

NSW Water Pricing Guidelines and Country Town Communities:

Assisting vulnerable residents



November 2005



FOREWORD

The Public Interest Advocacy Centre (PIAC) is an independent, non-profit law and policy organisation that identifies public interest issues and works co-operatively with other organisations to advocate for individuals and groups affected. PIAC makes strategic interventions in public interest matters by using legal, policy, communication and training initiatives.

PIAC established the Utility Consumers' Advocacy Program (UCAP) in 1998 with a grant of funding from the NSW Government for an initial three-year period. The Government has continued to provide funding for UCAP in the 2005-07 period through the Department of Energy, Utilities and Sustainability (DEUS).

UCAP aims to:

- advocate for the interests of residential consumers of electricity, gas and water utilities;
- in advocating for these interests have a particular focus on the needs of low-income and disadvantaged groups;
- develop policy on the provision of these services to residential consumers;
- identify systemic problems with the provision of electricity, gas and water;
- promote effective consumer protection mechanisms in these industries; and
- facilitate co-operation between stakeholders in the energy and water industries.

A Reference Group assists UCAP in its policy development. This is comprised of representatives from a range of community, consumer and academic organisations.

The NSW Government funding for UCAP includes a discreet allocation of monies for strategic, consumer-focussed research. Research topics are chosen in consultation with the Reference Group.

This report into water prices and NSW country town communities is a research project of the Utility Consumers' Advocacy Program, prepared by the Institute for Sustainable Futures at the University of Technology, Sydney. A separate Steering Group was established to assist with development of the project, selection of the consultant and feedback on the preliminary results.

Public Interest Advocacy Centre
November 2005

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Elissa Freeman, Public Interest Advocacy Centre

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Sam Samra, Department of Energy, Utilities and Sustainability

Daryl McGregor, Water Directorate

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Finally, we would like to acknowledge all of the research participants from Albury, Broken Hill and Kempsey. Many people gave up their time to complete surveys or talk to us about water pricing issues and we are deeply appreciative.

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EXECUTIVE SUMMARY

Introduction

The Public Interest Advocacy Centre Ltd (PIAC) engaged the Institute for Sustainable Futures (ISF) at the University of Technology Sydney to undertake research on the impact of NSW water pricing guidelines on country town communities. The objectives of the research were to:

- Test key assumptions for using price as a major mechanism to achieve water conservation by rural residential water users, including equity implications and the impacts on the community more broadly
- Better understand the potential contribution of price and non-price measures to achieve appropriate water conservation
- Gauge attitudes and acceptance of price and non-price measures to achieve appropriate water conservation.

In May 2004, the Department of Energy, Utilities and Sustainability (DEUS) introduced *Best-Practice Management of Water Supply and Sewerage Guidelines* (DEUS 2004) to encourage performance improvement by local water utilities (LWUs). The Best-Practice Guidelines establish the following water pricing principles for residential customers:

- Usage charges should be set to reflect the long-run marginal cost of water supply.
- Residential water usage charges must be set to recover at least 75% of residential revenue.
- To encourage water conservation, high water consuming residential customers should be subjected to a step price increase (expressed as an “excess water charge”) of at least 50% for incremental usage above a specified threshold. This threshold should not exceed 450 kL/a per household.
- LWUs must bill at least three times each year (and preferably every quarter) to improve the effectiveness of pricing signals.
- No land value based charges (i.e. rates).
- No “free” or “pre-paid” water allowance.

The Guidelines also contain requirements relating to demand management by LWUs.

Councils are only allowed to deduct a dividend from fees and charges collected for water supply or sewerage services if they are compliant with the Guidelines. Further, any Council that wishes to seek financial assistance under the Country Towns Water Supply and Sewerage Program (CTWSSP) must demonstrate substantial compliance with the six best-practice criteria outlined above (DEUS 2004). These requirements place a substantial incentive on LWUs to comply with the Guidelines.

While the economic and environmental drivers for the new tariff structures are clear, their impacts on the affordability of water services are less clear, particularly in rural and regional areas. The research reported here examines the social impact of the Guidelines on rural communities in NSW, using case studies of Albury, Broken Hill and Kempsey. It uses

primary data from surveys and interviews to improve understanding of the needs of rural water consumers in the three communities and the early impacts of price changes that have already been implemented.

Methodology

The research included a review of relevant literature on water pricing and social justice and primary research with stakeholders in Albury, Broken Hill and Kempsey. The primary research comprised an email survey, telephone interviews and field visits to each community to discuss issues in more detail. Two groups of stakeholders were identified, namely:

1. Staff in local Councils or water providers (in Albury and Kempsey the water provider is a business unit of the Council, whereas in Broken Hill it is Country Energy). These included managers and staff with responsibility for water services, rates clerks, and staff in finance, community services, customer service and corporate services.
2. Community welfare sector workers. These included:
3. Workers in community centres, neighbourhood centres and Aboriginal community organisations
4. Workers in faith-based welfare services (such as those run by the Salvation Army, Smith Family, St Vincent de Paul etc)
5. Financial counsellors
6. Providers of Emergency Relief and Energy Accounts Payment Assistance (EAPA) vouchers.

Stakeholders in each community were identified with assistance from the Steering Committee for the project and contacted by telephone or email. Stakeholders that were willing to participate were sent an email survey, copies of which are provided in Appendix 1. The email survey was also used to guide telephone interviews and face-to-face interviews. Research participants are listed in Appendix 2.

Community profiles

The three case study communities were chosen to provide diversity in tariff structures, comparative socio-economic disadvantage, size, location and type of water supply. Albury is an inland regional centre on the Murray River, with a population of 46,500. Albury Water first implemented consumption-based charges for water in 1991 and consequently has significant experience with this type of tariff structure. Albury is around the median in terms of comparative socio-economic disadvantage in NSW, as measured by Vinson (2004). It has the youngest population among the case study communities, a significantly lower unemployment rate than the other case study communities, a higher proportion of people renting and a higher proportion of people with tertiary qualifications. It also has a significantly higher median weekly household income than the other communities and a lower proportion of people identifying as of Indigenous origin. The average annual residential water consumption in 2003-04 was 307 kL per connected property (Samra & McLean 2005), drawn directly from the Murray River. Currently, Albury Water charges residents an access charge of \$84 and a

consumption charge of 45 cents per kL for usage up to 250kL and 90 cents per kL for usage over 250kL.

Broken Hill is a remote regional town located in the Far West of NSW. With a population of approximately 24,500, it is the largest regional centre in the western half of New South Wales. Broken Hill is the only one of the case study communities in which population is declining. It is one of the driest areas in NSW, with average rainfall of only 253 mm. According to Vinson (2004), Broken Hill is among the most disadvantaged 5% of communities in NSW. The unemployment rate is higher than the national average, although not as high as in Kempsey. Broken Hill has the highest proportion of residents without tertiary qualifications and the equal lowest median weekly household income (with Kempsey). The population is generally older than that in Albury and the proportion of rented dwellings is lower. The average residential water consumption for 2003/2004 was 328kL/property. The water supply for Broken Hill comes from three local reservoirs and the Menindee Lakes Scheme, on the Darling River. Country Energy currently charges Broken Hill residents an access charge of \$185 per year and a usage charge of 71 cents per kL for the first 100 kL per quarter and \$2.20 per kL for consumption above 100 kL per quarter.

Kempsey is 428 km north of Sydney on the Pacific Highway. The Kempsey Shire covers 35,500 hectares, and has a population of over 28,000 (with 11,000 of these living in the town of Kempsey). According to Vinson (2004), Kempsey is among the most disadvantaged 5% of communities in NSW. It has the highest unemployment rate among the case study communities, the equal lowest household income (with Broken Hill) and the highest proportion of people identifying as of Indigenous origin. Kempsey also has the highest rate of population growth and the highest average annual rainfall (1,212mm). Macleay Water, a business unit of Kempsey Shire Council, supplies water to Kempsey and the coastal villages in the Shire. The average residential water consumption is 200 kL per property per annum. The water source for Kempsey is the Macleay River, via the Sherwood borefield, which comprises 8 bores. Macleay Water operates nine separate water supply systems for Kempsey and the coastal villages (e.g. Crescent Head, South West Rocks, Stuarts Point). Macleay Water charges Kempsey residents according to a two-part tariff, with a typical access charge of \$265 and a usage charge of \$0.86/kL for all usage.

Research findings

The findings from the literature review are summarised in Section 3 of the report and a complete annotated bibliography is provided in Appendix 3. The key points to emerge from the literature review are as follows:

- While affordability of water is not a significant issue for most Australian households, particular households are vulnerable to increases in water bills. These include households with low income, unemployed people or pensioners, large families and tenants.
- Consumption-based water charging has become common practice around Australia and is typically justified as a way of providing a stronger price signal to encourage residential demand management.

- Several authors question the ability of some households to reduce demand in response to stronger price signals and raise concerns about the impacts of pricing changes on the vulnerable household types identified above
- The literature contains numerous suggested measures to address affordability of water under consumption-based water pricing regimes. These can be divided into measures that provide income support for vulnerable households and measures that address affordability concerns through tariff design.

The findings from the surveys and interviews in each community are presented in detail in Section 5 of the report. Given the richness of the qualitative data collected during the project, it is not appropriate to summarise the findings here. However, the detailed research findings inform the conclusions and recommendations, which are summarised below. The main point to note here is that, despite the definite differences between the case study communities, there was a degree of consistency in the research findings. Water affordability did not emerge as a top-of-mind issue for most people in the case study communities but was an important issue for particular vulnerable households in each community.

Conclusions and recommendations

Drawing on the literature review and primary research, the research team developed conclusions and recommendations relating to each of the six best-practice pricing principles, the scope of the Guidelines, the treatment of demand management in the Guidelines and the research objectives. The key conclusions and recommendations are summarised below.

Pricing Principle 1: Usage charges to reflect long-run marginal cost of water supply

While full cost recovery is desirable for economic and environmental reasons, it can increase hardship for particular groups of residential customers if there is inadequate attention to the pace of pricing change and the essential nature of water supply. Vulnerable customer groups include low-income households, large families, pensioners, Indigenous customers, unemployed people and tenants. For these customer groups, measures are needed to mitigate short-term affordability impacts resulting from sudden jumps in bills. For example, Country Energy established a cap on annual percentage bill increases for residential customers. Hardship programs are also critical to address water affordability problems for these customer groups. These programs need to be well promoted and well targeted.

Recommendation 1: Advocate the inclusion of a cap on annual residential bill increases as part of the Best-Practice Guidelines.

Recommendation 2: Advocate the development of NSW-wide guidelines for hardship programs focused on water affordability.

Pricing Principle 2: 75% of LWU revenue from usage charges

While recovery of a greater proportion of revenue from usage charges is desirable from an environmental perspective, it exposes LWUs to greater revenue volatility due to annual fluctuations in water demand. Samra (2005, p.3) points out that LWUs can address this issue by establishing a revenue fluctuation reserve to balance revenue across multiple years.

The social impacts of this pricing principle are mixed. On the one hand, vulnerable households with relatively low consumption may benefit from lower bills. On the other, tenants in metered properties and large families may suffer from higher bills. Incidence analysis that considers the impacts of pricing changes on vulnerable customer groups is critical. Incidence analysis can guide the design of concessions, rebates or hardship programs to reduce negative social impacts. There are grounds for reviewing the current DLWC Guidelines on incidence analysis, including them in the DEUS Guidelines and defining compliance with such guidelines as best-practice.

Recommendation 3: Review the way impacts on vulnerable customers are considered in the DLWC Guidelines on incidence analysis and consider including guidelines on incidence analysis in the DEUS Guidelines for convenience.

Recommendation 4: Develop more detailed guidelines for design of hardship mitigation programs by LWUs, focusing on vulnerable customer groups (low-income households generally, unemployed people, pensioners, large families and tenants).

Pricing Principle 3: Inclining block tariffs

The third pricing principle encourages LWUs to introduce inclining block tariffs, in preference to other tariff structures such as two-part tariffs. The significant advantage of an IBT is that it can target discretionary water consumption while allowing for essential water consumption at lower cost. With appropriate block size selection, IBTs can improve affordability for some vulnerable customers. However, the Guidelines do not provide any guidance on the amount of water required to meet essential needs. Further, this amount will vary depending on the number of people in the household.

Where an IBT is implemented, LWUs should consider following the lead of Sydney Water and Country Energy and applying the block allocation on a quarterly basis, to spread out costs more equally across the year.

Recommendation 5: Provide additional guidance in the Best-Practice Guidelines on appropriate sizing of the first block to match essential water use for a large proportion of vulnerable customers.

Recommendation 6: Ensure that additional measures are introduced alongside IBTs to specifically address the essential water needs of large families, e.g. rebates, alternative tariff structures and demand management programs linked to household size

Recommendation 7: Define quarterly block allocation as best-practice for implementation of IBTs.

Pricing Principle 6: No free or pre-paid allowance

The rationale for removing free water allowances is clear – if water is provided free of charge, there is no incentive for customers to curb wasteful practices. However, there are attractive arguments for introducing special water tariffs for vulnerable customers. These tariffs could include a free allowance based on household size, as a way of ensuring affordable access to essential water needs. In this specific context, it seems reasonable to relax the requirement for no free allowances in the Guidelines.

Recommendation 8: Relax the requirement for no free allowances in the specific case of special tariffs for vulnerable customers.

Scope of the Best-Practice Guidelines

Two opportunities to expand the scope of the Guidelines were identified during the research. The first is to include guidance on billing structure and content to improve the way in which customers experience price signals. The second is to provide additional guidance on community consultation.

Recommendation 9: Provide additional guidance on billing structure and content, including a requirement to bill for water access and water usage in a single bill.

Recommendation 10: Provide additional guidance on community consultation by providing a reference to the Community Engagement website (<http://www.iplan.nsw.gov.au/engagement/index.jsp>) in the Best-Practice Guidelines.

Demand management

The inclusion of requirements relating to demand management in the Best-Practice Guidelines is commendable. However, the Guidelines miss an opportunity to use targeted demand management measures to address issues of water affordability and hardship.

Recommendation 11: Provide additional guidance on how to use demand management programs to address the needs of vulnerable customers and those experiencing hardship.

Using price to achieve water conservation

A key assumption driving the tariff changes specified in the Guidelines is that residential customers exposed to higher usage charges will find ways to reduce their water demand and save money. While the research found encouraging evidence to support this assumption, there are grounds for caution when relying on price as a major mechanism to achieve water conservation. Demand for water is price inelastic, reflecting the fact that much of our water use is non-discretionary and used to meet basic needs. Low-income households, in particular, are relatively helpless to reduce the financial burden associated with price increases as they have less discretionary, or luxury, demand. This raises significant social equity concerns when using price to achieve water conservation.

Inclining block tariffs are designed, in part, to address these equity concerns. IBTs attempt to penalise discretionary demand while providing affordable access to essential water demand. The success of this strategy depends heavily on the specific design of the IBT, particularly the size and price of the first block. Inevitably, no matter how carefully the IBT is designed, some vulnerable customers will be penalised. Often, these will be customers that have a large number of people in the household or that live in households with inefficient or faulty equipment that they cannot afford to upgrade or repair. If price is to be used as a demand management tool, then it is critical that other measures are introduced in parallel to protect vulnerable customers.

Instead of assuming that price rises automatically send a ‘scarcity signal’ and trigger a rational response whereby people reduce their consumption, it would seem that a segmented approach to thinking about how consumers behave is needed. That is, price signals will work for moderate income households where knowledge and capacity to reduce use are both high, and the price rise is significant. However, price signals will not work for high-income households where the price rise is easily absorbed. Nor will they work for low-income households where knowledge and capacity to reduce use are low. A partial solution is to develop a basic tariff, available to households that receive Centrelink benefits and/or are below particular income thresholds, adjusted for household size.

Recommendation 12: Investigate how a basic tariff for vulnerable residential customers could be designed, implemented and targeted to ensure that these customers have affordable access to basic water needs.

The contribution of price and non-price measures to water conservation

A clear conclusion from this research is that price should not be used alone to drive water conservation. Price is a blunt tool that inevitably causes hardship for some vulnerable customers. While there are ways that price can be adjusted to minimise this hardship, one of the most effective ways to achieve targeted water conservation is through non-price measures. Community-wide water restrictions are one of the most equitable water conservation measures available because they can be used to isolate particular water-using practices that are clearly discretionary.

Perhaps the most effective non-price measure to achieve water conservation in low-income households is to provide targeted demand management (e.g. retrofit and rebate programs) to assist with the upfront cost of water conservation. Subsidised retrofit programs should give priority to low-income homeowners (likely to include single parents and elderly people), large families and tenants.

Although rebates and retrofits can ease the burden on vulnerable customers, there is also a need for targeted hardship programs for households experiencing financial difficulty. The role of these programs is to assist the 5 or 10% of households that are worse off under marginal cost pricing. Elements of a hardship program include concessions or rebates on water bills, flexible payment plans, emergency relief and sensitive policies on penalty fees and restriction of supply.

Emergency relief vouchers are not currently available for water, outside the Sydney Water and Hunter Water service areas. Several of the research participants from community groups felt

that vouchers should be made available so that they can be offered to people who come to them for help. Expansion of the Water Payment Assistance Scheme across NSW would be appropriate.

A final issue to consider in hardship programs is the practice of charging residential customers late fees, disconnection fees, connection fees and interest on top of their water bill. In a situation where the customer is clearly struggling financially, it is counter-productive and insensitive to charge penalty fees that will only exacerbate the problem. Further, restriction of supply has significant social and health impacts and should only be used as a last resort. Requiring publication of disconnection and restriction figures would provide a starting point for independent scrutiny of incidences of disconnection and help to ensure that appropriate efforts were made to avoid disconnection.

Recommendation 13: Include more detailed guidance on non-price measures, including community-wide restrictions, retrofits, rebates and hardship programs, in the Best-Practice Guidelines.

Recommendation 14: Encourage the extension of retrofit and rebate programs currently offered in Sydney to regional and rural areas by strengthening the requirement in the Guidelines to consider these programs and offering funding support (from NSW Government) to LWUs that adopt these programs for vulnerable households.

Recommendation 15: Extend the Water Payment Assistance Scheme across NSW with funding from NSW Government.

Recommendation 16: Discontinue the practice of charging penalty fees to vulnerable customers.

Recommendation 17: Amend the Local Government (General) Regulation 2005 to require Councils to publicly report the annual incidence of customer disconnection or restriction under section 144(1) of the Local Government (General) Regulation 2005.

Attitudes to water conservation measures

Attitudes and acceptance of price and non-price measures were fairly uniform across the three case study communities. In general:

- Drought conditions and community-wide water restrictions have had the biggest influence on awareness of the need for water conservation
- There is some understanding, and acceptance, of the water conservation role of higher prices
- Awareness and understanding of the actual price changes that had taken place in each of the communities was poor, outside the LWU
- There is general support for user pays principles, particularly by participants from the LWUs

- Research participants from community groups were concerned about the impact of price-based measures on vulnerable customers.

In each of the case study communities, we found conflicting opinions about whether or not tenants were required to pay water bills and which components of the bills they were responsible for. The current proposal to charge Department of Housing tenants for water use is likely to add to the existing confusion. It may be appropriate to undertake some specific education and awareness raising on this issue.

Recommendation 18: Assess the need for a targeted education and awareness raising campaign on water billing arrangements for public and private tenants.

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ABBREVIATIONS

CTWSSP	Country Towns Water Supply and Sewerage Program
DEFRA	Department of Environment, Food and Rural Affairs (UK)
DEUS	Department of Energy, Utilities and Sustainability
DLWC	Department of Land and Water Conservation
DOH	Department of Housing
EAPA	Energy Accounts Payment Assistance
ERA	Economic Regulation Authority, Western Australia
IPART	Independent Pricing and Regulatory Tribunal NSW
ISF	Institute for Sustainable Futures
LGA	Local Government Area
LGSA	Local Government Association of NSW and Shires Association of NSW
LRMC	Long run marginal cost
LWU	Local Water Utility
OECD	Organisation for Economic Co-Operation and Development
PIAC	Public Interest Advocacy Centre Ltd
UCAP	Utility Consumers' Advocacy Program

1 INTRODUCTION

The Public Interest Advocacy Centre Ltd (PIAC) engaged the Institute for Sustainable Futures (ISF) at the University of Technology Sydney to undertake research on the impact of NSW water pricing guidelines on country town communities. The objectives of the research were to:

- Test key assumptions for using price as a major mechanism to achieve water conservation by rural residential water users, including equity implications and the impacts on the community more broadly
- Better understand the potential contribution of price and non-price measures to achieve appropriate water conservation
- Gauge attitudes and acceptance of price and non-price measures to achieve appropriate water conservation.

Under the *Local Government Act 1993*, local Councils are generally responsible for the supply of water outside the Sydney/Hunter/Illawarra area. Councils that supply water are referred to throughout this report as Local Water Utilities (LWUs). In June 2004, there were 107 LWUs in NSW. Approaches to water pricing vary significantly across the LWUs. Historically, many LWUs have used a rate on property value as the basis for water charging. Some have provided a ‘free’ allowance of water and a charge for excess use above that amount. In general, fixed access charges have made up a much greater proportion of LWU revenue than variable usage charges.

In May 2004, the Department of Energy, Utilities and Sustainability (DEUS) introduced *Best-Practice Management of Water Supply and Sewerage Guidelines* (DEUS 2004)¹ to encourage performance improvement by LWUs. The Guidelines establish best-practice criteria for water pricing. Specifically, they encourage LWUs to adopt the following pricing principles for residential customers:

1. Usage charges should be set to reflect the long-run marginal cost of water supply.
2. Residential water usage charges must be set to recover at least 75% of residential revenue.
3. To encourage water conservation, high water consuming residential customers should be subjected to a step price increase (expressed as an “excess water charge”) of at least 50% for incremental usage above a specified threshold. This threshold should not exceed 450 kL/a per household.
4. LWUs must bill at least three times each year (and preferably every quarter) to improve the effectiveness of pricing signals.
5. No land value based charges (i.e. rates).
6. No “free” or “pre-paid” water allowance.

¹ Hereafter referred to as the Best-Practice Guidelines, or the Guidelines.

The Guidelines also contain requirements relating to demand management by LWUs.

The then Minister for Energy and Utilities published the guidelines pursuant to section 409(6) of the Local Government Act 1993. Section 409 of the Act allows Councils to deduct a dividend from fees and charges collected for water supply or sewerage services. This dividend is intended to provide a return on capital investment and can be used by the Council to fund any of its other allowable expenditure under the Act. Section 409(6) of the Act requires the Minister² to prepare guidelines 'relating to the management of the provision of water supply and sewerage services by councils'. Further, the Minister may 'if of the opinion that a council has not substantially complied with the guidelines, direct the council to comply with any particular aspect of the guidelines before' deducting any further dividend. The Council must indicate in an open meeting that it has complied with the guidelines when deducting any dividend.

