Living with Water & Energy

How one of our oldest trades is crucial for our future

A Submission to the State Sustainability Strategy for Western Australia

From the Master Plumbers Association of Western Australia
& PPTC Skills Vocational Educational and Training Centre.

April 2002

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Preface

The Master Plumbers and Gasfitters Association of Western Australia, in conjunction with the PPTC Skills vocational education and training organisation, is pleased to make this submission to the Sustainability Policy Unit as a very sincere contribution to the development of a Sustainability Strategy for Western Australia.

We are glad to see this initiative being taken by the Government for Western Australia and believe strongly that a community-wide commitment to sustainability is the only wise path forward as citizens of this state and of the world. The consultation paper asks, "Is sustainability worth it?" On our view the answer can only be a resounding "Yes".

This document outlines two closely related arguments that we believe are crucial to this debate. The first is that water and energy efficiency should be among the initial priorities of the Sustainability Strategy. The second is that a move towards a sustainability ethic needs to be community-wide and as such, must include strong focus on the key "nodes" of communication. Our long experience has shown us clearly that amongst the most important of these nodes are those industries referred to as "the trades". Plumbing is the oldest of these trades and arguably the most critical for humans to live together in a civilisation. We wouldn't be where we are without it, and we can't get where we want to go without it, either.

We have been working on sustainability issues behind the scenes for a decade now. It is good news indeed to see Government-led initiatives with the potential to make real progress. It is our belief that Western Australia is ideally placed to lead the world on sustainable development – economically, socially and environmentally. We have no shortage of ideas for how our industry could make a major contribution and look forward to a meaningful dialogue on the options. With this document we hope to begin that conversation and would be delighted to prepare more detailed submissions on any of the issues or opportunities ahead for the wise use of water and gas in Western Australia. We look forward to working with the Sustainability Policy Unit.

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April 2002

Executive Summary

The Master Plumbers and Gasfitters Association of Western (the peak body for the plumbing industry in this state) and PPTC Skills Pty Ltd (an award-winning, not-for-profit vocational education and training company specialising in the plumbing and painting industries) submit the following points for consideration in development of the Sustainability Strategy for Western Australia:

Water management and the enhanced Greenhouse Effect are amongst the most serious and urgent sustainability challenges facing the world.

In Western Australia, our water and energy use rates per capita are increasing while our population is also increasing.

Moving towards sustainable use of water and positioning ourselves as world model for the use of gas as a transition fuel would offer Western Australia exciting benefits in economic, social and environmental terms.

A significant proportion of water and energy use in Western Australia is influenced directly by the plumbing industry.

We estimate that plumbers have direct contact with at least 300 000 Western Australians each year regarding water and energy use issues, many of which involve decision-making regarding product purchase and consumption behaviours (for example, plumbers fit at least 60 000 new water heaters each year).

Current research on achieving lasting behaviour change within communities indicates that person-to-person "social marketing" is the most effective in terms of results and program costs.

Improvements in water and energy efficiency will cost significantly less than meeting future demands with new infrastructure and offer benefits for both regional and urban areas.

Western Australia has excellent potential to position itself as a major supplier of water and energy efficiency technology and services to the rest of the world in coming decades, especially Asia where demand is expected to be particularly high.

Executive Summary (cont.)

Recommendations

We recommend that the Sustainability Strategy for Western Australia include provision for a partnership program with the plumbing industry led by the MPA and PPTC Skills. Both of these organisations operate on a not-for-profit basis and have long-standing reputations for innovation and leadership. They are willing to make significant contributions to the operation of programs designed to enable the plumbers of Western Australia to make a worthwhile contribution to this state taking a leadership position on water and energy efficiency.

The potential for such a partnership program includes:

Establishment of a Water and Energy Efficiency Centre to facilitate ongoing education of both industry and the public.

Development of new educational resources (training packs and modules) for both pre and post vocational training.

We have leading expertise in this area and could quickly establish Australia as a national, and indeed global, leader in plumber training for sustainability.

