



PRICING SUBMISSION

Con Carellas

Q: Should prices reflect any short-run effects on costs (that is, the short run marginal cost (SRMC) of water)? In particular, should prices reflect the scarcity of water during periods of drought or other circumstances and how will this impact water restriction arrangements?

A: Yes. The volume parameters of the tiered pricing structure can be altered to reflect availability/restrictions. It will be to the consumer's benefit to pay lower prices in times of plenty.

Q: Should the current three-tier inclining block tariffs be retained? Why?

A: Yes, a tiered tariff structure should be retained because it rewards those who need to economize their living costs by being responsible water users.

This measure is effective only when it has a direct effect on an individual's water bill.

It is less effective in multi-unit complexes without sub metering, because an individual's efforts to live frugally are lost in the group bill where everyone can pass the blame for wastage.

There are \pm 2 million apartments/units in Australia that are currently not individually metered and the occupants are disadvantaged by not having individual bills for water.

Three tier inclined block tariffs will be ultimately successful when sub metering of units is made possible in Australia by way of retrofit sub meters, as used in other developed countries.

Q: Should a supply charge be based on the number and size of meters?

A: Yes, because it more fairly distributes supply charges.

Q: Should commercial supply charges change from a property value basis to some other basis? What do you recommend?

A: Yes, it should be changed to a supply charge based on the number and size of meters.

Vacant properties (rating on abuttal)

Q: Should customers who do not connect to the network incur a supply charge?

A: Yes, in the form of an availability charge reflecting the cost of available infrastructure.

Q: Are there any other matters that the Commission should consider as part of this Inquiry?

A: Yes. Consideration needs to be given to the NMI establishing an appropriate standard for sub meters in Australia, to bring us in line with water sub metering practices in other developed countries. It is futile to attempt to manage water supply and use in residential and commercial unit complexes without the means to have individual accountability.

CONSUMER RIGHTS AND BENEFITS OF SUB-METERING

The consumer has a right to receive a correct and accurate bill, based on his actual consumption of water.

This will only be possible when cost effective sub meters of a proven standard are available to the public.

Then all consumers will benefit from an equitable, consumption-based user-pay system of water pricing.

We make the following submission to facilitate an uncomplicated and equitable consumption based pricing system for water (and effluent):

1. Automated Meter Reading (AMR) equipped Primary water meters would be fitted to all sites on street fronts.
2. AMR data recorders would be placed on refuse removal trucks to easily acquire water consumption data.

3. If desired, and at marginal additional cost, the frequency of billing can be adjusted to lessen the impact of bills on consumers and improve their cash flow.
4. Service charges would be relative to the size of the water meter/number of units.
5. The current consumption-based, tiered pricing structure to suburban housing could be applied to individual units in complexes if sub meters are retro fitted.
6. Retrofitting will spare consumers the cost of expensive alterations to existing water supply pipes, as required for installing the sub meters currently available.
7. Multi occupancy sites would be encouraged to retrofit at their own cost, sub meters of an approved standard and required flow rate to equitably distribute their bulk water bill.
8. **The current bulk billing system by the supplier through bulk meters to multi-unit complexes would remain unchanged.**
9. Ownership of and responsibility for sub meters and reticulation inside the property boundary remains with the property owners.
10. The cost of a retro fitted sub meter is minimal and the outlay to install one is quickly recouped (within 12-18 months at the average water price).
11. Effluent charges would be based on a percentage of the water consumption of the site/unit.
12. Owners Corporations of multi occupancy sites would distribute their effluent bill based on water consumption from water sub meters.
13. In the case of industrial/commercial complexes, the onus would be on the owner of the site to prove and apply for a reduction of effluent volume. (Cooling-towers, product, pools, gardens etc.)
14. Where AMR is not installed on sub meters in a multi-occupancy complex, owners or their property managers would provide sub meter readings to the Building Manager /Owners Corporation in order to distribute the bulk water and effluent bills.
15. **The technology/product exists that makes sub-metering affordable and cost effective to the consumer.**
16. **The measuring capsule is recycled at the end of the serviceable life of 7 years, making it affordable to replace, in the interests of accurate billing and minimizing costs to the consumer.**

What needs to change to bring this about:

The current NMI 49 water meter flow rate specification, Q3 = 4 kl/h for 20mm meters allows for 7.4 appliances, at 9 l/min (the Wells 3 star rating), to be used simultaneously. This standard is suited to freestanding homes as primary meters, as is currently installed by utility providers and NMI R49.

