VICTORIAN
NON-URBAN WATER
METERING POLICY

12 May 2014
1. Introduction

This document explains the use and role of metering in a non-urban setting as part of water resource management in Victoria. Its purpose is to clarify existing obligations under the National Water Initiative (NWI) and support the rural water corporations in the implementation of their delegated responsibilities from the Minister for Water and under the Water Act 1989.

This document includes:

- The role of metering in water resource management
- Definition of non-urban metering
- An overview of obligations under the National Framework for Non-urban Metering and the Victorian State Implementation Plan
- Non-urban metering policy and principles
- Overview of exemptions from the policy

2. Water entitlements and the role of metering

2.1 Water entitlement framework

The Government manages the allocation of water resources across the state in accordance with the Act. Water entitlements are used to define how water is shared, held, used and traded to balance the demands for consumption, the environment and other non-consumptive uses. The water entitlement framework thus provides the basis for the management of all Victoria’s water resources.

Victoria’s water entitlement framework works at three levels:

- Tier 1 – rights held by the state government
- Tier 2 – rights granted by the state government to water corporations, the environment and other non-consumptive uses
- Tier 3 – individual rights.

This policy concerns the use of non-urban metering for the purpose of managing the exercise of rights granted under Tier 2 and Tier 3.

2.2 Water measurement

Water accounting supports fundamental planning and allocation decisions, and enables compliance with water resource management instruments and initiatives (eg NWI, Murray Darling Basin cap and water information reporting obligations). Water accounting is underpinned by water measurement. Metering devices used for water measurement need to meet design, installation and maintenance standards to ensure the data provided is fit for purpose.

Measurement should occur where it best supports fundamental water resource management decisions. For example, accurate measurement of tier 2 entitlements (eg bulk entitlements) may be sufficient to
meet resource management and water accounting needs. In such circumstances, the decision whether or not to meter a tier 3 individual right would then be determined by the bulk entitlement holders’ need to measure use by licence holders for resource management or billing purposes.

As well as for resource management purposes, the need for measurement may be driven by charges levied on actual use rather than entitlement volume, compliance with licenced volume, trade, or reporting obligations.

*Guidelines for the Development of Bulk Entitlement Metering Programs* (2009) provide both general and specific guidance to Bulk Water Entitlement (BE) holders for the preparation of metering programs.

### 2.3 Definition of non-urban metering

Non-urban metering refers to meters (including measuring systems, devices and their component parts) owned by entitlement holders or water service providers and jurisdictional governments that are used for trade and/or related resource management activities in a non-urban setting.

Meters ‘used for trade’ refers to where the measurement of water taken through the meter is used as the basis for levying a charge and/or monitoring compliance with an entitlement. ‘Trade’ in this context does not relate to the trading of water entitlements (although this may be the mechanism by which an entitlement holder has gained his entitlement).

The policy does not apply to:

- Stream gauging stations or groundwater infrastructure used for resource monitoring purposes
- Meters used within urban water supply and distribution systems where treatment is to a potable standard.

## 3. Background

### 3.1 National Framework

The NWI Agreement was signed at the Council of Australian Governments meeting on 25 June 2004, to provide a national strategy for improving water resource management across Australia. Governments agreed on actions to achieve a more cohesive national approach to the way Australia manages, measures, plans for, prices, and trades water.

Paragraphs 87 and 88 of the Agreement specify requirements for national metering standards and a nationally consistent framework for water metering and measurement. Paragraph 89 specifies reporting requirements and associated compliance and enforcement actions. A National Framework for Non-urban Water Metering Policy Paper (2009) sets out the framework agreed to by jurisdictional...

---

1 Definition from the National Framework for Non-urban Water Metering: Policy Paper (7 December 2009) and Victorian State Implementation Plan

governments, designed to deliver the primary objective that national metering standards should provide an acceptable level of confidence that measurement performance under in situ conditions is within maximum permissible limits of error of ±5%.

The National Framework requires that all non-urban water meters used for trade measurement should comply with the specific provisions by July 2020. The provisions require the meter installation design to be pattern approved, installed to Australian Standards and maintained in accordance with the metrological assurance regime defined in the National Framework. Pattern approved means the pattern (design) of a meter has been assessed against the metrological and technical requirements prescribed by the National Measurement Institute. The key requirements of the Metrological Assurance Framework are outlined in Attachment A.

### 3.2 The Victorian State Implementation Plan for Non-urban Water Metering

Under the National Framework jurisdictions were given the flexibility to select the most suitable pathway to achieve compliance, given cost and resource considerations. The Victorian State Implementation Plan was completed in March 2010. The compliance and exemption pathways are illustrated in Figure 1.