Development of incentives for ongoing training in water and energy efficiency.

Close collaboration on all government initiatives involving water or energy use (eg solar heater rebate schemes and public education programs)

About Us

This document is a joint submission from the Master Plumbers and Gasfitters Association for Western Australia, known as the MPA and the PPTC Skills organisation. The MPA is the peak body representing and leading the plumbing industry throughout the state. MPA has more than 350 contractor members, employing approximately 2500 plumbing tradespeople. Together, they connect and service the water, natural and LPG gas needs of everyone in Western Australia, many now also have a restricted electrical licence.

PPTC Skills is Western Australia's leading industry-led vocational education and training organisation, recipient of many awards. With a focus on the plumbing, gasfitting and painting trades and a longstanding commitment to social equity, PPTC Skills is a recognised leader for innovation in the field of industry training. PPTC Skills is a not-for-profit organisation founded by the MPA and the Master Painters Association. Sustainability has been high on the priorities lists of both our organisations for many years.

About Us (cont.)

Many MPA / PPTC Skills achievements, large and small, demonstrate the unique success of our industry leadership and partnership in Western Australia. These include:

- The MPA's long standing commitment to global leadership through the World Plumbing Council. Our role has focused attention on the contribution the plumbing industries of the developed countries can make to the future of the many developing nations still struggling with water supply and sanitation issues. We have also taken a leading role in the global construction industry, advocating water and energy efficiency in both new construction and retrofit contexts.

- The MPA and PPTC Skills both have a strong history of cooperative relationships with all government departments and agencies on improvement in training, regulation and safety issues.

- MPA and / or PPTC Skills have maintained on going efforts over the last decade to encourage consideration of water and energy efficiency opportunities in Western Australia. Several reports and proposals have been presented to previous governments. As an industry we have also long supported the use of solar and other forms of renewable energy as solutions offering both short and long-term value for Western Australia.

- Development of ***Directions 2000, A Water Efficiency Strategy for the Plumbing Industry*** (1994). [1]

- PPTC Skills has grown into a particularly innovative organisation with remarkable achievement including:
    - Commitment to socio-economic equity through highly effective youth-at-risk programs
    - Many years' commitment to work with Indigenous communities around the state
    - Training delivered in more regional centres of the state than any other VET provider with regional services accounting for between 25-30% of enrolments.
    - Collaboration with the tertiary sector in advocacy of progress in grey-water usage technology
    - Successful pioneering of "lifelong learning" concept for trade education. We now have more than 80% of previous participants in post-registration training undertaking ongoing learning. The level is even higher for our apprentices.

Looking Back

Human civilisation is built on plumbing. It is a bold statement but also a simple truth. Leaving subsistence lives behind for the larger communities that gave rise to modern towns and cities could not have been possible without plumbing. The relationship between water management, public and environmental health and the rise of civilisation was irrevocably established with the Roman aqueducts. Without the development of safe water supply and waste water management technologies, human society as we know it, with schools, hospitals, universities and all the other shared facilities we enjoy could never have been created.

Another, just as important revolution happened in the 18th century with the development of technologies to harness concentrated forms of energy via fossil fuels. Without this available energy, the industrial revolution could not have occurred. First coal replaced wood and then coal itself has come to be supplemented by oil and natural gas and, all the time, we have been finding new ways to use that energy to improve human lives. Sometimes we have used the energy frivolously, and still do to a far greater extent than any of us like to admit. In large part, however, that energy availability has enabled us to take another quantum leap forward in the improvement of human life on Earth.

That move from the more haphazard, fragmented subsistence ways of human life has come at environmental cost but few would argue that humanity has prospered. It may not have prospered equally but there is no doubt that human suffering has been reduced, human freedom has increased and human creativity has thrived.

We may, understandably, bemoan the side effects of some of our achievements but even a cursory glance at major indicators, such as trends in mortality statistics, can remind us all of how far we have come. The ways we use water and energy may have been the main contributions to our progress so far and they are now among the main challenges for our progress in the future.