In Apartments or Units, it is unlikely that more than 3 appliances will be used simultaneously. This would, at the Wells 3 Star rating of 9 l/min, demand a flow rate of only 1.6 kl/hour.

The cost effective installation of sub meters can be achieved when the NMI sets a standard similar to ISO4064 for sub meters with flow-rates appropriate for flats and apartments.

The NMI R 49 is coming up for review, as a new OIML 49 has been collaborated from ISO 4064 and OIML R49 by international working groups.

This would be an appropriate time to make the necessary changes to the regulations in order to make these sub meters available to the consumer in Australia, as they are in many other developed countries.

4 METROLOGICAL REQUIREMENTS

4.1 The current NMI 49 water meter flow rate specification, Q3 = 4 kl/h for 20mm meters allows for 7.4 appliances, at 9 l/min (the Wells 3 star rating), to be used simultaneously.

This standard is suited to meters for freestanding homes, as is currently installed by utility providers.

4.2 In Apartments or Units, it is unlikely that more than 3 appliances will be used simultaneously. This would, at the Wells 3 Star rating of 9 l/min, demand a flow rate of only 1.6 kl/hour.

4.3 The cost effective installation of sub meters can be achieved when the NMI sets a standard similar to ISO4064 for sub meters with flow-rates appropriate for flats and apartments.

The NMI R 49 is coming up for review, as a new OIML 49 has been collaborated from ISO 4064 and OIML R49 by international working groups. This would be an appropriate time to make changes.

4.4 Currently 20mm and 15mm water meters are required to comply with NMI R49-1 see (Annex A)

The following table compares current Standards to [Sub meter Standard](#).

NMI 49 Standard 20mm	NMI R49 Standard 15mm	Sub Meter Standard
Q1=20 l/h @ $\leq \pm 5\%$ accuracy	Q1=12.5 l/h @ $\leq \pm 5\%$ accuracy	Q1=35 l/h @ $\leq \pm 5\%$ accuracy
Q2=36 l/h @ $\leq \pm 2\%$ accuracy	Q2=20 l/h @ $\leq \pm 2\%$ accuracy	Q2=56 l/h @ $\leq \pm 2\%$ accuracy
Q3=4 m3/h @ $\leq \pm 2\%$ accuracy	Q3=2.5 m3/h @ $\leq \pm 2\%$ accuracy	Q3=2.5 m3/h @ $\leq \pm 2\%$ accuracy
Q4=5 m3/h @ $\leq \pm 2\%$ accuracy	Q4=3.125 m3/h @ $\leq \pm 2\%$ accuracy	Q4=3.125 m3/h @ $\leq \pm 2\%$ accuracy
Q3/Q1 Ratio = 200	Q3/Q1 Ratio =200	Q3/Q1 Ratio =63

4.5 The proposed water meter has been submitted to the NATA Testing Facility, based at the University of South Australia for "Pattern Approval".

4.6 The water meter does not comply with the current NMI R 49-1 Standard insofar that it does not meet the prescribed low flow-rate ratio Q3/Q1=200, but comply with alternate values Q3/Q1=63 listed in paragraph 3.1.4 of R49 (Annex A).

4.7 The meters are widely used in the European Union as retrofit sub-meters and conform to ISO 4064 and are accurate at flow-rates that occur during normal use. (Q3 = 1.6 when fitted to the flow diverter base, and Q3 = 2.5 when fitted to the Coaxial base).

4.8 The starting point of flow indication is however similar to positive displacement meters mandated by the Australian NMI R 49.

4.9 A central indicator wheel makes leaks easier to detect than current grenade type NMI R 49 approved domestic water meters.

4.10 The higher error at low flow rates is insignificant compared to the total consumption recorded during normal use.

4.11 The proposed meters are well within the Q1 $\leq \pm 5\%$ accuracy range from around 0.6 l/min.

4.12 The monetary value of the water consumption not recorded as accurately, as prescribed by the Q3/Q1=200 rule in NMI R49 3.1.4, is insignificant in comparison to the unequal distribution of water charges that is currently occurring without sub metering.

4.13 The proposed meters are not intended as primary meters and are merely used by the Owners Corporation/Manager to equitably distribute the bill derived from the primary meter, and make consumers aware of and responsible for their water consumption.