**Figure 1: Non-urban water metering – compliance and exemption pathways**
As illustrated, the metered sites to be subject to the Metrological Assurance Framework include those subject to interim standards until the end of their useful life, those that have been grandfathered until the end of their useful life, and unmetered sites that fall within the policy and must be metered. The State Plan recognised that:

- Victoria’s meter fleet would be largely compliant with the National Framework upon completion of existing metering programs.
- Upgrading of grandfathered meters is subject to available funds. Water authorities are required to detail the rollout of these subsidiary meter upgrades in their Action Plans, which form an integral part of the Victorian Implementation Plan. Grandfathered meter installations are only to be made compliant by 30 June 2020 if Commonwealth funding becomes available.
- Recognising the absence of Commonwealth funding, the Victorian Implementation Plan aligned full implementation of the National Framework with the Water Plan cycle from 1 July 2013.
- Classes of meters may be exempted from the requirements of the National Framework, provided the exemption is justified. The meter installations exempted under the State Plan include those on licensed domestic and stock extraction points, farm dams, sleeper and/or ‘dozer’ licences (whereby the extraction site is infrequently used), and all unmetered sites not addressed by current metering programs.

No pattern approved meters are currently available on the market. That is, they have not been tested to assess their compliance with the current Australian Standards or Technical Specifications.

The key activities identified in Victoria’s implementation plan are set out in Appendix B.¹

### 3.3 The Murray-Darling Basin Plan

The Victorian government adopted the Murray-Darling Basin Plan (Basin Plan) in November 2012 and signed an Intergovernmental Agreement for its implementation on 5 June 2013. The Basin Plan was developed to provide a coordinated approach to water use across the Basin’s four states and the ACT. It limits water use at environmentally sustainable levels by determining long-term average Sustainable Diversion Limits for both surface water and groundwater resources.

The Basin Plan sets out the requirements for water resource plans to ensure a consistent Basin wide approach to the management of Basin water resources (Chapter 10) and a program for monitoring and evaluating the effectiveness of the Basin Plan (Chapter 13).

Victoria will be required to report compliance with the SDL limits in the Basin Plan. A Victorian government policy on non-urban water metering needs to be consistent with obligations in the Basin Plan.

¹ NB - at present, no pattern approved meters are available on the market.
4. Metering Policy

In Victoria the metering of water use is required to:

- Provide information for the planning and management of water resource use
- Demonstrate compliance with policy commitments, agreed resource plan outcomes, associated caps and management rules (including trading) and other initiatives
- Demonstrate individual licence compliance.

4.1 Policy

Where a delegate issues, renews or approves the transfer of a licence to take water in a non-urban situation, the following conditions apply:

a) All new licences where the water taken under the licence is to be used for irrigation or commercial purposes must be metered.

b) Existing licensed extraction sites must be metered if the licensed volume is –
   
i. 10 megalitres or greater, for surface water, or
   ii. 20 megalitres or greater, for groundwater.

   c) The obligations in paragraph (a) and (b) do not apply if, in the view of the delegated authority, a meter would be impractical or can be exempted according to the following criteria:
   
i. Cost of metering can be shown to significantly outweigh the benefits
   ii. Resource management objectives can still be achieved without impacting negatively on the resource, the environment or other users
   iii. An exemption exists according to the Water Act 1989.

   In these cases, the delegate must -
   
i. Document clearly the reasons for its view, and
   ii. Identify a substitute method for estimating the volume of water taken to meet State and Federal water accounting and reporting requirements.

The above requirements do not preclude a delegate from requiring more extensive metering.

4.2 Guiding principles

The following principles apply to metering:

- **Clarity**
  Metering commitments must be documented clearly by water corporations. This includes clear specification of metering requirements, timeframes and reporting obligations.

- **Compliance with national standards**
  Water measurement systems must meet NWI commitments as detailed in the National Framework, the Victorian Implementation Plan, the Basin Plan and any other relevant intergovernmental policy agreement. These commitments include standards for the design, installation and maintenance of non-urban meters.
• All water use that has, or has the potential to have, an adverse impact on the environment, water resources or other users, must be metered.
All existing and new water licences must be metered unless it can be shown that water use will have no adverse impact on water resources, the environment or other users, or an exemption applies.

• Accuracy
Accurate measurement of water use is required to ensure fair and equitable sharing of water resources and to facilitate informed planning and allocation decisions. It is essential to enable volumetric charging, support entitlement allocation and trade, ensure users comply with their licence volume, and meet reporting requirements. All non-urban meters are required to provide an acceptable level of confidence that performance of the meter is within the maximum permissible limit, unless an exemption applies.

