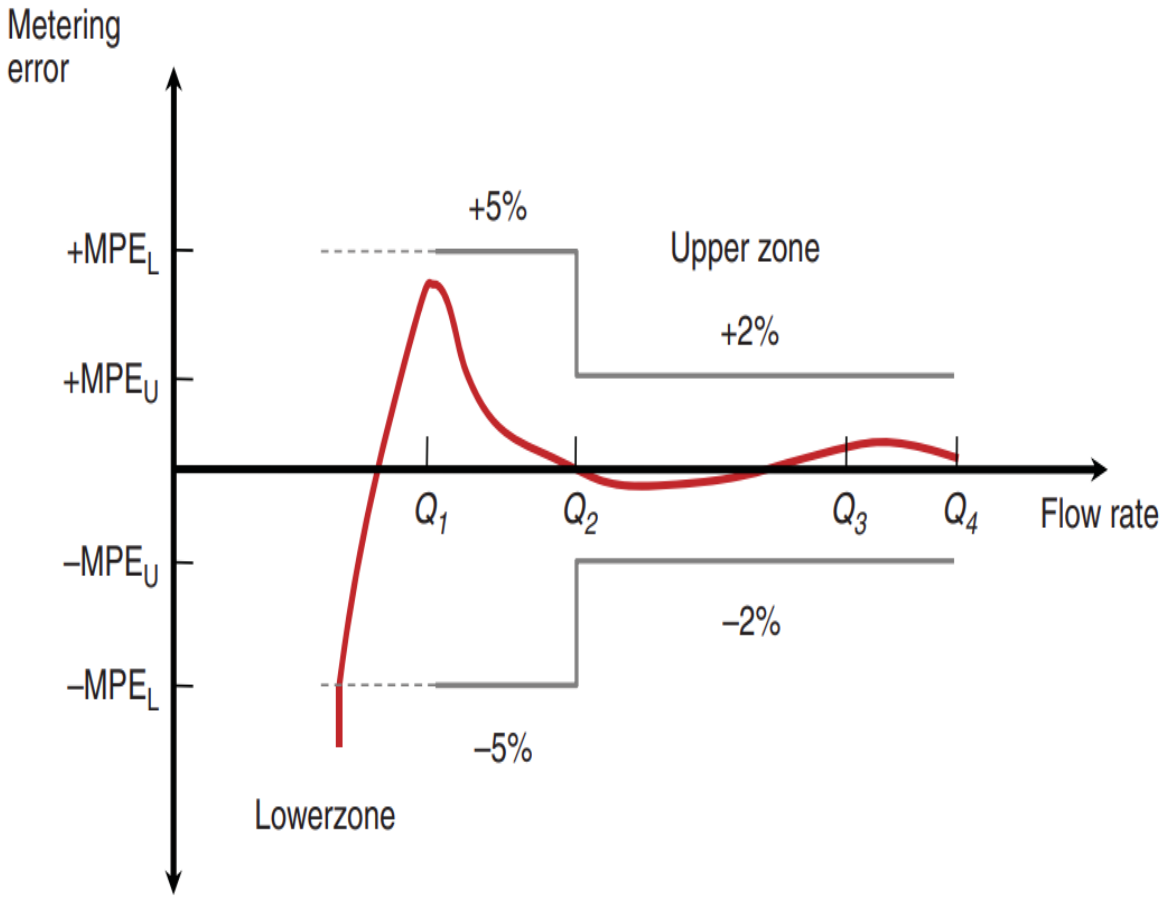