Looking Around

In most aspects of modern life in the developed world, water and energy use are closely connected and the systems for each interface directly: homes, businesses, public facilities, industry. They are also the two major environmental sustainability challenges that transcend local and even national boundaries and are set to become ever-more important issues in every part of the world.

Water

Firstly, let us examine water use. Eclipsed only by the media coverage of the Greenhouse Effect, water access and management is thought by many to be the most urgent environmental, social and economic concern facing the world this century. Achieving sustainable water use in Western Australia will require us to tackle a rising population with a rising demand per capita with the very real prospect of a falling supply from the catchments of the South West at least [2].

Grey-water recycling is a perfect example to consider. This is an area in which significant savings of 50% could be made on scheme water consumption and the Water Corporation of Western Australia has identified this as an area of priority [2]. Currently estimates from Murdoch University suggest that 250mL are lost as wastewater in Perth each day [3]. Progress on enabling grey-water use through legislation and implementation in conjunction with the plumbing industry offers significant contribution towards sustainability: "distributed effluent loading; nutrients can be assimilated or reclaimed; many local and Australian technologies exist; promotes innovation, economic development and creates employment." [3]. As currently 43% of annual scheme water is used on gardens this represents valuable savings in demand for scheme water. It is also important to consider the major savings from infrastructure costs that are no longer necessary or at least postponed from reduced demand.

The domestic water heater is a perfect example of how water and gas use systems are often intertwined to jointly perform a task. Domestic water heating systems alone account for 15% of all household Greenhouse Gas emissions [4, 5] and more than 20% of household water use [1]. More than 60 000 of these systems are installed in Western Australia each year, all by plumbers. This represents a major consumer behaviour change opportunity.

Thinking globally again, there is no nation on earth untouched by this worry over water. Scarcity and pollution are the main focus of attention with good reason: the world's population continues to grow rapidly without any increase in available fresh water. In fact widespread and multivariant pollution of both surface and

subterranean fresh water resources mean the supply is decreasing just when demand is increasing [6]. The very immediate importance of safe water supply and waste water management to human health also mean that when things go wrong it can lead to social disaster very quickly [7].

Looking Around (cont.)

Energy

Next, let us consider energy use. Currently the vast majority of our energy comes from the combustion of fossil fuels as it has done since the industrial revolution. The technologies used may vary but they all share two serious concerns: they are strictly limited resources and they contribute heavy carbon loads to the Earth's atmosphere contributing to the phenomenon known as the Greenhouse Effect [8]. Two clear courses of action arise from this: firstly that gas should become the fossil fuel of preference in the short term and secondly that we should develop and implement alternative, non-carbon and ideally renewable energy sources as soon as possible [8,9]. These courses of action apply for all nations and communities but they present particular opportunities for Western Australia. Our good supplies of natural gas and strong existing infrastructure put us in a good position to act as a world model for the responsible use of gas as a transition fuel. Meanwhile, our abundance of space, sunlight and wind, as well as world-leading local expertise (through groups such as Murdoch University's ACRE) lend us a valuable advantage in the development of renewable energy technologies. Action in this area is especially crucial as Western Australia's net Greenhouse Gas emissions not only continue to rise, but to rise faster than the rest of the nation [10]. As energy production from gas is far less greenhouse gas intensive than either coal or oil based systems, gas offers an important strategy in overall Greenhouse Gas reduction [8].

Opportunities

In Western Australia our own situation presents us with real water management challenges that are very well known to government and the Sustainability Policy Unit. Western Australia is ideally placed to benefit from developing water efficient technology. Not only would such a strategy provide direct benefits through increased sustainability but they would also put Western Australia at a real advantage in the context of growing international demand for both hard technology (products and materials) and soft technology (expertise). As the Australian Science, Technology and Engineering Council recently advised, environmental management technology will be a key growth area for future employment. In our many years of active global citizenship in the plumbing industry, the MPA have learnt how true this is – the market for solutions and expertise in water and energy use is staggering. Much of the demand will be in Asia. This means that Western Australia is not only ideally placed socially and environmentally to thrive on this opportunity – it is also ideally placed geographically.