4.14 The same measurement capability of all sub-meters in a multi unit premises will ensure that each occupant pays only for the water they actually use.

4.15 It should be noted that the current practice for billing the energy costs of centrally produced hot water is based on the same principle as our proposed sub meters. I.e. the energy bill is divided according to hot water meter readings for individual units.



4.16 Furthermore, it is pertinent to our submission that hot water meters are currently, not required to be pattern approved, they comply with the same ISO 4064 standard as the proposed meters.

We therefore request your cooperation in lobbying the NMI to establish an appropriate standard for retrofit sub-meters, making the benefits of equitable water billing available to Australian consumers at an affordable cost.



Billing Customers rather than Landowners

QUESTIONS

Kara O'Sullivan and Brooke Palmer

Q: Are the current arrangements where landowners, rather than tenants, are liable for water and sewerage charges satisfactory? If not, why?

A: No, the current arrangements are not satisfactory.

The tenant has no responsibility for or indication of the monetary implications of wasteful water consumption. The system disadvantages all concerned.

Landlords are in the unfortunate position of being financially liable for water charges over which they have no control and to cover the risk, they commonly inflate rents, which is to the disadvantage of all tenants.

If units were sub-metered and landlords were able to on-charge for water used, they would not need to inflate rents and consumers would benefit.

Q: Should landlords be required to install water efficient appliances before passing on water and sewerage charges?

A: Yes, landlords should be required to install water efficient appliances. To charge for water use and sewerage in premises where there are out-dated wasteful appliances would disadvantage the tenant.

Q: Should tenants be responsible for water and sewerage charges? If so, should they be responsible for all charges, including supply charges, or only water consumption and sewage disposal charges?

A: Yes, tenants should pay water consumption and sewerage disposal charges. Supply charges should be billed together with rates to the owner.

However, in multi-occupancy premises, sub-metering will be required to equitably distribute water consumption charges. Sewerage charges can then be based on a portion of the water consumption.

Q: Are there any further costs or benefits that the Commission should consider in assessing the options for change?

A: Yes. To compensate for charging the tenant for water and sewerage, landlords should be required to lower the rent proportionally.

Q: Are there other alternative arrangements the Commission should consider?

A: Yes, the installation of affordable retrofit sub meters needs serious consideration to bring about the equitable distribution of water and effluent consumption charges to all consumers, whether tenants, landlords or owner occupiers.

Consideration needs to be given by the NMI to establish an appropriate standard for sub meters in Australia, to bring us in line with water sub metering practices in other developed countries.

We make the following submission to facilitate an uncomplicated and equitable consumption based billing system for water and effluent:

1. Automated Meter Reading (AMR) equipped Primary water meters would be fitted to all sites on street fronts.
2. AMR data recorders would be placed on refuse removal trucks to easily acquire water consumption data.
3. If desired, and at marginal additional cost, the frequency of billing can be adjusted to lessen the impact of bills on consumers and improve their cash flow.
4. Service charges would be relative to the size of the water meter/number of units.
5. The current consumption-based, tiered billing structure to suburban housing could be applied to individual units in complexes if sub meters are retro fitted.

6. Retrofitting will spare consumers the cost of expensive alterations to existing water supply pipes, as required for installing the sub meters currently available.
7. Multi occupancy sites would be encouraged to retrofit at their own cost, sub meters of an approved standard and required flow rate to equitably distribute their bulk water bill.
8. **The current bulk billing system by the supplier through bulk meters to multi-unit complexes would remain unchanged. The sub meters are merely the tool for allocating the bulk bill to individual units.**
9. Ownership of and responsibility for sub meters and reticulation inside the property boundary remains with the property owners.
10. The cost of a retro fitted sub meter is minimal and the outlay to install one is quickly recouped (within 12-18 months at the average water price).
11. Effluent charges would be based on a percentage of the water consumption of the site/unit.
12. Owners Corporations of multi occupancy sites would distribute their effluent bill based on water consumption recorded by the water sub meters.
13. In the case of industrial/commercial complexes, the onus would be on the owner of the site to prove and apply for a reduction of effluent volume. (Cooling-towers, product, pools, gardens etc.)
14. Where AMR is not installed on sub meters in a multi-occupancy complex, owners or their property managers would provide sub meter readings to the Building Manager /Owners Corporation in order to distribute the bulk water and effluent bills.
15. **The technology/product exists that makes sub-metering affordable and cost effective to the consumer.**
16. **The measuring capsule of this sub meter is recycled at the end of its serviceable life of 7 years and is affordable to replace, serving the interests of accurate billing and minimizing costs to the consumer.**

CONSUMER RIGHTS AND BENEFITS OF SUB-METERING

The consumer has a right to receive a correct and accurate bill, based on his actual consumption of water. This will only be possible when cost effective sub meters of a proven standard are available to the public. Then all consumers will benefit from an equitable, consumption-based user-pay system of water pricing.