• Metering technology must be fit for purpose
The metering technology used must be appropriate to the scale of the resource being monitored. The monitoring method must also be able to adapt to changing technology over time.

4.3 Exemptions
The National Framework includes provisions for jurisdictional governments to exempt classes of meters from metering policies, providing the exemption can be justified. All exemptions must be reviewed every 10 years.

Exemptions are to be established using a risk assessment approach, where impacts on other users, the environment, and the resource are assessed. Circumstances may include where metering is undertaken at another tier of administration (see Section 2.1), are not considered practical or cost effective, or sustainable water resource management objectives can be achieved without metering.

Where it can be established that metering is not required, the reasons must be documented clearly and an alternative method of estimating the volume taken must be utilised.¹

This policy does not alter exemptions from non-urban water metering that exist under the current frameworks and guidelines. Existing categories of exemptions include:

• Stock and domestic
  Metering of stock and domestic use is only required where the amount taken can significantly impact on other users and/or the Environmental Water Reserve², or is specified in a stream flow management plan.

• Existing irrigation or commercial farm dams that are registered.

¹ Alternative methods may include use of a pumping diary, recording of electricity consumption, recording of pumping operating hours, etc.
² This requirement is consistent with both the National Framework and the MDBP.
Meters are not required where a registration licence has been issued for an existing irrigation or commercial farm dam, unless specified in a stream flow management plan.

- ‘Sleeper’ or ‘dozer’ licences where the extraction site is infrequently used.
- Unmetered sites not addressed by current metering programs.
- Other unmetered sites that are below the thresholds in 4.1.
- Extraction sites to be rationalised under existing programs.
  For example, sites covered by the Sunraysia Irrigation Renewal Program are not required to be metered or upgraded to comply with the requirements of the National Framework.
- Situations where no alternative is available other than the application of stream gauging techniques to measure take, then such techniques will be applied in accordance with hydrographic ‘best practice’.

5. Implementation

5.1 Implementation by water businesses
Non-urban water metering in Victoria is undertaken by the rural water corporations, Melbourne Water, Coliban Water and Lower Murray Water. These water businesses own the meters that supply the users of non-urban water and have comprehensive Asset Management Plans in place with ongoing and capital replacement costs forming part of the Water Plan for each business. The Water Plans form the basis of price determinations made by Victoria’s financial regulator, the Essential Services Commission (ESC), and include details about the proposed revenue requirements, tariff and pricing structures.

The commitment that all non-pattern approved meters are to be replaced with pattern approved meters by 1 July 2020, was made subject to Commonwealth government funding being available and the availability of pattern approved meters. No Commonwealth funding has been made available to meet this deadline and at this stage, no patent approved meters are available. Accordingly, price paths proposed by water businesses to meet the metrological assurance requirements of the National Framework are either dependent on available funding or made to achieve commitments beyond 2020.

5.2 Cost of metering
The costs of meter installation, maintenance and metrological assurance can be substantial. The approach taken to meet these costs is a business decision for rural water corporations but ultimately the cost falls on water users.

Metering costs can comprise a substantial part of the cost of water diversion for non-urban water users and may impact on business decisions to continue use. Providing water is able to be traded or allocated to a higher value end use elsewhere, environmental, economic and social outcomes can be maximised and efficient water resource management decisions made. However, circumstances may exist that prevent efficient water resource management decisions. For example:
• In the Shepparton Irrigation Region, the primary objective of pumping groundwater is water level management to manage salinity impacts on agricultural land. The Basin Plan Sustainable Diversion Limit for the area far exceeds pumping levels.
• Sites exist where meters require excessive maintenance to maintain accurate measurement due to highly corrosive waters, high sediment loads or excessive iron fouling.

In these circumstances, the cost of metering and metrological assurance may impact negatively on water resource management and water businesses may propose an exemption from metering requirements.

5.3 New technologies
The policy framework outlined in this document supports the development and implementation of new technologies to monitor and measure water use. The use of innovative techniques may lead to efficiency gains and assist where metering is not cost effective or practical. For example, satellite imagery may be able to be used to estimate water use in a region, and remote meter reading may assist in situations where meters are unsafe to read.