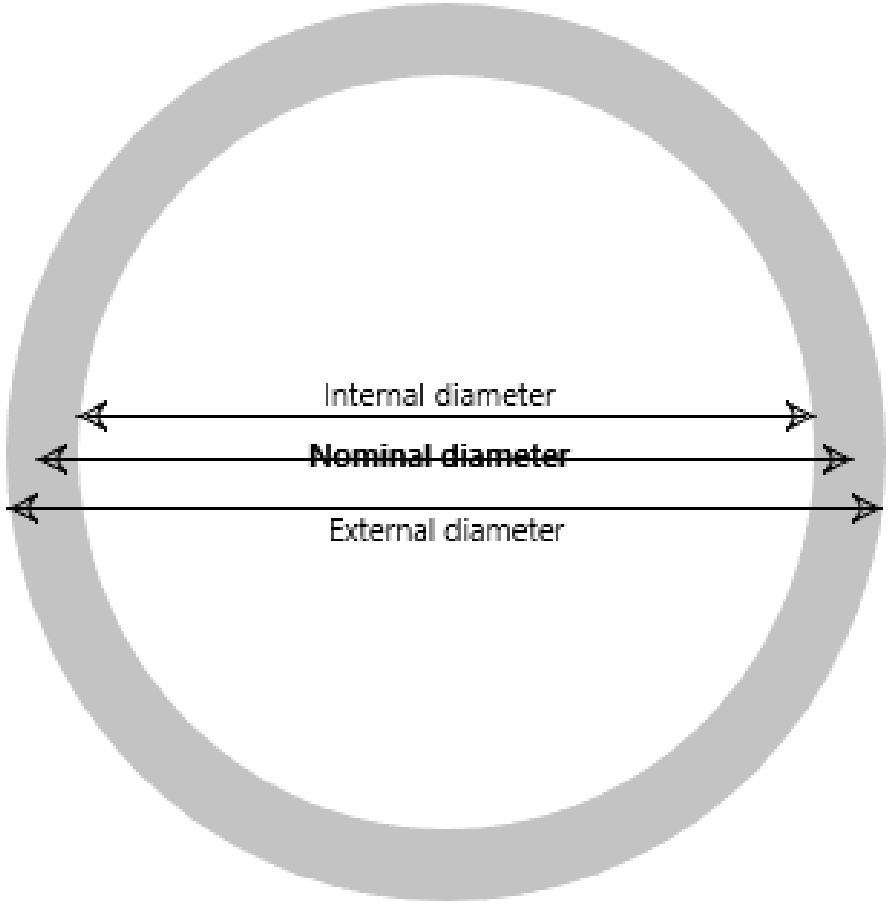


