Economic Planning Advocacy
LAND DEVELOPMENT INFRASTRUCTURE INVESTIGATIONS

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Mr R Warner
Independent Pricing and Regulatory Tribunal
PO Box Q290
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Dear Richard

IPaRT and DUES Guidelines Inquiry

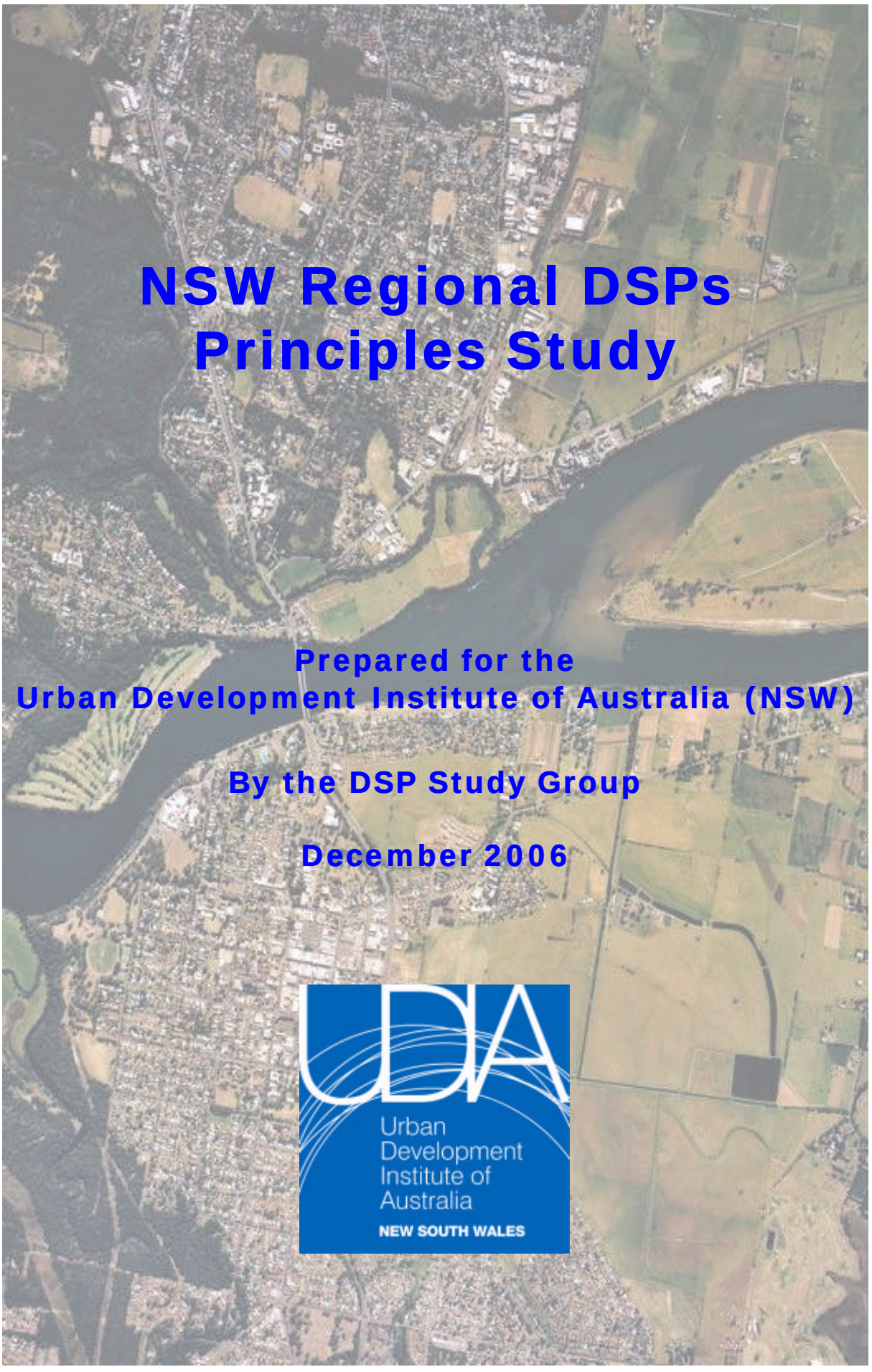
As you know, late last year, a series of reports were completed by a group of consultants which examined the principles applying to development charges and particularly the contents of the DEUS Guidelines for the Calculation of Developer Charges.

This work has provided a basis for the Urban Development Institute Australia (NSW) and Association of Consulting Surveyors NSW submissions.

I enclose the report "NSW Regional DSPs - Principles Study" which has been circulated within the industry, but may also be of interest to others outside the housing industry, and consequently ask that this also be included in the submissions for the Inquiry. It should be noted that the report remains the opinion of the author firms as advice to the companies which commissioned it.

Yours sincerely

Peter M Price



NSW Regional DSPs Principles Study

Prepared for the
Urban Development Institute of Australia (NSW)

By the DSP Study Group

December 2006

Urban Development Institute of Australia
NEW SOUTH WALES

ACKNOWLEDGEMENTS

This project was commissioned as a need was identified, to comprehensively examine the issues and resolve any conflicts about the principles underlying preparation of Development Servicing Plans (DSPs) for water and sewerage charges. The purpose is principally to support possible dispute resolution by sponsor members, but in due course, for all UDIA members to use. In the interim it will also be a valuable resource to present the industry's position to government.

The project has been generously sponsored by:

Urban Development Institute of Australia (NSW)
Winten Property Group
Crighton Properties Pty Ltd
Mirvac Homes (NSW) Pty Ltd
Stockland Development
Cornish Group Pty Ltd
Roche Group Pty Ltd
Sassin Group Pty Ltd

In addition to making successful representations to government about the issues, the project study process is being overseen by the Institute (ie UDIA). This is given its standing in the industry and as the other sponsors are UDIA members. The technical production by the study team consultants is being managed by Peter Price, a member of UDIA.

The DSP Study Group members were:

Mr Peter Price, economic planner, *Economic Planning Advocacy*;
Mr Chris Taylor, consulting economist, *Rolyat Services Pty Ltd*;
Mr Col Menzies, planner/demographer, *The Public Practice*
Mr Paul Harvey-Walker and Mr Mark Tooker, engineers, *Patterson Britton & Partners*
Gai Daly, editor, *Heaps Big Abundance Pty Ltd*

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EXECUTIVE REVIEW

1. INTRODUCTION

Development Servicing Plans (DSPs) are studies prepared by regional/local water authorities in NSW to determine upfront water supply and sewerage charges for new development. In accordance with the requirements of S64 of the Local Government Act 1993 and Division 5 of Part 1 Chapter 2 of the Water Management Act 2000, in calculation of the amount of the charges, consideration is to be given to any guidelines issued by the Minister.

The methodologies used are generally based upon the Guidelines - Development Charges Calculations for Water Supply, Sewerage and Stormwater dated 2002 as issued by the Minister for the Department of Land and Water Conservation (now DEUS). The Guidelines will hereafter be referred to as the DEUS Guidelines as the Department of Energy, Utilities and Sustainability now has responsibility for its implementation. DEUS is part of the portfolio of the Minister for Utilities, which also includes Sydney Water Corporation and Hunter Water Corporation.

The catalyst for this Study is that recent regional (NSW country) DSPs have introduced charges which are significantly higher than the median or average charges set by Sydney Water Corporation (SWC) in 2001 for its approximate 80 DSPs within its jurisdiction. SWC is bound by the Independent Pricing and Regulatory Tribunal Determination (IPaRT) made in 1995 and amended in 2000.

The attached and marked "Table 1" provides a "*Comparison of SWC and Regional Charges"* which amply illustrates the concerns held by a number of companies in the housing industry and their state wide representative body, UDIA.

The DEUS Guidelines claim adherence to the IPaRT Determination Principles but as this study shows, this is a false claim. While the objections by DLWC to a number of aspects of the IPaRT Determination and Guidelines were rejected by IPaRT, this has had little to no affect upon the Department's approach. The DEUS Guidelines are complicated by the DEUS attempts to integrate the charge determination with annual charges, backlog subsidy etc. Further while the IPaRT principle of "cost recovery" using a Net Present Value (NPV) model has applied to metropolitan water authorities, the concept of "return on investment" (RoI) has been adopted for the DEUS Principles for regional NSW. This Study will contend that the various mechanisms including RoI have been used by the DEUS Guidelines to add significantly and unreasonably to the charges.