In addition, any Council that wishes to seek financial assistance under the Country Towns Water Supply and Sewerage Program (CTWSSP) must demonstrate substantial compliance with the six best-practice criteria outlined above (DEUS 2004). The CTWSSP is the primary source of technical, management and financial support for Councils from the NSW Government. Clearly, the requirements relating to dividends and eligibility for the CTWSSP place a substantial incentive on LWUs to comply with the Guidelines.

The economic and environmental drivers for the new tariff structures are quite clear. Economic efficiency is theoretically improved by setting usage charges to reflect the long-run marginal cost of water supply and by exposing customers to price signals that are directly linked to consumption. Stronger price signals also encourage demand management by residential customers, which reduces the environmental impact of water service supply. In particular, the inclusion of an excess water charge in tariff structures is an attempt to encourage demand management by penalising the households with the highest water consumption.

The impacts of the new tariff structures on the affordability of water services are less clear, particularly in rural and regional areas. The research reported here examines the social impact of the best-practice pricing guidelines on rural communities in NSW, using case studies of three communities. It uses primary data from surveys and interviews to improve understanding of the needs of rural water consumers in the three communities and the early impacts of price changes that have already been implemented. The focus throughout is on water pricing only; pricing of sewerage services is not considered in detail.

The report is structured as follows:

- Section 2 provides an overview of the research methodology, covering the literature review, the selection of case study communities, surveys and interviews
- Section 3 summarises relevant literature reviewed during the project
- Section 4 provides brief profiles of the three case study communities

² The relevant Minister is now the Minister for Utilities.

- Section 5 summarises the research findings
- Section 6 draws conclusions in relation to the initial research objectives and the principles in the best-practice pricing guidelines and outlines recommendations for consumer advocacy.

2 METHODOLOGY

2.1 Literature review

A literature review was undertaken in order to provide context to the project. The results of the literature review are summarised in Section 3. An annotated bibliography of literature reviewed during the project is provided in Appendix 3. Relevant literature was identified through a search of ISF's library of documents on water pricing and social equity, recommendations from the Steering Committee for the project and targeted Internet and database searches.

2.2 Selection of case study communities

2.2.1 Criteria for selection of case study communities

In conjunction with the Steering Committee, ISF developed eight selection criteria to be used to assess candidate communities and select three for case studies. The criteria (in order of priority) as approved by the Steering Committee were as follows:

1. The three communities should have implemented a change in water pricing structure, in the direction encouraged by the DEUS (2004) Guidelines, in the last three years and preferably at least 12 months before the commencement of the study. (The intent of this criterion was to ensure that the community had made a water pricing change, prompted by the Best-Practice Guidelines, that was long enough ago to allow observation of impacts but recent enough to ensure that the change was in recent memory for research participants).
2. The three communities should include at least one with an inclining block tariff and one with a two-part tariff, with different usage charges and excess consumption levels.
3. Preference will be given to communities with a higher quintile ranking for comparative disadvantage in Vinson (2004). Disadvantaged households are the most likely to experience negative impacts from tariff changes, so it is important to include a reasonable proportion of such households in the research. However, for reasons of balance, it may also be appropriate to include one community that does not have a high level of comparative disadvantage.
4. The three communities should ideally include a large regional centre, a smaller rural town and a remote rural area to provide a good coverage of the diverse lifestyles in Australian rural communities.
5. The three communities should include at least one coastal community and at least one inland community to allow analysis of climate zone impacts.
6. The tariff structures in each community should recover different proportions of revenue from usage charges.

7. The three communities should offer a mix of historical experience with community-wide water restrictions and drought. This will allow some analysis of the impact of a particular non-price water conservation measure (i.e. restrictions) on water consumption.
8. The three communities should have diverse water supply sources, e.g. reservoir, groundwater, river intake.

2.2.2 Selection of case study communities

ISF identified ten candidate communities for the research, based on suggestions from the Steering Committee, feasibility of travel to the community under the available budget and a review of data on disadvantage in Vinson (2004). The candidate Local Government Areas (LGAs) were Albury, Ballina, Broken Hill, Byron Bay, Kempsey, Lismore, Narrabri, Richmond Valley, Singleton and the Upper Hunter. ISF assessed these ten candidate communities against each of the eight selection criteria, using information that was readily available either through the websites of each Council or LWU, or in the 2003/04 Water Supply and Sewerage: NSW Performance Monitoring Report (Samra & McLean 2005).

On the basis of the assessment, ISF selected **Albury**, **Broken Hill** and **Kempsey** as the three case study communities that would provide the best mix according to the selection criteria. Each of these communities had made a water pricing change, in the direction recommended by the Best-Practice Guidelines, in the appropriate timeframe. Albury and Broken Hill had implemented inclining block tariffs, while Kempsey had implemented a two-part tariff. Each LWU had chosen differing access and usage charges and step volumes. Albury was of particular interest because it had originally moved to an inclining block tariff in the early 1990s, so it was expected that the recent pricing changes might have been more acceptable to the community given the relatively long experience with this type of tariff. Broken Hill and Kempsey were also of particular research interest because they had recently removed their free allowances.

Broken Hill and Kempsey were both communities that ranked in the top 5% for comparative disadvantage in NSW, whereas Albury was close to the median (Vinson 2004). Further, these communities provided a good mix of remote, rural and regional areas, covering the coastal and inland zones of NSW. In addition, the proportion of residential revenue from usage charges varied from 41 to 72% across the three communities, at least two of the communities had experience with community-wide water restrictions and each had a different type of water supply. Finally, all of the communities were relatively easy to reach by air.

Section 4 provides profiles for the three case study communities.

2.3 Stakeholder research

After careful consideration of the research objectives (listed in Section 1), ISF determined that the objectives of this study would be best served by undertaking primary research with *stakeholders who work with local residents*, rather than directly with residents. This approach takes advantage of the existing expertise and experience of those in local government and community organisations that are already familiar with water pricing issues. These stakeholders have long experience working on water pricing issues, can provide a valuable historical perspective and can offer indirect access to the views of their many clients or constituents.

Working with stakeholders, it is possible to collect a wider range of stories about the impact of water pricing than would be feasible through interviews, focus groups or workshops with residents. Stakeholders will have worked with hundreds of residents over time, whereas focus groups provide access to the views of tens of residents. While survey research could provide greater access to the views of rural residents, it would not offer the kind of rich narratives and stories that are available through interview research. Thus, primary interview research with stakeholders seemed to offer the best balance between breadth and depth of views for this project.

An additional advantage of such an approach is that stakeholders (specifically LWUs) are more likely to have access to quantitative billing data on the changes in water consumption that result from changes to water pricing structures. Residential water customers are unable to provide comprehensive data of this type.

Consistent with this stakeholder-focused approach, ISF chose to use an email survey, telephone interviews and face-to-face interviews as the primary research methods. Further details on methodology are provided below.

2.3.1 Identification of stakeholders

Two groups of potential research participants were identified, namely:

1. Staff in local Councils or water providers (in Albury and Kempsey the water provider is a business unit of the Council, whereas in Broken Hill it is Country Energy). These included managers and staff with responsibility for water services, rates clerks, and staff in finance, community services, customer service and corporate services.
2. Community welfare sector workers. These included:
 - Workers in community centres, neighbourhood centres and Aboriginal community organisations
 - Workers in faith-based welfare services (such as those run by the Salvation Army, Smith Family, St Vincent de Paul etc)
 - Financial counsellors
 - Emergency Relief³ providers and Energy Accounts Payment Assistance (EAPA) voucher⁴ providers.

³ The Emergency Relief program is funded by the Commonwealth Department of Family and Community Services. It funds community organisations to provide assistance to clients, including part payment of utility account/s.

⁴ EAPA vouchers are issued to assist people who are having difficulty paying their electricity or gas bill. Funded by the NSW Government, the \$30 vouchers are distributed by a range of community welfare organisations. While they are not provided for water bills, the assumption in asking EAPA providers to complete the survey is that if they providing EAPA vouchers then they would tend to be familiar with clients who are having difficulties with their household (utility) bills in general, and would thus be able to provide relevant information.

A database of such stakeholders was compiled for each case study area. Our initial LWU contacts suggested other staff in the LWU and their associated Council, while community welfare sector workers were identified either through Council staff or through White Pages / internet searches. In addition, our initial community contacts suggested others to add to the list.

We initiated contact with each of the stakeholders in the database by telephone or email and sought their participation in an initial email survey. In some cases, stakeholders provided information by telephone, but did not participate in the email survey. We followed up survey responses and other contacts through telephone and face-to-face interviews in each of the communities. Further details are provided below.

2.3.2 Ethics and protocol

Participation agreements were prepared for participants in the email survey, phone interviews and face-to-face interviews. The participation agreements sought to ensure that participants had a clear understanding of what the research involved and who was conducting it, explained how the results would be used, and sought their permission to publish the information they provided (participants were given a choice about whether they wished to be quoted directly or without identification). The form also provided contact details for the ISF research team and the UTS Ethics Committee. Examples are provided as part of the email surveys in Appendix 1.

2.3.3 Email survey

Two versions of the email survey were prepared: one for staff in LWUs and one for staff in the community welfare sector (samples are provided in Appendix 1). The introductory paragraph for the surveys was tailored for each case study area to describe the specific pricing structure changes that had taken place in that area. Participation agreements were included at the front of each survey.

Email surveys were sent and phone contact made with as many of the stakeholders on our database as possible. Thirteen participants returned surveys across the three case study areas. Participants are listed in Appendix 2.

2.3.4 Telephone interviews

Several telephone interviews were conducted to supplement the data gathered from the email survey. Participants for telephone interviews were selected from:

- Respondents to the email survey who ticked a box on the survey indicating that they were prepared to participate in follow-up interviews, and who the researchers felt may be able to provide further useful information, or greater detail and
- Stakeholders in the database that indicated an initial preference for a telephone interview rather than completing the email survey.

Participants in telephone interviews were asked to provide verbal consent to use their views in the research, either through quotation or anonymously. Participants in telephone interviews are listed in Appendix 2.

2.3.5 Field visits and face-to-face interviews

Although data collected through surveys and telephone interviews are useful, face-to-face interviews generally provide a richer source of data by allowing the researchers to follow up lines of inquiry that arise during the interview and to respond to visual cues provided by the research participant. In our experience, research participants are more at ease during face-to-face interviews, provide more detailed responses and allow more time for participation. A face-to-face approach is particularly valuable in rural areas, where access to information and communication technology is lower and local, informal networks are very important.

Consequently, during September and October 2005, the researchers made field visits to each of the three case study communities. These visits were a chance to collect further information about the case study areas, conduct face-to-face interviews with people to clarify information provided in email surveys, seek more detail or collect additional data.

Participants for face-to-face interviews were selected from:

- Respondents to the email survey who ticked a box on the survey indicating that they were prepared to participate in follow-up interviews, and who the researchers felt may be able to provide further useful information, or greater detail and
- Stakeholders identified in Stage 1 that indicated a preference for a face-to-face interview rather than completing the email survey.

Face to face interviews were semi-structured – for those who had not answered the email survey, a similar format was used to lead the discussion, and for those who had completed the email survey, the follow-up interviews were an opportunity to discuss their written answers in greater depth, and draw out further detail. Participants in face-to-face interviews are listed in Appendix 2.

3 SUMMARY OF LITERATURE REVIEW

This section briefly summarises the main findings from the literature review conducted as part of this research project. An annotated bibliography of the literature reviewed during the project is provided in Appendix 3.

Between 1998-99 and 2003-04, spending on water and sewer charges in NSW fell as a proportion of total household expenditure (ABS 2000, 2005). This would seem to indicate that the affordability of water bills is improving. This is consistent with the observation by the OECD that water affordability is not a significant issue for most households in Australia (OECD 2003).

However, as would be expected, households with low income, unemployed people or pensioners have been identified as vulnerable to increases in water prices (ABS 2000, 2005; Consumer Law Centre Victoria & Environment Victoria 2005; DEFRA 2004; OECD 2003). Large families are also at risk as consumption increases with household size (IPART 2004b). The OECD (2003, p.81) identifies an obvious problem with increasing block tariffs, in that a universal low-price first 'block' does not acknowledge the different needs of different sized households, and will in fact 'favour small households and penalise larger ones'. Tenants are another group at risk (WACOSS 2005). Water affordability will usually be only one aspect of more general financial problems, involving numerous bills (Ross, Wallace & Rintoul 2005)

The shift from access-based to usage-based water charges and the adoption of the long run marginal cost of supply as the appropriate basis for water pricing are becoming common practices around Australia (e.g. Economic Regulation Authority 2005; Victorian Government 2004). Certainly, this is the approach taken in NSW (DEUS 2004; IPART 2004a; Samra 2005). Importantly, the OECD (2003) identifies these types of changes as potentially introducing trade offs between efficiency and equity. Therefore, it is timely to consider the social impact of recent pricing changes.

The common rationale for pricing changes is the assumption that an increase in water prices will provide a price signal to consumers that will encourage them to reduce their water demand (e.g. DEUS 2004; Economic Regulation Authority 2005; IPART 2004a; Victorian Government 2004). However, it is clear that a significant proportion of residential demand is non-discretionary and not responsive to price changes (Economic Regulation Authority 2005; White & Sarac 2000), particularly for low-income households (WACOSS 2005). Consequently, it is far from clear that the pricing changes recommended in the Best-Practice Guidelines will achieve demand reductions. Further, any demand reductions achieved need to be balanced against the social impacts. Some organisations believe that the negative social impact of using price as a demand management tool outweighs the economic and environmental benefits (WACOSS 2005).

There are numerous recommendations in the literature for measures to improve affordability and social equity, including:

- Introduce inclining block tariffs in preference to increases to a flat volumetric charge. This recommendation is dependent on the first block being set at a level that ensures essential water supply is affordable, and the introduction of other measures to address affordability for low income and vulnerable customers (Consumer Law Centre Victoria & Environment Victoria 2005)

- Use inclining block tariffs with multiple blocks to send different price signals to low-, medium- and high-income customers and maximise welfare (Bailey & Buckley undated)
- Consider a special tariff for vulnerable consumers, such as very large families (Consumer Law Centre Victoria & Environment Victoria 2005)
- Provide a volume of water required for ‘basic needs’ at a very low cost and introduce charges above this volume (OECD 2003)
- Concessions or rebates on fixed charges for low-income households (Economic Regulation Authority 2005; Victorian Government 2004)
- Adopt measures to increase water efficiency in low-income and large family households, including assistance programs, incentives for landlords, retrofitting in public housing (Consumer Law Centre Victoria & Environment Victoria 2005; WACOSS 2005) and free water saving products (Economic Regulation Authority 2005; Victorian Government 2004)
- Improved provision of information to customers to explain fixed and usage charges and communicate the conservation signal more clearly (Economic Regulation Authority 2005; WACOSS 2005)
- Quarterly billing and bills showing the size of previous bills to help customers “benchmark” their current usage costs (Economic Regulation Authority 2005)
- Demand management strategies that ‘focus on incentives and support to reduce consumption’, rather than price increases (WACOSS 2005)
- Introduction of mandatory water efficient standards for rental properties (WACOSS 2005, p.30).

The OECD (2003) divides these measures into income support measures and tariff-related measures:

- Income support measures ‘address the individual customer’s ability to pay from the income side (through income assistance, water services vouchers, tariff rebates and discounts, bill re-phasing and easier payment plans, arrears forgiveness)’
- Tariff-related measures ‘keep the size of water bills low for certain groups (e.g. refinement of increasing-block tariffs, tariff choice, tariff capping).

Inclining block tariffs are seen as one way of balancing economic, environmental and social concerns, as the first block can provide for essential use at a lower price, while discretionary use attracts a higher price and is therefore discouraged. However, as noted above, such an approach penalises large families and households with inefficient appliances.

Other issues raised in the literature include concerns about the financial sustainability of a policy of recovering 75% of revenue from usage charges, given the impacts of drought and community-wide water restrictions (LGSA 2004). Councils also have concerns about funding reductions

under the CTWSSP and the impact this has on their ability to maintain critical water supply infrastructure (LGSA & Water Directorate 2005). If CTWSSP funding continues to fall, Councils will need to recoup more of their costs from customers, with potential increases in the affordability of water bills.

4 COMMUNITY PROFILES

This section provides background information on the three case study communities, including the data used in the selection process.

4.1 *Albury*

Description

Located in Wiradjuri Country, Albury has a population of 46,500 people and covers an area of 332 square kilometres from the Murray River at the Victorian border, east to the shores of Lake Hume, west to Splitters Creek and north to Table Top.

As a regional centre, Albury's economy is dominated by the retail, manufacturing, health, business services, education and construction sectors. These employ almost 69% of the total labour force, and contribute more than \$1.6 billion to the City's gross domestic product of more than \$2.6 billion per annum.⁵

Table 1 summarises selected demographic statistics for Albury.⁶ Drawing on these and other statistics, the quintile ranking for Albury in Vinson (2004) is 9-10, meaning that it is around the median in terms of comparative socio-economic disadvantage. Albury has the youngest population among the case study communities, with a median age of only 34. It has a significantly lower unemployment rate than the other case study communities, a higher proportion of people renting and a higher proportion of people with tertiary qualifications. It also has a significantly higher median weekly household income than the other communities and a lower proportion of people identifying as of Indigenous origin.

⁵ Albury City website: <http://www.alburycity.nsw.gov.au>

⁶ Various ABS statistics.

Population growth	0.6% per annum
Median age	34
Unemployment rate	6.9%
Proportion of private dwellings that are rented	32%
Proportion of residents without tertiary qualifications	67%
Median weekly household income	\$600-\$699
Mean household size	2.4 persons
People identifying as of Indigenous origin	1.8%
People born overseas	8.7%

Table 1: Selected demographic statistics for Albury.

The average annual rainfall for Albury is 737mm.⁷

Water supply and consumption

Albury Water, a business unit of Albury City Council, supplies water to 21,100 customers in the Albury and Hume LGAs (Samra & McLean 2005). The average annual residential water consumption in 2003-04 was 307 kl per connected property (Samra & McLean 2005).

Water source / capital works issues

Albury's water source is the Murray River, from which water is pumped via 3 pumping stations. There are 32 storage reservoirs in the Albury Water supply area, with a total storage capacity of 104.9 megalitres (ML). There are two water treatment plants, each with a capacity of 70 ML/day.⁸ The treatment process at both plants is direct filtration.

In 1997/98, Albury Water extracted 12,160 ML from the Murray River, which was close to the then total entitlement of 12,274 ML. Since then the strategy has been to reduce this figure – the

⁷ Bureau of Meteorology: http://www.bom.gov.au/climate/averages/tables/cw_072146.shtml

⁸ Albury Water website: <http://www.alburycity.nsw.gov.au/working/water/water.htm>

target is 10,995 ML. In 2004/05, a total of 8,616 ML was extracted.⁹ Albury Water's Licensed Water Allocation is now 12,954 ML per year.¹⁰

Albury Water has only ever imposed community-wide water restrictions for a period of one month, in January 2003. This reflects the high reliability of flow in the Murray River at Albury.

Pricing changes

Albury Council began charging for water (on a rate in the dollar basis) in 1982 and introduced consumption-based charges in 1991. The evolution of charges is summarised in Table 2.

In 2003/04, the Albury Water price structure still had a large fixed component. The tariff comprised an access charge of \$153, plus a 'two-step' tariff for water consumption, charged at 15 cents per kL for up to 300kL per annum, and 48 cents per kL for usage over 300kL.

In 2004/05 Albury Water moved strongly to more consumption-based charging, reducing the access charge to \$76, and introducing increased consumption charges set at lower 'steps': 44 cents per kL for usage up to 275kL per annum, and 88 cents per kL for usage over 275kL.

Further small changes were made in 2005/06. Now, the price structure has an access charge of \$84, and consumption charges of 45 cents per kL for usage up to 250kL, and 90 cents per kL for usage over 250kL.

In 2003-04, Albury Water recovered 43% of its residential revenue from variable water usage charges and 57% from fixed access charges (Samra & McLean 2005). According to Daryl McGregor from Albury Water, this has since risen to around 72%.

⁹ Information provided by Daryl McGregor, Manager, Albury Water.

¹⁰ Albury water website: <http://www.alburycity.nsw.gov.au/working/water/water.htm>

Year	Charges
1991	0-450 kL, 9.1 c/kL >450 kL, 36.7 c/kL
1994/95	0-450 kL, 10 c/kL >450 kL, 40 c/kL Access charge of \$162 introduced
1999/2000	0-300 kL, 12 c/kL >300 kL, 45 c/kL
2003/04	0-300 kL, 15 c/kL >300 kL, 48 c/kL Access charge \$153 for houses and \$102 for units
2004/05	Access charge reduced to \$76 0-275kL, 44c/kL >275kL, 88 cents
2005/06	Access charge increased to \$84 0-250kL, 45 cents >250kL, 90 cents

Table 2: Evolution of water tariffs in Albury.

4.2 Broken Hill

Description

Broken Hill is a remote regional town located in the Far West of NSW. With a population of approximately 24,500, it is the largest regional centre in the western half of New South Wales. However, Broken Hill is the only one of the case study communities in which population is declining (see Table 3).

Broken Hill is close to the South Australian border and midway between the Queensland and Victorian borders.¹¹ It is one of the driest areas in NSW, with average rainfall of only 253 mm.¹²

¹¹ Broken Hill City Council website <http://www.brokenhill.nsw.gov.au>

¹² http://www.bom.gov.au/climate/averages/tables/cw_047007.shtml

Due to weather conditions in this area, about five times the amount of water actually consumed in Broken Hill is lost through evaporation.

Table 3 summarises selected demographic statistics for Broken Hill.¹³ Drawing on these and other statistics, the quintile ranking for Broken Hill in Vinson (2004) is 1, meaning that it is among the most disadvantaged 5% of communities in NSW. The unemployment rate is higher than the national average, although not as high as in Kempsey. Broken Hill has the highest proportion of residents without tertiary qualifications and the equal lowest median weekly household income (with Kempsey). The population is generally older than that in Albury and the proportion of rented dwellings is lower.

Population growth	-1.1% per annum
Median age	40
Unemployment rate	12.8%
Proportion of private dwellings that are rented	17%
Proportion of residents without tertiary qualifications	76%
Median weekly household income	\$400-\$499
Mean household size	2.3 persons
People identifying as of Indigenous origin	5.1%
People born overseas	4.5%

Table 3: Selected demographic statistics for Broken Hill.

