

## Water and Energy Calculator Ready for Industry

By Tony Head and Dr David Deeley

**The Leisure Institute Water Optimiser Calculator (LIWOC) was finally launched to the aquatic industry at this year's LIWA Aquatics annual conference by the Minister of Sport and Recreation the Hon Terry Waldron.**

The project was initiated by LIWA Aquatics in 2009 when the lack of meaningful data in water usage in Western Australian aquatic centres became apparent to the Institute and it was funded by the Department of Sport and Recreation. The project brought together the Centre for Sport and Recreation Research (CSRR) at Curtin University and ultimately the Water Corporation. These two new alliances along with existing partnerships with the DSR and RLSSWA aided the development of the project and brought great additional value to LIWA Aquatics.

From LIWA Aquatics perspective it also introduced Dr Dave Deeley to the Board and the wider industry. Dave has worked with the industry for over two years and his expertise and knowledge were invaluable in developing the tool. The Calculator has been tested at a number of facilities across Western Australia and the results are very

encouraging. The addition of possible energy and CO2 reductions based on a range of scenarios has added another very valuable resource to the LIWOC.

The LIWOC calculator has been structured to provide a balance between quantitative aspects of water and energy associated with change room water heating and qualitative guidance for better practice in other related areas of the aquatic facility. The quantitative aspects of water usage track patronage, the current (before) condition and scenarios of upgrade for showers, toilets, urinals and hand basins. The general theme for each of these four areas is for the user to establish the before condition through direct measurement of flow rates, estimation or using the values provided in the calculator. The second step is to select the retrofit option and its parameters.

The cost of water is then entered and the calculator provides the difference in water use between the before and retrofit condition and the value of any water savings (these can be a saving or a cost depending on the scenario selected). The savings in energy are calculated from the

hot water savings (notionally set at 50% of total water consumption) in the showers only. A summary page presents the results of water and energy use assessment for all four areas in the change room in the current (i.e. before) and retrofit (i.e. after) conditions. Users are able to print any page or export the results to a PDF file.

The quantitative aspects of the LIWOC calculator include better practice guidance for operations and behaviour, the pool deck, plant room, ancillary areas and external landscaped areas. The calculator is also set up for use anywhere in Australia with only the cost of local energy and water rates required to be inputted into their respective fields.

The LIWOC will be available free of charge for download and installation from the members section of the LIWA Aquatics website or on a CD Rom if requested. LIWA Aquatics and key stakeholders are considering how best to make the product available nationally to ensure the industry and the environment can benefit from the work done in Western Australia.

**Change Room Calculator**

Summary Heating method Showers Toilets Urinals Hand basins Conserving water elsewhere Feedback Quick start guide

**Summary: Costs and Savings** Name of this test: Example record 1: Large facility

	Water savings kl/yr	Value of water savings \$/yr	Cost of retrofit	Net benefit \$/yr
Retrofit showers	7560	\$10848.60	\$330.00	\$10518.60
Retrofit toilets	0	\$0.00	\$0.00	\$0.00
Retrofit urinals	1633	\$2343.28	\$1800.00	\$543.28
Retrofit Hand basins	0	\$0.00	\$0.00	\$0.00
<b>Totals</b>	<b>9193</b>	<b>\$13191.88</b>	<b>\$2130.00</b>	<b>\$11061.88</b>

Energy Cost Improvement \$/yr **\$15534** CO2 Improvement t/yr **45**

Logos: Department of Sport and Recreation, Royal Life Saving, WATER CORPORATION, Centre for Sport and Recreation Research, Curtin University