

RFP Round 14 - Business and Technical Requirements

Common Priority (What problem requires solving)	Priority Description	Stated business / technical requirement
Theme: Drinking Water		
1. Evaluation of bulk water delivery metering to distribution agencies.	<ul style="list-style-type: none"> Large water meters are used to measure the bulk supply of treated water. Accuracy through both physical testing and metering analytics is therefore critical for reporting and evaluation purposes for our members. Other approaches may also be considered. 	<p>Baseline requirement:</p> <ul style="list-style-type: none"> As the Distributor / Retailer (DRE), I want to use meter data to know how much water I have received in order to know how much I have to pay and identify any discrepancy with how much I supply to my customers, which will allow me to know my bill is accurate and support identifications of leaks. The accuracy boundary is 2%. <p>Desirable requirements:</p> <ul style="list-style-type: none"> Verification of water quality based on attributes of pressure; flow; chlorine; PH etc. Seqwater is currently developing service standards and these may assist in supporting future requirements Any validation would need to be at less cost than is currently available. Future requirement may also include downstream meters Additional value is to inform members of what is currently in the market relevant to magnetic flow meters.
2. In-situ repair/refurbishment of water distribution mains.	<ul style="list-style-type: none"> Our members are seeking the least disruptive solutions for the repair and/or relining of pipes. 	<ul style="list-style-type: none"> As the DRE, I want to maintain supply whilst minimising disruption to customers while I repair pipes. e.g. bypassing valves As a Renewal Engineer, I want to ensure that relining restores service life of the asset at a reasonable cost, results in minimal loss of cross-sectional area, and does not compromise water quality.

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	<ul style="list-style-type: none"> In particular, technologies that provide soft liner renewals for pressure mains greater than 450mm and pressures over 120m. 	<ul style="list-style-type: none"> As a Planning Engineer, I want a lining solution that will not preclude optionality in terms of further cut-ins and connections as I grow the network. Desirable requirements: <ul style="list-style-type: none"> Structural pipe repair would be good to have as an option. Corrosion from external sources
<p>2a General Comment would argue that this priority is being dealt with by a large federal research project right now and releasing this via WaterStart will confuse the market. https://watersource.awa.asn.au/business/assets-and-operations/crc-unveils-3m-water-and-sewerage-pipes-makeover-research-project/</p>		
<p>3. Predictive failure analysis for a water distribution system</p>	<ul style="list-style-type: none"> Our members are seeking technologies/software which utilize various types of physical, analytical and other surveillance data to provide predictive failure information for a water distribution system with the ability to predict customer impact as part of a wider asset management program. Network reliability is currently measured by the number and length of outages; however, this is typically done at the network or DMA level. Our members are seeking a solution that understands the reliability of every single customer connection in the water distribution network to better understand performance in the eyes of the customer. 	<ul style="list-style-type: none"> Whilst these requirements are broad in nature, they do align to member strategies and as such members are looking to see what is available in the market at this point in time. The primary need is predictive failure information that supports members to be customer focused with the ability to integrate with required asset management and corporate systems <ul style="list-style-type: none"> As a DRE I want to minimise disruption to customers and prolong the life of my assets to reduce premature asset failure and / or extend asset life to obtain a better return on capex, reduce opex and maintain high customer satisfaction scores. As a Project Engineer, I want technologies that are simple to install with minimal or no interruption to the network. As a Systems Architect, I want technologies that communicate over readily available commercial networks or can be configured to operate over our bespoke network. As a Performance Engineer, I want our various condition assessment tools and technologies to converge into a single dashboard providing a view of network condition, performance and risk.
<p>4. Autonomous technologies for the evaluation of water distribution mains.</p>	<ul style="list-style-type: none"> Our members are seeking autonomous/robotic devices (e.g. Untethered drones, AUVs) for infrastructure and condition assessment using tools such as images, video, lidar, 3D models, GIS shapefiles. The current challenge for our members is finding a single platform that can consume 	<ul style="list-style-type: none"> As a DRE who undertakes maintenance, I want to ensure my resources are being utilised on high value (meaningful, challenging) work and leverage automation for low value (repetitive, data entry) work wherever possible to ensure employee engagement, assist productivity through technology and maintain customer and asset requirements. As a Systems Architect, I want technologies that communicate over readily available commercial networks or can be configured to operate over our bespoke network.