Image taken from Fontanazza & Notaro et. al (2015)
http://dx.doi.org/10.1080/1573062X.2014.882363

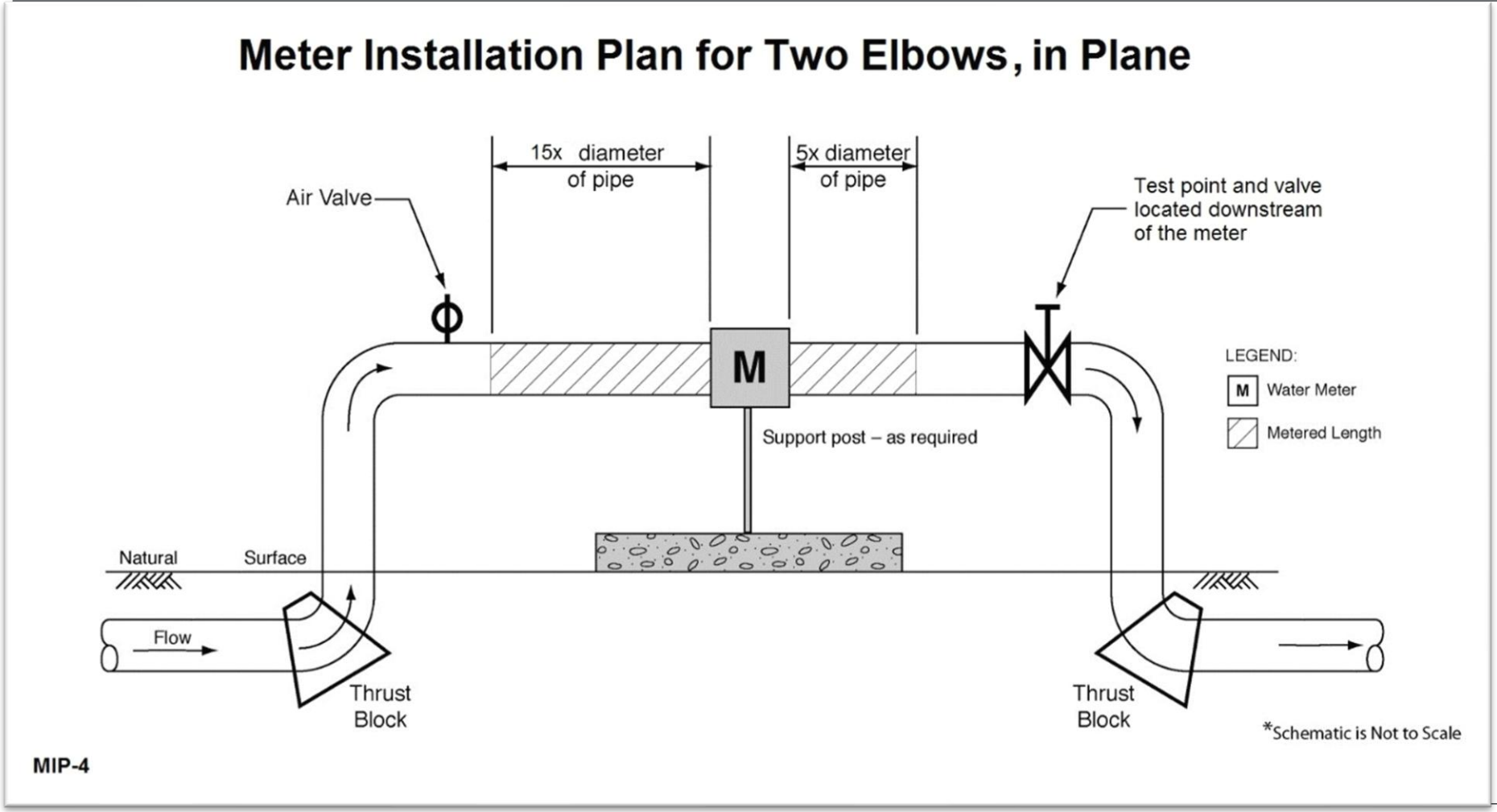
- Meter flow rates are classified according to specific values:
  - Q_1 – minimum flow rate to maintain accuracy
  - Q_3 – highest flow rate to maintain accuracy
  - Q_4 – overload flow rate (short term accuracy)
- These values define the flow rate at which a meter is designed to operate accurately
- Choose a meter that is designed to work in the operating range of your system (Q_2 to Q_3).
- The permanent maximum flow rate of the system should not exceed the meters rated Q_3 value
- Meter manufacturers instructions and Pattern Approval certificates provide this information

Pipe and meter sizes and fitting



- Pipe sizes are measured in Nominal Diameter (DN)
- The Nominal Diameter differs slightly to the Internal Diameter (ID) and External Diameter (ED).
- DN is a standard term used to size pipes and meters. The actual pipe dimensions will depend on the pipe material.
- It is important to chose a meter that fits existing pipework where possible, to avoid expansion or reduction joints.
- Where expansion or reduction joints are required, these should be located outside the required straight pipe lengths
- Consider how pipework needs to be modified to fit a meter. This may require cutting and joining the meter to pipework using flanges and gaskets.
- Ensure gaskets are correctly sized and do not protrude internally into the meter/pipework body

Other important considerations



- The meter must always run full
- The meter and pipework must be structurally secure
- The meter must be accessible and easily read
- Consider isolation and backflow
- Consider disassembly and maintenance

Meter specifications – manufacturer's instructions

Always check the pattern approval certificate and manufacturer's specifications for consistency. Where these differ, follow the pattern approval certificate or use the more stringent specifications

To access the NMI Certificate of Approval go to:
https://www.industry.gov.au/sites/default/files/nmi/certificates-approval/14-3-54_r1_0.pdf

