



“I have no problem recommending Derceto. They’ve delivered exactly what they promised. The system is reliable. Derceto staff are responsive in working with us as our network has expanded. They understand our system, get daily reports and keep a constant eye on it.”

Michael Doherty,  
Engineering Operations Manager,  
Unitywater.

## Winning hearts and minds at Unitywater

The Derceto Aquadapt implementation for Unitywater on Australia’s Sunshine Coast goes back to 2004, when Unitywater’s forerunner, Maroochy Water Services, was wrestling with the problem of how to smooth demand on two water treatment plants and maximize network asset utilization.

The operators of the Landers Shute and Image Flat water treatment plants were insistent that smoothed flow profiles were essential to improve the operability, efficiency and water quality of their respective plants.

Unitywater’s Engineering Operations Manager, Michael Doherty, says the challenge was to remove the diurnal demand peaks from the water treatment plant supply and to achieve linear flow requirements across the 24-hour day, while maintaining water pressure standards of service and minimum storage levels throughout Maroochy Shire’s reticulation system.

With two treatment plants, 22 reservoirs, four pump stations and 13 flow control valve sites of significant demand and supply, the challenge was beyond the ability of the Supervisory Control And Data Acquisition (SCADA) systems’ automatic control, Michael Doherty recalls.

“Derceto’s team started from ground zero in solving the problem. They went through a three month data gathering phase,

developed schematics of the network and the network interactions. They engaged our operators and all staff involved in existing processes, including the SCADA staff, and a hydraulic model was developed. Once they had all the data, they then optimized and implemented the Aquadapt software. Derceto had their Systems Engineer onsite for the first three months following the go live. We were very impressed with the ability of the Derceto team to get to know us and our business and to work with us as a single team to specify and then implement the solution.

“The results exceeded our expectations. Not only did Aquadapt solve the problem of smoothing demand on the water treatment plants, but it also played a wider role in providing economical, reliable, proven distribution of water within Maroochy Shire. The installation was the first in Australia and we have given many demonstrations of its operation to interested visitors from other water utilities around the country,” Michael Doherty says.

### Predicting demand

The Derceto Aquadapt solution schedules pump run and flow control valve set point predictions for the following 48 hours. This is achieved by using historic data, seasonal demands and current reservoir levels to calculate a predicted demand profile for each of the controlled reservoirs. Aquadapt displays the predicted demands over a 24-hour period with site and total predicted demand and actual volumes provided live on screen. A daily report is emailed to system operators and support personnel, for a summary of the system’s operation.

The system reads reservoir level and system flow rates from the SCADA outstations every 10 minutes and performs a ‘solution’ calculation every 30 minutes, resulting in a control set point command being sent to each pump and control valve under Aquadapt control. The 30-minute solutions fine tune the predicted values and quickly adapt to demand fluctuations for each site. This compensation takes into account events, such as a sudden rainstorm, where



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◀ demand can quickly reduce by up to 30 percent.

Derceto’s Aquadapt also considers the electricity supply tariffs and costing when scheduling pumps.

In the process of solving the flow problem at the water treatment plants, the Aquadapt system also delivered a number of related benefits.

Using the predictive and modeling capabilities of Aquadapt, maintenance throughout the network could now be scheduled ‘intelligently’. By being able to accurately predict demand, operators could use the system to schedule maintenance in such a way as to maintain pressure and water quality throughout the system.

In day-to-day operations, Aquadapt has reduced dependence on individual operators, often with differing ideas on how to manage the system for best efficiency. Aquadapt’s algorithm-based calculation of factors such as system pressures and pump curves not only reduces the demands on operators but also makes it much easier to train new operators and to ensure highly consistent and highly efficient operational decision making.

Water quality has also improved with Aquadapt taking into account water storage and water age by automatically turning over water in the reservoirs.

Along with sophisticated operational optimization comes real time operational support from the Derceto team. As part of an annual service agreement,

Derceto’s technical experts receive emailed status messages and can monitor the system via a remote connection, ensuring the system runs according to specification at all times.

### Adapting to growth

A feature of the Derceto implementation has been the ability of Aquadapt to grow and change with the business, Michael Doherty says.

Following the implementation of Derceto Aquadapt throughout the Maroochy system in 2005, the implementation is being extended to cover the Sunshine Coast where Maroochy, Caloundra and Noosa councils have merged. The formation of Unitywater, following the merger of Moreton Bay and Sunshine Coast water utilities, will see Aquadapt further extended with opportunities in water supply and sewerage systems.

With around 900 staff, Unitywater now services a population of around 670,000 people across an area of 5,138 km<sup>2</sup> delivering both water supply and sewerage services for approximately 270,000 properties, via more than 5,000km of trunk and reticulation pipelines.

“The bottom line is that Derceto has delivered consistently throughout the major changes to our business,” Michael Doherty says. “I have no problems recommending it. There’s good support. The system has been highly reliable. They understand our system and our business and just make sure everything works with no problems.”

### About Derceto and Aquadapt

Derceto’s Aquadapt software slashes energy costs, lowers carbon emissions and boosts water quality and asset efficiency.

Aquadapt is the proven and industry-leading, real-time operations optimization solution, purpose designed for treated water distribution. Installed at leading water utilities around the world, Aquadapt is delivering measurable energy savings – averaging 15 percent – which amounts to millions of dollars per year for many customers.

Integrating with existing SCADA systems, Aquadapt reads live field data to instantly create the most effective pump valve and water treatment plan schedules, adapting them in real time to changes in demand, energy pricing and unforeseen events in the network – ensuring water is delivered where it is needed at minimum cost and maximum quality.

The user-friendly interface makes it easy for operators to step in at any time to take control, schedule maintenance or brush up on operational skills.

Aquadapt delivers on the key tenet of sustainability: it saves more than it costs, in money, in time, and in resources.

For more information please visit:  
[www.derceto.com](http://www.derceto.com)

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