A final but important point is the contribution that a high level of water and energy efficiency for Western Australia would make to a wide range of other industries. The eco-tourism sector, for example, is growing rapidly and offers Western Australia exciting opportunities for both economic and social benefits statewide but eco-tourism worldwide is set to face serious challenges in meeting its own objectives [9]. What an advantage Western Australia would have if our tourism sector had the highest standards of water and energy efficiency in the world.

Looking Around (cont.)

Some Key Statistics

Below are some key statistics about aspects of a sustainable future for Western Australia that the plumbing industry can make a significant contribution to:

Close to Home

- Western Australia's water use has increased 20% over the past 20 years, while population is growing at 1.7% per annum [2]
- Households account for 20% of Australia's total greenhouse gas emissions [4]
- 69% of household energy use is in methods covered by the plumbing [5]
- Minor behaviour changes in water use inside the home can reduce consumption by 35% [2]
- On-site grey-water recycling can reduce scheme water usage by 50% [3]

Worldwide

- 2.4 billion people currently do not have safe sanitation and 1.1 billion do not even have safe water supply [7]
- The World's population has tripled in the past 70 years but its water consumption has increased twice this over the same period [7]
- Currently 90-95% of sewage is dumped untreated in waterways. By 2025 between 70 and 90% of freshwater supplies will be used [7]. Many of these will be extremely expensive and contentious between groups and interests, making efficiency a major world priority for the coming decades
- Worldwide gas usage is increasing, especially in Asia where the rate of increase varies from 70% to 500% ,and this is set to increase exponentially in coming years [10]

These issues have been well argued before from other sources. In briefly summarising it here we wish to add our voice to those who see these opportunities, too. In so doing we also wish to illustrate a key point: the potential of the plumbing industry to contribute to achieving these changes has largely been overlooked in the past. It is easy for policy making to consult closely with large, singular organisations. A trade does not automatically come to mind for many people when considering the main stakeholders in a sustainability

strategy or even when choosing seemingly straightforward policy initiatives such as a solar water heater rebate. Our unique position in the decision making processes for water and energy use, however, mean that we offer the ability to act as the most important change agents of all.

Looking Forward

Thinking innovatively about the role of the plumbing industry offers a unique and crucial opportunity to make progress towards sustainability that offers both exciting short term effects and important long term impact. In this section we will out line why we are so sure we can make a difference.

Corporate Citizenship Starts Small

Any successful Sustainability Strategy in a democracy will require a good level of corporate citizenship or corporate social responsibility (CSR). This will involve strong corporate leadership on a range of initiatives including real commitment to ongoing progress on cleaner production principles. Few realise however, the degree to which this must involve small business.

The importance of the Public-Private Partnering concept or 'PPP' is growing worldwide, led in large part by the current government in Great Britain. Any Sustainability Strategy for Western Australia will need to include a string focus on PPP initiatives. Working with peak bodies such as MPA allows PPP to encompass small business sector in a way that is cohesive, cost-effective and inclusive.

As by far the state's largest employer and as often part of the front line in community networks, small businesses are a vital part of any change in social norms. The plumbing industry and other trades are dominated by small businesses, many of them concentrating on local areas and having loyal customers with large amounts of repeat business.

Everybody, Everywhere, All the Time

Plumbers are a natural priority for a Sustainability Strategy: our effects are immediate; our focus is on issues of high urgency; our service encompasses both new work and retrofits in both domestic and industrial contexts; the entry points for communication are many and varied (people call plumbers for many reasons); and we work in every corner of the state all year round with all economic groups, socio-economic and cultural sectors.

In addition to this, the effects of sound water and energy decisions last a long time. As the Australian Greenhouse Office states: "Building shells have a very long life and … efficiency program measures implemented now will have a very long term impact." [14]

Looking Forward (cont.)