Water supply and consumption

Until 1 July 2005, Australian Inland supplied water to Broken Hill. On 1 July 2005, Australian Inland merged with Country Energy, which took over the supply of water to Broken Hill. Country Energy is the only State Owned Corporation supplying both energy and water services in NSW.

Country Energy is identified under Schedule 3 of the *Water Management Act 2000* (previously the *Water Supply Authorities Act 1987*) as a water supply authority by virtue of its ownership of the Australian Inland water supply infrastructure. Under this Act (Section 293), water supply authorities are subject to the control and direction of the Minister for Utilities. The Minister regulates water prices set by Country Energy, drawing on the best-practice pricing principles. Although Country Energy is not subject to the same financial incentives to comply with the

¹³ Various ABS statistics.

DEUS Best-Practice Pricing Guidelines as other LWUs, it has chosen to move towards compliance with the Guidelines for strategic reasons.

Country Energy provides water supply services to over 20,000 people in Broken Hill, Menindee, Sunset Strip and Silverton.¹⁴ The average residential water consumption for 2003/2004 was 328kl/property. For modelling of price changes, Country Energy estimates that a typical (median) residential customer consumes 286 kL/year.¹⁵ The average residential consumption is higher than the median consumption due to the impact of a relatively small number of customers with consumption significantly higher than the average.

Water source

The water supply for Broken Hill comes from three local reservoirs and the Menindee Lakes Scheme, on the Darling River. The local reservoirs are Stephen's Creek (capacity 18,000 ML), Umberumberka (capacity 9,000 ML) and Imperial Lake (900 ML). These three storages capture local rainfall and generally supply 30 to 90% of the water needs for Broken Hill. They can hold up to 2 years worth of supply but have not been full for about six years. Imperial Lake holds about five days of emergency backup supply.

To supplement local rainfall, Country Energy is licensed to extract up to 10 GL of water per year from the Menindee Lakes Scheme, which is then pumped 120 km to Broken Hill. Stephen's Creek Reservoir acts as a terminal storage for water from the Menindee Lakes Scheme before it is pumped to the Mica Street Water Treatment Plant. In addition to the Mica Street Plant, Country Energy owns a reverse osmosis plant for desalination of saline water from Menindee Lakes. This plant is currently in maintenance mode. Further details are provided below.

Community-wide water restrictions are imposed when water storage falls below 18 months supply. Water restrictions were imposed in 2002 but were removed after rainfall replenished the catchment areas.

Water quality / capital works issues

The discussion below draws on interviews with Country Energy staff.

In 2002, in response to the worst drought in recorded history, community-wide water restrictions were implemented in Broken Hill and were in place for 8 or 9 months. However, the then Department of Infrastructure, Planning and Natural Resources (DIPNR) overestimated the water available in Menindee Lakes (failing to allow for sedimentation) and the available water fell to very low levels. The remaining water was of very poor quality. Natural organism growth further compromised the water quality. Consequently, in 2003, a large amount of chlorine had to be added to the water to cut down the bacterial growth. This resulted in taste and odour problems. The source water was very salty, damaging equipment and leading to customer complaints of poor taste.

¹⁴ http://www.countryenergy.com.au/internet/cewebpub.nsf/Content/fw_water

¹⁵ Documents provided by Country Energy staff during interviews.

There has been considerable community backlash about water quality in Broken Hill, and the issue has also been raised in the NSW Parliament. In February 2004, in response to the assertion that the Minister ‘forced the residents of Broken Hill to drink dirty tap water ... rather than installing adequate desalination and filtration facilities for the city, as requested repeatedly by Broken Hill City Council’, the then Minister for Energy and Utilities, Frank Sartor stated that:

Level two water restrictions were introduced in Broken Hill on 16 January ...[and]... achieved a reduction of 20 per cent of normal demand. A reverse osmosis pilot plant is presently able to purify a substantial proportion of the water. The Minister for Infrastructure and Planning, and Minister for Natural Resources and I have regularly discussed this matter. As soon as the water flowing from the rains that recently fell on the northern part of the State reaches the catchment the water restrictions in Broken Hill will be reviewed and hopefully we will be able to lift them. A purification plant is in place and we are addressing the issue.¹⁶

The city spent \$4 million building a desalination (reverse osmosis) plant. The plant can process six million litres of water (taken from the Darling River) every day – a quarter of the city's daily needs.¹⁷ However, rainfall around the time of completion of the plant has meant that it has not really been needed to date, and is only run once a week to keep the membranes wet (i.e. for maintenance reasons).

Ageing infrastructure is partly responsible for the water quality problems in Broken Hill (e.g. the water treatment plant is 52 years old). Country Energy has now established a capital works program to address water quality problems and is investing \$36m over 5 years in infrastructure.

A further issue is that lead occurs naturally in the soil in Broken Hill. Ingestion of lead through dust has significant health implications, particularly for children. Consequently, there are concerns about increasing levels of dust around peoples’ homes because they can’t afford to water the garden. Country Energy has established an education campaign on ‘how to be lead safe and water wise’.

Pricing changes

Best-practice pricing was introduced in 2004/05 against the backdrop of the water quality problems described above. Up to and including 2003/04, Broken Hill residents received a ‘free’ water allowance of 200 kL per year as part of their annual access charge of \$233. The water usage charge was set at 65 cents per kL for water consumption above 200 kL and \$1.78 per kL for consumption above 400 kL.

In 2004/05, the ‘free’ allowance was removed. Access charges were reduced to \$185 per year. Usage charges for 2004-05 were set at 48 cents per kL for the first 200 kL consumed each year. The next 200 kL was charged at 75 cents and consumption above 400 kL was charged at \$2.05 per kL.

¹⁶ NSW Legislative Assembly Hansard 17/02/2004

¹⁷ Sarah Clarke, S, ‘Experts divided over water shortage solutions’, *The 7.30 Report*, ABC TV, 23/05/2005, transcript at: <http://www.abc.net.au/7.30/content/2005/s1375253.htm>

In 2005/06, the access charges remained at \$185 per year. Usage charges are now set at 71 cents per kL for the first 100 kL a quarter and \$2.20 per kL for consumption above 100 kL per quarter. The tariffs are summarised in Table 4.

A price increase cap of 15% per year was imposed to ease the impact of these changes on residential customers.

In 2003-04, Australian Inland recovered 48% of its residential revenue through variable usage charges and 52% through fixed access charges (Samra & McLean 2005). This figure has increased as a result of the pricing changes.

2003-04		2004-05		2005-06	
Water		Water		Water	
Usage Charged per Annum		Usage Charged per Annum		Usage Charged per Quarter	
0-200 kL	“Free” Allowance	0-200	\$0.48	0-100	\$0.71
200-400	\$0.65	200-400	\$0.75	> 100 kL	\$2.20
> 400 kL	\$1.78	> 400 kL	\$2.05		
Access Charge per Annum	\$233	Access Charge per Annum	\$185	Access Charge per Annum	\$185

Table 4: Evolution of residential water tariffs in Broken Hill.

4.3 Kempsey

Description

Kempsey is 428 km north of Sydney on the Pacific Highway. It is located on the traditional lands of the Dunghutti people. The Kempsey Shire covers 35,500 hectares, and has a population of over 28,000 (with 11,000 of these living in the town of Kempsey). Kempsey is part of the Mid North Coast Region, which is the fastest growing non-metropolitan area in NSW.¹⁸ However, population growth in Kempsey is relatively low compared to the rest of the Mid North Coast region.

Table 5 summarises selected demographic statistics for Kempsey.¹⁹ Drawing on these and other statistics, the quintile ranking for Kempsey in Vinson (2004) is 1, meaning that it is among the most disadvantaged 5% of communities in NSW. Kempsey has the highest unemployment rate

¹⁸ Kempsey City Council website: <http://www.kempsey.nsw.gov.au/>

¹⁹ Various ABS statistics.

among the case study communities and the equal lowest household income (with Broken Hill). It has the highest proportions of people identifying as of Indigenous origin. Kempsey also has the highest rate of population growth.

The average annual rainfall for Kempsey is 1,212mm.²⁰

Population growth	0.9% per annum
Median age	40
Unemployment rate	16.5%
Proportion of private dwellings that are rented	25%
Proportion of residents without tertiary qualifications	73%
Median weekly household income	\$400-\$499
Mean household size	2.5 persons
People identifying as of Indigenous origin	8.5%
People born overseas	6.5%

Table 5: Selected demographic statistics for Kempsey.

Water supply and consumption

Macleay Water, a business unit of Kempsey Shire Council, supplies water in Kempsey.²¹ Macleay Water has approximately 9,500 residential customer accounts. The average residential water consumption is 200 kL per property per annum. There are no current community-wide water restrictions in Kempsey. The last time such restrictions were used was in 2002-03.

Water source / capital works issues

The water source for Kempsey is the Macleay River, via the Sherwood borefield, which comprises 8 bores. There is also a 2,500 ML offstream storage dam. The bores pump to the dam and then to local supply reservoirs, or can pump directly to the reservoirs if there are water quality problems in the dam. Treatment comprises chlorination and sometimes pH balance for the town water supply.

Macleay Water operates nine separate water supply systems for Kempsey and the coastal villages – e.g. Crescent Head, South West Rocks, Stuarts Point. Each of the villages has a separate water

²⁰ Bureau of Meteorology: http://www.bom.gov.au/climate/averages/tables/cw_059017.shtml

²¹ Macleay Water website: <http://www.macleaywater.com.au/>

supply from local bore fields. In the past, water quality has been an issue at Stuarts Point, although there is a sand filtration plant to remove naturally occurring arsenic. A new membrane filtration plant for South West Rocks is under construction and is expected to improve water quality in the near future.

Pricing changes

Until June 2003, Kempsey residents received an allocated water allowance of 200 kL per year as part of their annual water tariff charge of \$412. Residents were charged an excess water usage charge of 69 cents per kL for water consumption above 200 kL. In July 2003, a two-part tariff was introduced, comprising an access charge set at \$252 per year for 20mm services and \$262 per year for 25mm services and a usage charge of 80 cents per kL. There were small additional increases in all charges in 2004-05 and only in usage charges in 2005-06. The evolution of residential water pricing in Kempsey is summarised in Table 6.

2002-03		2003-04		2004-05		2005-06	
0-200 kL	Allocated allowance	All usage	\$0.80/kL	All usage	\$0.83/kL	All usage	\$0.86/kL
> 200 kL	\$0.69/kL						
Access Tariff per Annum	\$412	Access Charge per Annum (20mm)	\$252	Access Charge per Annum (20mm)	\$265	Access Charge per Annum (20mm)	\$265
		Access Charge per Annum (25mm)	\$262	Access Charge per Annum (25mm)	\$276	Access Charge per Annum (25mm)	\$276

Table 6: Evolution of residential water pricing in Kempsey.

5 FINDINGS

This section outlines the findings of the research project, drawing on email surveys, telephone interviews, face-to-face interviews and document analysis. The findings are presented thematically for each of the three case study communities.

5.1 *Albury findings*

Background / rationale for change

Albury embarked on Best-practice pricing in mid 2003, following the DEUS Guidelines, although they already had some elements of the best-practice model in place (eg. had used inclining block system for 6 or 7 years).

A major component of best-practice pricing was the removal of significant cross-subsidies. A major concern for Council was to end the significant cross-subsidation of the non-residential sector by the residential sector. The analysis was that non-residential water and sewage customers were being subsidised by residential customers, and this wasn't fair. As one Council staff member put it, *'the council and the Albury Water Board were adamant that everybody should pay their share'*.

Analysis also showed that the Albury Water price structure was contrary to best-practice pricing with regard to the access and usage split. Where best-practice is for 75% of revenue to come from usage fees and 25% from access charges, Albury Water received approx 30% from usage and 70% from access. Analysis also showed that the usage fee per kilolitre was far too low to reflect the cost of supplying the water.

Albury Water staff advised that the modelling undertaken prior to the change indicated that the 'average' residential water user would see their bills increase marginally, by about \$10/year.

Monitoring of impact

Council reported that it is monitoring the impact of the price changes by:

- Looking at changes in consumption
- Monitoring customer service records – inquiries and complaints received by Council staff
- The Albury Water annual customer survey

Staff in community services tended to judge the impact of the changes based on the issues that their clients presented to them – none had specifically or actively sought information from their clients about the water price changes.

Impact on usage

Daryl McGregor, Manager Albury Water reports that total water consumption has been reduced by 15% since the introduction of the price changes, from 10,135 ML in 2003/04 to 8,616 ML in 2004/05. This is despite the fact that Albury experienced 10% less rainfall in 2004/05 compared to 2003/04, and that population is increasing by approximately 0.8% per year. However, it is important to note that most of this reduction is likely attributable to the non-residential sector, as the impact of the pricing changes is to remove cross-subsidisation of non-residential customers by residential customers.

A number of Council staff reported that they are seeing decreased water usage, or that they believe the next available consumption data will show a further reduction. One staff member mentioned that *'this has always occurred when new pricing structures have been introduced in the past'*. Another also mentioned this trend:

Albury Water records dating back to the early 1990s show that whenever there was a change/increase in prices, this was followed by a drop in consumption.

This led staff to expect to see a similar effect in relation to the recent changes, although they *'won't know for sure until end of 2005/06 period'*.

Another Council staff member expected the reduction to come from a combination of the information campaigns and the new pricing structure:

Our community is ... very responsive to requests and articles in the media about conserving water, and now that the customer has more control over their account by how much water they use, we anticipate this reduction in water.

Another Albury staff member felt that *'demand has reduced over time because Albury residents are becoming more water conscious and using less. They also respond to media information campaigns by reducing their use.'*

Obviously a reduction in water usage means a reduction in revenue for the water provider although this may be offset by reduced costs. As one staff member said *'although this [reduced consumption] means a drop in revenue for Albury Water, it also means that we can delay infrastructure upgrades, augmentations, etc.'*

General level of community concern

The level of serious community concern about the changes appeared to be low. Council customer service staff did report a large number of inquiries, but these were mostly from people having trouble understanding the changes rather than raising serious concerns about them. Concern had rarely been raised at other forums. Other Albury Council staff reported that they could not recall specific comments on this issue from the community, and thought that *'it is not a big issue, although there are obviously some impacts'*. Water pricing issues did not come up in the community consultation undertaken during preparation of Albury's Social Plan in 2004.²²

²² All Councils in NSW are required to prepare a social/community plan every 5 years under the *Local Government (General) Regulation 1999*.

Vivien Voss, Coordinator, Albury Community Centre was aware of an increase in complaints about the price of water, while Daryl McGregor, Manager Albury Water feels the community is *'generally supportive; although confused about the changes'*.

Hardship / impact on low-income households

There was a general consensus among interviewees that water bills are not causing specific or significant hardship issues for low-income households. The main reasons given for this were:

- Many (or most) low-income households are tenants and are so are not (or not yet) receiving water bills
- Water bills are relatively small compared to other bills so is not likely to have a major effect on its own.

David Rischbieth, Finance, Albury Council also noted that, *'water use is in a converse cycle to electricity'* (ie use is higher in summer) so this may lessen the impact of the bills.

Council staff stressed that low-income members of the community (who they are in contact with through Council-provided services and activities) definitely have many problems with household bills, managing their budgets and financial planning; *'household bills in general are a big issue for this group'*. However, they were not aware of any specific issues related to water bills since the price changes.

The general feeling was that, for people on low incomes, *all* bills are difficult to manage, and water bills are no different – they simply add to an existing problem, although probably not significantly given that they are relatively small. Council customer service staff reported that they:

don't really get many callers experiencing hardship or difficulty paying their water bills – there are some but not a large number.

Staff do receive a significant number of calls from people experiencing difficulty paying their rates (of which the water access charge is a component). In these cases, staff generally suggest payment by instalments.

In general, Albury City Council staff have not experienced people seeking assistance in relation to their water bills, or people in financial difficulties caused specifically by water bills. All stressed that people on low incomes often had major difficulties with *'all their bills'* or *'household bills in general'*. Kaily Goodsell, financial counsellor at St David's Uniting Care reported many clients using instalment payment options, because *'a very small minority, maybe 1%, would ever be able to pay a bill in full'*.

The kinds of bills mentioned as particular problems were electricity, gas and mobile phone bills. Community services staff did not know of cases where water bills had caused specific problems. Various reasons were given for why this might be the case, for example:

most of our clients are tenants and so don't get water bills

they may have contributed to financial problems ... [but] ... people we see often don't have a good understanding of what they have spent their money on. Water bills are only part of a broader financial management issue and probably not the biggest part

people who approach [our organisation] with financial problems do not usually talk about the source of the problems.

Kaily Goodsell, financial counsellor at St David's Uniting Care felt that water bills were not a big issue for most of her clients, as *'95% of them are tenants not homeowners'*.

Department of Housing tenants do not currently pay for water. Kaily felt that DOH plans to start charging tenants for water usage will have a big impact, but this had not started in Albury yet. She also thinks *'most private tenants are still not paying for water'*. Water bills may become an issue as private landlords start to pass on water usage charges, but she has not seen this happening yet.

It appears that if water bills do begin to be passed on to low-income tenants, there will be a significant number of low-income tenants who are affected. Kaily feels that the numbers of people in financial difficulty are increasing. Uniting Care has opened 400 new client files already this year. Given that Albury is not particularly disadvantaged on a statewide basis, the magnitude of this increase is quite significant.

Like Kaily, Vivien Voss at Albury Community Centre felt that hardship in general had increased in the last 2-3 years:

The GST really hit people hard and continues to have flow-on effects in the community. There has been a significant increase in the numbers of people in financial difficulty – especially retired people who are finding that they do not have enough income to live on.

In particular, Vivien felt that single people – sole parents and single unemployed or retired people – tend to face more difficulty than couples in making ends meet. Kaily Goodsell makes a related point. While there is no 'typical' client, many are single mothers with a number of children who come to the service *'because they are struggling to make ends meet, including putting food on the table and managing household bills'*.

While tenants may not be currently affected by water bills, low-income homeowners are vulnerable to rising bills, although this is a small group. Kaily estimated that about 5% of her clients are homeowners, and these people are usually accessing the service because they are *'in severe financial difficulties – they are in danger of losing their homes'*. The majority of these clients would have a rates debt to Council as one of many debts. For these people, *'the water bill is just another bill'* – meaning it is fairly insignificant in the face of their more serious debt problems.

Despite the general view that water bills were not much of an issue for most low-income households, because they are mostly tenants, Vivien Voss, Coordinator, Albury Community Centre, suggested that there were a small number of homeowners who were vulnerable to rising water prices. These fell into three groups:

- Aged pensioners (especially singles) who own their own home but find they are less able to afford to live in it because of maintenance costs and household bills. Such people are

finding that they have to contemplate selling and moving to rented accommodation in order to increase their income. The costs of running a house are especially difficult for single pensioners to manage – they only get one pension, but they are trying to cover similar sized bills as a couple would have for water, heating, phone etc.

- Sole parents who have experienced a relationship breakdown and are continuing to live in the house with the children. Like single retired people, they find that *'household bills are just difficult to manage on one income'*.
- Families in a home with a mortgage where the main breadwinner has become unemployed (usually at around the age of 45-50).

These groups may well feel the effect of any rising household bills, however, it is not clear whether their water bills would actually have increased since the changes. David Rischbieth, in the Finance section of Albury Council thinks that in general, *'the average customer without a garden has probably saved money'*, because the access charge has been reduced.

Vivien Voss noted that larger families would tend to use more water, *'but there really are not that many large families any more'*. The exception would be *'Koori households that do tend to have a large number of people living in them – large family groups, but they tend to be tenants so they're not affected by water bills'*.

Impact on Aboriginal households

Liz Heta, Aboriginal Liaison Officer at Albury City Council outlined some of the specific issues for Aboriginal households. She felt that in general water bills are not really a big issue for the community because:

most Aboriginal residents are tenants so they don't pay for water. Most are lower socio-economic status, so they don't live in big houses with pools or large gardens. Many don't have cars to wash. So they're not generally big water users.

However, many Aboriginal households are 'financially struggling', and experience similar kinds of problems to low-income households in general. Liz reports that there is also a *'high incidence of people with drug addiction problems – this often means they are behind with their bills'*.

Liz noted that *'household bills are a problem for many. Many experience their utilities being disconnected because they are in arrears'*. She indicated that people can go for weeks without access due to the fee they have to pay to get utilities reconnected. Liz thought she could remember a case where a woman who had seven children living in the house had her water supply restricted. However, Albury Water disputes this. Daryl McGregor (Manager Albury Water) indicated that:

Albury Water has never cut off, nor restricted supply to any residence for any reason. The case cited by Liz may have involved someone mischievously turning off the tap at the meter. This does happen on occasions.

Most Aboriginal people live in Department of Housing properties, or Aboriginal Housing, or the private rental market. Many live in poor quality properties:

Many live in homes that could not be called 'waterwise'. They are poorly maintained properties – they may have leaks that they don't know about. Residents can be reluctant to tell the landlord – they don't want to complain, especially if they are behind in the rent or they have people living there who shouldn't be there.

The impact of increasing water prices (where the usage bill is passed on to the tenant) is likely to be felt especially acutely by the many large Aboriginal households:

Overcrowding is a big issue for Aboriginal households. Many houses have large numbers of people living in them, large extended families. This can mean the household is a high user of water, and gets a large bill. Overcrowding also causes more wear and tear on the house.

Liz Heta reports that many Aboriginal people use Centrepay (the Centrelink scheme that deducts instalments for bills such as gas, electricity and water from Centrelink payments before paying the recipient). Liz reports that the Indigenous workers at Centrelink have been very helpful with arranging this.

In general, Liz feels that Aboriginal households have low levels of understanding and knowledge about how to save water, and that *'there is a lack of information that reaches the Aboriginal community'*.

Impact on units/flats and on tenants

Daryl McGregor, Manager Albury Water advised that the access charge became uniform across all residential properties, which may appear to disadvantage flats (which had previously had a lower access charge than houses). However, flats also tend to use less than average amounts of water so this means they might be better off overall. Sewerage charges, rather than water charges have been the most problematic for customers in flats.

Prior to the change, water bills were sent to the body owners but now landlords can send them on to the individual tenant. While community services staff felt that as tenants, many of their clients were (still) not receiving water bills, it is clear that there are also many cases where landlords have started passing the usage bills on to tenants. Council customer service staff reported receiving many calls from tenants after receiving their first usage bill. Many tenants in flats and units saw the new system as unfair because *'the usage for the block is divided equally among the residents, regardless of how much water each flat individually uses'*.²³

One Albury Water staff member felt that:

with regard to water, they [multi-unit residential households] are probably not badly affected, because their access charge has been halved, and while usage charges have increased, residents of flats/units are not high water users, so the impact would be minimal.