1 THE NEED FOR SUB METERING OF WATER TO UNITS

- 1.1 Group meters and the sharing of water bills are contentious, problematic.
- 1.2 It is out of step with "user pay" practices and thus disadvantages the consumer.
- 1.3 Customer awareness of water consumption and rising water bills has increased significantly in recent years and needs to be addressed.
- 1.4 In bulk-billed complexes, where the water bill is simply divided between the number of units according to lot entitlement or some other arbitrary system, inequitable billing is inevitable and leads to dissatisfaction, worry and stress.
- 1.5 Providing the opportunity to Owners Corporations/unit owners to have affordable sub-meters installed without expensive alterations to plumbing is the logical conclusion.
- 1.6 It will bring about a transparent user-pays system of water and effluent billing and thereby make a practical and direct contribution to water conservation and effluent treatment in this water-poor country.
- 1.7 The consequential long term saving in state and national expenditure on water infrastructure will benefit generations of consumers.

2 COST EFFECTIVE SUB METERING



- 2.1 The cost effective solution is to use sub-meters that have been developed specifically for retrofitting to existing buildings.
- 2.2 Retrofit sub meters have been widely used in the European Union for a number of years in buildings that were not individually metered when built.
- 2.3 If desired, the proposed water-meters can be AMR/SWM or equipped, enabling them to be remotely read.
- 2.4 The product is fitted to the shut-off valve to individual units and diverts the flow through the water meter and back into the existing reticulation system.
- 2.5 It incorporates its own shut-off valve.
- 2.6 The installation of these sub-meters leaves the reticulation system intact and installation takes less than 30 minutes by a licensed plumber conforming to local regulations.
- 2.7 The system is eminently suitable for high-rise apartments and can be installed within the strata-title defined space, making it the property and responsibility of the owner.
- 2.8 It sees unit owners quickly recoup their capital outlay in the short term and reap the ongoing financial rewards from reduced water consumption and paying only for what they themselves use.
- 2.9 This is particularly attractive to investor/landlords, who will be able to legally pass on the cost of water used to their tenants. To compensate for charging the tenant for water and sewerage, landlords should be required to lower the rent proportionally.
- 2.10 Unit occupants will be empowered to monitor their water use and enjoy the benefits of consumption-based water billing, eliminating the contentious issue of sharing bulk water bills.
- 2.11 The ensuing water saving of up to 30% per capita of unit occupants will make a significant contribution to water conservation and could have exponential financial implications for the nation's economy.

3 BENEFITS OF WATER SUB-METERS & THEIR IMPACT ON WATER BILLS

- 3.1 Owner-occupiers gain peace of mind knowing that they are only paying for the water they actually use. <http://www.thefifthestate.com.au/archives/12925/>
- 3.2 The cost of sub-metering buildings will be significantly less when a system is installed using the existing pipework.
- 3.3 Sub-metering will encourage unit owners to make their properties "water efficient" by installing 3-star rated toilets, shower heads and taps. This will be particularly true in the case of landlords who stand to benefit by being able to pass on the water bills to their tenants if the rental property is water efficient.
- 3.4 According to the Wells website a 3 star rating will result in water savings of up to 48% or 10kl/annum for a 3 star toilet 48% 25kl/annum for taps and shower heads.
- 3.5 Tenants will become aware that being wasteful with water hurts their pocket, and are likely to become responsible consumers.
- 3.6 The de-risking of investment properties in this way will be very attractive to Australian property investors and reduce rent - see report on \$14,000 water bill. <http://www.smh.com.au/environment/water-issues/call-to-cut-water-use-in-flats-by-the-meter-20110930-1l1ft.html> - ixzz2lXkAY52Z
- 3.7 Hotels, motels, caravan parks and other providers of holiday accommodation can add the water used to the bill when guests check out – as with the bar fridge or telephone. This is particularly pertinent to owners of holiday units in places like the Gold Coast – see recent report on the Palazzo Versace. http://www.goldcoast.com.au/article/2013/08/19/456610_print_friendly.html
- 3.8 Shops and offices can also be sub-metered for equitable sharing of the bulk water bill. The water use of hairdressers, restaurants, coffee shops etc. are naturally very different to normal retail and office premises.
- 3.9 Market research recently undertaken shows high demand for sub-metering across all the above market sectors.