The reasons for the higher charges have been challenged by UDIA members following analysis by their consultant. DSPs most thoroughly examined include those since adopted by Bega Valley, Eurobodalla, Shoalhaven and MidCoast water authorities. The analyses have identified a number of significant issues both with the Guidelines and their interpretation by consultants upon whom the water authorities and/or local Councils have relied.

These findings are also supported by a series of "desktop" reviews of DSPs prepared by other coastal and inland water authorities also undertaken by Economic Planning Advocacy.

The implications for the viability of new development and the cost of housing to the community are serious and for this reason UDIA has now taken up the challenge.

This Principles Study is designed to review the independent analyses undertaken for UDIA members in the past, consider the principles used by the water authorities and their consultants, and comprehensively examine the DEUS Guidelines. The DSP Study Group includes consultants with the range of skills necessary to deal with the complexities of the fundamental data used and the calculations undertaken.

It is hoped that this Study will also will provide support for an Independent Pricing and Regulatory Tribunal (IPaRT) review of the DEUS Guidelines. This is required to rectify these departures from the principles set by the IPaRT's Determinations of 1995 and 2000, which have lead to the imposition of significantly increased development charges by NSW regional water authorities.

2. PUBLIC POLICY

The DEUS Guidelines and the Departments principles appear to have been developed in a policy vacuum. A review of the current public policy debates and government statements reveal that the Department is out of step and pursuing its own limited agenda to the detriment of the community in Regional NSW.

This is evident in the following context:

The NSW Treasury publishes guidelines for financial and economic appraisal which require careful consideration of the costs and benefits (inc liabilities), risks and objectives (inc strategic, utilisation, and management).

The use of subsidy to discount the cost to the consumer is widely adopted for social planning infrastructure (S94), metropolitan utilities (water and sewerage) and growth centre developments. The Act and Guidelines require that subsidy not be discounted.

The change of jurisdiction for water and sewerage charges to the Local Government Act in 1993 and the eventual promulgation of the DEUS Guidelines in 2002 need to have been subject to the Regulatory Review process.

The elementary unanswered questions are:

Has the full impact of their adoption been revealed, which only became evident upon the adoption by a number of water authorities of their DSPs in 2005/06?

Has there been a Regulatory Impact Statement prepared for the introduction of the Guidelines in 2002? (A search of the NSW Parliamentary web page has not produced any record.)

The Federal Government report on First Home Ownership considered the cost of infrastructure as a major element in housing costs.

The Shires Association is concerned about lack of financial support to regional backlog schemes.

The recently published State Plan has as a major element, a concern about affordability. The government has been oblivious until recently about the impact of recently adopted charges in some NSW coastal regions.

3. METHODOLOGY OF THE PRINCIPLES STUDY

The principles study was undertaken using a series of intensive workshops to identify the issues and discuss the various solutions used to resolve them. Special issues were further examined by the appropriate specialist and supplementary reports prepared.

The main report is accompanied by a number of supplementary and background reports which were the working documents for the main Principles Study.

4. BACKGROUND: IPART DETERMINATION AND THE DEUS GUIDELINES

4.1. IPART Guidelines

In June 1995 the then NSW Government Tribunal reported to the Premier that it was not able to finalise its investigations into the maximum pricing of development charges by Sydney Water Corporation (SWC).[1] It subsequently formed a Water Industry Forum (WIF), consisting of representatives from the Tribunal's secretariat, the water agencies, government agencies, environment groups and the housing industry. This forum considered the appropriateness of a net present value (NPV) methodology and the issues that could arise from its implementation. One of the early examinations of the NPV methodology was that by Mr David Brett in 1993 for IPART, which had commissioned him to examine the options including the Hunter Water Corporation NPV approach to calculating charges.

The WIF reported its recommendations in November 1995. The Tribunal gazetted the Determination on 14 December 1995. The Independent Pricing and Regulatory Tribunal (IPaRT) Determination No. 9 applies to Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council, for the setting of water supply, sewerage and drainage development charges.

The outcomes from the 1995 Determination were:

A net present value (NPV) methodology was developed for calculating water usage charges that Sydney Water Corporation (SWC) could charge developments for the provision or upgrading of water supply, sewerage and drainage infrastructure headworks.

The WIF (Water Industry Forum) was asked to continue reporting to the Tribunal for 12 months, on any unanticipated problems with the NPV approach. No further meetings of the WIF were held however.

The parameters of the NPV calculation set for SWC were:

- A three percent (3%) real discount rate on existing assets
- A nine percent (9%) real discount rate for future assets
- A forecast horizon for expected net revenue of 30 years
- An efficiency factor of forty percent (40%) to be applied to existing asset values

Of particular relevance to this Study is that, in 1996 the IPaRT issued a Report to the Premier on Pricing Principles for Local Water Authorities and all local water authorities

[1] SWC, Hunter Water Corporation, Gosford City and Wyong Shire councils were declared government monopoly services under the Government Pricing Tribunal Act (now IPaRT) in an order dated 27 August 1992.

(mainly Councils). All local water authorities are gazetted as providers of "government monopoly services". The report recommended the NPV method of calculating development charges. The IPaRT Chairman stated that this was an opportunity for local water authorities to "self regulate". He also stated that "This 'light handed' approach to regulation should be given a chance to work, but more extensive regulation may become necessary if it proves to be unsuccessful". The industry regrets that this was somehow prevented from occurring.

Following representations from the industry, including a public hearing in early 2000, the 2000 IPaRT No. 9 Determination amended the previous Determination and took effect from 1 October 2000. The main changes to the new Determination were:

- The methodology was changed to include the parameters used in the model as well as what was previously referred to as Guidelines (see schedule 5).
- Agencies must advertise and exhibit a development servicing plan (DSP) for each servicing area (see part B in schedule 3).
- Agencies must provide the calculated development charge (DC) and the information used to calculate the charge (see schedule 3 part A) to developments and other interested parties to conduct a thorough review of the plan.
- DSPs (and hence DCs) are to be reviewed by agencies every five years.
- A nexus between a development and the assets serving it must be verifiable.
- Assets already constructed must be valued on a Modern Engineering Equivalent Replacement Asset (MEERA) basis (not modern equivalent asset, a.k.a. MEA).
- The discount rate for assets commissioned prior to 1996 was to apply from 1996 and not from the date of commissioning (Section 4.9.2 of 2000 report pp19 line 3).
- The discount rate for pre 1996 assets was maintained at 3 per cent real.
- Clause 5.4(b) provides that the pre 1996 (existing) assets be valued (MEERA) but at 1 January 1996.
- The discount rate for post 1996 and future assets was reduced to 7 per cent real.
- The discount rate for the revenue offset amount was reduced to 7 per cent real.
- The Tribunal believed that as a result of the changes there would be a reduction in the average development charge across the SWC supply area of 27 per cent. In fact the weighted average reductions in the SWC charges were 47% for water charges and 26% for sewerage charges (combined 33%).

The Water Industry Forum also supported the Tribunal's suggested process for resolving disputes of:

a development first requesting the agency to review the charge (as per section 31 IPART Act) if not satisfied, having the matter put before a mediator, if still dissatisfied, decided by an arbitrator (as per section 31 IPART Act) whose decision is binding.

4.2. DEUS Guidelines

In 1989 the company Allsands Pty Ltd challenged the water and sewerage charges proposed by Shoalhaven City Council. The Public Works Department joined the Council to defend the appeal, but argued a different methodology which was published during the proceedings. The relevant law at the time was S94 of the Environmental Planning and Assessment Act (EP&A Act). Allsands won on appeal to the Supreme Court of Appeal in 1990. In 1993, with little warning and for the reasons given in Hansard, the government changed the jurisdiction to S64 of the Local Government Act with reference to the Water Supply Authorities Act. The Minister was given the right to issue guidelines and the right of appeal was removed. The reference by S64 of the Local Government Act is now to the Water Management Act 2000.

While the reasons given by the then Minister to the NSW Parliament for the need to change the jurisdiction, undoubtedly on advice, were demonstrably false, the fact remains that the current Minister has the right to issue guidelines to local water authorities.

The Department of Water and Land Conservation were represented on the IPaRT Water Industry Forum and with the release of the Pricing Principles Issues Paper to all local water authorities in 1996 it was hoped that there would be one set of Guidelines, applying to the calculation of development charges in NSW. This was expected as all NSW water authorities are gazetted as monopoly providers under the IPaRT Act.

It was known at the time that the Department had some fundamental disagreements with the IPaRT Guidelines, which had not been accepted by the Water Industry Forum or IPaRT. It was not surprising therefore that a Draft Discussion Paper and Case Study surfaced in March 1998. This was followed by a Draft in March 2000 and as a consequence of the IPaRT Determination of 2000, a revised Draft was published in May 2001.