Key characteristics

- Wide measuring range, small pressure loss
- Low starting flow and high overload security
- Pulse output with integrated reed switch
- Long-term accuracy and stability
- Swirl-reducing inlet design
- Replaceable measuring internals
- Water-proof (IP68), hermetically sealed, glass/copper register
- Solid cast iron construction with durable epoxy coating for exposure to field applications

Applications

- For the measuring of high flow rates
- For horizontal or vertical installation
- For cold water up to 50°C
- For applications where NMI-M10 Pattern Approved water meters are required

Available sizes

- 50mm – 300mm (2" – 12")
- Table E flanged inlet/outlet

TECHNICAL SPECIFICATIONS

Available Sizes		Max. Working Pressure		Max. Liquid Temperature	Body	Connections
INCH	MM	BAR	PSI			
2" - 12"	50 - 300	16	232	50°C	Epoxy coated cast iron	Flanged (Table E)

PERFORMANCE DATA

Horizontal installation performance data

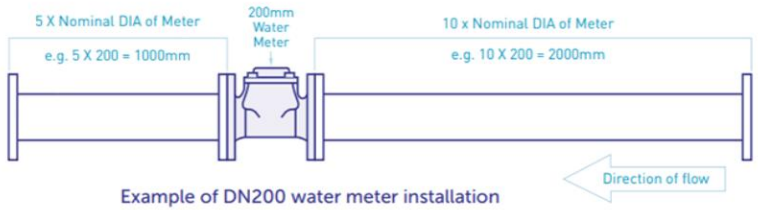
Meter Size	DN50	DN50	DN80	DN100	DN150	DN200	DN250	DN300
Minimum flow rate - Q1 (m3/h)	0.2	0.2	0.32	0.32	0.79	2.5	3.94	6.25
Transitional flow rate - Q2 (m3/h)	0.32	0.32	0.5	0.5	1.27	4	6.3	10
Maximum continuous flow rate - Q3 (m3/h)	25	40	63	100	250	400	630	1000
Overload flow rate - Q4 (m3/h)	31.25	50	78.75	125	312.5	500	787.5	1250
Attainable measuring range - Q3/Q1	125	200	200	315	315	160	160	160
Pressure class - Δp (kPa)	10	25	10	16	16	10	10	10

Installation

For monitored irrigation installation requirements, refer to you relevant Government authority for standards, certifications and approvals.

For other general applications:

- The water meter may be installed in either a horizontal or vertical position. For vertical positions the flow should always be upwards.
- The meter must be installed to ensure the pipe and water meter are full of water whilst operating.
- Prior to installation, the pipeline should be thoroughly flushed to remove any debris or contaminants.
- Straight pipe sections before and after the meter are:
  - For DN50 water meters: 5x diameter of straight pipe before the meter and 2x diameter of straight pipe after the meter;
  - For DN80 to DN300 water meters: 10x diameter of straight pipe before the meter and 5x diameter of straight pipe after the meter; and
  - Where diameter refers to the nominal diameter of the water meter.