- 3.10 As demonstrated in the case study done by Sydney’s Water Fix Program, a saving in water consumption of 21% was achieved when sub-meters were installed in a large CBD residential building.
- 3.11 Taking into consideration that these retrofit sub-meters are quick and inexpensive to install, they provide the practical solution without expensive or impossible plumbing alterations.
- 3.12 In the long term the flow-on effect will be beneficial to the country as a whole in the preservation of this most precious and life-giving commodity.

4 METROLOGICAL REQUIREMENTS

- 5.1 The current NMI 49 water meter flow rate specification, Q3 = 4 kl/h for 20mm meters allows for 7.4 appliances, at 9 l/min (the Wells 3 star rating), to be used simultaneously.
This standard is suited to meters for freestanding homes, as is currently installed by utility providers.
- 5.2 In Apartments or Units, it is unlikely that more than 3 appliances will be used simultaneously. This would, at the Wells 3 Star rating of 9 l/min, demand a flow rate of only 1.6 kl/hour.
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The NMI R 49 is coming up for review, as a new OIML 49 has been collaborated from ISO 4064 and OIML R49 by international working groups. This would be an appropriate time to make changes.

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- 5.5 The proposed water meter has been submitted to the NATA Testing Facility, based at the University of South Australia for “Pattern Approval”.
- 5.6 The water meter does not comply with the current NMI R 49-1 Standard insofar that it does not meet the prescribed low flow-rate ratio Q3/Q1=200, but comply with alternate values Q3/Q1=63 listed in paragraph 3.1.4 of R49 (Annex A).
- 5.7 The meters are widely used in the European Union as retrofit sub-meters and conform to ISO 4064 and are accurate at flow-rates that occur during normal use. (Q3 = 1.6 when fitted to the flow diverter base, and Q3 = 2.5 when fitted to the Coaxial base).
- 5.8 The starting point of flow indication is however similar to positive displacement meters mandated by the Australian NMI R 49.
- 5.9 A central indicator wheel makes leaks easier to detect than current grenade type NMI R 49 approved domestic water meters.
- 5.10 The higher error at low flow rates is insignificant compared to the total consumption recorded during normal use.
- 5.11 The proposed meters are well within the Q1 $\leq \pm 5\%$ accuracy range from around 0.6 l/min.



- 5.12 The monetary value of the water consumption not recorded as accurately, as prescribed by the Q3/Q1=200 rule in NMI R49 3.1.4, is insignificant in comparison to the unequal distribution of water charges that is currently occurring without sub metering.
- 5.13 The proposed meters are not intended as primary meters and are merely used by the Owners Corporation/Manager to equitably distribute the bill derived from the primary meter, and make consumers aware of and responsible for their water consumption.
- 5.14 The same measurement capability of all sub-meters in a multi unit premises will ensure that each occupant pays only for the water they actually use.
- 5.15 It should be noted that the current practice for billing the energy costs of centrally produced hot water is based on the same principle as our proposed sub meters. I.e. the energy bill is divided according to hot water meter readings for individual units.
- 5.16 Furthermore, it is pertinent to our submission that hot water meters are currently, not required to be pattern approved, they comply with the same ISO 4064 standard as the proposed meters.

We therefore request your cooperation in lobbying the NMI to establish an appropriate standard for retrofit sub-meters, making the benefits of equitable water billing available to Australian consumers at an affordable cost.



INDIVIDUAL METERING

Stuart McPherson, Manager Technical & Brooke Palmer, Analyst

Q: Are the current shared water metering and shared billing arrangements satisfactory? If not, why?

A: In bulk-billed complexes, where the water bill is simply divided between the number of units according to lot entitlement or some other arbitrary system, there is no means or incentive for many individuals to conserve water. Higher per capita consumption results, as has been found by studies on shared meter premises. Group meters and the sharing of water bills is out of step with “user pay” practices and disadvantages those consumers who are frugal in their water use because they end up paying for the consumption of others.