Copies were provided to Peter Price for comment, which were made. However it transpired that neither the Association of Consulting Surveyors NSW (ACS NSW), the Urban Development Institute of Australia (NSW) (UDIA NSW) nor the Housing Industry Association (HIA) received a copy or were asked for comment. A copy of the adopted 2002 Guidelines, was supplied to Peter Price but not to any of the above authorities.

The Association of Consulting Surveyors NSW, who represent consulting surveyor firms in regional NSW have consistently objected to the changes in the law and the proposed provisions in the Guidelines since 1993. The contact with government over that period since, apart from written submissions has been:
one meeting to hear presentations on the 2001 Draft Guidelines (P Price only).
one meeting with the Minister, the Hon J Aquilina (ACS NSW)
one meeting with the Director General, Mr D Nemtzow (ACS NSW)

The principal concern has been that the consultation with stakeholders embarked upon by IPaRT, was not undertaken by the Department. Given the substantial variations is approach this were a necessary step and may have avoided the current high level of disputation and consequent cost to all concerned.

5. The Principles Study

5.1. Purpose of the Principles Study

The study is essentially designed to provide members of the industry with the principles that will assist in disputes and consequent challenges, in arbitration to the charges adopted by some water authorities.

The study attempts to resolve what have been identified to be differing opinions about the principles contained in the Department of Energy, Utilities and Sustainability (DEUS) Guidelines for Developer Charges 2002 and the IPaRT Guidelines as outlined in the Independent Pricing and Regulatory Tribunal (IPaRT) Determination No9 of 2000. DEUS claim adherence to the IPaRT principles. Two of the authors of this report (Price and Taylor) served on the Water Industry Forum of IPaRT which assisted in the preparation of the IPaRT Guidelines, and dispute the DEUS claim.

The Study will however provide an industry resolution of the principles. At the same time it is hoped that the NSW Government will proceed to have the DEUS Guidelines examined by IPaRT in a public inquiry to provide industry with the opportunity, not given to date, to challenge the many false interpretations of the IPaRT principles and the flawed financial management principles contained in the DEUS Guidelines. The Study will naturally provide support for the industry position at any inquiry.

In addition, as part of the Study process, the substantial problems with the interpretation and application of the Guidelines by water authorities, in part because of the many gaps in it's guidance, have also been examined.

5.2. Principles Outline

The principles outlined are firstly logical, secondly based upon financial management principles and thirdly based upon good demography. The steps that need to be taken, to investigate the elements of the system, collate information needed to make a proper assessment, and determine a reasonable development charge are outlined.

5.3 Background or Concept Report

IPaRT set down basic needs to enable "Transparency requirements" in the 1995 Water Industry Forum Discussion Paper and since in Determinations. These are either inadequate or not adhered to, but the in principal requirements exceed those provided by some authorities. Disclosure of all information required to fully check the assumptions, the data and the calculations is required to adequately check the DSPs. While one authority has provided a significant amount of excellent information material on the basis of the demographic and thus the ETs has been difficult to obtain over the past 11 months and is still incomplete.

For the purpose of future reviews, and to meet accountability and transparency as two elements of good governance, the authority ought to compile a report to contain the background material essential in the assessment of the various aspects of a development servicing plan (DSP). In government this may be known as a concept report.

This type of report may also be of benefit to future water authority officers, who will be expected to review the DSPs in approximately 5 years time. The information will also be essential to assure the industry and their consultants about the basis of the DSP charges. Most DSPs do not provide adequate information to enable a proper review of the findings.

6. PRINCIPLES

6.1. Demography

The demographic analysis is a most important one, and is commonly poorly addressed by water authorities, it seems because of a lack of understanding of the content of the ABS statistics and the use to which these may be put. The process is one that requires rigor and the outcomes should be clearly based upon explicit principles.

Principles

The current data should be based upon the most recent census. Past trends should be examined for previous census (typically at this time 1991 and 1996).

The analysis should identify whole area initially (LGA):
- the population (census population and estimated residential population);
- the number of occupied dwellings;
- the consequent occupancy rate;
- the number of vacant dwellings;
- the consequent dwelling factor;
- the projected population in 20 or 30 years

These can be obtained from the ABS and/or Department of Planning (TPDC).

the number of vacant lots;
the consequent development stock ratio;

The vacant land data can be obtained from the water authorities data base or by a build out rate assessment.

As pointed out in the paper attached for the Demographic Principles, Mr Col Menzies explains why, while the analysis of non-private dwellings must be included in the count, care must be taken to understand to understand what is included or excluded in the ABS Census, ERP and Community Profile data.

Population projections can generally be made by the authority using its own planning data and ABS or Department of Planning long term projections.

References

Census of Population and Housing ABS 2015.1 (1996, 2001 etc)
NSW State and Regional Population Projections 2001-2031 (DoP TPDC 2004)
ABS 20 Year Projected Resident Population (available for specific SLAs)
Regional Population Growth Australia 1991 and 1996
Community Profile Series
Basic Community Profile 2001.0
Expanded Community Profile 2005.0
Time Series Profile 2003.0

6.2. Equivalent Persons (EP) and Equivalent tenements (ET)

The assessment of equivalent persons (EPs) has a number of sources and uses. These include:

- resident population (persons = EPs - based upon the estimated resident population (ERP) at 1 July in a Census Year)
- equivalent persons in non-residential areas and for non- residential uses (this is for average demand).

Peak EP may be the maximum demand in a particular period (ie summer) and may include a high proportion of visitors. For non-residential this may be a particular use. The demand may be moderated where industries have reduced demand in the holiday period. This is principally a design parameter and not one to be used in the apportionment.

Some authorities use the design parameter of peak demand unreasonably in the apportionment (as converted to ETs). This is potentially flawed as there can be only one definition of an ET for apportionment of the cost. The contention is that the system may have a lower peak ET capacity. Then a demographic ET or average ET is used to apportion some elements and peak ETs other elements. The problem is a basic mis-understanding. If a system has a demand over 30 years of 1000 ET and a reservoir has a capacity of 800 ET, the effect is to reduce time over which this reservoir provides capacity. 800 ET cannot be used to apportion the cost over the longer period.

An ET must be immutable. An ET is an equivalent tenement which is equated with a "separate dwelling" in ABS terms. The average demand created by an ET is the basic parameter (see Water Directorate Technical Guidelines Clause 3.3). The ET rating of smaller dwellings is based upon an analysis of the occupancy, relevant to that of a separate dwelling. That is if a separate dwelling has an occupancy ratio (all dwellings) of 3.0, a multi dwelling with an occupancy ratio of 1.5 will be 0.5 ET (See Table 3).

Vacant lots will have an ET of 1.0 or more depending upon these having separate or multi dwelling potential.

Non-residential demand in ETs (for the purpose of apportionment) is based upon comparative average demand.

It should be noted that there is a basic problem with the Water Directorate Technical Guidelines (2005) assessment of local ETs for S64 Determinations. These are generally based upon design considerations (flow/demand per person) and takes no account of the statistical base upon apportionment must be based. In effect it ignores the upfront "buy in price" nature of development charges paid on all new lots and multi dwellings. In so doing the guidance ignores a significant element of the development charge income base – vacant dwellings and vacant lots.

It is agreed however that the local ET demand conditions must be used to consider asset provision timing, which is an important element in the financial analysis.

It can be also be noted (in the Technical Guidelines) that comparative average consumption is agreed as the basis of determining non-residential ETs.

While not a matter for detailed examination by this Study, the ET classifications provided by the Water Directorate guidelines are considered excessive in a number of instances. The methodology used to collate this data appears to be the basic problem. That is, selection from current practice advice by water authorities. This also appears to be

regardless of whether these are based upon proper analysis of actual demand and over a suitable period.

Principles

An EP is a person or an equivalent person, generally used for as a demand basis for design purposes;

An equivalent tenement (ET) may be residential or non-residential;

The benchmark ET = a separate dwelling erected or capable of being erected upon a standard lot;

An ET for other more dense categories of residential development (town houses, flats and others) need to be assessed by reference to their equivalence on a development stock to population ratio basis.

(Development stock = all dwellings and vacant lots)

All vacant dwellings and lots are included in the ET calculation and the ratio calculated upon the current makeup of dwelling types. While not a problem in most regional areas, any disproportionate change in dwelling type will affect the outcome.

An example of the general calculation for a conversion factor of development stock to ETs is attached and marked "Table 2".