This staff member cited Albury Water figures for 2003/04 that show that the average consumption for flats/units is only 178kL per year, compared to the average residential consumption of 370kL.

²³ The Best-Practice Guidelines require all new multi-unit residential developments (both strata and non-strata) approved after 1 July 2004 to be separately metered (DEUS 2004). Consequently, the concerns raised here about the practice of dividing the water bill equally between units should diminish over time.

It appears that some tenants missed out on some of the information materials related to the change, because although Council sent an information brochure out with the first bill, some property owners were not passing on the brochure when they forwarded the account to the tenant.

Other social impacts

Albury Council staff mentioned that a number of voluntary / community groups connected to sporting and recreational clubs are concerned about the rising cost of water – especially those that need to use large amounts of water to maintain ovals and sports grounds. As their costs are rising, some clubs are passing on these costs to users, making club membership and involvement more expensive.

Vivien Voss, Coordinator, Albury Community Centre claimed that when the pricing changes were announced, ‘many people reduced their water use drastically because they feared they would otherwise receive a huge bill’. In her opinion, this meant that there were many *‘dead and dying gardens, plants, nature strips – gardens that look like a dust bowl’*. Vivien claimed that people are *‘distressed because they can no longer afford to water the garden or wash their cars’*. She said she was seeing *‘dead gardens, dirty cars, stress because of it’*.²⁴

Community consultation prior to change

Albury Water established a Customer Reference Group prior to the introduction of the price change. The group included representatives from business, industry (including a large local manufacturer and high water user), schools, real estate industry, local clubs, and 3 ‘general community members’ (one of these was from a large family with 5 or 6 children). The members were selected for their interest in the issue, and were not necessarily representative.

Albury Water’s main concern at the time was to reduce the large cross-subsidy from residents to industry and move to a fairer model where the different sectors paid according to their usage. Albury Water asked the Reference Group how much residents should subsidise industry, and put 3 models to the group, showing subsidies of 10%, 15% and 20%. The response was that the community should not subsidise industry *at all*, instead industry should pay their full share. As another staff member put it, *‘they [the workshop participants] all agreed that everybody should pay their own share’*.

When Council staff showed participants the effect of the proposed changes, *‘they were happy with the process and the proposed fees/charges’*. The major outcome from the meetings was a recommendation that changes be phased in for the non-residential sector, and a cap be placed on the increase for these customers, in order that the impact would not be so dramatic. Part of the reason for this concern among members of the Reference Group was the fact that this sector was seen to be *‘a major provider of employment for local people’*.

Albury Council staff felt that community consultation is generally quite difficult in Albury – *‘the community is not enthusiastic about consultation’*, and *‘turnout is usually very low’*. It was suggested that perhaps this is *‘because it is quite a ‘settled’ community, so people are a bit complacent about things’*.

²⁴ It should be noted that Daryl McGregor (Manager, Albury Water) disputed the comments by Vivien Voss in this paragraph. He argued that they are personal opinions with no factual basis.

Level of community understanding of the changes

Analysis of how well people understand the changes to water pricing was extremely mixed. Daryl McGregor, feels that people do generally understand the inclining block tariff model:

they do understand that the second step is charged at a higher rate in order to penalise high water users and encourage people to cut their usage.

However, there was much evidence that the changes were not well understood, at least by a significant proportion of the community. Daryl reported that the last annual customer survey conducted by Albury Water resulted in *'considerably more negative responses than in previous years'*. These related both to the actual price increase and to the difficulty of understanding the new structure and interpreting the bills.

Customer service staff felt that many (or even most) people *'do not understand the price structure at all'*, and that *'if you asked people in the street they wouldn't be able to explain the way water is priced'*. They felt that many people don't understand the separate fees for access and usage let alone the inclining block structure. Many would not realise there had been a change from 'excess water' charges to an access and two-step usage fee. Many would not understand that usage over 250kL was charged at a higher rate.

Similarly, Vivien Voss, Coordinator, Albury Community Centre felt that people are aware that *'water has become more expensive'*, but

people in general do not understand the price changes at all – they wouldn't really have a clue how prices are worked out – they would probably say they just pay it and they think Council is ripping them off. They'd say 'I don't know how much I pay, I just pay it.

Kaily Goodsell, financial counsellor at St David's Uniting Care felt that most of her clients would have no knowledge, understanding or experience of the water price changes. Partly this is because many of them are tenants and have not started receiving water bills from their landlords.

Council customer service staff also noted that *'in general, callers do not like any kind of change, especially price increases'*. They find that *'most people are calling because they think their high bill is a mistake'*. They also note that:

many people are suspicious of Council – there's a fair bit of 'Council-bashing', so some callers suspect Council is overcharging them.

Vivien Voss, Coordinator, Albury Community Centre said that the local media tends to be negative about Council and this influences people's attitudes.

Customer service staff reported reassuring a large number of people that they were not being overcharged, or charged twice, or billed based on a faulty meter reading, but rather the price structure had changed and they were now paying for the water they used. These staff felt that in most cases, *'people who are getting high bills, it's because of high usage'*. Often these high levels of consumption are explained by *'kids or gardens'*.

Another Albury Water staff member stated that some people call to query why their bill is higher than usual, and are motivated to reduce their use when they understand the price change:

Some customers have called Albury Water querying higher than expected bills. When their consumption has been checked against previous periods, and it has been confirmed that the meter reading is correct they understand that they are not using more water they are just being charged a higher price for it. In response, a number have said they will be making more effort to reduce their consumption (with shorter showers etc).

Billing issues

One reason that was repeatedly mentioned as contributing to the lack of understanding of the changes was the difficulty many people have in understanding their bills.

Albury Water has received over 1500 calls on water billing since December 2004, indicating that the community consultation conducted in relation to the pricing changes has not been particularly effective. One issue that confuses people is the separation of the access charge (on the rates notice) and the water usage charge (on the water bill). Many Albury Water staff admitted that the bills are confusing, and that this is one of their biggest problems:

they don't understand the account, and I have to agree; the format and layout of the account has been a problem for years and we are currently reviewing this.

Customer service staff in particular reported much confusion from callers about billing. They said *'people don't understand the way their bills are set out'*. In particular, the separation of the access charge on the rates notice and the usage charge on a water bill *'led some people to think they were being charged twice'*.

Other Albury Water staff acknowledged that this separation *'makes it hard to understand the relationship between the two charges and the changes to both. Some people have asked for this method of billing to be changed so it is easier to understand and keep track of'*.

It seems the billing issue was exacerbated by a change in billing frequency, introduced at the same time as the price change, with bills now sent 3 times a year instead of 2. Customer service staff said this really confused people and *'led to some people believing they were being overcharged'* when they received the extra bill.

Albury Water staff also mentioned high levels of confusion about the low cost allowance (below 250kL) – people not understanding when they have exceeded the allowance because they can't easily compare their current bill with the previous one, or see how much they have used for the year, or understand how close they are to reaching/ exceeding 250kL:

people are having difficulty interpreting the bill and forgetting the level of entitlement already used.

the customer receives the first 275 kLs [sic] at a cheaper rate and ... they never know how much of this lower amount they have used and/or think they receive this amount on every account in the financial year

Customer service staff felt that *'the bills should have more information, or clearer information, set out in a way that people can understand'*. They thought in particular that bills should show usage compared to the previous period and annual usage, so that people can see when they are approaching their 250kL allowance at the lower rate. Other Albury Water staff reported that modifications to the bills were planned.

Another staff member mentioned that '*customers are paying more attention to their bill*' since the price changes.

Metering issues

Both Daryl McGregor, and Council customer service staff noted that customer complaints often initially take the form of a complaint about a faulty meter. However, in most cases investigation shows it is not a faulty reading, but a failure to understand their usage.

Graham McDonald, meter reader at Albury Water said he will go and check any meter where the resident is concerned about an apparently high reading. He checks the meter itself, but will also check the house for leaks etc. Graham used to be able to do this for many more residents when meters were read only once a year:

I had much more time at each house and I could spend time talking with the resident about their usage – identifying leaks inside the house and giving advice.

But now meters are read three times per year there is not time for this. If he suspects a leak now, he leaves a note in the letterbox advising the resident to check. He says customers generally lack knowledge about things like toilet leaks.

Levels of customer debt / accounts in arrears

Daryl McGregor advised that Albury Water's debtor lists '*do not show much debt amongst residential customers*' he estimates there are less than 6 residences in arrears.

Graham McDonald thought that the real number might be higher.

David Rischbieth, Finance, Albury Council felt that there had been a '*slight increase in the number of customers in debt to Council*' recently, but he did not think that this was attributable to the water price changes – '*it seems to be more across the board*' (ie with regard to rates in general). David also pointed out that the water access charge that appears on the rates notice is only a small component of the whole notice.

Kaily Goodsell reported having clients who are 'in debt with rates in general', but had seen 'no real difference since the price change'.

Use of water supply restriction

Daryl McGregor, Manager Albury Water advised that in '*extreme cases*', of customer debt, Albury Water can impose a '*reduction in supply and eventually disconnection*'. However, he advises that these measures are '*part of debt recovery policy; but never implemented*'.

David Rischbieth Finance, Albury Council thought it was unlikely that restriction of a household's water supply had happened in recent times. Kaily Goodsell, financial counsellor at St David's Uniting Care has not seen any evidence of water restriction being used. Vivien Voss was not aware of any cases. However, Liz Heta reported knowing of cases where this had happened to Aboriginal households. Other council staff said that restricted supply had been used, but not since July 2003.

Community attitudes to water conservation / pricing

There was enormous variance in how people assessed community attitudes to water. Albury Council customer service staff felt that:

People do not understand that water is a valuable resource – they don't have an attitude of responsibility towards it, and they generally think they pay too much for it.

Similarly Vivien Voss, Coordinator, Albury Community Centre, felt that *'people don't value water, or understand why it costs what it does, because they don't understand where it comes from, or the process it has to go through to reach their tap'*.

Some Albury Water staff felt that certain groups have quite wasteful attitudes. Tenants were cited as a group that sometimes displayed an attitude of 'we don't pay for it, so we don't care'. High income households were another group who were seen to be likely to ignore conservation issues, for example:

The very high water users – those who use a lot of water on their gardens – will continue to despite the price changes – because they can afford it.

Those people on good incomes, who have large gardens are really not affected by any price increase, no matter how big you make it, because they can afford to pay more, and they are willing to do so rather than reduce their consumption. They'll probably just ignore it.

Graham McDonald felt that small users who felt they couldn't afford the price rises have reduced their consumption, but *'some large users have actually gone up'*. Some use as much as 2,000 kL/year, mainly on large gardens. Another Albury Water staff member advised that Albury Water estimate that *'about 40% of water used is on gardens'* (this figure is arrived at by measuring the volume of water supplied then subtracting the volume of water entering wastewater treatment plants).

Albury Water had actually seen its highest ever consumption in the week before the researchers visited. Graham McDonald speculated that this was related to the start of spring and the recent rainfall which mean *'people aren't as worried about conserving'*.

Daryl McGregor doesn't believe community-wide water restrictions always work. For example, giving people restricted days/times (e.g. odd/even days) when they are allowed to water can mean that *'they water on those days regardless of whether they actually need to'* (for example, after rain).

On the other hand, many people mentioned a gradually increasing awareness about the need to conserve water. Graham McDonald said that *'people like to keep their lawns and gardens alive, but that's changed now'* and that *'water conservation is a BBQ topic'* in Albury.

One Albury Water staff member felt that:

while they did do some local media, and include an explanatory flyer with the first of the new water bills, there was probably more that Albury Water could have done to explain the changes better and earlier'. In particular, could have considered how to target information to tenants (who missed out when the flyer was sent to property owners).

Council staff reported various information strategies that they had conducted in relation to the changes, including an ongoing water conservation campaign, a pamphlet for rate payers, numerous factsheets, articles in the local paper and Council newsletter, a ‘water loss campaign’ and drought awareness campaign. Customer service staff sent out large numbers of different factsheets on water efficiency when the changes were first introduced, but have not had many requests for this information since. Staff felt people were more likely to think their high bill was a mistake, and when it was found to be accurate, they were not particularly interested in factsheets or information on how they can save water. It was also felt that *‘people have a good awareness of the Waterwise campaign, through ads in the local media’*.

Kaily Goodsell, financial counsellor at St David’s Uniting Care felt that many of her clients *‘would not have a good understanding of how to reduce their water usage’*.

Vivien Voss specifically mentioned the need for *‘more information and education about planting native gardens and drought tolerant plants’*. This would help people avoid dead and dusty gardens. She also felt that there were quite a number of people who had tried water efficient showerheads but did not like the effect so have reverted to the old ones.

Non-price measures

Albury Water does not have any retrofitting programs. However, Daryl McGregor, Manager, Albury Water reports that Albury Water will conduct a free audit of any property – this can help to identify leaks, inefficiencies or wastage, and ways to reduce consumption. Albury Water will do this for anyone, but it is mostly taken up by non-residential customers. Daryl thinks this is *‘because it’s not really worthwhile for residential customers’*.

Albury Council has considered possible measures to alleviate the impact on larger households. There is an awareness among Albury Council and Albury Water staff that larger households may be a group that has experienced an increase in bills since the change. David Rischbieth noted that:

meter-based charging doesn’t take account of who is using the meter and differences in household structure. Larger households necessarily use more, but they get the same allowance.

Daryl McGregor reported that Albury Water is interested in what more they could do in the way of measures for low-income or large households, and they *‘have been thinking about this’*, but they are not sure how it would work in practice. David Rischbieth also mentioned that Council had considered this question and is interested in possible measures to assist large, low-income households, but Albury Water doesn’t have any data on how many people per household, so such schemes *‘would be difficult to administer’*. Daryl McGregor noted that one means might be for people to sign statutory declarations, but felt that this was *‘not necessarily reliable’*.

Vivien Voss noted that many of the clients of her service *‘do not have the means to purchase efficient or water saving equipment’*. Many people *‘do know such things are available, but they can’t afford them’*. She feels her clients could reduce their level of water consumption *‘if they could afford new washing machines, etc. and watering systems’*. She suggested a no interest loan scheme would be helpful. Vivien also mentioned that plumbers are *‘so expensive that many people avoid calling one – even if they have drips and leaks – it’s cheaper to pay for the wasted water than the plumber’*.

5.2 Broken Hill findings

Several themes are apparent from analysis of the research data for Broken Hill. Findings relating to each theme are outlined below.

Tariff structure

As noted in Section 4.2, Country Energy made the decision to move from an annual block allocation of 400 kL in 2004-05 to a quarterly block allocation of 100 kL in 2005-06. The reason for this change was the observation that people were using a lot of water in the first few quarters and then couldn't do anything to avoid a higher bill once they realised they were over their allocation. The quarterly allocation (and quarterly billing) was brought in as a fairer structure. Country Energy felt that the graph on the bill showing consumption didn't provide a strong enough signal and that the quarterly structure would stop people backsliding after initial demand reductions. Sydney Water has adopted a similar approach in its 2005-06 tariff.

Incidence analysis

Country Energy undertook incidence analysis to assess the impacts on residential customers of the price changes in both 2004-05 and 2005-06. For 2004-05, 80% of customers should have seen no increases in their bills. Country Energy established a cap of 15% on bill increases for residential customers in 2004-05 to minimise price shocks. Country Energy has maintained the 15% cap for the subsequent year.

Country Energy provided further details of the incidence analysis undertaken for 2005-06. Customers were divided into consumption bands of 50 to 100 kL and the percentage increase in water and sewer bills was calculated. The incidence analysis also considered small, medium and large households, a typical household (286 kL) and pensioner households (small, medium and large). The analysis found that prices would increase by as much as 26% for a medium pensioner and 19% for the typical customer if Country Energy moved to a tariff structure that was fully compliant with the Best-Practice Guidelines. Country Energy therefore modified the 2005-06 tariff (by reducing the price charged for the first block and increasing the access charge) to ensure that no customer experienced more than a 15% annual increase in their bill.

In Broken Hill, commercial customers were historically subsidising residential customers on water prices. In this situation, the impact of the Best-Practice Guidelines is generally to increase residential water bills. Country Energy was 'acutely mindful to bring charges in line to reflect equity between residential and non-residential water charges'

Utility cost reduction

One of the ways that a water utility can bring prices down is by reducing operating costs. Country Energy has developed a five-year Operational Savings Plan, focusing on cost recovery and including a meter program and a leak reduction program as ways of reducing costs and bringing down prices.

Risk to revenue

Country Energy is planning to move to a tariff structure that recovers 75% of its residential revenue from usage charges, as required by the Guidelines. However, Country Energy feels that the proportion of usage charges specified in the Guidelines is too high and makes it difficult for

water utilities to manage their finances. Country Energy staff felt that this view was shared by most LWUs, who are very unhappy about the revenue split specified in the Guidelines.

Country Energy staff explained the revenue risk associated with seeking a higher proportion of revenue from usage charges. If usage is lower than expected (e.g. due to a wet year reducing the need for outdoor water use), the water utility puts at risk its financial objectives for that year. Country Energy noted that moving to a fully compliant best-practice pricing regime in 2005-06 would have placed 18% of total water revenue at risk in one year.

Community consultation and awareness

The tariff changes in Broken Hill were the subject of public workshops advertised through television, radio and newspaper. Although open to the public, these workshops were very poorly attended. There was also a proactive communications campaign to promote awareness through the media. Country Energy staff felt that there was a degree of public apathy about the price changes. The pricing workshops followed an earlier consultation program by Australian Inland as part of the development of Water 2023, its Integrated Water Cycle Management Plan. Water 2023 had an active consultation and community engagement component, however, in the end, Country Energy had to choose a preferred scenario itself for Water 2023 due to lack of interest.

Nevertheless, Country Energy staff felt that the price changes have led to ‘greater open dialogue with customer segments’ and ‘increased community awareness and acceptance in relation to pricing and water management’. The key message was that ‘it makes economic and environmental sense to make water wise use a habit’.

Andrew Vodic from Lifeline discussed the ‘Broken Hill subculture of having a God-given right to things’, stemming from the strong union background and the previous role of the mining companies. He felt that ‘people take water for granted’. Debbie Goodeve from Lifeline added to this, noting that ‘some people are very cautious with their water use but others just don’t care. Some people are selfish and want to keep their lawns, regardless of drought conditions’. She felt that there is enough information out there but some people just ignore it. For others, it’s hard to know where to start.

One research participant from a community group felt that people in Broken Hill are more aware of the need to save water due to the drought and their country lifestyle (being closer to nature), although the older generation may have more of an issue with the changes. In contrast, Debbie Goodeve noted that pensioners tend to have good awareness and plan to match their income, whereas financial planning is not so good in the younger generations.

Effectiveness of price signals

Country Energy staff felt that the price signal is getting through to people, e.g. people are looking for leaks. Luisa Simmons from Country Energy is currently analysing two years worth of data for each residential customer and 900 commercial customers, including 118 flats and units, to assess impacts on consumption. She has found a reduction in consumption of approximately 12%, although this cannot be attributed solely to pricing changes. Other causes of the reduction include Country Energy’s Schools Program, lots of community consultation, increased awareness brought about by the drought, followed by a reduction in outdoor use once higher rainfall levels returned. Country Energy staff felt that the drought probably had the biggest impact on consumption.

A research participant from a local community group indicated that he had become ‘pretty frugal with water’ and knew of other people who have reduced their gardening use by putting drip irrigation systems in or planting native gardens – ‘native gardens are big in Broken Hill’. Debbie Goodeve noted that ‘lots of people are letting their garden go’ and ‘some people are going to smart gardens’. The Smith Family also felt that ‘people are watching water use. A lot of people have let their gardens go or are not using sprinklers. Some are using timers to get teenagers out of the shower’.

Debbie indicated that a lot of the people she works with don’t pay attention to prices – they just pay the bill without really looking at the prices, accepting it as another debt to pay. The Smith Family felt that clients didn’t know about the pricing changes. Some are very low-income households that can’t afford the local paper. Some have limited life skills and literacy skills, so can’t understand water bills. For St Vincent de Paul, the issue of price changes has not really arisen.

Some of the community group representatives felt that there was more scope for people to curb wasteful practices in response to price rises, or to reduce their gardening use.

Non-price measures

According to Country Energy staff, when community-wide water restrictions were in place, everyone was out between the specified hours of 6pm to 9pm watering their gardens, when they might not have done so normally. So restrictions can be counter-productive in terms of saving water.

Country Energy has a Sustainable Schools Program that has school children doing water audits and provides assistance for schools to undertake water saving initiatives recommended by the audits. The Program also funds a Sustainable Schools Support Teacher and includes a “Where Our Water Comes From” program in which students visit Broken Hill’s catchments, reservoirs and treatment plants.

In addition, Country Energy staff will go out to a house when there is a big bill and check for leaks. Further, Country Energy is looking at a showerhead retrofit scheme and is developing a Waterwise calculator along the same lines as its Energywise calculator (http://www.countryenergy.com.au/internet/cewebpub.nsf/Content/env_eff_calculator). Country Energy staff felt that rainwater tank rebate schemes are not that useful in Broken Hill, given the low rainfall.

Andrew Vodic from Lifeline indicated that people couldn’t afford the upfront cost of equipment to improve water efficiency. He felt that there was a need for retrofit programs and rebates for native gardens. Debbie Goodeve identified the same problem: ‘people want to save water but they can’t afford the outlay to fix problems’. There is a problem of current cost versus lifecycle cost.

Social impacts

Affordability of water was identified as a significant issue by some of the research participants, particularly those from local community groups. One such participant drew on her personal experience, stating that ‘her water bill was huge’ and that it was ‘disgusting’ that the charges are so high. Another felt that affordability of water was a significant issue for her clients and that

people do have difficulty paying bills. Most of her clients were tenants and landlords passed on the excess water charge – ‘as a bonus under the door’. She felt that people are always in debt to Country Energy: ‘People feel that the bills are killing them. They have big arrears’. St Vincent de Paul also felt that quite a few clients had difficulty paying water bills and/or were in debt to Country Energy.