Q: Should individual metering be mandatory for new build properties even if it is shown to be more expensive than the status quo?

A: Individual metering should be mandatory because the risk of a shared water bill is a big concern to purchasers in new buildings.

Q: Should individual metering be retrofitted to existing properties? If yes, should it be mandated or optional?

A: In the interests of consumers, retro fitting of individual meters should be mandatory for all existing buildings. There is a system available that provides the opportunity to Owners Corporations/unit owners to have affordable sub-meters installed without expensive alterations to plumbing. Its introduction will quickly bring about an equitable user-pays system of water billing in Australia as it has done in other developed countries.

Q: Would customers be willing to pay a fee for the provision of an individual meter to an existing property?

A: Consumers will be prepared to pay for the peace of mind an individual meter will provide so that they only pay for the water they use.

Q: Are there any other matters the Commission should consider as part of this inquiry?

A: Yes, they should consider lobbying the NMI to set an appropriate standard for retrofit sub meters in Australia as in the European Union.

Q: Is there a case for mandating smart meters for all properties in SA? If so, what is the best option for roll out? (e.g. phased, immediate or end-of-life basis)

A: Water meters equipped with Automated Meter Reading (AMR) should be phased in, though economic realities will need to be considered regarding roll-out. The cost of installing AMR meters on street frontages of all domestic and commercial premises and attaching reading devices to refuse trucks would be the least labour intensive and consequently most cost effective method of meter reading for the future.

Q: Are there any reasons not to install smart water meters in South Australia?

A: No, there is no reason not to install smart meters in South Australia. However, a small number of people fear that smart meters emit radio waves dangerous to their health, so keeping meters on street frontages away from their living space would be wise. In the case of unit owners, they would have the choice of not fitting an AMR in favour of manually reading their sub meter.

Q: What functionality should a smart water meter have, and how would customers and water suppliers make use of the functionality that a smart meter could provide?

A: AMR Meters installed should be able to be Smart Water Meter (SMW) capable, if required in the future. Weekly drive-by consumption data-collection can provide consumption patterns required to optimize operations



and planning for utility providers. Consumers could be offered a text message alert of abnormal consumption at a fee, alerting them to possible water leaks and thus benefitting consumers.

Q: Are there other tools or management options – or any alternatives – that should be considered and implemented in lieu of smart metering, or in conjunction with smart meters?

A: Suitable AMR/SWM capable retrofit sub meters to existing multi occupancy sites/buildings will benefit all unit occupants by making it possible to distribute the bulk bill from the primary meter according to individual sub metered consumption.

Q: Are there any further matters that should be considered as part of this inquiry?

A: Yes. Consideration needs to be given to NMI establishing appropriate standards for sub meters in Australia, to bring us in line with water metering practices in other developed countries, so that some consumers are not disadvantaged.

CONSUMER RIGHTS AND BENEFITS OF SUB-METERING

The consumer has a right to receive a correct and accurate bill, based on his actual consumption of water. This will only be possible when cost effective sub meters of a proven standard are available to the public. Then all consumers will benefit from an equitable, consumption-based user-pay system of water pricing.

1 THE NEED FOR SUB METERING OF WATER TO UNITS

- 1.1 Group meters and the sharing of water bills is contentious, problematic and is out of step with “user pay” practices.
- 1.2 Customer awareness of water consumption and rising water bills has increased significantly in recent years.
- 1.3 In bulk-billed complexes, where the water bill is simply divided between the number of units according to lot entitlement or some other arbitrary system there is no means of monitoring or incentive for the individual to conserve water.
- 1.4 Providing the opportunity to Owners Corporations/unit owners to have affordable sub-meters installed without expensive alterations to plumbing is the logical conclusion. It will bring about a transparent user-pays system of water and effluent billing and thereby make a practical and direct contribution to water conservation and effluent treatment in this water-poor country without the need for substantial infrastructure expenditure.