The attached supporting spreadsheet marked "Table 3" shows that the dwelling and lot stock need to be discounted by 5.9% to convert it to ETs. That is as the stock would if not adjusted, overstate the ETs. This is based upon the ABS Community Profile Series tables T18 and B18 but only for private dwellings. A generally small adjustment may be made for non-private dwellings (NPD).

The consequent schedule of ETs over the life of the Plan in 5-10 year increments is called the takeup (of demand) as follows.

Occupied dwellings which are existing users of the system.
Vacant dwellings which are connected users of the system, but these create demand from time to time.
Vacant lots pay up front for access to the system and their potential must be allowed for. These create demand in the future when dwellings are erected on the lots.

An additional factor which is a phenomena in inner metropolitan areas, but which may arises for a limited number regional local government areas. This is where there is a substantial existing dwelling base and when the occupancy rate in these is reducing. Statistically the persons who move out of the existing stock will make up part of the occupancy in new dwellings. In other words if there was no population growth, new dwellings will still be required to support this shift in population. In that case a charge must, in theory, be zero as there is no additional demand.

As illustrated in the attached and marked "Table 4", the consequence of the general proposition is that the ratios for either 2000 or 2020 will be higher than the ratio of population growth divided by all dwelling growth and lot growth.

The Table 4 graph also illustrates why just the ABS occupancy rate (population divided by occupied dwellings) is an inadequate ratio to convert population to total dwelling and land stock and ultimately residential ETs. The former will grossly understate the ETs.

References

ABS Community Profiles
Basic Community Profile - Table B18
Time Series Profile - Table T18

6.3. Asset Selection and Timing

The selection of assets to include in the DSP has a critical effect upon the charge. The principle problem with the current batch of DSPs is the inclusion of reticulation costs. In addition pre 1970 assets are included, contrary to the provisions of the IPaRT Guidelines/Determination.

The issues relate to:

- excluding pre 1970 assets because the assets are "sunk" as determined by IPaRT. There are still Councils that include assets back to 1934, 1947 etc.
- The time has come for that date to be moved forward (ie add 1 year for each year from 2007) and this has been put to SWC for consideration.
- new for old assets - Charging full replacement for an asset plus the full upgrade cost is unreasonable.
- oversized assets. Assets with significant spare capacity are deleted by the IPaRT Determination.
- residual capacity/value - The alternative approach of allowing for the benefit of residual value to the authority has not been considered by any authorities at this stage. This is often as capacity information is not often provided.
- reticulation – water authorities routinely define reticulation as anything over a 195mm or 150mm. The national code (WSAA) has clear definitions of reticulation which should be used.

Further, Bega Valley do not regard the pipes that interconnect the individual onsite pressure pump systems in village backlog areas as reticulation.

MidCoast Water proffer the view that if a pump station was not included in the DSP and was subsequently required it would be at the developer's cost as it would then be "reticulation".

In many instances backlog works are included in the charge despite these having no nexus to new development.

In Bega Valley small and expensive villages (up to $35,000 per lot), where there is limited provision for future development, are included and add $1500 per lot to the charge for new areas. Cross subsidy by development charges of the authorities cost and the DEUS subsidy, has been approved by DEUS despite it not being contained in the 2002 Guidelines.

The general problem is the lack of rigor in the description of assets in the DSPs which creates confusion as to whether an asset is legitimately included.

Major headworks, both existing and new are those which IPaRT has identified as being impacted upon by new development and provided by the water authorities outside (generally) the bounds of the new development.

The assets within the bounds of new development the assets (generally) are provided by new development. This includes reticulation elements of the system, directly serving the newly developed lots for example.

Pumping stations for sewerage are one exception as these are headworks provided both within and outside new development areas. Similarly large pipe systems may provide delivery of the utility service and not be directly to the individual parcels in any development.

Water reticulation mains are described as "generally sized DN 100 to DN 375" (See WSAA Water Supply Code 03-2002 V2.3).

Sewerage reticulation "for the collection of wastewater from individual properties" are described as "generally DN 100 to DN 300" (See WSAA Sewerage Code 02-2002 V2.3).

The assets included in the charge need to be carefully assessed as having some nexus to new development. This may be limited to those that provide demonstrable capacity nexus to new development ETs for up to 20 years. This would result in the provision of new assets at say 5 to 10 years in the future as a reasonable asset planning horizons as recommended by the DEUS Guidelines. These land planning and capital works planning horizons cannot be absolute. Similarly just because the net revenue has a 30 year horizon it does not follow that works planning can approach that period, as attempted by some authorities. The planning period will logically have lesser works provision period, whatever is chosen. The 30 year horizon for net revenue was chosen by IPaRT to exhaust the double dipping effect only.

Principles

Assets to be included in the water supply DSPs (post 1970):

- Storage Reservoir and/or Treatment Works
- Transfer Mains
- Storage Reservoirs
- Distribution Mains ("without direct consumer connection" - see WSAA Code definition)

Assets to be included in sewerage DSPs (post 1970):

- Treatment (STP) and Disposal
- Trunk Mains
- Pump Stations (SPSs)
- Branch Mains (connects to reticulation - DN 375 to DN 600)

The assets to be provided in the future should be carefully measured against the future demand. It can not be assumed that an extensive works program is an efficient process regardless. The assessment should be documented and published as part of the background/concept report respectively. These also include the water supply and sewerage reticulation definitions.

Attached and marked "Table 5" and "Table 6", are WSAA Code diagrams of the water supply and sewerage systems respectively. These also include the water supply and sewerage reticulation definitions. The diagrams and definitions illustrate the clear distinction between headworks and reticulation.

References

Water Supply Code of Australia 03-2002 V2.3 - Water Services Association of Australia (WSAA)
Sewerage Code of Australia 02-2002 V2.3 Water Services Association of Australia (WSAA)

6.4. Asset Value

The IPaRT Guidelines are endorsed by DEUS and on page 2 quotes the IPaRT 1993 Inquiry report as follows:

> "*... the Tribunal proposes that developer charges should:*
>
> *be calculated transparently so that developers can understand and assess the calculated charges."*

In Part 1.2 The DEUS Guidelines provide that:

> *"Developments should only be charged for the efficient cost of supplying water and sewerage infrastructure".*

This is a most difficult aspect of the assessment and generally we have no choice but to accept the authorities estimates. However in all cases a contingency is added and in one case at Eurobodalla, a 56% contingency was added, for all the growth related assets, to the Reference Rates published by DEUS.

In any challenge, it will be necessary to review most of the major assets costs.

The value of an asset should be the most "efficient one" according to IPaRT. This has evolved from the "contract rate" to MEA (modern equivalent asset) to MEERA (modern equivalent engineering replacement asset). The approach to asset valuation in regional NSW has been variable despite there being a manual of reference rates provided by the Department of Energy Utilities and Sustainability (DEUS).

The issues to be resolved included:

- Are the DEUS rates reasonable or efficient?
- Is it inefficient for contingency to be charged on assets given that a 3% pa risk rate is included in the cost estimates (or value)?
- How are local water authorities to be constrained to use efficient rates?

As identified by Patterson Britton in their background report, both the Sydney Water Corporation and Hunter Water Corporation have asset registers and MEERA rate guides. These both have closely restricted circulation and are not available for purchase.

It is apparent that the whole process of valuation of assets is fraught with difficulties. Most particularly there are no strict criteria for their derivation. The purpose of the DEUS, HWC and SWC rate books may be different. These may include for the purpose of:

- valuing assets in the authorities asset register;
- valuing assets in works strategies;
- valuing assets in DSPs.

Each of these could easily have different outcomes depending upon the fiscal policy of the authority. The industry is vitally interested in the third method.

IPaRT should be requested to investigate a resolution to this matter by either providing guidance which could include having a base case document prepared.

Principles

The principle generally adopted for full cost recovery is a combination of recovery of cost from rates and development charges. In Allsands v Shoalhaven City Council the Court of Appeal found that "cost to Council" meant exactly that and not value. However recent amendments to the EPA Act have provided for the historical cost to be indexed by CPI. This accords, in principle, with the IPaRT approach of revaluing existing assets to their current replacement cost.

The IPaRT Determination provided for a 3% per annum risk rate to cover the regulatory, market and general economic risks. This equates to a 49% increase in cost over 30 years. The addition of a contingency to the asset cost for the purpose of planning infrastructure in a Utility Strategy report is not unreasonable and probably prudent. However in the context of a DSP the addition of a contingency of between 10% and 50% to the cost in addition to 3% pa is unreasonable.

Therefore the cost of infrastructure to be included in DSPs should be the reference rates included in the DEUS published NSW Reference Rates less 10% for example.