5.4 Monitoring and data collection
Obligations exist to monitor and report on the implementation of the National Framework. Water corporations must collect data according to the implementation of the Metrological Assurance Framework as required. The government will assist in collating and making available data that may assist the implementation of the Framework.
ATTACHMENT A

NATIONAL FRAMEWORK FOR NON-URBAN METERS

The key requirements of the Metrological Assurance Framework are:

Upgrades of existing meters
The key requirements of the National Framework are that all non-urban meters must be:
- of a pattern approved design and individually laboratory verified in accordance with National Measurement Institute (NMI) non-urban water meter standards
- built in accordance with Australian Standards or Technical Specifications (ATS4747 parts 1-9)
- suited to the intended purpose, installation configuration and operating conditions
- installed in accordance with the Australian Standards or Technical Specifications and the relevant pattern approval certificate and
- validated by a certified validator after installation and before water is taken through the meter under an entitlement.

The National Framework provides for the exemption of existing meters from the pattern approval requirements where:
- the existing meter is of a design that is pattern approved retrospectively
- the existing meter can be demonstrated by the jurisdictional Government to comply with the plus or minus 5 per cent maximum permissible in-operation error as set out in National Measurement Institute standards NMI 10 and NMI 11
- the existing meter is installed in good faith to an interim standard deemed acceptable by the relevant jurisdictional government and/or
- no pattern approved meter is available.

Meter operations, maintenance and replacement
The National Framework sets out requirements for the on-going operations and maintenance of compliant meters to ensure meters remain within the maximum permissible limits of error allowable in field conditions (±5%). These requirements include:
- periodic meter maintenance undertaken to comply with the Australian Technical Standards and/or the relevant pattern approval certification
- maintenance to be undertaken by certified maintainers
- re-verification following maintenance affecting metrological performance
- ongoing validation, by certified validators undertaken periodically, after maintenance or as part of auditing processes and
- verification in situ where cost effective and practical.

Compliance
- Compliance actions an processes (including field inspection, checks and reporting) shall be undertaken to ensure that individual meters satisfy the requirements of the national water metering policy.

**ATTACHMENT B**  
**VICTORIAN NON-URBAN METERING IMPLEMENTATION PLAN KEY IMPLEMENTATION ACTIVITIES**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Environment and Sustainability</td>
<td></td>
</tr>
<tr>
<td>Endorse of the Implementation Plan at an Office of Water level and submit the Plan to the Commonwealth.</td>
<td>31 April 2010</td>
</tr>
<tr>
<td>Work with water businesses on the development of their Action Plans.</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Continue engagement with affected stakeholder groups about implementation of the National Framework in Victoria. Details in the Victorian Communication Strategy (attached).</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Clarify existing metering policies to recognise the exemption principles as outlined in this Plan.</td>
<td>1 July 2010</td>
</tr>
<tr>
<td>Develop and implement statewide auditing and reporting guidelines and procedures.</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Report biennially to the Commonwealth on progress (as required by the National Framework).</td>
<td>Commencing 31 December 2012</td>
</tr>
<tr>
<td>Water Businesses</td>
<td></td>
</tr>
<tr>
<td>Categorise meter fleet into Interim Standards, Grandfathering and Exemption categories as adopted in the Implementation Plan, and prepare the required evidence for the Department.</td>
<td>1 July 2010</td>
</tr>
<tr>
<td>Ensure that new non-urban meters installed are pattern approved (if pattern approved meters are available).</td>
<td>Commencing 1 July 2010</td>
</tr>
<tr>
<td>Prepare Action Plans. The Action Plans will demonstrate how compliance is to occur at a water business level and the costs and resources required to achieve this.</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Ensure that appropriate data management systems are in place for compliance reporting.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Undertake annual reporting of progress in accordance with State reporting guidelines.</td>
<td>Commencing 2011</td>
</tr>
<tr>
<td>Include costs of meeting metrological assurance standards for Interim Standards meter installations in next Water Plan. This may involve communications with customers.</td>
<td>2013/18 Water Plan</td>
</tr>
<tr>
<td>Operate and maintain all meters in accordance with the Victorian Implementation Plan.</td>
<td>Commencing 1 July 2013</td>
</tr>
<tr>
<td>Upgrade Grandfathered meter installations when they reach the end of their useful life.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Department of Environment Water Heritage and the Arts</td>
<td></td>
</tr>
<tr>
<td>Prepare a National Implementation Plan.</td>
<td>30 June 2010</td>
</tr>
<tr>
<td>Ensure that the upgrade of meter testing facilities is completed.</td>
<td>1 July 2010</td>
</tr>
<tr>
<td>Communicate the requirements of the National Framework over the coming months, particularly in the lead up to the 1 July 2010 implementation date.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Ensure that major meter manufacturers are advised to submit meters for pattern approval.</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>