2 COST EFFECTIVE SUB METERING

- 2.1 The cost effective solution is to use sub-meters that have been developed specifically for retrofitting to existing buildings.
- 2.2 Retrofit sub meters have been widely used in the European Union for a number of years in buildings that were not individually metered when built.
- 2.3 If desired, the proposed water-meters can be AMR/SWM or equipped, enabling them to be remotely read.
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- 2.7 The system is eminently suitable for high-rise apartments and can be installed within the strata-title defined space.
- 2.8 It sees unit owners quickly recoup their capital outlay in the short term and reap the ongoing financial rewards from reduced water consumption and paying only for what they themselves use.
- 2.9 This is particularly attractive to investor/landlords, who will be able to legally pass on the cost of water used to their tenants if the property is water efficient.
- 2.10 Unit occupants will be empowered to monitor their water use and enjoy the benefits of consumption-based water billing, eliminating the contentious issue of sharing bulk water bills.
- 2.11 The ensuing water saving of up to 30% per capita of unit occupants will make a significant contribution to water conservation and has exponential financial implications for the nations economy.

3 BENEFITS OF WATER SUB-METERS & THEIR IMPACT ON WATER EFFICIENCY

- 3.1 Owner-occupiers gain peace of mind knowing that they are only paying for the water they actually use. <http://www.thefifthestate.com.au/archives/12925/>
- 3.2 The cost of sub-metering buildings will be significantly less when a system using the existing reticulation is installed.
- 3.3 Sub-metering will encourage unit owners to make their properties “water efficient” by installing 3-star rated toilets, shower heads and taps. This will be particularly true in the case of landlords who stand to benefit by being able to pass on the water bills to their tenants if the rental property is water efficient.
- 3.4 According to the Wells website a 3 star rating will result in water savings of up to 48% or 10kl/annum for a 3 star toilet 48% 25kl/annum for taps and shower heads.
- 3.5 Consumers will become aware that being wasteful with water hurts their pocket, and are likely to become responsible consumers.
- 3.6 The de-risking of investment properties in this way will be very attractive to Australian property investors and reduce rent - see report on \$14,000 water bill. <http://www.smh.com.au/environment/water-issues/call-to-cut-water-use-in-flats-by-the-meter-20110930-1l1ft.html> - ixzz2lXkAY52Z
- 3.7 Hotels, motels, caravan parks and other providers of holiday accommodation can add the water used to the bill when guests check out – as with the bar fridge or telephone. This is particularly pertinent to owners of holiday units in places like the Gold Coast – see recent report on the Palazzo Versace. http://www.goldcoast.com.au/article/2013/08/19/456610_print_friendly.html
- 3.8 Shops and offices can also be sub-metered for equitable sharing of the bulk water bill. The water use of hairdressers, restaurants, coffee shops etc. are naturally very different to normal retail and office premises.
- 3.9 Market research recently undertaken shows high demand for sub-metering across all the above sectors.
- 3.10 As demonstrated in the case study done by Sydney’s Water Fix Program, a saving in water consumption of 21% was achieved when sub-meters were installed in a large CBD residential building.
- 3.11 Taking into consideration that our sub-meters are quick and inexpensive to install, they provide the practical solution without expensive or impossible alterations to water reticulation.
- 3.12 In the long term the flow-on effect will be beneficial to the country as a whole in the preservation of this most precious and life-giving commodity.

4 SUBMISSION TO MAKE RETROFIT SUB METERS AVAILABLE

We make the following submission to facilitate an uncomplicated and efficient system for water and effluent based on consumption:

- 4.1 When sub meters of an approved standard and required flow rate are available for retro fitting in unit complexes, equitable distribution of the bulk water bill will become possible.
- 4.2 Consumers will be spared the cost of expensive alterations to existing water supply pipes needed for current meters to be installed.
- 4.3 Sub-metering could provide a simple solution for the billing of domestic effluent. Owners Corporations of multi occupancy sites can distribute their effluent bill based on the water consumption recorded by sub meters. They would need to prove and apply for a reduction of effluent volume. (Cooling-towers, product, pools, gardens etc.)
- 4.4 The current consumption-based, tiered pricing structure to suburban housing could be applied to individual units in complexes if sub meters are retro fitted. This would be beneficial to consumers.
- 4.5 The ownership of a retro fitted sub meter remains with the property owner and not with the water supplier, because the sub meter is fitted within the property boundary.
- 4.6 The cost of a retro fitted sub meter is minimal and the outlay to install one is quickly recouped (within 12-18 months at the average water price).

Australia can gain a substantial reduction in water consumption and be on track to establish an equitable user pay system for both water and effluent when the installation of cost effective retrofit sub meters of a proven standard to multi occupancy sites is encouraged. There are \pm 2 million apartments/units in Australia that are currently not individually metered.