In addition the water authority should be required to provide the DSP registration agency, in this instance DEUS, with a schedule of departures from the reference rates with reasons. It should be open to the registration agency to reject the rates used by the water authority.

The schedule should be included in the background or concept report.

References

NSW Reference Rates Manual - Valuation of Water Supply Sewerage and Stormwater Assets (DEUS) June 2003.

Water Industry Forum - Report on Developer Charges for Water, Sewerage and Drainage Services - Discussion Paper No 14 November 1995 - *Issues in the Choice of Discount Rates (E Groom).*

Clause 25I - Environmental Planning and Assessment Regulations 2000.

6.5. Asset Capacity (as the Basis of Apportionment)

There are inconsistencies is the way local authorities use system capacity. There are two elements which need to be considered. One is the takeup and the other is capacity.

Essentially all assets costs should be apportioned over their capacity to give a per ET capacity cost. However this is recognised as having some practical limitations however. Small assets such as pipelines are generally apportioned over the takeup adopted which has been accepted by the industry. How authorities determine capacity of major assets remains however a 'black art', which is entirely unsatisfactory.

There are a number of problems which include:

The design capacity also includes a contingency. It is common that major assets will continue to operate over their design capacity while still meeting the demand and environmental requirements.

Upgrades invariably are also designed with contingent capacity and thus the inefficiency is perpetuated.

The WSAA Code provides guidance, for example, on the design parameters of reservoirs. It is clear from the huge range in design capacities used in DSPs that authorities are

either ignoring the Code or building is excessive contingency or just preparing poor designs.

The relevance and application of the various average, peak or instantaneous design standards are rarely explained in strategies.

The link between the capacities in the strategies and the DSPs are not clearly made.

The basic principles for the application of capacity follows.

Principles

The "takeup" assessment, which is the demographic analysis converted to per annum ETs, provides for the demand profile of the system over the planning period of the DSP.

This is used in two ways:

1. The takeup over the life of the DSP is taken as a defacto capacity for the low end valued assets - principally pipelines. This is as these assets are not usually fully utilised because the sizes increase capacity in steps. Therefore it is more likely that the takeup will represent the capacity utilised.

2. The takeup is also used to determine the timing of the capacity of the larger elements which have specific capacity parameters. This may be:

    - The date when the capacity is reached within the planning period. In that case the actual capacity if used to apportion the cost and the interest (RoI) ceases at that date;

    - When the additional capacity to be provided and the date at which the new cost is added to the table;

    - whether there is any surplus capacity beyond the planning period;

How an existing asset is to be assessed, is generally covered by the first and last point. How a new asset is to be assessed is generally covered by the second and third point.

Therefore in a DSP the basis of the demand and capacity needs to be explicitly stated and illustrated in ETs. The takeup table should be accompanied by a schedule of major assets and their capacity including the method used to determine it.

The DSP should provide a method of apportioning each group or individual major assets.

References

DEUS Guidelines for Developer Charges 2002

IPaRT Guidelines as included in Determination No 9, 2000.

6.6. Assets to be Excluded

Pre 1970 Assets

The IPaRT Guidelines provided (Part 5.1(b)) that assets constructed prior to 1970 should be excluded. The Water Industry Forum report (Discussion Paper No 14) expands upon the reasons.

These assets are "sunk" or fully paid for and thus there has been no cost to the authority (apart from maintenance) for some time. In the interest of intergenerational equity, this cost should not be resurrected and visited on new users. This was regarded as no only inefficient but unreasonable.

Consideration should also be given to moving the cut off date from 2007 to maintain the principles discussed in the IPaRT Water Industry Forum. In 1996, a 25 year cut off seemed reasonable. That is now 36 years and assets built during the early 70s would now also be "sunk".

The Department (DEUS) have another view. In the Department's view pre 1970 assets should be excluded except most of the likely headworks (Clause 3.1.2 and "Existing Assets" p16).

> *"Assets commissioned before 1970 are not included in the capital charge except water supply headworks system assets (e.g. a dam, weir, water treatment works, headworks pumping station and associated pipelines or tunnels), and sewerage major works (e.g. sewerage treatment works, effluent management works, major trunk sewers, major pumping stations and rising mains)."*

Backlog

As there are separate arrangements for backlog works in the metropolitan areas, it was unnecessary for IPaRT to consider these works in their Determination.

The DEUS Guidelines do not consider backlog works except in the calculation of net revenue (Clause 4.4.1, p45 and in the Shoalhaven Council example on page 96).

The practice however is different, as DEUS have allowed not only that the capital cost of backlog works can be included but despite not meeting the Guidelines' agglomeration process, a further step has been introduced, by advice to water authorities that allows for cross subsidisation of backlog areas by new development areas. In Bega for example this adds a substantial impost to a number of the charges.

Environmental Upgrades

A further issue is the inclusion of environmental upgrades to works in the capital costs. Most particularly this includes effluent reuse schemes. In regional NSW and some metropolitan schemes the water is provided for agricultural use.

The IPaRT 2000 Determination provides that the cost be excluded because *"an Asset was commissioned for a reason other than to service growth".* This applies to environmental systems which are designed to meet increasing environmental requirements such as restrictions on river and ocean outfalls. Such costs should be excluded.

While it is noted that while in the past environmental upgrades which provide wide community benefit have been met from annual rates and charges increase in metropolitan areas, such schemes (reticulating effluent to agriculture) are included in two metropolitan DSPs.

However in Shoalhaven in particular the imposition of the inflated cost of the effluent management scheme there, onto new development, is particularly harsh considering:

In 1996 Council published a report on the "Beneficial Use of Effluent to Increase Agricultural Productivity and Employment" as one of the justifications for the scheme.

Council subsequently held a plebiscite to obtain agreement from ratepayers for an increase in rates to cover the cost of the scheme. The Council received community support for the rate increase.

The effluent is provided to farmers at no cost.

The cost of a scheme with major environmental benefits ought to be met by the Council (ratepayers) and the State (taxpayers) at the historical cost, rather than imposing the inflated cost on new development. There is a general nexus to all users, not a specific nexus to new development.

Principles

Pre 1970 assets should be excluded without exception. From 2007, the date (ie 1970) should be progressively increased by 1 year (1971 etc);

Backlog works should be excluded;

Environmental upgrades which create general community benefit ought to excluded. Examples include recycling and irrigation of effluent.

References

IPaRT Determination No 9 2000 (IPaRT Guidelines)

DEUS Guidelines 2002

6.7. Timing and Planning Period

The timing issues relate to:

demand - per EP and ET;

asset provision - what and when;

takeup - when is capacity nominally used - ie at date of payment of the charges for each lot or when the dwelling is occupied? Clearly upfront payments make the date of payment the timing mechanism which should be reflected in the takeup;

income stream for S64 charges payments - the problem is how these should it be tracked? Water authorities have claimed that their substantial data bases cannot provide this information which is questionable;

planning period - this is quite an arbitrary process. 30 years is required for the net revenue offset calculation. Lesser periods for the asset calculations are appropriate in many instances;

when a long planning period is chosen, some catchments run out of demand or capacity at an earlier time. The RoI calculation should cease at the earlier date, and accordingly saving interest.

The development of principles for this issue needs more input by water authorities, as to how their land management system would address this. This planning information must be of value to these authorities and certainly essential for the DSPs.

6.8. The NPV Financial Model v the RoI Based Method

Net Present Value is a model widely used in the housing industry to assess the economics of development projects. This was one reason Hunter Water pioneered its use. That is to treat a DSP proposal as a project with a neutral return after all costs (capital and interest) have been met. The capital charge is determined on a full cost recovery basis. The charge is then discounted for the assessed share of the cost recovered by the water authority from net rates and charges (operational income less expenditure).

It is noted that Sydney Water now use the same takeup for the capital charge as the net revenue. This replicates the industry approach of having one model that balances the income and expenditure streams. To ensure that there are no mistakes in the model algorithms, a similar table should be included to check that the NPV of the net charge income stream equals NPV of the capital cost stream less the NPV of the net revenue stream.

The model recommended and required by the DEUS, also contains a RoI provision which is applied to the capital cost. There are a number of unsatisfactory aspects of this model as outlined in report "Review of the DEUS Guidelines" which is a supplement to this report. These include:

It is not simpler than NPV;

It is a piecemeal approach that readily generates errors that are difficult to trace;

It is based upon a false premise that the takeup will be uniform;

It calculates **back interest** from 1996 to the date of the DSP, but for DSP date valued assets. This is a breach of Section 5.4(b) of the IPaRT 2001 Determination.