Others, including Debbie Goodeve from Lifeline, indicated that water bills are only an issue for some people in the community. Debbie tries to address the issue by getting people to put money aside on a fortnightly basis and to monitor the graphs on their bills. Debbie noted that some people get into a Catch 22 situation where they can’t afford to pay the cost of fixing leaking pipes but they can’t afford the bills either. According to Debbie, water accounts are typically about \$180 to \$200 per quarter. One of the problems with the water bill is that it only comes in every 3 months and people aren’t used to paying it: ‘It’s not the biggest bill, so it’s not top of mind. It’s hard to get people to save for it because the amounts are so small’. Clients do not plan for the expense and ‘therefore pay in full after [the] due date which leaves other accounts unpaid’. Some are ‘unable to sustain regular payments towards debt at a high amount’. St Vincent de Paul pointed out that: ‘as always, when prices rise, it makes it harder for clients to manage’.

Others discussed affordability of water as part of broader affordability issues. A representative from the Salvation Army in Broken Hill indicated that her clients are locked in a difficult cycle where there is always a new bill coming in – they get together the money to pay one bill, get a bit behind, and then another bill comes in. The water bill is not a specific problem but when combined with all the other bills it is a problem. It brings extra pressure.

In contrast, one of the research participants from a local community group indicated that the water pricing issue doesn’t come up very much. Water quality, particularly high chlorine levels, was identified as more of a problem. Debbie Goodeve also raised water quality as an issue. Because ‘water quality hasn’t been the best’, people are spending on bottled water, which impacts on people’s income. The Smith Family indicated that water quality problems have led people to pay for rainwater (from a local person) because they can’t afford bottled water.

Country Energy saw an increase in complaints from residential customers in the third and fourth quarters of 2004-05 but indicated that this was mainly due to confusion about the IBT. Customers received higher bills because they had exhausted their cheaper allocation. In response to these complaints, Country Energy moved to quarterly allowances as discussed above. The biggest increase in inquiries was from the non-residential sector. Queries related to ‘cost impacts to business, water usage patterns and clarification of bill structure’.

The Smith Family has seen an increase in inquiries from tenants about water bills, ‘but people have always been whingeing about something’.

One research participant from a local community group felt that the user pays system was better than the previous system and that people in Broken Hill are generally aware of the price changes and happy about them.

Andrew Vodic from Lifeline felt that the health issue associated with lead in the soil was the biggest social impact. Being unable to afford water, some people have let their lawns die and turn into ‘dustbowls’. Andrew indicated that most of the Department of Housing (DOH) accommodation has dirt instead of a lawn and this was confirmed by visual inspection. In

households with dirt gardens, children are more likely to ingest soil with high lead content, resulting in possible health impacts. Andrew indicated that while some people are abandoning their gardens, those who can afford it are moving to smart gardens (e.g. planting natives and drip irrigation systems). But he noted that it is not worth it if you are renting. If renters are required by their lease to maintain the garden, this can force them to use more water than they otherwise would.

Andrew felt that some low-income households were reducing their water consumption by washing themselves and their clothes less.

Hardship programs

The main hardship program available to residential customers who face problems paying their water bills is Country Energy's Country Support scheme, which was launched in Broken Hill on 23 March 2005. Country Support was described by Country Energy staff as a case management program, which works over the long-term (12 to 18 months) rather than just the period to the next bill. It is intended to provide support 'during any circumstances when hardship affects customers' and to 'tailor solutions to...individual needs'. Any Country Energy residential water customer experiencing hardship is eligible to apply for Country Support. Generally, the payment plan under Country Support has to include some reduction in the arrears as well as covering new charges.

However, representatives from local welfare organisations told the researchers that there is a divide between what Country Energy says about Country Support and what actually happens. According to these representatives, Country Energy sometimes just puts people on a payment plan and they 'only like to negotiate amounts that cover incoming accounts and also deduct from arrears'. One representative from a welfare organisation stated that it is 'quite common for clients to enter into an arrangement to pay the debt in fortnightly instalments'. They also indicated that, although water audits are available under Country Support, they are at the customer's expense. Further, they claimed that customers often have only a 3-month period to catch up arrears. They felt that awareness of the program is low and that Country Energy isn't really promoting it to the community. According to one community worker: 'Most people haven't heard of it'.

Country Energy indicated that it has a flexible payment policy, a policy of no disconnection and is currently working on a policy for flow restriction. Staff from community groups confirmed that they were not aware of any use of disconnection or restriction of water supply by Country Energy in Broken Hill.

Country Energy also supports Centrepay, which is available to the 17% of Country Energy customers in the water supply area that receive social support benefits. The Smith Family recommends Centrepay to people and rings Country Energy to get people set up. It has seen increasing use of Centrepay. However, Andrew Vodic from Lifeline has found that it's difficult to get people to realise that something like Centrepay is worth doing. They worry about the immediate loss of income. Further, Debbie Goodeve noted that Centrepay works well for some people but it doesn't work for everyone: it can take out too much from their income. For St Vincent de Paul, the main need for clients was understanding how to budget.

Country Energy also has a policy for unidentified leaks (e.g. under the house) in which it pays half of the cost for the excessive water use and the customer pays the other half.

Andrew Vodic from Lifeline indicated that there are no relief vouchers for water available in Broken Hill. In the absence of such programs, groups like St Vincent de Paul try to help in other ways. Some of their clients, perhaps 10%, come to them seeking part payment of water bills but they are not able to help with this as much as they would like due to other calls on their funds. The representative from St Vincent de Paul would like to see water vouchers in Broken Hill so that she could help these clients.

5.3 Kempsey findings

Background / rationale

Macleay water staff reported that prior to the change, the water price structure meant that residents were subsidising industry. Removing this cross subsidy was a major reason for the changes. As a result *'residents are generally happy with the changes and industry is not so happy'*. There were also previously cross subsidies for households of different sizes within the residential community. High users were being subsidised by low users – this has been removed by moving to the two-part pricing structure. As a result, Macleay Water reports that

very low users have received a significant reduction, the majority of residential customers have received a small bill reduction and very few would have increased. Some with a large pool might have seen an increase. This was the intent of the modelling – to minimise the increases for most customers.

Macleay Water staff felt that:

this pricing system gives customers a lot more choice. You can go for a water efficient gardening style or choose to pay the higher tariff ... people can choose to get a tank to water their garden. Now people can see how much water they get for the price.

The biggest reaction was at the first six monthly bill, because people weren't used to getting bills for water. But once the new system was explained to people, it all settled down.

Macleay Water staff reported that Kempsey has had community-wide water restrictions in the past (2002-03), but none are current.

Incidence analysis

Macleay Water used the DEUS pricing module to undertake incidence analysis. Potentially negative consumer impacts were identified and the following solutions were proposed:

- Pensioner rebates to access charge
- Rebates and Fee reductions on meter downsizing or removal
- Provide free 50kl of water every 6 months to Dialysis Patients
- Reduced access charge for identified fire service meters
- Strata titled properties - standardised access charge per unit.

Consultation

Macleay Water report that when the basic best-practice pricing model was set up, a letter was sent to all 15,000 customers identifying the proposed changes and how they would impact on customers. Each property got a unique letter based on their property information, split up into different categories – industrial, commercial, residential, tenants etc. Each property also got a brochure tailored to their category. The letters sought responses from the residents. The pricing changes also went on public exhibition from April to June 2003 and comments were sought. All of the responses went into the final pricing decision. Input was taken into account after the proposed model was set up, because it is a complex issue for people to understand.

Tenants were picked up from an analysis of the customer database and sent a specific tenant's brochure, however there was a lot of returned mail, because it's hard to identify tenants. Macleay Water reported that it is hard to reach tenants as most of the focus is on building owners.

Five community workshops were held after the public exhibition period. There was one open workshop, then specific workshops targeted at property owners/body corporates, businesses (e.g. farmers, who have particular issues with metering for troughs etc), tourism (caravan parks etc). The workshops were not as well attended as they might have hoped but people who did attend brought up useful issues. Council tried to deal with these in a positive way and to take them on board. There were also media releases in local newspapers and radio coverage in the lead up to the pricing changes.

Macleay Water staff also mentioned face-to-face consultation since the changes came in. For example, Macleay Water had a stand at the Kempsey show. The Council put a water meter in the centre of the stand and had a competition to see who could read their water meter, with drink bottles as prizes. They found this was a good way to open up discussion with individuals, and they found they achieved '*positive rapport*' with people about the pricing structure generally.

Billing issues

Macleay Water staff reported some confusion about the two separate water bills (one for access on the rates notice and a separate bill for usage) but it hasn't been too difficult to explain to people:

People initially asked 'why are we getting charged twice'? You have to explain that the total bill has been cut into two halves. Council staff have learnt to explain that the access charge covers the cost of the water supply and distribution assets and that the usage charge covers operational costs.

Macleay Water has six-monthly billing frequency. This has not changed since the pricing change.

Impact on usage

Macleay Water staff report that DEUS is '*doing some work on the consumption impacts of the new prices*'. Macleay Water provides the figures and DEUS '*does the number crunching to see if there has been any change in usage in the different categories (residential, industrial, agricultural, institutional, multi residential etc)*'. DEUS did a review last year of the first year of changes but it was a very dry year, so the reduction wasn't as big as expected. Macleay Water expect to see a bigger reduction in the second year. Also, there was not a lot of change in the first year in the residential sector because '*people didn't start to change their behaviour until they saw*

the first six monthly bill'. (The non-residential sector is usually on monthly billing, so businesses could see the impact more quickly and tended to react and reduce their use more quickly).

In general, Macleay Water staff have observed that *'customers are more closely relating their consumption to dollar value. In turn this may create more efficient water use'*.

General level of community concern

Macleay Water actively monitored customer service calls when the pricing change first came in, and registered a large number of enquiries:

At that time there were so many calls that we almost had to hire more staff, but it was only for the first few weeks, then the calls dropped off.

Initially, many of these calls were from the non-residential sector, as this sector receives bills on a monthly basis and was therefore the first to see the pricing changes reflected in water bills.

Customer enquiries in the first six months were mainly people seeking clarification because they were confused about particular issues.

A representative from St Vincent de Paul indicated that they did get a lot of inquiries at the start of the pricing changes, with people not knowing how much to set aside, but this settled down and nobody has come back with further issues. They encouraged people to set money aside each fortnight for the water bill and this seems to have been successful in helping people to plan for water bills.

Local citizen and community groups in Stuarts Point indicated that water quality was more of an issue for Stuarts Point residents than water pricing. One participant from Stuarts Point complained that there was:

Very poor water quality, large amounts of unknown deposits in kettles, the water has a bad smell at times, brown colour in water that stains clothing.

Another participant from Stuarts Point felt that: *'You should be able to expect reasonable water quality for the price'*. He indicated that people had complained when prices first changed but they now accept it as just another bill. There was no evidence that water quality is a significant issue outside the Stuarts Point water supply area. Macleay Water advises that the water quality issues in Stuarts Point are being addressed.

Hardship / impact on low income households

There are approximately 9,500 residential customer accounts in Kempsey and about 2,880 of these receive a concession of \$87.50 applied to the water access charge. Concessions are available to all landowners that hold a concession card. The NSW Government provides 55% of the funding for these concessions (through the Department of Local Government) and the

Council provides the remaining 45%.²⁵ These figures are only for landowners – the percentage eligible for rebates would be higher if tenants were included.

A local community group in Stuarts Point felt that affordability of water was a significant issue for people in the area, where there is a high level of unemployment. Large households, tenants and other low-income households were most at risk:

Those on a low fixed income hardly survive as it is, without another bill to pay.

The impacts reported were '*Complaining / Worrying / Stress Increase*'.

A financial counsellor in Kempsey reported that clients of the service are mainly people with debt problems (especially related to credit cards, but also to mortgages and household bills), and people seeking budgeting help and advice, or advice about the legal processes associated with debt recovery. She didn't think water bills were a particular problem, but rather stressed how her clients had problems with *all* their bills, and general difficulties in managing their finances:

People usually have a raft of bills. If they are landowners, they are behind in their rates and their water bills and all the rest. They rob Peter to pay Paul. And then they don't get to pay Peter back.

She reported that the Councils (Kempsey and Nambucca) do assist people who find large rates bills difficult – they are '*generally quite positive about letting people pay a little bit off at a time*'.

She said Council '*doesn't usually come in and turn off the water – it would have to be a very extreme case*'. She stressed that for someone to get to that point, there would usually be other complicating factors, for example '*there might be mental health issues that have prevented people negotiating*' or '*some people with mental health issues just don't keep records*'.

Macleay Water staff said that they did everything they could to help people in difficulties with their bills:

Provided the customer identifies himself or herself to us, the Rates Clerk will bend over backwards to help them. The problem is when people don't or won't identify themselves, despite the use of education and awareness campaigns. We can't help people that don't ask for help.

Sometimes people ring up and let Council know that this is a difficult time. Usually, people will identify themselves as being in difficulties when they get a notice and late fee. The bill is covered with notices to call up and talk. The '*billing lady*' will ring people when they get to the stage where Macleay Water is intending to come out and restrict their water, and she tries really hard to come to an arrangement.

The penalty for issue of a Payment Reminder Letter, 14 days after the account is due, is relatively small (\$6.20). The second penalty is bigger - \$34 for issue of a Final Notice Letter by hand. There is a third penalty of \$11.40 for Issue of a Notice of Entry by hand. In addition, interest of 9% is charged on arrears. There is a disconnection fee of \$119 and a reconnection fee of \$119. Where Council staff attend a property to disconnect the supply but the customer pays at the last

²⁵ This concession is available throughout NSW to all Councils that provide water supply services.

minute, there is a \$58 fee. According to Macleay Water staff: *‘The idea of these fees is to jolt people into action, not to increase their burden’*.

Since the pricing changes, Macleay Water indicated that more people have been issued with reminder notices. It was thought that this might be because people weren’t used to getting the separate bill and didn’t plan for it. However, Macleay Water staff were not seeing more people reach the restricted supply stage. They indicated that, *‘for the last meter read, there were only five customers that reached the restricted supply stage’*. This was considered to be a typical number for a six-month period.

Restriction generally triggers a response very quickly, within a few days. If it gets to this stage, there is usually something other than just the cost going on. Council always tries to ensure that disconnection is midweek so that people don’t have to deal with it on a weekend. Often, people are repeat offenders.

Restriction is only used when all debt recovery and relief strategies have been exhausted.

After the pricing changes, Council applied to Centrelink to be able to use the Centrepay auto payment system with customers. The regular minor payment deducted from their Centrelink benefit helps people to manage bills better, although sometimes they actually end up in credit to Macleay Water:

A very high percentage of disadvantaged or low socio-economic customers are using Centrepay. A high percentage of tenant-oriented minority groups [sic] would use the system.²⁶

If people fall behind with a bill, Macleay Water will help them work out a payment plan:

They need to pay off at least \$20 a fortnight – this is the lowest we will usually accept. The payments need to be high enough that the person will have paid off the debt by the time the next bill is due. The idea is for Macleay Water to avoid carrying any debt, although there will probably always be some.

Impact on tenants

Macleay Water staff reported that there is a standard access charge for strata title properties (i.e. the access charge is not linked to meter size for these properties). The Council made a conscious decision to keep this kind of structure in place. The body corporate decides how to divide the usage charge between dwellings. Some have elected to have separate meters installed, others to install their own internal meters, others to divide usage equally.

Water usage accounts are sent to the owner of the premises. Since the two-part pricing was introduced, Macleay Water has determined that, if the property has a unique property manager (such as a real estate agent), then they will send the water usage bill to the manager who will then pass it on to the tenants. Some lease adjustments have had to be made. This has impacted on real estate agents because they are now held responsible for administering water bills – this has increased their workload. Financial responsibility is still the owner’s, so Macleay Water can’t send bills direct to the tenants.

²⁶ By this, the participant meant that Centrepay is heavily used by disadvantaged customer groups that include a high proportion of tenants.

Macleay Water staff report that there are some specific tenancy arrangements that have been difficult to administer. For example *'caravan parks are a bit tricky because the bill from Council applies to the whole park, so they may have to set up separate meters to deal with it'*. Developing a means of addressing the tenant/landlord situation was described by Macleay Water staff as *'the trickiest part of the whole pricing system'*. They reported that:

the various issues relating to tenants / landlords have probably been the most complex to address since the price changes. Who accepts responsibility for the usage charge varies a lot, depending on how the lease is set up. Some owners will pass on everything, some will pass on none.

Macleay Water staff felt that there may have been some manipulation of tenants when the changes first came in, with landlords passing the usage charge on to the tenant on top of their usual rent, but they felt that *'most lease agreements will have caught up by now'*, and will clarify whether or not water is included. It was felt that *'most landlords wouldn't want to upset their tenants too much'*, but maybe there is *'some scope for changes to tenancy law or regulation to ensure that there is consistency and tenants aren't being hurt'*.

A community group in Stuarts Point felt that *'Water should be a given for renters, not an extra cost above the rent paid'*.

Attitudes to water pricing / conservation

Macleay Water staff felt that user pays is the best incentive for demand management, as it targets both environmentally motivated and cost motivated people. They felt that the changes had led to earlier identification of internal water leaks through individual customer monitoring.

A community group in Stuarts Point felt that the pricing changes were not clearly understood by the elderly and others, especially people who rent.

A financial counsellor in Kempsey felt that *'the drought has made people more aware of price changes and the need to conserve water.'* Generally:

people are more conscious of water conservation now, especially with the water restrictions, which mean you're not allowed to water until after 8 [sic].

However, she felt there were still:

a lot of wasteful practices out there – some people just don't realise that they have to pull their head in.

Examples are leaking taps, watering the garden all the time, letting kids play with the hose for ages. While some people could stop such *'wasteful practices'*, others might find it difficult to reduce their consumption;

some might have pools, which they need to top up, there are dishwashers for people with a higher income, and [children] are in the shower for half an hour.

While she felt there was a *'bit of room to reduce consumption'* she thinks most people on low incomes are probably already low water users; *'if you haven't got much money coming in, you will be watching every cent'*. For wealthier people however, there is probably no incentive to

change their wasteful practices; *'people on higher incomes don't care as much – some people don't want to modify their lifestyle one iota'*.

Macleay Water ran a radio campaign for Water Week to raise awareness of water conservation. Awareness campaigns have previously targeted youth. They have also been involved in providing educational materials for schools.

Non-price measures

Macleay Water does not have a retrofit program and does not do auditing of residential customers' houses. Council has considered helping customers with self-auditing programs. They report that:

The billing person sends a letter when someone gets an unusually high bill and the customer usually calls to get advice on how to self-audit. This was in place prior to the pricing changes. There is more incentive now that the prices are higher. If people get changes in their bills, they tend to call and try and work out why ... Council staff have definite awareness of the spiel to give to people (check for leaking toilets, do a meter read overnight when no water is being used, etc).

Macleay Water staff felt that the splitting of access and usage charges had helped people identify when their usage was unusually high:

It's a bit easier for them to identify problems with the new pricing structure – things aren't covered up in the price signal. The price signal is clearer.

Best-Practice Guidelines

Macleay Water staff indicated that adjustments to the pricing policy by DEUS can come at a difficult time, when Council has just made a decision to go a particular way and doesn't want to change again so soon:

For example, the request to move to 75% revenue recovery from usage charges came just after Council passed its pricing changes. So Macleay Water has not moved in this direction yet. There is a lot of work required to bring changes in, which is something that needs to be considered in the three year review [of the Guidelines].

In wetter areas, like Kempsey, Macleay Water staff felt that the pricing changes are more about reducing cross-subsidies than environmental factors.

One representative from a local citizens' group raised the issue of cross subsidisation within an LGA: *'If different towns are on different supplies, should they pay different costs'?*

6 CONCLUSIONS AND RECOMMENDATIONS

This section reports the research conclusions and outlines recommendations for ongoing advocacy by UCAP. Section 6.1 discusses conclusions and recommendations that pertain to the pricing principles outlined in the DEUS Best-Practice Guidelines. Section 6.2 focuses on the demand management requirements in the Guidelines. Section 6.3 provides conclusions and recommendations that relate to the initial objectives of the research project.

6.1 Best-practice pricing principles

As noted in Section 1, the DEUS Best-Practice Guidelines establish the following pricing principles for residential water provision:

1. Usage charges should be set to reflect the long-run marginal cost of water supply.
2. Residential water usage charges must be set to recover at least 75% of residential revenue.
3. To encourage water conservation, high water consuming residential customers should be subjected to a step price increase (expressed as an “excess water charge”) of at least 50% for incremental usage above a specified threshold. This threshold should not exceed 450 kL/a per household.
4. LWUs must bill at least three times each year (and preferably every quarter) to improve the effectiveness of pricing signals.
5. No land value based charges (i.e. rates).
6. No “free” or “pre-paid” water allowance.

Many of the research findings relate to the impact and scope of these pricing principles. The sections below outline conclusions and recommendations that are relevant to each of the above principles, as well as to the overall scope of the principles.

6.1.1 Usage charges to reflect long-run marginal cost of water supply

This principle recognises that efficient water pricing needs to include a usage charge that recovers ‘those costs that vary with demand in the long-term’ (DEUS 2004, p.5). It draws attention to the need for full cost-recovery to maintain the financial viability of LWUs and minimise overuse of scarce water resources. Further, DEUS (2004, p.18) notes the need to avoid ‘significant cross-subsidies’ in achieving full cost-recovery. Thus, in implementation, this principle has motivated LWUs to remove subsidisation of residential customers by non-residential customers and vice versa. Indeed, our research identified this as perhaps the primary motivation for pricing change in the case study communities. Certainly, this was the case in Albury.

While full cost recovery is desirable for economic and environmental reasons, this research has identified two important reasons to be cautious on the grounds of social equity. First, the pace of pricing change needs to be considered. Where one group of customers has been subsidising another, the short-term negative social impacts of rapid subsidy removal may outweigh the

economic, environmental and long-term social benefits. In Broken Hill, Country Energy responded to this issue appropriately by establishing a cap on annual percentage bill increases, although the appropriate size of the cap is open to debate. Staged implementation of subsidy removal is critical when particular customer groups will experience bill increases. This is already recognised in the Guidelines for non-residential customers, through indicators requiring that ‘any large increases in non-residential customer bills [are] phased in over 5 years’ (DEUS 2004, p.18). However, there are no analogous indicators for residential customers.

Second, consideration must be given to the essential nature of water supply. Where full cost-recovery leads to water affordability problems for particular groups of customers, such as low-income households, large families, pensioners, Indigenous customers, unemployed people or tenants, appropriate hardship programs must be established to ensure that access to water is not compromised. In the case study communities, hardship programs focused on water affordability suffered from poor promotion (e.g. Country Support) and/or poor targeting (e.g. pensioner rebates which exclude other needy groups). Section 6.3.2 provides further conclusions on the nature of appropriate hardship programs.