Example of DN200 water meter installation

Non-urban metering – 4 December 2025

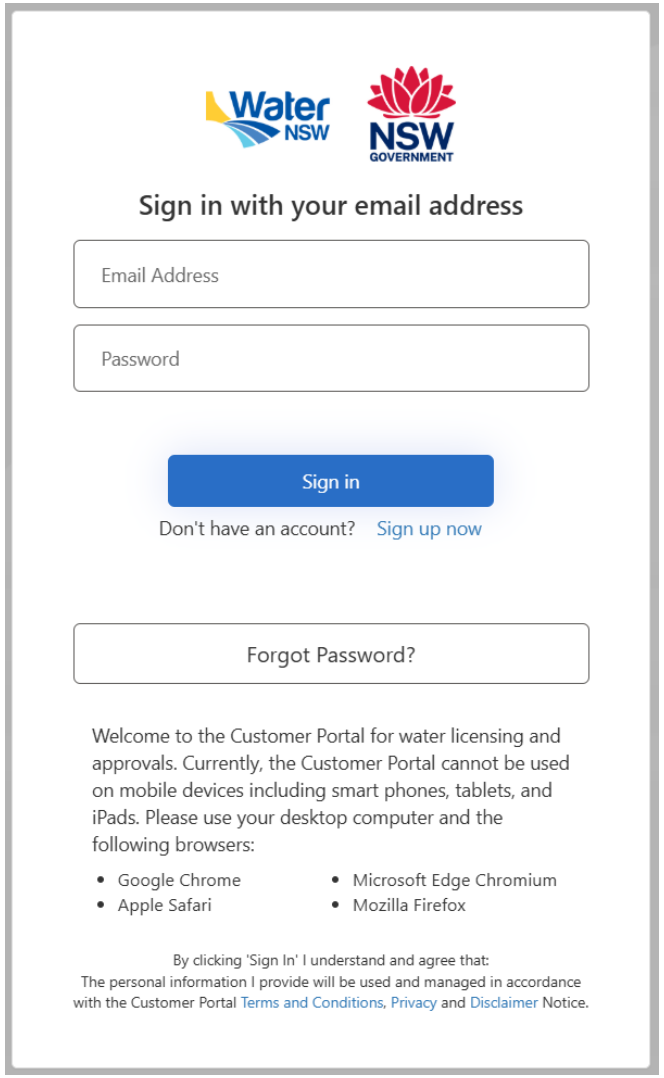
Focus session

Registration of self-installed meters

Lachlan Browne – Water Accounting Manager

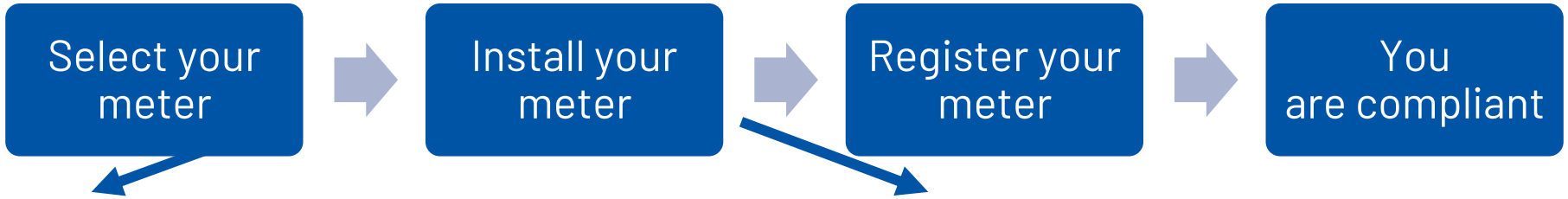
Accessing the Customer Portal

You can find out more information about the Customer Portal, including how to register by visiting www.waternsw.com.au/customerportal or by scanning the QR code.



Preparing for metering – Self Installation

– what you need to do and need to consider



Need to do	Need to consider
• If you are installing a new meter, replacing an existing meter, or removing or moving a meter, you need to register your metering data with WaterNSW via our website.	• If you have a pattern approved meter already installed, check your metering details are correct in iWAS. If not please register your meter as a new installation via the WaterNSW website. • Make sure to check the suitability of your chosen meter, consider measurement type, flow rate, size, location, water type etc. • Make sure that your installation allows accurate measurement by ensuring smooth flow through the meter (refer to AS4747 if unsure).

If you need support, please contact our call centre on 1300 662 077 or visit our website at waternsw.com.au/metering to arrange a meeting with our Customer Service Metering Specialist.

Registering your metering - Self Installation

– how to do it

Select your meter → Install your meter → Register your meter → You are compliant

Visit the WaterNSW metering page

- Visit WaterNSW metering page
- Go through the information on **Changes to meter without a local intelligence device (LID)** which includes a factsheet
- Once you have read through the paragraph you can click on complete form.