The philosophical problem is that it implies that the process is a for profit process (ie a return on investment) not as IPaRT provide a cost recovery process. This philosophy has influenced a number of "innovations" in the process that add considerably to the charges. This is amply demonstrated if the IPaRT principles are used. The process has increased charges for the Bega Valley water DSP to a rate which is 14 times the median for the Sydney Water area.

The DEUS Guidelines do not state the NPV algorithm but correctly applies it. However DSPs in both regional and metropolitan areas routinely use the wrong algorithm as the authors don't understand the principles. The standard Excel or Lotus algorithm needs to be amended for the DSP purposes.

The start date of the DSP is Year 0 (Y0)
The next year is Year 1 (Y1)
The last year is say Year 30 (Y30)
r = discount rate
n = number or dollars in an annual series

The algorithm is therefore:

$$PV \text{ (at Year 0)} = NPV (r, n_{Y1} \ldots n_{Y30}) + n_{Y0}$$

Thus if 2006 is the DSP date, that is Year 0. In the recent Draft DSPs exhibited by SWC, the PV was calculated with and without the "+ Year 0" provision. Consequently the algorithms which included the modification to the standard spreadsheet algorithm correctly calculated the 2006 PV, while the incorrect algorithm calculated the 2005 PV.

Principles

The best practice would be to use a NPV model that contained all of the elements. That is:

The annual takeup in ETs;
The discount rates applicable to new and existing;
The value of existing assets (post 1970 or later);
The annual future capital expenditures;
The annual future net revenue;
The calculated charge;
The annual future charge income.

A model which incorporates all these elements is attached and marked "Table 7". This model calculates a 1 July 2004 development charge. It is also structured to illustrate all the elements, calculate the charge in a single model and it also provides a check calculation. The check is to ensure that the PV of the charges equals the net cost (capital cost less net revenue).

By comparison the standard SWC model provides less facility but nevertheless their calculation processes are more transparent than the DEUS model.

Also attached and marked "Table 8" is an example of the approach taken by a number of Councils for the DEUS RoI process. The figures in red are the basic changes necessary to fix some fundamental errors which include:

The date 2004 is a substitute for the "*effective year commissioned*" for 1996 (if existing) or later dates if new. All are erroneous for a 2004 DSP. The column should be headed – "*DSP date*".

Years to full takeup have been amended to a simple subtraction.

The Treatment works have a lesser capacity (6000ET) than the full takeup (7010). Therefore the year of full takeup has to be amended – in this case to 2011.

This basic model remains inferior to a NPV model as previously explained.

The attached and marked "Table 9" provides a graphic representation of the fundamental differences between DEUS and the industry.

References

IPaRT Determination No 9
DEUS Guidelines 2002

6.9. Discount Rates

The IPaRT determined that from 2000 the discount rates would be 3% for existing assets (pre 1/1/1996) and 7% for new assets (post 1/1/1996). The Determination created some confusion as follows:

All authorities use financial year assessments. The date should have been 1 July 1995 or 1996.

The authorities are required to estimate the value of the existing assets at 1996$ and discount back to 1 January 1996 (see 5.4(b) of the IPaRT 2000 Determination). Instead in 2001 SWC and 2001 HWC for example discounted back to 1996 but used the current DSP asset value (say 2001$). This was flawed as a financial management principle. SWC have corrected this anomaly in the Draft 2006 DSPs but HWC have not.

The DEUS Guideline approach for a 2006 DSP is to add interest at 3% from 1996 using 2006$ valued assets. The amount of interest increases over time as the DSP date moves. This interpretation cannot be made from the IPaRT Determination which applies to a NPV model only.

As previously indicated the correct approach is that all existing assets should be re-valued at 2006$ for a 2006 DSP. The present value is then calculated for that date, for the existing costs, future costs and future net income.

See the attached and marked "Table 9" in Appendix 1 which illustrates the difference between the industry principles and the DEUS principles.

The threshold when the discount rate changes, is therefore no more than a threshold for that limited purpose. The Determination was poorly drafted and has mislead the water authorities.

There is however another issue with the threshold. The industry proposes to submit, that from 2007, the 1996 threshold should be 1997, and it should move 1 year forward each year. The consequences would be to reduce the discount rate on some assets. The reason is that sufficient time has elapsed for the asset to be paid out and no more than a risk rate (ie 3%) is warranted.

The 3% risk rate is generally accepted as a discount rate for existing assets and part of the discount rate for future assets. That is, provided the capital cost does not contain any contingency. The problem is, contingency is generally added as well as the 3% risk (as interest). This is an unreasonable double dip.

The risk rate for future assets should be determined, as it has been in the past, as the 10 year bond rate less inflation (CPI) plus the risk rate. The median 10 year bond rate for the past 10 years has been 5.5%. The quarterly pa CPI rate for the past 10 years has been 2.8%. Therefore the current rate should be 5.7% but say 6%.

Principles

The discount rate for existing assets, should be determined as the risk rate. This is 3%, which has remained constant.

The discount rate for future assets should be determined as the median real bond rate plus the risk rate. That would be 6%.

The 1996 threshold should move in 2007 to 1997 and for each subsequent year, 1 year should be added.

As all assets are valued at the DSP date (say 2006) at 2006$, the NPV model should commence at 2006 and all income, expenditure and take up streams should be discounted to that date and not 1996 or any other threshold.

References

Water Industry Forum Discussion Paper - 1996
IPaRT Determination No 9 2000

6.10. Capital Charge

The capital charge is of the cost per ET of the provision of the utility headworks services required to serve future development.

The calculation of the capital charge should be undertaken with a NPV model as the only model that can fairly distribute the cost (capital), and measure the income (net revenue and contributions) for a non-uniform takeup. It is a cash neutral outcome method to determine the net capital charge, which is also best practice financial management.

Principle

The basic advice is that while the whole process needs more rigor, the use of a NPV model to undertake the calculations provides the most equitable outcome.

References

The IPaRT Determination No 9 – 1995 and 2000 (Guidelines)

6.11. Net Revenue Offset

The DEUS Guidelines claim that the IPaRT methodology is effectively circular, which it is not, but then require a series of circular calculations (iterations) to calculate the net revenue. The method artificially constrains the rate income and shifts cost to the development charge, by reducing the discount/net revenue offset.

The net revenue (operational revenue less expenditure) should be calculated using the water authorities working financial management accounting. This may be for not less than 20 years hence. 30 years is required and this may require some extrapolation of the last data set. The accuracy of the extra 10 years is not critical as the PV effect ameliorates any differences.

The DEUS model example illustrated on page 100 in Attachment 4 of the Guidelines is rejected. It is widely used as required by DEUS but it is significantly flawed. The reasons include:

- The analysis cannot be integrated with the calculation of annual charges as the process for determination of capital charges and annual charges are completely different.
- The model is not consistent with the capital charge calculation.
- The model calculated multiple (annual) present values using an iterative process. The can be only one (1) PV. That is at the DSP date. Further the calculation prescribed by IPaRT is logically NOT iterative.
- The integration of annual charges and developer charges attempted is flawed logically. The data used and the calculation methods of each are entirely

different. Attached and marked "Table 10" is a schedule explaining each to highlight the differences between the charges.

Also attached and marked "Table 11", is a net revenue calculation which follows the IPaRT principles. Where possible the takeup used in the capital charge calculation should be used as the basis of the operational income and cost projection. In this example the takeup provided has been used.

The first step is to remove 'depreciation' and 'interest' cost from the expenses. Both are contrary to the capital charge calculation which included re-valued assets and interest.

The next step is to remove 'capital works grants' and 'developer contributions' from the revenue. S64 requires the removal of grants, which is a source of objection by the industry. As the calculation is to determine that amount likely to be spent on non-growth assets, the contribution income must also be removed.

It will be noted that only one PV for the DSP date is calculated by the method which:

- Deduces the ET for growth per annum and then the cumulative growth;
- Apportions the net revenue applicable to post DSP date ETs (ie growth net revenue as a % of the whole net income);
- Calculates the present value of each;
- Divides the PV of the net revenue by the PV of the growth to get the per ET net revenue offset.

Principles

The essential resource is the projected operational revenue and expenses, which is the financial planning tool used by the water authority. This does not necessarily include FINMOD which is run in parallel by some authorities despite the differences in outcome. It is apparent that it is not well regarded by water authority accountants. The cost of a dual system is also a concern, and indicative of the dominance of DEUS's influence.

The data should be stripped down to the essential elements (for example):

Expenses
- Management
- Administration
- Engineering and Supervision
- Operation and Maintenance
- Energy

Depreciation and Interest Expenses are deleted.