A further point to note here is that historical cross-subsidisation of non-residential customers by residential customers reduced the impact of the recent price changes on residential customers in Albury and Kempsey. Removal of cross-subsidies has meant that most residential customers in these communities have either experienced a decrease in their total water bill or a small increase. In communities where there was previously cross-subsidisation of residential customers by non-residential customers, such as in Broken Hill, it is clear that the impacts on total water bills for residential customers are greater.

Despite the relatively small bill increases in two of the case study communities, it was clear that some customer groups were experiencing increased hardship as a result of pricing changes. The customer groups at most risk are low-income households generally, unemployed people, pensioners, large families and tenants. An excellent way to reduce the likelihood that these households will experience hardship is to undertake targeted demand management for households experiencing problems. This strategy is discussed in more detail in Section 6.3.2.

Recommendation 1: Advocate the inclusion of a cap on annual residential bill increases as part of the Best-Practice Guidelines.

Recommendation 2: Advocate the development of NSW-wide guidelines for hardship programs focused on water affordability.

6.1.2 Proportion of revenue from usage charges

The requirement for LWUs to obtain at least 75% of residential revenue through usage charges attracted criticism from the LGSA (2004) and the LWUs interviewed during this research. The main concerns relate to the impact on the financial viability of LWUs. Reducing the fixed component of revenue exposes LWUs to greater revenue volatility due to fluctuations in water demand from year to year. For example, in cool, wet years, where water demand is lower, LWUs will receive less revenue. Alternatively, when an LWU imposes community-wide water restrictions due to drought, it will also receive less revenue. In response to these concerns, DEUS has indicated that LWUs will not be required to comply with this principle until 2007 (LGSA

2004). Further, as Samra (2005, p.3) points out LWUs can address these economic sustainability concerns by establishing a revenue fluctuation reserve to balance revenue across multiple years.

Recovery of a greater proportion of revenue from usage charges is desirable from an environmental perspective. Increasing the price paid for each unit of water will encourage water conservation by residential customers and reduce overuse of scarce resources, thereby reducing the environmental impact and long-term sustainability of water supply.

The social impact is less clear. Reducing the fixed component of the water bill provides residential customers with more opportunity to reduce their bill through water-saving practices. This is particularly important for households that have relatively low consumption, including many low-income households and pensioners. These customer groups, many of whom may be experiencing financial hardship, stand to gain from this pricing principle. However, there may be negative impacts on tenants in metered properties, as landlords are able to pass on usage charges to tenants but cannot pass on fixed charges. In addition, low-income households with high consumption, such as large families, are likely to suffer. Water bills will increase for these customer groups, with potential increases in hardship.

DEUS is now encouraging integrated pricing of water and sewerage services (Samra 2005), which would further increase the variable usage component of the bill. The effect of such an approach is to strengthen the positive and negative impacts discussed above.

Given the mix of social impacts described above, incidence analysis that considers impacts on different customer groups is critical to ensure that impacts on vulnerable customers are either minimised or mitigated through appropriate concessions, rebates or hardship programs. All of the LWUs in the case study communities conducted incidence analysis prior to the pricing changes to assess the distribution of impacts and Country Energy introduced a cap on bill increases to address observed impacts.

At present, the Best-Practice Guidelines include a water supply pricing check list (Appendix B in DEUS (2004)) that provides guidance on tariff implementation. It recommends that LWUs examine the impact of new tariffs on the bills for representative customers and refers LWUs to the *Water Supply, Sewerage and Trade Waste Pricing Guidelines* developed by the Department of Land and Water Conservation (DLWC 2002) for more detailed guidance on incidence analysis. However, this recommendation is not linked to the core criteria used to determine whether an LWU is compliant with best-practice. It would be appropriate to review the DLWC Guidelines to assess whether they provide sufficient guidance on how to consider the impacts on vulnerable customer groups. Further, consideration should be given to including guidelines on incidence analysis in the DEUS Guidelines for convenience. In addition, compliance with these guidelines should be defined as a key requirement to achieve best-practice.

DEUS is working with the LGSA to develop guidelines to assist LWUs with the design of safety net/transitional arrangements for implementation of integrated water and sewerage pricing. This is an opportunity to develop broader guidelines for incidence analysis and hardship mitigation that will be relevant regardless of whether an LWU adopts integrated pricing. With appropriate management and mitigation of the social impacts, the move towards greater reliance on usage charges appears to be in the public benefit.

Recommendation 3: Review the way impacts on vulnerable customers are considered in the DLWC Guidelines on incidence analysis and consider including guidelines on incidence analysis in the DEUS Guidelines for convenience.

Recommendation 4: Develop more detailed guidelines for design of hardship mitigation programs by LWUs, focusing on vulnerable customer groups (low-income households generally, unemployed people, pensioners, large families and tenants).

6.1.3 Inclining block tariffs

The third pricing principle requires LWUs to introduce inclining block tariffs, in preference to other tariff structures such as two-part tariffs. Two of the case study communities (Albury and Broken Hill) have implemented IBTs while Kempsey has decided to implement a two-part tariff due to its ease of understanding and administration.

The requirement to implement IBTs sits uneasily with the requirement for usage charges to reflect the long-run marginal cost (LRMC) of water supply. Either customers who consume less than the threshold amount see a price that is less than the LRMC or customers who consume above the threshold amount are penalised at a level above the LRMC. A two-part tariff, with the usage charge set to the long-run marginal cost of water supply, would seem to have benefits in exposing all customers to the real cost of water supply, as well as being simpler for customers to understand and for LWUs to administer. Further, it avoids the significant problem of how to choose the block size and prices to minimise negative social impacts.

However, the significant advantage of an IBT is that it can target discretionary water consumption while allowing for essential water consumption at lower cost. With appropriate block size selection, this can reduce impacts on many vulnerable customers. However, the Guidelines do not provide any guidance on the amount of water required to meet essential needs. Further, this amount will vary depending on the number of people in the household. While the structure of an IBT can be used to minimise impacts on some vulnerable customers, there is still a need for parallel measures to address impacts on large households.

Where an IBT is implemented, LWUs should consider following the lead of Sydney Water and Country Energy and applying the block allocation on a quarterly basis, to spread out costs more equally across the year. Otherwise, there is a risk that bills in the third and fourth quarters will be significantly higher and add to the financial stress on vulnerable households. This is something that could be addressed in the Guidelines.

Recommendation 5: Provide additional guidance in the Best-Practice Guidelines on appropriate sizing of the first block to match essential water use for a large proportion of vulnerable customers.

Recommendation 6: Ensure that additional measures are introduced alongside IBTs to specifically address the essential water needs of large families, e.g. rebates, alternative tariff structures and demand management programs linked to household size

Recommendation 7: Define quarterly block allocation as best-practice for implementation of IBTs.

6.1.4 Billing frequency

Each of the LWUs adopted a different billing frequency, from twice a year (Kempsey), to three times a year (Albury) to quarterly (Broken Hill). The Guidelines require billing three times a year and preferably on a quarterly basis. Macleay Water justified its adoption of six-monthly billing on the basis of resource constraints – it would be costly to do the additional meter reads required to move to quarterly billing. In response, we would point out that LWUs could reasonably recover the additional costs of quarterly billing from customers. Meanwhile, customers would accrue benefits from receiving more frequent feedback on their water consumption, allowing them to more readily respond to price signals. On this basis, the principle of quarterly billing is endorsed.

6.1.5 No land value based charges

This pricing principle was not questioned in the literature or by any of the research participants. It is appropriate to move away from land value based charges.

6.1.6 No free or pre-paid allowance

The rationale for removing free water allowances is clear – if water is provided free of charge, there is no incentive for customers to curb wasteful practices. All of the LWUs involved in this research had abolished their free allowance. However, there are two points to note in relation to free allowances. First, landlords are not allowed to pass on usage charges to tenants in properties that are not separately metered. This means that tenants in such properties still have an effective free allowance for water and do not see any price signal to encourage reductions in consumption. While this situation protects vulnerable customers who are tenants in properties without separate meters it also means that a significant opportunity to achieve demand reduction is being missed. Nevertheless, it is clear that passing on usage charges to properties without separate meters is inequitable. Non-price measures are required to effect demand reductions in properties without separate meters. Non-price measures are discussed in more detail in Section 6.3.2.

Second, there are attractive arguments for introducing special water tariffs for vulnerable customers, as suggested by the Consumer Law Centre Victoria and Environment Victoria (2005). These tariffs could, for example, include a free allowance based on household size, as a way of ensuring affordable access to essential water needs. In this specific context, it seems reasonable to relax the requirement for no free allowances in the Guidelines.

Recommendation 8: Relax the requirement for no free allowances in the specific case of special tariffs for vulnerable customers.

6.1.7 Scope of the Best-Practice Guidelines

Some opportunities to expand the scope of the Guidelines have been identified in the sections above. Two additional opportunities to expand the scope of the Guidelines were identified during the research.

The first is to include guidance on billing structure and content to improve the way in which customers experience price signals. In terms of bill structure, the biggest problem identified during the research was separate billing of access charges and usage charges. For example, in Albury and Kempsey, the access charge is included in billing for rates, while the usage charge is

billed separately. This had led to a great deal of confusion in both communities, with customers complaining that they were being charged twice for the same thing. To provide a clearer price signal for water, access charges and usage charges should be billed together, preferably on a quarterly basis. In terms of content, guidance on what information to provide on past consumption would also be valuable.

The second opportunity for expansion is to provide additional guidance on best-practice consultation methods. At present, the Guidelines state that LWUs should consult the community but provide little guidance on how this should take place. It was notable in the case study communities that community involvement in the *development* of tariff structures was minimal. Most of the consultation took place after new tariff structures had been proposed. There is value in involving the community earlier in the process to improve ownership of the final results.

Further, the communities used very different consultation methods, with varying degrees of success. Albury Water's Customer Reference Group provided valuable input to the development of pricing strategies but the level of enquiries received from the general public indicated that wider awareness-raising strategies were unsuccessful. In Broken Hill, public apathy reduced community input to the pricing changes – a Customer Reference Group may have been a useful approach here. Community consultation guidelines could outline different approaches and when they might apply.

The Guidelines could reference the Department of Planning's Community Engagement website, which provides excellent guidance on community consultation approaches (<http://www.iplan.nsw.gov.au/engagement/index.jsp>).

Recommendation 9: Provide additional guidance on billing structure and content, including a requirement to bill for water access and water usage in a single bill.

Recommendation 10: Provide additional guidance on community consultation by providing a reference to the Community Engagement website in the Guidelines.

6.2 Demand management

The Guidelines (DEUS 2004, pp.19) currently provide the following indicators to assess demand management by LWUs:

Sound demand management implemented.

Identification of most cost-effective demand management initiatives.

Subsidisation and promotion of at least two of the identified demand management initiatives.

Include demand monitoring, leakage reduction and community education.

The Guidelines recommend that LWUs examine the following demand management measures:

- Active intervention – appropriate retrofit, rebate and building code programs
- Water pricing reform

- Community education
- Effluent and stormwater re-use.

In addition, they provide guidance on demand monitoring, demand forecasting, demand management planning and implementation.

The inclusion of requirements relating to demand management in the Guidelines is commendable. However, the Guidelines miss an opportunity to use targeted demand management measures to address issues of water affordability and hardship. For households experiencing difficulty paying water bills, demand management measures such as retrofits can provide permanent financial relief by reducing household water consumption. Further guidance on how to link demand management programs to hardship programs would be a valuable addition to the Guidelines.

Recommendation 11: Provide additional guidance on how to use demand management programs to address the needs of vulnerable customers and those experiencing hardship.

6.3 Research objectives

Section 1 listed the following three research objectives:

- Test key assumptions for using price as a major mechanism to achieve water conservation by rural residential water users, including equity implications and the impacts on the community more broadly
- Better understand the potential contribution of price and non-price measures to achieve appropriate water conservation
- Gauge attitudes and acceptance of price and non-price measures to achieve appropriate water conservation.

Conclusions and recommendations relating to each of these research objectives are discussed in the sections below.

6.3.1 Using price to achieve water conservation

A key assumption driving the tariff changes specified in the Best-Practice Guidelines is that exposing residential customers to higher usage charges will encourage them to find ways to reduce their water demand and save money. This assumption is based on economic theory, which contends that rational consumers will always act to promote their self-interest and maximise their welfare. In practice, consumers do not always behave rationally. Much depends on the nature of the market for water services, the social and cultural context and the type of psychological and systemic barriers that a consumer must overcome to conserve water.

This is not to say that improving price signals will not result in water conservation. In fact, the literature reviewed during this project and early evidence from each of the case study

communities indicates that increased usage charges do bring about water conservation.²⁷ However, there are several reasons why policy makers should be cautious about relying on price as a major mechanism to achieve water conservation.

Demand for water is price inelastic, which means that large price increases are required to achieve noticeable demand reduction. WACOSS (2005, p.25-27) summarises elasticity estimates from various empirical studies. The highest estimate of elasticity is -0.26. If the price elasticity of demand is -0.26, then a 10% increase in water usage charges would reduce consumption by only 2.6%. This is the best case scenario – other elasticity estimates were lower. The inelastic nature of water demand reflects the essential nature of water services. Much of our water use is non-discretionary and used to meet basic needs.

Importantly, WACOSS also presents evidence that the price elasticity of demand is lower for low-income households. The quoted figures range from -0.14 for low-income households to -0.19 for high-income households. This indicates that low-income households are less able to reduce their demand in response to price signals; they have less discretionary, or luxury, demand. Consequently, low-income households are relatively helpless to reduce the financial burden associated with price increases. This is a significant equity issue associated with the use of price to achieve water conservation. It has led some organisations to argue that price should not be used at all as a demand management tool, because the social impacts of higher prices outweigh the relatively small benefits achieved (e.g. WACOSS 2005).

Inclining block tariffs are designed, in part, to address this equity concern. By pricing the first block at a lower level and the second at a higher level, IBTs attempt to penalise discretionary demand while providing affordable access to essential water demand. The success of this strategy depends heavily on the specific design of the IBT, particularly the size and price of the first block. Inevitably, no matter how carefully the IBT is designed, some vulnerable customers will be penalised. Often, these will be customers that have a large number of people in the household or that live in households with inefficient or faulty equipment that they cannot afford to upgrade or repair. If price is to be used as a demand management tool, then it is critical that other measures are introduced in parallel to protect vulnerable customers, such as special tariffs, rebates or retrofit schemes. These measures will be considered in more detail in Section 6.3.2.

Assuming that these measures are implemented, the research reported here indicates that IBTs can be an effective tool for targeting discretionary water demand, particularly outdoor demand. Outdoor demand has a much higher discretionary component than indoor demand. In Albury and Broken Hill, where IBTs were in place, many of the research participants mentioned reductions in lawn watering, planting of native gardens and installation of efficient watering systems as the main actions taken to reduce water use. However, the research participants clearly saw dead and dying gardens as a social problem. While high-income households could afford to maintain their gardens, low-income households were forced to let them die. In at least one case, tension over whether to water the garden led to significant family problems. While price can be an effective tool for reducing demand, it is a particularly blunt and poorly targeted tool.

²⁷ Although note that most of the observed reductions in water use were in the non-residential sector, where access charges are generally higher due to the larger service size and billing is often more frequent, providing a stronger price signal.

The research identified several other issues associated with the use of price as a demand management tool. First, most people seem to think in terms of water bills rather than water prices. It is actually an increase in water bills that prompts changed practices. Total water bills do not appear to have risen much in Albury and Kempsey, as removal of cross subsidies has benefited residential customers. This means that the price signal has been muted. The current separation of billing for access and usage charges further mutes the price signal. These factors act to reduce the effectiveness of the price changes as a demand management tool.

Second, many customers, particularly those in low-income households or with limited education, seem to think of the bill as just another burden to pay. They do not pay attention to the prices or read any of the consumption details on the bill. Often, they feel there is little they can do anyway to reduce their consumption, lack information about changes they could make or cannot afford to make the changes that they do know about. If they are tenants in metered properties, they face difficulties getting landlords to improve water efficiency as the landlord sees no benefits. These factors reduce the effectiveness of prices changes as a demand management tool in low-income households.

Finally, the research participants indicated that many high-income households can afford to pay higher bills and do not give any real consideration to changing their practices. These households, which often have high consumption, are not yet being impacted by price changes. Whereas there is an argument that prices have been set too high for many low-income and vulnerable customers, there is also an argument that prices have been set too low to impact on discretionary use by high-income customers.

Instead of assuming that price rises automatically send a ‘scarcity signal’ and trigger a rational response whereby people reduce their consumption, it would seem that a segmented approach to thinking about how consumers behave is needed. That is, price signals will work for moderate income households where knowledge and capacity to reduce use are both high, and the price rise is significant. However, price signals will not work for high-income households where the price rise is easily absorbed. Nor will they work for low-income households where knowledge and capacity to reduce use are low.

A possible solution is to develop a basic tariff that would be available to households that receive Centrelink benefits and/or are below particular income thresholds, adjusted for household size. This basic tariff could still use an inclining block structure, but would include a low-priced initial block sized to meet basic needs and adjusted for household size. Such a tariff, while posing some administrative issues, has the potential to protect vulnerable customers from the negative impacts of undifferentiated tariffs, while still providing incentives for demand management. Further, once protection of vulnerable customers is assured, there would be scope for increasing the penalty associated with the second block in the standard IBT to start to reach high-income households. Regardless of the approach adopted, it is clear that both price and non-price measures are needed to promote demand management.

Recommendation 12: Investigate how a basic tariff for vulnerable residential customers could be designed, implemented and targeted to ensure that these customers have affordable access to basic water needs.

6.3.2 The contribution of price and non-price measures to water conservation

As noted above, a clear conclusion from this research is that price should not be used alone to drive water conservation. Price is a blunt tool that inevitably causes hardship for some vulnerable customers. While there are ways that price can be adjusted to minimise this hardship, one of the most effective ways to achieve targeted water conservation is through non-price measures. Conclusions and recommendations relating to various non-price measures for water conservation are provided below.

Community-wide water restrictions

Community-wide water restrictions are one of the most equitable water conservation measures available because they can be used to isolate particular water-using practices that are clearly discretionary. Restriction of particular outdoor uses of water, such as hosing of paths or watering of gardens, reduces these discretionary uses without any impact on essential water use. Most of the research participants felt that drought conditions and associated water restrictions had contributed more to water conservation and public awareness than any of the other price and non-price measures.

One participant did raise a concern that restrictions can be counter-productive, because everyone goes and waters their garden in the allowed time when they might not otherwise. However, it is likely that this type of behaviour occurs during an adjustment period and would reduce over time.

The research did not identify any need for changes to current application of community-wide water restrictions in regional and rural NSW.

Targeted demand management

Many of the research participants noted that low-income households are unable to afford the upfront cost of repairing leaks, maintaining water-using equipment or buying water-efficient appliances. This makes it very difficult for low-income households to respond to price signals. Perhaps the most effective non-price measure to achieve water conservation in low-income households is to provide targeted demand management programs (e.g. retrofit and rebate programs) to assist with the upfront cost of water conservation. None of the case study communities had residential retrofit or rebate programs in place.

From an equity perspective, subsidised retrofit programs should give priority to three overlapping categories of customer:

- Low-income home owners (likely to include single parents and elderly people)
- Homeowner households with large families
- Tenants.

The significant experience with retrofit programs in the Sydney Basin could readily be applied to the rural and regional areas of NSW. Programs could cover repair of leaks, reduction in toilet flush volume and installation of efficient showerheads and flow reducers on taps.

Rebates could be applied to, for example, rainwater tanks, water-efficient washing machines and showerheads. To assist LWUs, it would be appropriate for DEUS to provide more detailed guidance on the use of retrofits and rebates in the Best-Practice Guidelines and for the NSW Government to offer financial support.

Hardship programs

Although rebates and retrofits can ease the burden on vulnerable customers, there is also a need for targeted hardship programs for households experiencing financial difficulty. The role of these programs is to assist the 5 or 10% of households that are worse off under marginal cost pricing. Elements of a hardship program include concessions or rebates on water bills, flexible payment plans, emergency relief and sensitive policies on penalty fees and restriction of supply.

The case study communities generally had water bill rebates in place for pensioners but did not offer any concessions or rebates for other customers. Rather than expanding the availability of bill concessions, a preferred approach is to develop a basic water tariff, as discussed in Section 6.3.1. This tariff would be available to households that receive Centrelink benefits and/or are below particular income thresholds, adjusted for household size. This approach would effectively extend concessions to other vulnerable customers.

All of the case study communities offered flexible payment plans, which are generally endorsed.

Emergency relief vouchers are not currently available for water, outside the Sydney Water and Hunter Water service areas. Several of the research participants from community groups felt that vouchers should be made available so that they can be offered to people who come to them for help. Expansion of the Water Payment Assistance Scheme across NSW would be appropriate.

A final issue to consider in hardship programs is the practice of charging residential customers late fees, disconnection fees, connection fees and interest on top of their water bill. In Kempsey, for example, these fees can add up to \$290 (plus interest on the arrears) if a customer is disconnected and reconnected. In a situation where the customer is clearly struggling financially, it is counter-productive and insensitive to charge penalty fees that will only exacerbate the problem. Further, restriction of supply has significant social and health impacts and should only be used as a last resort. The preferred approach should be case-by-case negotiation with customers to achieve a long-term solution. Strategies should include long-term payment plans, the offer of a retrofit to customers having difficulty paying and moving the customer to the basic tariff if they are not already on it.

It does not appear that there is any requirement under the *Local Government (General) Regulation 1999* or the new draft *Local Government (General) Regulation 2005* for Councils to publicly report statistics on disconnection or restriction of water supply. Further, as LWUs are not members of the Energy and Water Ombudsman NSW scheme, there appears to be little scrutiny of disconnections or restriction of water supply in rural and regional areas. Requiring publication of disconnection and restriction figures would provide a starting point for independent scrutiny of incidences of disconnection and help to ensure that appropriate efforts were made to avoid disconnection.

Recommendation 13: Include more detailed guidance on non-price measures, including community-wide restrictions, retrofits, rebates and hardship programs, in the Best-Practice Guidelines.

Recommendation 14: Encourage the extension of retrofit and rebate programs currently offered in Sydney to regional and rural areas by strengthening the requirement in the Guidelines to consider these programs and offering funding support (from NSW Government) to LWUs that adopt these programs for vulnerable households.

Recommendation 15: Extend the Water Payment Assistance Scheme across NSW with funding from NSW Government.

Recommendation 16: Discontinue the practice of charging penalty fees to vulnerable customers.

Recommendation 17: Amend the Local Government (General) Regulation 2005 to require Councils to publicly report the annual incidence of customer disconnection or restriction under section 144(1) of the Local Government (General) Regulation 2005.