Complete the appropriate form

- You will be taken to a page with four options
  - Installing a new meter
  - Replacing an existing meter
  - Moving a meter
  - Removing a meter
- Select the most appropriate form for your installation and enter the required details
- If further clarification is needed, WaterNSW will be in touch

Registering your metering - Self Installation

Non-urban metering regulation

The NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) has recently amended the non-urban metering regulation. To read more about the regulation amendment, please visit our website.

Please use this form when your metering equipment has changed and where you do not have a local intelligence device (LID) associated with your equipment.

Installing a new meter

Please complete this form when you are installing a new meter, that under the amended requirements, does not need a local intelligence device to be installed.

Complete form

Replacing an existing meter

Please complete this form when you are replacing an existing meter, that under the amended requirements, does not need a local intelligence device to be installed.

Complete form

Moving a meter

Please complete this form when you are moving a meter, that under the amended requirements, does not need a local intelligence device to be installed.

Complete form

Removing a meter

Please complete this form when you are removing a meter, that under the amended requirements, does not need a local intelligence device to be installed.

Complete form

Requirements once you're compliant

Once you are compliant, there are still **ongoing requirements** under the NSW Government's non-urban metering reform.

Recording & reporting

After each rollout date, all water users may have ongoing recording and reporting requirements.

More information is available at waternsw.com.au/metering

Keep a **copy of all records for five years** and have them available to show an NRAR officer on request.

Faulty equipment (s91i)

You **must** report faulty metering equipment within 24 hours of being aware by completing the online **s91i form** at waternsw.com.au/s91i

Faulty means the equipment is **not operating properly** or is **not operating at all**.

Read our **fact sheet** for more information.

Ongoing maintenance

It is important that you **take care of your metering equipment** and perform **regular maintenance** as required, including:

- general cleaning
- check for leaks
- ensure site is WHS compliant
- check condition of equipment
- confirm seals are working
- check electrical cables.

We’re here to help

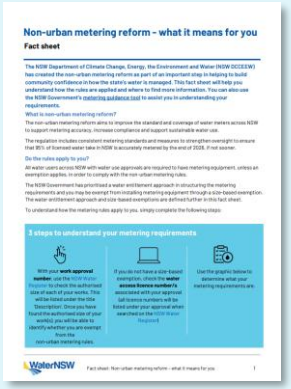
We want to **make it easy** for you to **understand how the metering rules apply to you.**

You can find **resources** and other **helpful information** on our **website** and **book a one-on-one meeting to discuss your metering questions with our team.**

waternsw.com.au/metering

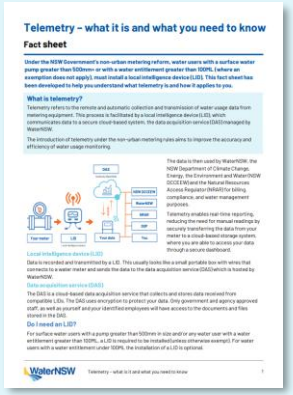
Metering explained fact sheets

We’ve developed a **series of fact sheets** to answer your questions and break down the information you need to know.

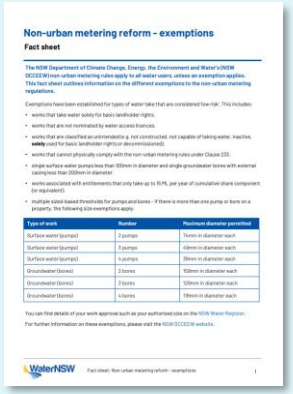


[Non-urban metering reform – what it means]

[Faulty metering equipment – s91i process]



[Meter with no LID required]



[Non-urban metering reform exemptions]

[How-to find your total water entitlement]

Questions

For metering and licensing enquiries contact WaterNSW

- 1300 662 077 (Monday to Friday 8am-5pm)
- Customer.Helpdesk@waternsw.com.au
- Make an online appointment with a metering expert

For more information about metering policy please contact Water Enquiries

- 1300 081 047 (business hours)
- water.enquiries@dpie.nsw.gov.au

Thanks for joining us

Tell us how we went – scan this QR code or click here