Revenue
- Rates and Availability Charges
- User Charges
- Extra Charges
- Interest Income
- Other Revenues
- Pensioner Rebate Subsidy Grants

Capital Works Grants and Developer Contributions (inc works in kind) are deleted.

The mathematics of extracting the future user share of net revenue are reasonably straight forward, as are the PV calculations to derive the net revenue offset.
The rows at the bottom of Table 11, are have labels which are largely self explanatory. The algorithms are available on request.

References

Review of Wyong Shire Council's Operational Income and Expenditure Statements – Rolyat Services December 1997.

DEUS Guidelines - 2002

6.12. Combining Catchment Charges

The preferred approach by the DEUS Guidelines (as amended) is to combine charges regardless of the effect, equity and price distortions. The DEUS process is called agglomeration and illustrated in the DSPs for a number of water authorities. The process itself has doubtful mathematical veracity as it assumes that charges calculated using one method can be combined using a different assumption to weight the charges.

The only correct method which reflects the anomalies of different rates and variation in takeup is to combine all the data in a NPV model. Simply put:

Cost area A	$1,000,000	ET 500	Charge $2000
Cost area B	$500,000	ET 500	Charge $1000
Combined areas	$1.5 million	ET 1000	Charge $1500

In fact the NPV model would consider the shape of the takeup and the timing of the asset provision and the answer would be different. For example the takeup of 500ET may take 5 years is Area A and 10 years in Area B. If the cost was expended in the same year, the weight would be towards Area B (longer repayment period). The weight would also tend towards the Area which had an earlier expenditure (the reverse of the takeup effect). The net effect cannot be accurately predicted. The outcome can only be obtained by a cash flow analysis using NPV.

The method of combining charge or whether charges should be combined is a complex matter which may involve some "social engineering". The DEUS approach is to cross subsidise expensive areas by new develop areas.

The alternative is for new areas to provide the bench mark and these rates be used as a guide for a small area charge. The balance is met from annual income. This method is was used by Dubbo Council for example in their 2002 DSPs

This principle, striking a balance between annual and development charges, was recommended to the Tribunal (GPT now IPaRT) in 1994 by the Department of Planning.

Principles

In regional areas, in accordance with the DoP advice of 1994, authorities may choose to equitably apply the charge to all housing development in their area by having a single or a minimum number of charges.

A single or group of charges can only be determined by combining the takeup and capital cost data in a NPV model.

The DEUS Agglomeration methodology is a mathematically flawed approach to a socio economic issue.

References

Department of Planning Submission to the Government Pricing Tribunal –Developer Charges in the NSW Water Industry - Joan Vipond - December 1994.

6.13. Conclusion (The Principles)

This study and the supporting reports endeavour to properly resolve the principles relied upon and the theories behind the process authorities are engaged in when determining development charges. The issue with the DEUS Guidelines are that there are too many problems.

By comparison the problems with the IPaRT Guidelines are insignificant. Further the metropolitan water authorities have taken to implementation in good faith and have been prepared to discuss problems with the housing industry representatives. The comparison between the metropolitan and regional charges is so marked that it is not difficult to elicit disbelief that there can be such differences. The systems are, after all, essentially the same. The local authorities are apt to claim special problems. Special pleading may be rightly categorised as a dishonest argument (see Dishonest Tricks in Argument #36 in Robert Thouless' – Straight and Crooked Thinking). Most systems can be better categorised by their similarities. Without exception to date the calculation methodologies used in local areas, with some variation, can be found to be the problem.

The industry is grateful for the recent support from the state government to have the Guidelines reviewed. This report and the supporting information however is designed to assist in the defence of principles, which will withstand the test in arbitration. Given the apparent lack of due diligence in the registration of DSPs by the Department to date, the need for arbitration is likely to remain. In addition some water authorities will not wish to give up their gains so easily.

7. PRINCIPLE CRITICISMS OF THE DEUS GUIDELINES IMPLEMENTATION

7.1. Failure of Accountability and Transparency

The supply of information to the industry has consistently been restricted. Due to this restriction industry consultants have not been able to fully review the Development Servicing Plans.

In particular industry consultants have been routinely denied access to various aspects of the digital data that supports the "calculations of the developer charges" (see Section 2.3.2 of the DEUS Guidelines). This data includes digital copies in MS Excel format or similar to enable DSP assumptions, asset cost, capacity, descriptions etc as well as the calculations themselves.

Other essential data includes; supporting documentation including servicing strategies; mapping of existing and proposed infrastructure; unit cost references, breakdown of major expenditures; description of assets; asset registers; and asset capacities.

Data and assumptions to support the demographic assessment of the projected population, dwellings and lots and the determination of equivalent tenements ("ETs"), are also withheld.

7.2. Asset Capacity to be used in Apportionment of Major Works

The assessment of capacity of system assets is routinely manipulated by water supply authorities and this is agreed in principle in the DEUS Guidelines. The industry is content to rely upon the principles set out in the WSAA Code definitions, which are not comprehensive but do provide some appropriate guidance.

Design capacity for water supply systems in particular has varied significantly in recent years. For example, the capacity for reservoirs now used by MidCoast Water of 1,500 litres per ET per day is 37% of the NSW Department of Public Works' standard that applied in the 1980s, of 4,000 litres per ET per day. Other regional water supply authorities use higher levels than MidCoast without justification being given.

Asset capacities are rarely the same for similar major works between various regional DSP's. In the absence of proper guidance, water supply authorities use a myriad of figures without adequate explanation. Capacity terms such as *"nominal", "average", "peak" and "non-peak"* are used indiscriminately.

The DEUS Guidelines do not provide adequate assistance on this issue.

7.3. Demography/ETs as a Basis for Demand and Apportionment

As indicated above in point 3.8 water authorities share the responsibility for the poor demographic analyses which are prepared. Poor analyses is the result of a general failure to consider:

Population	-	generally correct by reference to ABS and the TPDC
Occupied dwellings	-	determined using ABS occupancy rates
Vacant dwellings	-	often left out
Vacant lots	-	almost always left out
Residential ETs	-	conversion to ETs is poor.
Non residential ETs	-	usually grossly understated

7.4. Errors in DSPs

The level of errors in DSPs is significant.

Bega Valley Council have moved through a further 6 versions of their DSP due to errors discovered at each release. More errors are expected once good access to background material is obtained.

DSPs prepared by the Department of Commerce for MidCoast were not apportioned by capacity of the assets as required. As the Department would not provide the models in digital form MidCoast were forced to rebuild them to correct the errors.

There remains considerable scope for errors to be found relative to issues such as reticulation, demography and capacity.

7.5. ET Classifications

The method of applying the charge to developments other than standard residential development is to rely upon ET classifications. These vary significantly between authorities. The Technical Guidelines published by the Water Directorate in January 2005 provide little help as a number of their recommendations are unreasonable. For example, this is so for retirement facilities including residences and nursing homes. Their method to merely sample those classifications used by water authorities in NSW is most unsatisfactory.

Their recommendation for self care retirement homes, at the same rate as flats, ignores the fact that the average occupancy for the over 65 age group, in or out of retirement villages, is 1.4. This is irrespective of the number of bedrooms.

Rates close to 0.4 would be more reasonable. This rate is also based upon analysis of 4 years water consumption for a major project. The Water Directorate recommendations would result in charges being between 50% and 100% more than is reasonable.

7.6. Out of Sequence Development

Water and Sewer

Some DSPs provides an arrangement for situations where development requires headworks "out of sequence", which penalises development unreasonably. The water authority will often require the whole cost of lead in works to be paid plus the development charges. This is irrespective of whether the works are in the DSP or not. This will vary but most authorities do not undertake sufficient planning to include headworks within new areas.

It is contrary to the basic charter of the authority, to provide a service, for which it holds a monopoly.

The following scenarios are considered:

Scenario 1 In most instances the natural progression of development is dictated by the most economical means of servicing a development. It is generally illogical for a developer to build lead in works across developable land and not proceed with that development area first. In either event a problem may arise if the water authority has included a pump station or other transfer works for development in a DSP outside a set period.

Scenario 2 The most problematic case is where development will be sought in advance of other developments and servicing has to be progressively provided across those other developments.

Scenario 3 The development wishes to proceed but the required works are not included in the DSP, most often because the land has been rezoned.

There are logical and reasonable resolutions to the issues raised here based upon co-operative financial arrangements and the elimination of any penalty on a development conforming with due planning process. The Department should foster a discussion of the stakeholders to provide better guidance for authorities.