Walking, Talking Hubs of Sustainability

Water and energy efficiency efforts get best results with an integrated approach. Plumbers are the main point of community information on water and gas products and may also carry a restricted electrical license. This means they are the perfect vectors for communicating water and energy information to consumers. Advertising and other forms of social marketing are worthwhile but to be effective they need to be reinforced by information at decision time. Current developments in environmental behavioural change show that person-person communication and advice is especially effective.

Plumbers community reach is direct and extensive. They currently deal directly with at least 300 000 West Australians each year. For example, more than 60 000 of these contacts involve the choice and fitting of new water heaters. Currently water heaters (predominantly electrical systems) contribute more than 15% of Australia's household greenhouse gas emissions [4,5] and account for more than 20% of our state's household water consumption [2].

This means that if the Sustainability Strategy for Western Australia involved re-training plumbers to educate their customers about water and energy efficiency, a large proportion of those 300 000 people each year could be reached with information at exactly the time when they are most likely to respond. This temporal interest also makes them more likely to discuss the information with friends and family, leveraging further communication value from the original plumber training. Another important leverage point is that once trained in water and energy efficiency issues, plumbers will be able to communicate this information for several years to come with little or no ongoing support. They also pass the knowledge onto their apprentices, who will in turn educate their customers and their apprentices.

Taking the initiative in working with the MPA and PPTC Skills to educate plumbers about water and energy efficiency is clearly a uniquely valuable investment in Western Australia's "social capital" on sustainability.

Looking Forward (cont.)

Recommendations for Discussion

The case is strong for the state Sustainability Strategy to include clear priorities for working with the plumbing industry to promote water and energy efficiency as core values in Western Australia. The plumbing industry is keen to contribute but needs to work closely with government to achieve results. The real benefits will come from the growth of a strong Public-Private Partnership between the government and the plumbing industry. There is a range of options for how this could best be achieved. We have outlined some of those we think most worthy of discussion below:

1. Establishment of a Water and Energy Efficiency Centre
   Not intended to replace the centre at Murdoch but rather to provide both an industry training facility and a trade display to double as a one-stop shop for the general public to learn about water and energy efficient choices in a non-threatening environment. MPA prepared to contribute significantly towards establishment and operation. Would require government funds for construction stages and initial operation only. Our initial studies indicate that such a centre could be self-funding in a short period of time.

- Development of new educational resources (training packs and modules) for both apprenticeship and post vocational training. We have leading expertise in this area and could quickly establish Australia as a national, and indeed global, leader in plumber training for sustainability.

- Development of incentives for ongoing training in water and energy efficiency.

- Close collaboration on all government initiatives involving water or energy use (eg solar heater rebate schemes and public education programs)

Outcomes

Sustainability is coming to act as rallying point for people from all walks of life. We may use slightly different words and there may be academic tinkering with precise definitions but in essence we have a remarkable clear collective understanding of what it means to us now as a symbol, and what it could mean to us as a lived reality. The public dialogue on sustainability issues tends to focus on the "big players" governments, large corporations, "science", and "technology". The evidence is growing, however, that real systemic change rarely comes from what we think of as "the top". Societal learning comes from small actions at the front line of how things get done. When it comes to the core sustainability challenges of water and energy use you cannot find anyone more "front-line" than plumbers. We were there when civilisation took its first steps towards humanity living together collectively and we stand ready to be there when we take this next, equally important, leap forward.

Here is our view of what we could achieve if empowered to do so by the forthcoming Sustainability Strategy:

- A front line workforce able and motivated to influence the public on water and gas use decisions – role as change agents both as direct conduits and as catalysts for change in decision-making

- A plumbing manufacturing industry influenced towards greater focus on water and energy efficiency initiatives

- Other water and gas stakeholders influenced towards innovation in water and gas efficiency

- A community benefiting economically from major cost savings in both public (eg water and energy infrastructure and environmental remediation) and private expenditure (lower ongoing costs for businesses and households)

- A national and international reputation for Western Australia as a leader in efficient / environmentally responsible use of water and gas. Our technologies in this become a significant state asset.

- An invaluable precedent for working with other trades and industries.

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