6.3.3 Attitudes to water conservation measures

Attitudes and acceptance of price and non-price measures were fairly uniform across the three case study communities. In general:

- Drought conditions and community-wide water restrictions have had the biggest influence on awareness of the need for water conservation
- There is some understanding, and acceptance, of the water conservation role of higher water prices
- Awareness and understanding of the actual price changes that had taken place in each of the communities was poor, outside the LWU
- There is general support for user pays principles, particularly by participants from the LWUs
- Research participants from community groups were concerned about the impact of price-based measures on vulnerable customers and sought various non-price measures to mitigate this impact.

An important point to note in relation to attitudes and awareness was the significant confusion about billing arrangements for tenants. In each of the case study communities, we found conflicting opinions about whether or not tenants were required to pay water bills and which components of the bills they were responsible for. The current proposal to charge Department of Housing tenants for water use is likely to add to the existing confusion. It may be appropriate to undertake some specific education and awareness raising on this issue.

Recommendation 18: Assess the need for a targeted education and awareness raising campaign on water billing arrangements for public and private tenants.

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Appendix 1

Email survey for Local Water Utilities

Email survey for community groups

Water pricing in rural communities: research project

Email survey participation agreement

In completing this survey you are agreeing to participate in the Water Pricing in Rural Communities research project being conducted by the Institute for Sustainable Futures (University of Technology, Sydney) (ISF) for the Public Interest Advocacy Centre (PIAC).

ISF and PIAC are committed to ethical research practices. The aim of this statement is to ensure that you, as a participant, have a clear understanding of what this research will involve.

The purpose of the research is to investigate the impact of water pricing changes on rural communities. The NSW Government has established Best Practice Guidelines that encourage local governments to change their water pricing structures to improve economic efficiency and encourage water conservation. We are interested in the impacts of these changes on rural residents. The results of the research will support advocacy through PIAC's Utility Consumers' Advocacy Program (UCAP).

Please type 'YES' next to one of the following options:

I consent to the publication of information provided by me during this interview in a way that does not identify me in any way.	
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OR

I consent to have direct quotes from this interview attributed to me, by name and organisation, in research publications.	
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Name:	
Position:	
Organisation:	

ISF may wish to contact you to clarify your answers to this survey, or to conduct further discussion by phone or in person. If you consent to us contacting you for these reasons, please provide your telephone number below.

Telephone:	
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If you have any questions about the research, please contact Chris Riedy at ISF on (02) 9514 4964.

Note: Studies undertaken by the Institute for Sustainable Futures have been approved in principle by the University of Technology, Sydney, Human Research Ethics Committee. If you have any complaints or reservations about any aspect of your participation in this research, you may contact Ms Ann Hobson, Research and Publications Coordinator at ISF, (02 9514 4974) or the UTS Ethics Committee via the Research Ethics Officer, Ms Susanna Davis (02 9514 1279). Any complaint you make will be treated in confidence and investigated fully and you will be informed of the outcome.

Water pricing in rural communities: research project

Email survey for staff in Local Water Utilities

Please read and complete the above 'Email survey participation agreement' form before you begin – thank you.

Introduction

Many Local Governments have changed their residential water pricing structures to comply with NSW Government Best Practice Guidelines that encourage economic efficiency and water conservation. The purpose of this research is to investigate the impact of these water pricing changes on residents in rural communities.

We have chosen **Albury** as a case study community for our research, and we are interested in the impact of the recent price changes there.

In 2003/04, the Albury water price structure had a large fixed component – an access charge of \$153, plus a 'two-step' tariff for water consumption – charged at 15 cents per kL for up to 300kL per annum, and 48 cents per kL for usage over 300kL.

In 2004/05 and 2005/06 Albury phased in changes to this structure. Now, the price structure has a *reduced access charge* (\$84), and *increased consumption charges* set at *lower 'steps'*: 45 cents per kL up to 250kL, and 90 cents per kL for usage over 250kL.

Thinking about these changes, please answer the questions below (boxes will expand as much as you need). If you cannot answer a particular question, please leave that box blank. Alternatively, you may be able to provide details of another source for the information.

Questions

Prior to the change:

We are interested in any information you can provide about actions taken by the LWU before the change was introduced. For example:

1. Did the LWU carry out any incidence analysis (i.e. any studies to predict the effect of the changes on different types of water consumers)? Can you provide details?

Type here>

2. Were the tariffs adjusted as a result of this incidence analysis? How? What was the rationale?

>

3. Was there any other consideration of equity and affordability issues prior to the change?

>

4. Was community consultation undertaken? Can you provide details? What were the outcomes?

>

5. Did you conduct an information campaign to inform residents of the price changes? Can you provide details?

>

After the change:

We are interested in any information you can provide about the effects of the change. For example:

6. Is the LWU monitoring the impact of the change on the community? How?

>

7. What impacts are you seeing? (general or specific – please provide any information you can)

>

8. Has your customer service phone line received an increase in inquiries since the change? What issues are callers raising related to the change? Are callers concentrated in particular groups (such as tenants, or low-income, or large households?)

>

9. Would you be able to provide us with any data that shows the impacts of water pricing changes on consumption?

>

General questions:

10. Does the LWU have any specific assistance strategies for low-income or disadvantaged customers (eg. payment assistance/ hardship funds / concession schemes / payment plans)? Please provide details.

>

11. Were any of these strategies newly introduced with the price changes?

>

12. Does the LWU have any demand management strategies (such as retrofit programs, provision of information on water efficiency, education campaigns)? Please provide details.

>

13. Can you provide any information or data on the number of customers who are in debt to the LWU? Has this increased or decreased since the price changes?

>

14. What strategies does the LWU use to deal with customer debts?

>

15. Is restricted supply used as a debt management tool? If so, how prevalent is it?

>

16. Are there any other comments you would like to make – or sources of information you suggest we follow up?

>

Thank you!

Many thanks for your participation in this survey. We may call you to discuss your responses or seek further information if you have consented to this on the attached Participation Agreement.

Water pricing in rural communities: research project

Email survey participation agreement

In completing this survey you are agreeing to participate in the Water Pricing in Rural Communities research project being conducted by the Institute for Sustainable Futures (University of Technology, Sydney) (ISF) for the Public Interest Advocacy Centre (PIAC).

ISF and PIAC are committed to ethical research practices. The aim of this statement is to ensure that you, as a participant, have a clear understanding of what this research will involve.

The purpose of the research is to investigate the impact of water pricing changes on rural communities. The NSW Government has established Best Practice Guidelines that encourage local governments to change their water pricing structures to improve economic efficiency and encourage water conservation. We are interested in the impacts of these changes on rural residents. The results of the research will support advocacy through PIAC's Utility Consumers' Advocacy Program (UCAP).

Please type 'YES' next to one of the following options:

I consent to the publication of information provided by me during this interview in a way that does not identify me in any way.	
---	--

OR

I consent to have direct quotes from this interview attributed to me, by name and organisation, in research publications.	
---	--

Name:	
Position:	
Organisation:	

ISF may wish to contact you to clarify your answers to this survey, or to conduct further discussion by phone or in person. If you consent to us contacting you for these reasons, please provide your telephone number below.

Telephone:	
-------------------	--

If you have any questions or concerns about the research, please contact Chris Riedy at ISF on (02) 9514 4964.

Note: Studies undertaken by the Institute for Sustainable Futures have been approved in principle by the University of Technology, Sydney, Human Research Ethics Committee. If you have any complaints or reservations about any aspect of your participation in this research, you may contact Ms Ann Hobson, Research and Publications Coordinator at ISF, (02 9514 4974) or the UTS Ethics Committee through the Research Ethics Officer, Ms Susanna Davis (02 9514 1279). Any complaint you make will be treated in confidence and investigated fully and you will be informed of the outcome.

Water pricing in rural communities: research project

Email survey for community welfare sector staff

Please read and complete the above 'Email survey participation agreement' form before you begin – thank you.

Introduction

Many Local Governments have changed their residential water pricing structures to comply with NSW Government Best Practice Guidelines that encourage economic efficiency and water conservation. The purpose of this research is to investigate the impact of these water pricing changes on residents in rural communities.

We have chosen **Albury** as a case study community for our research, and we are interested in the impact of the recent price changes there.

In 2003/04, the Albury water price structure had a large fixed component – an access charge of \$153, plus a 'two-step' tariff for water consumption – charged at 15 cents per kL for up to 300kL per annum, and 48 cents per kL for usage over 300kL.

In 2004/05 and 2005/06 Albury phased in changes to this structure. Now, the price structure has a *reduced access charge* (\$84), and *increased consumption charges* set at *lower 'steps'*: 45 cents per kL up to 250kL, and 90 cents per kL for usage over 250kL.

Thinking about these changes and how they affect your clients, please answer the questions below by making whatever comments you think are appropriate in relation to each question. (Boxes will expand as much as you need). If you cannot answer a particular question, please leave that box blank. Alternatively, you may be able to provide details of another source for the information.

1. In general, would you say affordability of water is a significant issue for your clients? Do you have many clients who have difficulty paying their water bills?

>

2. Do you have clients who are in debt to their water supplier? How common is this in the community?

>

3. Are you aware of anyone having their water supply restricted as a debt management tool by their water supplier?

>

4. How well would you say your clients understand the recent price changes and the reasons for them?

>

5. Has your service received an increase in inquiries about water bills or water pricing since the change? What issues are callers raising related to the change? Are callers concentrated in particular groups (such as tenants, or low-income, or large households?)

>

6. Has there been a change in the number of people mentioning difficulties paying their water bills since the pricing structure change?

>

7. What impact (if any) would you say the recent change in water charges is having on your clients, particularly those in low-income households?

>

8. What actions are your clients taking in response to receiving higher water bills?

>

9. Do you have any evidence that people are reducing their consumption to unreasonable levels in order to avoid high bills?

>

10. Of your clients who are receiving high water bills, what do you understand to be the reasons for their high levels of water consumption? (e.g. large numbers of people in household, leaks or inefficient appliances, high outdoor use, lack of knowledge about how to reduce use, wasteful practices, other?)

>

11. Do you think that your clients who are receiving high water bills have a capacity to significantly reduce their level of water consumption? If not, what barriers do you think they face in reducing their consumption?

>

Questions for Emergency Relief providers:

If your organisation is a registered provider of Emergency Relief (ER)¹, please answer the following questions:

12. What proportion of clients seeking ER are seeking part payment of a water bill?

>

13. Have you seen a change in numbers of people seeking ER for help with their water bills since the recent pricing structure change?

>

14. Are you able to provide any data showing how much financial assistance (in \$) is provided to assist clients with water bills? Does this show a change before and after the price changes?

>

15. Do you have any other comment about ER in relation to water bills?

>

Questions for financial counsellors

If your organisation provides financial counselling please answer the following questions:

16. Do you see clients seeking financial counselling who have difficulty paying their water bills? Have you seen people who have received much higher bills since the price changes?

>

17. Do you have clients who are in debt to water utilities? Has this increased or decreased since the price changes?

>

18. Have you had experience negotiating with water providers on behalf of clients? Can you briefly describe this experience and the outcomes?

>

19. Do you have clients who have been placed on restricted supply as a debt management tool by their water provider?

>

¹ The Emergency Relief program is funded by the Commonwealth Department of Family and Community Services. Community organisations are funded to provide assistance to clients, including part payment of utility account/s.



Any other comments

Are there any other comments you would like to make – or sources of information you suggest we follow up?

Thank you!

Many thanks for your participation in this survey. We may call you to discuss your responses or seek further information if you have consented to this on the attached Participation Agreement.

Appendix 2

List of research participants

Type of Participation	Participant
<i>Albury</i>	
Completed survey	Daryl McGregor, Manager, Albury Water Four anonymous participants from Albury City Council Kaily Goodsell, Financial Counsellor, St David's Uniting Care Vivien Voss, Coordinator, Albury Community Centre
Telephone interview	One anonymous interview with Albury Water staff Six anonymous interviews with community workers
Face-to-face interview	Daryl McGregor, Manager, Albury Water Graham MacDonald, Meter Reader, Albury Water Elizabeth Heta, Aboriginal Liaison Officer, Albury City Council David Rischbieth, Finance, Albury City Council Two anonymous participants from Albury City Council Kaily Goodsell, Financial Counsellor, St David's Uniting Care Vivien Voss, Coordinator, Albury Community Centre
<i>Broken Hill</i>	
Completed survey	One combined response from Country Energy Debbie Goodeve, Financial Counsellor, Lifeline One anonymous response from a community worker
Telephone interview	Geraldine Kaczmarek, The Smith Family, Broken Hill One anonymous interview with a community worker
Face-to-face interview	Brian Steffen, General Manager Water, Country Energy Vicky Knighton, Manager Business – Water, Country Energy Hagen Rieck, Major Customer Support Manager, Country Energy Luisa Simmons, Country Energy Clint McCully, Manager Community Relations, Country Energy David McGrath, Centre for Community – Outback NSW Andrew Vodic, Manager, Lifeline, Broken Hill Debbie Goodeve, Financial Counsellor, Lifeline

<i>Kempsey</i>	
Completed survey	One combined response from Macleay Water One anonymous response from Yarrahapinni Community House, Stuarts Point One anonymous response from a Financial Counsellor
Telephone interview	Two anonymous interviews with community workers
Face-to-face interview	Anonymous interview with two representatives from Macleay Water Anonymous interview with a Financial Counsellor Anonymous interview with a member of a local citizens' group Anonymous interview with a community worker

Appendix 3

Annotated bibliography

ABS Household Expenditure Surveys (ABS 2000, 2005)

In 1998-99, average weekly household expenditure on water and sewerage rates and charges in NSW amounted to \$6.03, which was 0.81% of total household expenditure on goods and services. By 2003-04, the average expenditure had grown slightly to \$6.10 but had fallen significantly as a proportion of total household expenditure on goods and services, to 0.65%.

Importantly, water and sewerage rates and charges constitute a higher proportion of expenditure for low-income households. In 1998-99, on a national basis, these charges amounted to 0.85% of average weekly expenditure on goods and services for all households; for the households in the lowest 20% income quintile, these charges amount to 1.13% of average expenditure on goods and services. By 2003-04, the respective proportions were 0.68% and 0.90%, indicating that spending on water and sewerage services had fallen by similar amounts for both low-income households and the average household.

Bailey and Buckley (undated): Designing Welfare Maximizing Water Tariffs to Achieve Financial, Political and Environmental Sustainability

This paper describes a tariff structure designed to maximise welfare by using Ramsey pricing principles. It is an inclining block tariff, with multiple blocks chosen to deliver different price signals to low-, medium- and high-income customers. The intent is that all customers will be exposed to inclining prices but that low-income customers will see the incline at a lower level than high-income customers. The tariff relies on there being a proportional relationship between income and consumption, which may not always be the case, particularly for large families.

Consumer Law Centre Victoria, and Environment Victoria (2005), *Water: Access, Affordability and Sustainability*.

This issues paper was prepared in response to the Victorian Government's White Paper on water, *Securing Our Water Future Together*. The paper analyses water as a fundamental human right. It argues that the White Paper has not yet adequately addressed the social impacts for consumers of the new policy and regulatory framework for water. Of particular concern is "the increased commercialisation of the water industry and its subsequent impact on rural and regional consumers" (p. 3).

The report argues for greater attention to be paid to the social impact of water regulation, particularly issues of access and affordability for low-income and vulnerable consumers. The report highlights the difficulties such consumers currently face in being able to afford the water necessary to meet their basic needs, and suggests that some of the reforms may exacerbate these difficulties (p.4).

The paper makes a large number of recommendations with regard to access and affordability issues (including debt recovery, late fees, interest charging, hardship policies etc). Those recommendations directly related to pricing are as follows:

- Introduce rising block tariffs in preference to increases to a flat volumetric charge. This recommendation is dependent on the first block being set at a level that ensures essential water supply is affordable, and the introduction of other measures to address affordability for low income and vulnerable customers, and

- Consider a special tariff for vulnerable consumers, such as very large families.

The paper also recommends that a number of measures be adopted to increase water efficiency in low-income and large family households, including assistance programs, incentives for landlords and retrofitting in public housing.

Department of Environment, Food and Rural Affairs (UK), *Cross-Government Review of Water Affordability Report (DEFRA 2004)*

This report is the result of a cross-government review of water affordability in England and Wales. It finds that any affordability problem is limited to specific income/customer groups (low-income, non-working, and pensioner households), and particular regions (because water prices vary across regions).

As would be expected, evidence suggests that lower income households spend a higher proportion of their income on water and sewerage bills than higher income customers in all areas. Low-income households in the South West region spent the highest proportion, at 3.2%.

DEUS (2004): Best-Practice Management of Water Supply and Sewerage Guidelines

As noted in Section 1, the Guidelines that are the subject of this research project establish a series of water pricing principles for LWUs. Specifically, they encourage LWUs to adopt the following pricing principles for residential customers:

1. Usage charges should be set to reflect the long-run marginal cost of water supply.
2. Residential water usage charges must be set to recover at least 75% of residential revenue.
3. To encourage water conservation, high water consuming residential customers should be subjected to a step price increase (expressed as an “excess water charge”) of at least 50% for incremental usage above a specified threshold. This threshold should not exceed 450 kL/a per household.
4. LWUs must bill at least three times each year (and preferably every quarter) to improve the effectiveness of pricing signals.
5. No land value based charges (i.e. rates).
6. No “free” or “pre-paid” water allowance.

The Guidelines seek to establish tariffs that will remove cross-subsidies and promote full cost-recovery by LWUs.

Economic Regulation Authority, Western Australia (2005), *Inquiry on Urban Water and Wastewater Pricing: Draft Report.*

This draft report provides preliminary findings and recommendations of the first independent inquiry into water and wastewater pricing in Western Australia. The Economic Regulation Authority (ERA) adopts the following policy objectives:

- Signal the scarcity value of water

- Manage demand through tariff structure adjustments
- Enhance efficiency of service delivery – implement regulatory mechanisms to allow providers to recover service delivery costs and earn a commercial rate of return
- Prevent monopoly pricing
- Reflect cost of environmental externalities
- Set tariff structures to meet social objectives (ensure equitable distribution of costs to different customer groups).

The ERA endorses the use of long-run marginal cost (LRMC) as a guide to setting prices, to convey a scarcity signal to customers (p.2). It also sees a role for marginal cost pricing in managing water demand; by generating revenue to fund capital investments and demand management programs, and shaping customers' long-term investment decisions (such as the purchase of water efficient products) (p. 4). Accordingly, the ERA's preferred option is to rebalance the residential water tariff to recover a greater proportion of costs through the usage charge (p. 8).

The ERA argues that including marginal cost in the usage charge sends a scarcity signal to consumers and enables them to adjust their behaviour in response. It claims that “customer decisions to either maintain or decrease consumption will reflect customers' willingness to pay the costs associated with their consumption behaviour...” (p. 4).

The report acknowledges that this strategy assumes that customers are responsive to price, whereas research shows that “residential demand for water is relatively insensitive to price” (p.4). Nevertheless, the ERA suggests that a *substantial increase in the usage charge* in particular (rather than the overall size of the bill) would affect consumption levels:

...changing the current residential water tariff so that the usage charge is equated to LRMC would increase the average annual water *usage* costs of Perth households from \$130 to \$250, which could have a significant impact on water usage. Total costs would rise by only \$12 because there would be a concomitant reduction in the fixed service charge (p. 4).

With regard to social objectives, the ERA seeks to ‘ensure that water for non-discretionary use is available to all customers at an “affordable” price and that costs are allocated “fairly and equitably”’ (p. 7). The report describes the current WA arrangements (a five-block inclining tariff) as improving affordability for low-income families, as it discounts water for basic needs. However, the Authority is of the view that:

it would be more efficient to achieve this social objective through providing low-income households with concessions on the fixed charge because all water consumption contributes to LRMC (p. 7)

Accordingly, the ERA endorses a two-step inclining tariff, with the second step set at 600kL (p. 9). The report acknowledges that, depending on the location of the ‘step’, inclining tariffs can penalise large families with high basic water needs. However, the ERA cites Water Corporation estimates that 600kL represents the average use for a six-person household (p. 8). They also cite incidence analysis that shows that:

- The 19 per cent of customers who use between 350 and 550kL would face bill increases of between \$39 and \$57 per annum, and
- The 7 per cent of households who use between 550 and 950kL would face bill increases of between \$57 and \$152 (p. 9).

To mitigate the impact on large families, the ERA suggests providing them with free water saving products to help reduce their water bill (p. 7). It also suggests extending these measures to tenants, to compensate for the fact that they would not reap the benefit of reduced fixed charges (p.9).

The ERA sees the advantages of a two-block tariff as being:

- The usage charge for every unit of water consumed is more reflective of scarcity costs
- A demand management ‘intent’ is maintained, without the complexity of the current five-block tariff
- Low volume customers benefit from reduced bills
- The second step could be positioned to minimise the impact on large families (p. 9).

The ERA calls for improved provision of information to customers to explain fixed and usage charges and communicate the conservation signal more clearly. It also advocates quarterly billing and bills showing the size of previous bills to help customers “benchmark” their current usage costs (p.10).

IPART (2004a): Investigation into Price Structures to Reduce the Demand for Water in the Sydney Basin

This investigation by IPART finds that ‘the most suitable price structure for Sydney is likely to be an “inclining bloc” structure, which includes a two-tiered variable usage charge and a lower fixed access charge’ (p.1). IPART identifies the advantages of such a structure as:

- It could potentially be used to send a strong signal about the need to conserve water that particularly targets high water users (who the Tribunal assumes use a higher proportion of their consumption for discretionary purposes and so will be able to respond to this signal)
- It could be set to minimise the number of customers who are required to pay the higher Tier 2 usage charge for efficient or non-discretionary water use
- It has considerable potential to reduce demand
- It is likely to have the least impact on vulnerable customers
- It is relatively easy to understand, implement and administer.

Disadvantages identified by IPART include the increase in the volatility and uncertainty of Sydney Water's revenue, unsuitability for application to customers who are not separately metered and the need to complement the tariff with non-price measures.

Other tariffs considered by IPART include two-part tariffs, combined water and sewerage usage charges and a seasonal pricing regime.

IPART (2004b): Residential Water Use in Sydney, the Blue Mountains and Illawarra

This report describes survey work undertaken by IPART on residential water use. The report finds that high water consumption tends to occur in households 'having more people in a household, living in a house rather than a unit, having a larger sized block of land, having a higher income, living in public housing, not receiving a water usage bill, spending more time watering the garden and owning a pool' (p.2). A statistical model used to analyse the survey results found that 'household size and not receiving a water usage bill are the most important drivers of household water use' (p.2). Further, the 'survey data themselves indicate that household composition and dwelling type are also important' (p.2).