5 METROLOGICAL REQUIREMENTS

- 5.1 The current NMI 49 water meter flow rate specification, Q3 = 4 kl/h for 20mm meters allows for 7.4 appliances, at 9 l/min (the Wells 3 star rating), to be used simultaneously.
- 5.2 This standard is suited to meters for freestanding homes, as is currently installed by utility providers.
- 5.3 In Apartments or Units, it is unlikely that more than 3 appliances will be used simultaneously. This would, at the Wells 3 Star rating of 9 l/min, demand a flow rate of only 1.6 kl/hour.
- 5.4 The cost effective installation of sub meters can be achieved when the NMI sets a standard similar to ISO4064 for sub meters with flow-rates appropriate for flats and apartments.

The NMI R 49 is coming up for review, as a new OIML 49 has been collaborated from ISO 4064 and OIML R49 by international working groups. This would be an appropriate time to make changes.

5.5 Currently 20mm and 15mm water meters are required to comply with NMI R49-1 see (Annex A)
The following table compares current Standards to [Sub meter Standard](#).

NMI 49 Standard 20mm	NMI R49 Standard 15mm	Sub Meter Standard
Q1=20 l/h @ $\leq \pm 5\%$ accuracy	Q1=12.5 l/h @ $\leq \pm 5\%$ accuracy	Q1=35 l/h @ $\leq \pm 5\%$ accuracy
Q2=36 l/h @ $\leq \pm 2\%$ accuracy	Q2=20 l/h @ $\leq \pm 2\%$ accuracy	Q2=56 l/h @ $\leq \pm 2\%$ accuracy
Q3=4 m3/h @ $\leq \pm 2\%$ accuracy	Q3=2.5 m3/h @ $\leq \pm 2\%$ accuracy	Q3=2.5 m3/h @ $\leq \pm 2\%$ accuracy
Q4=5 m3/h @ $\leq \pm 2\%$ accuracy	Q4=3.125 m3/h @ $\leq \pm 2\%$ accuracy	Q4=3.125 m3/h @ $\leq \pm 2\%$ accuracy
Q3/Q1 Ratio = 200	Q3/Q1 Ratio =200	Q3/Q1 Ratio =63

- 5.6 The proposed water meter has been submitted to the NATA Testing Facility, based at the University of South Australia for "Pattern Approval".
- 5.7 The water meter does not comply with the current NMI R 49-1 Standard insofar that it does not meet the prescribed low flow-rate ratio Q3/Q1=200, but comply with alternate values Q3/Q1=63 listed in paragraph 3.1.4 of R49 (Annex A).



- 5.8 The meters are widely used in the European Union as retrofit sub-meters and conform to ISO 4064 and are accurate at flow-rates that occur during normal use. (Q3 = 1.6 when fitted to the flow diverter base, and Q3 = 2.5 when fitted to the Coaxial base).
- 5.9 The starting point of flow indication is however similar to positive displacement meters mandated by the Australian NMI R 49.
- 5.10 A central indicator wheel makes leaks easier to detect than current grenade type NMI R 49 approved domestic water meters.
- 5.11 The higher error at low flow rates is insignificant compared to the total consumption recorded during normal use.
- 5.12 The proposed meters are well within the $Q1 \leq \pm 5\%$ accuracy range from around 0.6 l/min.
- 5.13 The monetary value of the water consumption not recorded as accurately, as prescribed by the Q3/Q1=200 rule in NMI R49 3.1.4, is insignificant in comparison to the unequal distribution of water charges that is currently occurring without sub metering.
- 5.14 The proposed meters are not intended as primary meters and are merely used by the Owners Corporation/Manager to equitably distribute the bill derived from the primary meter, and make consumers aware of and responsible for their water consumption.
- 5.15 The same measurement capability of all sub-meters in a multi unit premises will ensure that each occupant pays only for the water they actually use.
- 5.16 It should be noted that the current practice for billing the energy costs of centrally produced hot water is based on the same principle as our proposed sub meters. I.e. the energy bill is divided according to hot water meter readings for individual units.
- 5.17 Furthermore, it is pertinent to our submission that hot water meters are currently, not required to be pattern approved, they comply with the same ISO 4064 standard as the proposed meters.

We therefore request your cooperation in lobbying the NMI to establish an appropriate standard for retrofit sub-meters, making the benefits of equitable water billing available to Australian consumers at an affordable cost.