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	this data and consolidate to a single view of the asset.	<ul style="list-style-type: none"> As a Performance Engineer, I want our various condition assessment tools and technologies to converge into a single dashboard providing a view of network condition, performance and risk.
5. Technologies that limit non-revenue water (NRW) losses.	<ul style="list-style-type: none"> Our members are seeking technologies that help to reduce the loss of non-revenue water (NRW). These applications may include predictive failure analysis, distribution pressure management, as well as solutions that help to quickly and effectively locate and repair pipe leaks internally without excavation on trunk mains (150mm-600mm diameter). 	<p>The purpose is to have non-invasive repair options to avoid losses, mitigate contamination of water quality and be subject to an off-network trial</p> <ul style="list-style-type: none"> As an Operator, I want to reduce the volume of NRW, for water security, financial health and asset reliability As an Asset Owner, I want technologies that will help me to identify and quantify sources of loss, so that I can prioritise my efforts. As an Asset Owner, I want technologies/approaches that will help me to reduce or eliminate leaks in my network at least cost and with minimal disruption to customers and mitigation of contamination.

Theme: Waste Water

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<p>6. In-situ repair/refurbishment of sewer collection mains.</p>	<ul style="list-style-type: none"> • Our members are seeking the least disruptive solutions for the repair and/or relining of pipes. • In particular, technologies that provide soft liner renewals for pressure mains greater than 450mm. 	<p>The purpose is to cater for the variability in alignment and undulation, minimising environmental harm by containing product and minimising disruption and be non-intrusive (where possible)</p> <ul style="list-style-type: none"> • As a DRE I want to minimise environmental harm and large capital expenditure while I repair pipes. • As a renewal engineer, I want to ensure that relining restores service life of the asset at a reasonable cost, results in minimal loss of cross-sectional area, with no or less environmental impact.
<p>7. Autonomous technologies for the evaluation of sewerage mains.</p>	<ul style="list-style-type: none"> • Our members are seeking autonomous/robotic devices (e.g. Untethered drones, AUVs) for infrastructure and condition assessment using tools such as images, video, lidar, 3D models, GIS shapefiles. • The current challenge for our members is finding a single platform that can consume this data and consolidate to a single view of the asset. 	<p>The strategic view is to have a single view of an asset and reduce large manual handling of data to free effort from staff. Members are interested in process automation as well as condition rating to help build trend for the remaining life of an asset.</p> <ul style="list-style-type: none"> • As an Operator, I want to know the condition of my sewer mains. To do so I need to consolidate large volumes of data from various sources. At present this is a manual laborious task that would benefit from being automated. • As a Performance Engineer, I want to reduce the effort/cost of collecting, analysing and interpreting asset condition data while increasing the accuracy of current condition and degradation rate to determine remaining useful life and fine tune renewal requirements. • Members are interested in uniformity of format (Open standards) - process chain of video through to data collection. (Metadata standards) and allocation into a catalogue library
<p>8. Automated sewer collection system notifications for infiltration and/or blockage and/or overflow</p>	<ul style="list-style-type: none"> • Sewer networks have flow meters installed throughout the network to measure flows in the network and also at the inlet works to the treatment plant. • The general approach to quantification of infiltration has been to install additional flow meters or CCTV. • Our members are seeking a solution that automatically learns the behaviour of sewer flows (through rainfall 	<ul style="list-style-type: none"> • As an Operator, I want to learn the behaviour of sewer flows (through rainfall or king tides close to the coast) and identify areas with a high-probability of infiltration to better target the CCTV and / or enable a repair. Inflow and infiltration causes early degradation of pipes, increased volumes of sewerage which causes increased energy in pumping, and treatment. Early identification of Inflow and infiltration will allow for early repairs.

	<p>or king tides close to the coast) and pinpoints areas with a high-probability of infiltration to better target the CCTV using existing available data sources and/or complimenting with IOT devices).</p> <ul style="list-style-type: none"> • This solution could also incorporate additional sensors at the inlet works to test the concentration of water in the wastewater flows. 	<ul style="list-style-type: none"> • As a Performance Engineer, I want a solution that not only identifies infiltration of water, but also helps me to pinpoint sources of other foreign materials including sand, grit and gravel. • As a Renewal Engineer, I want you to pinpoint for me the location and type of failure, a recommended course of action, and provide me with a cost benefit calculation to help me determine whether intervention is worthwhile.
<p>9. Predictive failure information for a sewer collection system.</p>	<ul style="list-style-type: none"> • Our members are seeking technologies/software which utilizes various types of physical, analytical and other surveillance data to provide predictive failure information for a water sewerage system with the ability to predict customer impact as part of a wider asset management program. 	<ul style="list-style-type: none"> • As a DRE who operates and undertakes maintenance, I want to ensure my resources are making informed decisions from disparate data sets that will lead to better operation of the networks and just in time maintenance, less disruption to customers and better financial outcomes. • As a project engineer, I want technologies that are simple to install with minimal or no interruption to the network. • As a systems architect, I want technologies that communicate over readily available commercial networks or can be configured to operate over our bespoke network. • As a performance engineer, I want our various condition assessment tools and technologies to converge into a single dashboard providing a view of network condition, performance and risk.