Local Government Association of NSW and Shires Association of NSW (LGSA) website, water policy page: <http://www.lgsa.org.au/site/policy/1000167.html> (LGSA 2004)

This statement on the LGSA website provides background to the Associations' position on the DEUS 2004 *Best-practice for the Management of Water Supply and Sewerage Guidelines*

The Associations had a number of concerns about the guidelines, particularly the requirement that at least 75% of residential revenue be generated through usage charges. They raised these concerns with DEUS in April 2004. They questioned whether such principles were sustainable across regional diversity and climate diversity, and felt that such 'arbitrary' measures 'may seriously challenge the financial viability and sustainability of some water authorities'.

In response to the Associations' concerns, the then Minister for Energy and Utilities agreed to implement a tiered approach to increasing the proportion of residential revenue generated through user charges. Council owned water utilities are now required to reach a target of 50% by June 2005, 60% by June 2006 and 75% by 2007.

However, the LGSA website suggests that the Associations continue to have reservations about these changes:

While this change in pricing policy is in keeping with the need to reduce water consumption, it has not been tested. In times of prolonged drought, the imposition of water restrictions and climate change the Associations are not confident that this policy will be financially sustainable for council owned water utilities.

Local Government Shires Association of NSW, and the Water Directorate (LGSA & Water Directorate 2005) *Review of the Country Towns Water Supply and Sewerage Program: the need to restore funding*

This position statement by the LGSA and Water Directorate highlights the NSW government's recent decision to limit funding to the Country Towns Water Supply and Sewerage Program (CTWSSP), outlines the impact of this funding reduction on country NSW Councils, and calls for a review of the decision, and restoration of funding.

The paper provides a history of funding relating to the Program, which can be summarised as follows:

- In 1994 the State Government agreed to fund the program at the rate of \$85m (calculated in 1994 dollars) per year for 10 years, to allow councils to complete a backlog of water supply and sewerage works. (As part of the same arrangement, Councils agreed to fund works for growth and implement a number of reforms – including changes to water tariffs that increased ‘pay-for-use’ components).
- A 2003 government review of the program appears to have triggered a reduction of the NSW Government’s financial commitment to the program.
- Analysis shows that annual government expenditure on the program did not reach the commitment of \$85m for any of the 10 years from 1994/95 to 2003/04. The calculations in this paper lead to the conclusion that there should be \$439m (2005 dollars) remaining of the original \$850m funding commitment. However, recent statements from the Minister suggest there is only \$190m remaining.

The paper lists over 200 backlog projects that have been submitted for subsidy funding that had not had an offer of funding by April 2005. These projects include construction works in towns without water or sewerage, upgrading of existing sewerage systems, water supply construction and upgrade projects, and water treatment facilities. These are projects that Councils previously understood would be funded (they were on the Department’s previous ‘priority list’), and consequently Councils have proceeded with pre-construction activities for many of these projects.

In addition to this funding shortfall, the paper also draws attention to the more complex operating environment faced by Councils since 1994 when the original funding decision was made. This includes increased costs for Councils associated with:

- Responding to numerous new recommendations and complying with new requirements relating to river flow and water quality objectives
- Implementing new Australian Drinking Water Guidelines, and adopting expensive filtration technologies in response to the Sydney Water cryptosporidium problems of 1998
- Responding to severe drought conditions since 1997/98, and climate change predictions, both of which are causing Councils to plan for further investment in water supply headworks.

In this context the LGSA and the Water Directorate consider it ‘a very inappropriate time for Government to reduce its annual allocations and overall commitment to the CTWSS Program’ (p. iv).

The paper argues that the Government’s decision to reduce or deny funding for so many backlog projects is unreasonable because it:

- Fails to honour the terms of the 1994 agreement negotiated with country Councils, even though ‘Councils have met their side of the agreement’ (p. i) and Councils have used the funding commitment as a basis for planning
- Is inconsistent with the policy developed by IPART for Sydney Water’s backlog sewerage projects (p. iv), and
- Is inconsistent with policies for continued support of country town services in other Australian states and overseas (examples of Canada and the USA are included, p.13-15).

The LGSA argue that financial support is justified by two principles, namely:

1. *Beneficiaries should share costs*: as the State as a whole gains from upgrading country town water and sewerage services (e.g. benefits relating to environmental and public health and regional development), the State should contribute to the cost of upgrades (p.iv)
2. *Social equity*: safe water and sewerage are essential services and should be available and affordable to all. As costs for these services are very high in country towns, there is a case for cross subsidies from the broader community in order to achieve universal affordability (p. iv).

In light of this review the LGSA and Water Directorate call for the government to restore the original funding commitment (and increase it to allow for cost escalations since 1994), undertake consultation with Councils to assess the effect of the funding reduction, and provide new funding to help Councils to comply with new legislative and regulatory requirements (p. v).

OECD (2003): *Social Issues in the Provision and Pricing of Water Services*

This book by the Organisation for Economic Co-Operation and Development (OECD) examines social issues in the provision and pricing of water services in OECD countries. It notes that water-pricing policies can be used to achieve environmental and economic objectives, however there are associated social impacts that need to be considered. The OECD finds a general perception that the affordability of water services in Australia is not problematic, partly due to the long-term existence of concessions. However, affordability can be an issue in particular income groups, family types or regions. Further, the OECD (2003, p.12) notes that:

trade-offs between efficiency and equity objectives in the provision of household water services typically occur when moving from an unmeasured to metered charging structure, when rebalancing tariffs away from fixed charges towards volumetric charges, and when increasing fees and tariffs towards full-cost pricing.

The DEUS Guidelines, discussed in Section 1, require LWUs to make changes of the latter two types. That is, they encourage a shift towards volumetric charges and full-cost pricing. Thus, the DEUS Guidelines have the potential to raise equity issues for some income groups, family types or regions.

The OECD (2003, p.18) argues that while the debate about water pricing structures is often framed as a question of efficiency *versus* equity, these two concerns are not necessarily in conflict. In the OECD’s experience, “social” water pricing can contribute simultaneously to

economic efficiency, resource conservation, and equity goals. One approach suggested to achieve such ends is to define a level of “basic need” for water and make that level of access available to all (especially low income households), and then charge a price for additional levels of access that reflects economic and environmental policy objectives.

The OECD (2003, p.12) discusses affordability measures, which it classifies into two main groups:

- Income support measures ‘address the individual customer’s ability to pay from the income side (through income assistance, water services vouchers, tariff rebates and discounts, bill re-phasing and easier payment plans, arrears forgiveness)’
- Tariff-related measures ‘keep the size of water bills low for certain groups (e.g. refinement of increasing-block tariffs, tariff choice, tariff capping).

It is noted that there is little available evidence from OECD countries on the results of either kind of measure, including whether they result in a relief of the water charge burden (OECD, 2003, p.54).

In considering whether affordability is a significant issue in OECD countries, this publication concludes that in Australia the widespread use of concessions means that affordability is ‘generally perceived as a non-issue’ (OECD, 2003, p.32). Australia, in the OECD view, is an example of a country where ‘measures and structures may have been applied effectively enough to cause affordability problems to be perceived as insignificant’ (2003, p.32). This has partly been a result of the prevailing view in these countries about the role of water utilities in relation to affordability:

In recent years, public and private water utilities alike, in a number of relatively rich countries, have come increasingly to believe that dealing with affordability problems is part of their responsibility as suppliers of a crucial public service. Certainly this is the case in Australia, England and Wales, and the US... (OECD, 2003, p.56)

The OECD (2003, p.66) predicts that as volumetric charges come to play more of an important role in Australia (for environmental reasons), concessions may need to be switched to the “first” units of water consumed in each billing period, in order to maintain the value of concessions for low-income households.

The OECD (2003, p.81) identifies an obvious problem with increasing block tariffs, in that a universal low-price first ‘block’ does not acknowledge the different needs of different sized households, and will in fact ‘favour small households and penalise larger ones’. It notes that some utilities in both OECD and non-member countries have begun to recognise this, and adopted initiatives intended to more fairly relate water charges to the number of people in a household (OECD, 2003, p.83).

Renwick, Green & McCorkle (1998): Measuring the Price Responsiveness of Residential Water Demand in California’s Urban Areas

In brief, this report uses statistical analysis across eight water agencies to show that both price and non-price measures (e.g. public information campaigns, retrofit subsidies, water use restrictions and rationing) have been successful in reducing residential water usage in California.

Ross, S, Wallace, A and Rintoul, D (2005) *Cut off: the impact of utility disconnections*, report prepared by Urbis Keys Young for the Utility Consumers' Advocacy Project, Sydney

The PIAC Utility Consumers' Advocacy Program (UCAP) commissioned this research into the impact on households of being disconnected from energy and water services. The project surveyed 447 customers who had recently been disconnected from electricity or gas, or 'restricted' from water. The report notes that compared to electricity and gas, restriction of water supply for non-payment is rare (they represented 9% of respondents in the survey). The report (p.4) speculates that this is 'likely to be due to the practices of water retailers and because rates are only paid by property owners' (whereas it is tenants who are more likely than home owners to be disconnected from utilities). While the great majority of specific results in the survey related to electricity, the authors point out that many of the findings are likely to apply to consumers of other utilities, including water (p.5).

The report indicates that:

- The great majority (79%) of households who are disconnected are family households (p.7)
- Larger size households (3+people) are overrepresented in the households being disconnected (p.8)
- The majority (53%) of those disconnected receive a Centrelink payment as their main source of income (p.10)
- Public housing tenants are extremely over-represented (28% compared to 5% of NSW population) among the respondents, as are tenants generally (47% compared to 22% of NSW population)
- Households with other disadvantage-related characteristics (specifically those with members who are sole parents, unemployed or Aboriginal) are also over-represented among the respondents (p11-12)
- The two broad groups most likely to experience disconnection are single parents on parenting payments and 'working poor' families with children (p.11)
- The great majority of respondents (63%) had contacted the retailer in the period just before the disconnection (suggesting that retailers could play a major role in helping customers to prevent disconnection) (p.16, and p.44)
- Most respondents reported ongoing difficulties with everyday finances in the lead up to being disconnected (such as difficulty paying household bills, debts, rent or mortgage) as opposed to any unusual event or circumstances (p. 14-15). Of potential relevance to the issue of water bills, 10% of respondents reported having 'old appliances using lots of power and/or water', and 7% said 'pipes or taps in the house were leaking' (p.15)
- EAPA or PAS vouchers was less commonly obtained by respondents who were restricted from water (8% accessed a voucher) than those disconnected from electricity (30%) or gas (19%)

The impact of utility disconnection on households is significant. For many, especially where the period of disconnection was brief, it was the psychological and emotional impacts that were the greatest (p.45). For others, disconnection clearly put their safety and wellbeing at risk. The effects of having water in particular restricted, or the things people did to cope with it are difficult to isolate in the main survey – ‘using a public shower’ or ‘using a neighbour’s water’ for example, could be a response to electricity or gas disconnection meaning a loss of *hot* water, as much as water restriction. However, the report includes several detailed case studies, two of which are of people restricted from water. Both Maria and Tony were restricted as a result of falling behind with their bill payments – in both cases due to ongoing financial difficulties and the general struggle to make ends meet. Both had previously had utilities disconnected due to non-payment.

While Maria’s period of water restriction was brief (less than 24 hours) she talks of the ‘embarrassment and humiliation’ that it caused her, and of feeling ‘overwhelmed’ by her household’s financial difficulties. The water was reconnected when Maria’s husband negotiated to pay an instalment the same day as part of a payment plan. Tony’s household was about 90 days in arrears when their water was restricted. Tony was angry that the water utility had not attempted to speak to his wife before restricting the water, even though she was home at the time. His response to the restriction was to break the clamp that had been installed and restore the water supply so his kids could have a bath. The restriction caused significant emotional stress to the household, and reinforced the ‘indignity’ of their financial struggles. Tony had to redirect funds intended for another debt in order to settle the water bill.

The report calls for better information to be provided to consumers about the sources of help available, (p.46) particularly the Energy and Water Ombudsman of NSW (EWON), which was seldom used by respondents (p.45). It also suggests that the payment plans commonly offered by utilities are not always effective in preventing disconnection, pointing to the need for utilities to develop more flexible schemes (p.46).

Samra (2005): Best-Practice Pricing

In this summary from the LGSA 2005 Water Manager’s Conference, Samra summarises the principles behind best-practice pricing and the achievements to date. The principles include:

- Appropriate pricing signals so customers can balance the benefits and costs of their use of water services – emphasis on usage charges
- Fair sharing of the full cost of providing services
- Results in compliance with the Best-Practice Management Guidelines, IPART Pricing Principles, COAG Strategic Framework, National Competition Policy and the National Water Initiative.

In 2003/04:

- 31% of LWUs had over 50% of residential revenue from usage charges
- 82% of LWUs recovered the full cost of water supply from customers (although Samra & McLean (2005) note that only 70% of LWUs achieved full cost recovery without significant cross subsidies).

In 2005/06:

- 92% of LWUs have pay-for-use water pricing
- 98% have charges independent of land value
- 51% of LWUs have step pricing for residential customers.

Samra also discusses the introduction of optional integrated water supply and sewerage pricing, in which customers are charged one usage charge/kL for all water consumption and one access charge per assessment to provide the remainder of the income required to fund both water supply and sewerage services. This results in a higher charge per kL than the present water supply tariffs and 'will provide a more appropriate pricing signal to all customers' (p.2). To provide an even greater price signal, the access charge could be removed entirely, giving customers greater control over their total bill.

Samra discusses the use of a revenue fluctuation reserve to deal with the inevitable revenue fluctuation that would result from moves to further reduce the fixed component of water and sewerage bills. Money would be put aside in hot, dry years to fund wet years when revenue is below average.

Samra & McLean (2005): Water Supply and Sewerage NSW Performance Monitoring Report 2003/04

This annual report measures the performance of LWUs throughout NSW using a range of social, environmental and economic indicators. It measures compliance with the Best-Practice Guidelines and is a valuable source of detailed data about each LWU. Relevant data from this report have been incorporated into the community profiles in Section 4.

Taverner Research (2005): Survey of Household Water Attitudes

This research report provides relevant findings on attitudes towards water costs and prices in the areas of NSW served by Sydney Water, Hunter Water and Gosford and Wyong Councils. On current water costs and billing, it finds that:

Twenty five per cent of respondents think that their last water bill was in the range of \$101 to 150. A further 22% think their last bill was in the range of \$151 to \$200. Over half of the people interviewed could not name any of the itemised charges on their water bill. Thirteen per cent of respondents do not know the amount of their last water bill (Taverner Research 2005, p.1).

Fifty two per cent believe that the current method of charging for water is fair, while twenty five per cent do not think it is fair. One quarter of those who do not think it is fair believe it is poor value or too expensive. Thirty one per cent of those who believe the system is fair, hold this view because the user pays for what they use (Taverner Research 2005, p.2).

On water pricing options, it finds that:

When asked to consider three alternative methods of charging for water:

- 63% believe that Option 1 (two-tier step usage pricing) is more fair than the current system

- 35% believe that Option 2 (no fixed water charge but a higher water usage charge) is more fair than the current system
- 36% believe that Option 3 (lower fixed water and sewerage charges and a higher usage charge) is more fair than the current system.

Across the three pricing options explored in the survey, 38% to 39% believe that each option would result in their household using less water. Fifty eight per cent to 59% believe that each pricing method would have no impact on their household's water use (Taverner Research 2005, p.2).

On attitudes to pricing issues, it finds that:

The majority believe that water and sewerage services are good value for money. Twenty five per cent believe that water is too cheap, and 33% say they would be happy to pay more for water.

Twenty four per cent believe that the cost of water should be higher in suburbs and towns where it costs more to supply water instead of everyone paying the same price.

The community is split on the concept of having higher prices during periods of drought and lower prices when supplies are plentiful, with 41% supporting this concept, but 52% not supporting it (Taverner Research 2005, p.2).

Victorian Government Department of Sustainability and Environment (2004), *Securing our Water Future Together (White Paper)*, Melbourne, June 2004.

Changes to pricing are a critical part of the Victorian water reform package outlined in this White Paper. The Victorian Government argues that 'it is generally recognised that water is too cheap and this supports wasteful uses of water' and consequently proposes to introduce a rising block tariff system that 'rewards water conservation and discourages excessive use' (p. 12). The Government is seeking to ensure that prices reflect the environmental impacts associated with providing water services (p. 129). To do this, the Government will require water authorities to make annual environmental contributions, with the resulting revenue to be put towards sustainability initiatives (p.129). Water authorities will raise these contributions by increasing tariffs and charges, with the consequent price rise estimated at five per cent for urban water users and two per cent for rural users.

Chapter Six of the White Paper focusses on pricing issues. The paper advocates 'pricing for sustainability', or setting the price of water so that it represents the true cost of providing it in a sustainable manner. It also recognises that 'vulnerable groups in the community must be afforded protection when prices rise' (p.126).

The rising block tariff proposed for Melbourne has its first step set at 40KL per quarter, which is 'based on an estimate of essential indoor use' (p. 127). The second step (80KL per quarter) 'indicates more discretionary use'. The size of the household for which these estimates are made is not specified, though it is stated that about 80 per cent of quarterly bills are for less than 80KL. The tariffs are also intended to take seasonal variation into account – many users will exceed 80KL during summer and will pay the third block tariff for usage higher than this (p. 127).

The White Paper states that the three metropolitan water authorities are to develop assistance packages for large families. Those families with six or more members can apply to receive a free water savings package (including products such as low flow valves, showerheads or plumbing

services). This program is in recognition that ‘large families may be using water wisely but due to the size of their water consumption they are being priced at the top block tariff’ (p. 128).

Affordability is also addressed by raising the maximum concession cap from \$135 to \$150 and indexing it for inflation. All eligible pensioners and Health Care Card holders will receive 50 per cent off their total water and sewerage bill to a maximum of \$150 (from 1 July 2005). This concession is expected to benefit 420,000 Victorian households (p.136).

West Australian Council of Social Service Consumer Utilities Project (WACOSS 2005): Submission to the Economic Regulation Authority *Inquiry on Urban Water and Wastewater Pricing*

The WACOSS submission to the ERA does not support an emphasis on price as a demand management strategy because ‘the social costs would outweigh the potential benefit’ (WACOSS, 2005, p.5). The submission stresses the likely adverse impact on low-income households, and on large families in particular. The WACOSS supports this position by reference to ‘a large body of research that concludes that water is price inelastic ... [and] further evidence that suggests low-income households have even lower demand elasticity than high income households’ (WACOSS, 2005, p.5).

The WACOSS (2005, p.6) also argues that a change from fixed charges to consumption charges will shift costs from home owners to tenants, who are already at greatest risk of financial hardship.

The WACOSS (2005, p.24) submission advocates the use of pricing models based on household size:

Pricing models that reflect the size of the household (number of occupants) and can therefore better assess discretionary use, and the ability of the household to respond to price signals would be more appropriate to ensure efficient pricing, increased water conservation and lower social costs.

As an example, it points to a model advocated by Yarra Valley Water that allows people with a large family to register with their water provider and receive an increased allocation of lower priced water as recognition of their inability to reduce essential water use (WACOSS 2005, p.40).

The WACOSS submission also advocates:

- Demand management strategies that ‘focus on incentives and support to reduce consumption’, rather than price increases (WACOSS 2005, p.27)
- Education campaigns and better information to customers about their water consumption levels, and the breakdown of costs in their water bills (WACOSS 2005, p.30)
- Increased retrofitting (by landlords in private rental properties, and by the government in public housing) (WACOSS 2005, p.30)
- Introduction of mandatory water efficient standards for rental properties (WACOSS 2005, p.30).

White (1998): Wise Water Management

According to White (1998), the objectives of a water pricing policy should be to ensure efficient resource allocation through cost-reflective pricing and to generate sufficient revenue for the water supply utility. In addition, it should be simple to understand and administer and should reflect variations in system costs. The timing and cost of future supply augmentation, the extent of metering, existing cross-subsidies and other government policies complicate pricing policy.

White (1998) discusses the two-part tariff in some detail. A two-part tariff combines a fixed access charge with a usage charge based on consumption in kilolitres per annum. White argues that the usage charge should be set to equal the marginal cost of water supply.

Other tariff structures include:

- Flat rate charges, where ‘each customer is charged a fixed amount based, for example, on service size, property value, number and type of appliances or characteristics of the customer, the property or the building’ (White 1998, p.32). In Australia, property value has typically been used as the determinant of the flat rate charge.
- Flat rate charge and water allowance. This tariff comprises a fixed charge as above, entitling the customer to a certain volume of water, and a usage charge applied to the volume of consumption above that allowance. This tariff structure has been very common in Australia.
- Declining block tariff, ‘in which customers are charged a lower usage charge for consumption above certain levels’ (White 1998, p.33).
- Inclining block tariff, ‘is intended to provide a signal to higher water users of the costs associated with high water use, and to provide a lower cost for low water users’ (White 1998, p.33). It comprises a usage charge that increases, usually in steps, as consumption increases. Most commonly, there is only one step (i.e. two price levels). White notes that inclining block tariffs are more difficult to understand than two-part tariffs and that the tariff structure can reduce the incentive for low water users to reduce demand.

White notes the potential for tariff reform to have very different impacts on different groups of customers and the consequent need for incidence analysis to determine the impacts of the changes. White (1998, p.37) argues that:

A reasonable target in developing a new tariff is that the customer with median consumption before the price structure changes, and who responds to the changes and the associated education campaign by reducing consumption by (say) 10%, will have a lower bill as a result.

White and Carew (1998), Lower Clarence Review for Healthy Rivers Commission

This report by ISF includes a section on water pricing and water pricing options. It reports on experience in the Rous County Council supply area where consumption decreased by approximately 20% in the towns of Lismore and Byron Bay following introduction of volume based charging. It also reviews alternative pricing measures, including seasonal pricing and drought or scarcity pricing. In both these examples, customers are charged a base tariff for water during non-critical water demand periods and a premium tariff when water resources are low.

Seasonal pricing applies a premium tariff for water during summer when raw water sources are typically low and consumption is typically high. Drought or scarcity pricing involves an increase in the water tariff only when resources are low in actuality. Water users are made aware of the increase in the cost of water during the period and can then choose to either use less water or pay a higher water bill.

White and Sarac (2000), Price Elasticity of the Demand for Water in Sydney

This report reviews previous research on the price elasticity of demand for water, reporting figures between +0.05 and -0.64 globally, and -0.06 to -0.2 for Sydney. The report concludes that demand for water is relatively inelastic.