DEUS

It may not appear unreasonable that the Department does not want a formal review earlier than every 5 years, but this is too long to wait for incremental solutions to be applied in the meantime, which would otherwise delay development unreasonably.

Annual reviews ought to be carried out for a number of reasons including changes in takeup or asset costs, evolving impact of BASIX, errors and omissions, financial impacts etc. It is anticipated in most instances because of the shear size of the DSPs that changes in the rates will be slight. The effect on the viability of individual developments will often be significant however.

For major changes, a clearance can be sought from DEUS. However minor changes which have more significant local effects should be accommodated and then incorporated formally every 5 years.

Any other course is a denial of the reality that the servicing processes need to be managed flexibly not rigidly, and it also denies the reality of the housing industry processes.

7.7. Non-residential EPs

The non-residential EPs are not rigorously assessed and it is likely that many of the water users are left out. The annual potable water use by type, which is published in the DEUS Performance Comparisons, will show that non-residential EPs are understated as a percentage of the total annual potable water use, when compared with residential water use. It is apparent that the use by Council of potable water for public purposes is likely to have been left out as one of the hidden users.

The problem is initially one for resolution in the water supply investigation or assessment.

An indicator of the problem is attached and marked "Table 12" which shows that the % of potable water for Bega Valley has recently been as high as 48% according to the Departments Performance Comparisons up to 2003/04. The % of non-residential ETs in the DSPs is only 19%.

7.8. Design Reports, Calculations, Cost Information and Mapping in Digital Form

The amount of available information required to assess the asset selection, calculations etc is limited to varying degrees. The type and quality of information also varied.

MidCoast was the only authority to provide published strategies. No mapping was provided. Digital copies of the DSP calculations were provided. No asset data was attached.

Shoalhaven provided a lot of data including the asset register plus extensive mapping and plans. Digital copies of the DSP calculations were provided, with asset data attached. No strategies were provided.

Eurobodalla provided very little. Digital copies of the DSP calculations were not provided. Asset data was provided but not in a form that could be matched to the DSP. No strategies were provided.

Bega Valley provided digital copies of the DSP calculations with asset data attached. No strategies have been provided. EIS reports for sewerage works were able to be purchased when on exhibition. These did not contain much design or cost details. Mapping is available but not supplied as promised.

A list of information required was first supplied to Bega Valley in December 2004, and subsequently upgraded. Their consultant advised on the 10th March 2006 that information on a number of the items requested was now available. The report to Council to recommend adoption the charges on the 14th March was already published.

7.9. BASIX

No allowance has been made for the substantial reduction in water demand proposed by the introduction of BASIX for all new dwellings. A reduction of between 20% to 40% for each utility should be possible.

Given the considerable cost of BASIX compliance (about $15,000 per dwelling) it is unconscionable that no relief is given to new development.

7.10. S409 Local Government Act and S306 Water Management Act

The amendment of the Local Government Act to allow water authorities to use funds obtained from customers and new development to pay for undefined General Fund costs remains objectionable. It has authorised what has long been an illegal practice. It was illegal because obtaining money for one purpose and spending it on another was deception, and rightly illegal. Making it legal doesn't eliminate the moral dilemma.

7.11. Implementation of Guidelines - Summary

There is a need for DEUS to take a stronger role in the process. As a first step a consultation process with stakeholders would be advisable to minimise the current high level of dispute.

Monitoring the DSPs is also required.

As there are a large number of inconsistencies, poor knowledge of the process, poor background data and poor understanding of issues such as demography, an education process is warranted.

8. GENERAL CONCLUSION

The industry concerns with the DUES Guidelines are extensive and justify the claim that the Guidelines should be significantly amended or abandoned.

The industry and all other stakeholders were involved in the development of the IPaRT Guidelines and these are preferred. The Department would better serve the public interest by providing education and training to local water authorities in the application of these Guidelines.

In summary there are sufficient issues at this stage to highlight the fact that the process has been poorly managed by DEUS who have largely relied upon a preferred consultant. Water authorities, by and large do not fully understand the process.

In addition, the imposition of the Best Practice Guidelines have forced water authorities into doubtful practices. That is for those wishing to obtain subsidy or pay a dividend. Further, unofficially but confirmed by a number of the authorities, a $10,000 floor price has been set as representing a "commercial" combined charge. This reinforces the view that the process is not about "cost recovery" but rather an opportunity to exact funds from the housing sector to support the reducing levels of government financial support for local water authorities.

DSP Study Group
December 2006

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10. APPENDIX 1 – TABLES

Table 1

Comparison of SWC and Regional Charges

		Water	Median x SWC	Sewer	Median x SWC
SWC 2001	Median of All Charges	$742		$2,356	
	Average of All Charges	$991		$2,660	
Shoalhaven Water	Oct-05	$5,318	7.2	$7,545	3.2
Eurobodalla SC	May-05	$8,980	12.1	$7,815	3.3
MidCoast Water	Feb-06	$4,480	6.0	$7,730	3.3
Bega Valley SC	Feb-06	$10,400	14.0	$7,900	3.4
Median of Regional Charges		$7,149	9.6	$7,773	3.3

Note: All DSPs now adopted at Feb 06

Table 2

Explanation of EP/ET Calculation Principles

Step 1 - Make demographic analysis of all elements (population, dwellings and lots)

Residential at 2005

Population	**5000**	EPs
% of potable water consumed pa		65%
Occupancy Rate	2.4	ABS data or as modified to address recent changes.
Occupied Houses	**2083**	ie: population/occupancy rate
Vacancy Rate	18%	Average - higher in coastal areas/lower inland areas
Vacant Dwellings	457	
Total Dwellings	**2541**	
Occupancy Factor	2.0	ie: population/total dwellings
Build Out Rate (vacancy)	92%	or 8% vacant
Vacant Lots	221	
Total Dwellings+Lots	**2762**	
Development Stock Ratio	1.81	ie: population/(total dwellings+lots)

Step 2 - Make an analysis of the equivalent demand of non-residential by average demand.

Non Residential

% of potable water consumed pa		35%
.: Non-residential EPs	**2692**	Average demand (at 35% of combined EPs)
EP/ET Ratio	1.926	
Non-residential ETs	**1398**	Divide EPs by EP/ET Ratio (ie iterate)

Step 3 - Amend total dwellings to ETs per Table 2

Total Dwellings/Lots	**2762**	from Step 1
Residential ETs	**2596**	Adjusted down by say 6% (ie Multiply by 0.94)

Step 4 - Determine total EPs and ETs.

Totals

Total EPs	**7692**	resi plus non-resi from Steps 1 & 2
Total ETs	**3994**	resi plus non-resi from Steps 2 & 3
EP/ET ratio	1.926	

Notes:

1. This analysis is the basic "takeup" which may be used in the apportionment. Its essential role is as a measure against which capacity is compared. The takeup may be used to measure the timing of provision of an asset or whether the capacity of the asset is more or less than the DSP planning period demand in ETs. It may also be used to apportion smaller assets (ie pipes).
2. The dwellings and lots are discounted to give ETs to allow for semi-detached, flats and other dwellings - say 6% overall with variations for each local government area. See Table 2
3. The essential fact in any apportionment is that an ET is an immutable factor. It must at all time be a demographic equivalent of a separate dwelling. The "takeup" therefore is fixed by the above assessment.
4. In a "chicken or egg" scenario, the number of EPs and ETs are the demand and the system is designed to meet that demand. The use of peak demand factors is used to size some assets which may exceed or be less than the demand. This likelihood introduces the need to consider peak demand, for a reservoir for example.

Peak EPs

Residential Peak EPs	**6601**	vacant dwellings x 3 - 4 (say 3.5) plus existing population (5000)
Peaking factor	1.32	Peak EPs/Population (measured or assumed)
Peak occupancy ratio	2.6	Peak EPs/Total Dwellings (aim for say 2.0 in inland and 3.0 on coast)

Notes:

1. In coastal regions a peak period loading is typically called the "holiday" loading. It may also be a "summer" loading.
2. The assessment of peak demand is made on the number of persons and/or flow. This is generally a matter for the water authority, but it may be challenged if not based upon a proper assessment.
3. The peak capacity of a reservoir is a relevant consideration as one or a number of reservoirs together are unlikely to match the takeup and therefore may be used in the apportionment. The "ET" in peak demand per period per ET is the same ET as used in the takeup however.

Table 3

Example of Calculation of the Conversion Rate for Dwellings/Lots to ETs

Bega - Assessment of Occupancy (Private Dwellings) - ABS Data

2001 Census Data

Community Profile Series

T18 and B18

Demographic Analysis

ET Ratio/Conversion Analysis

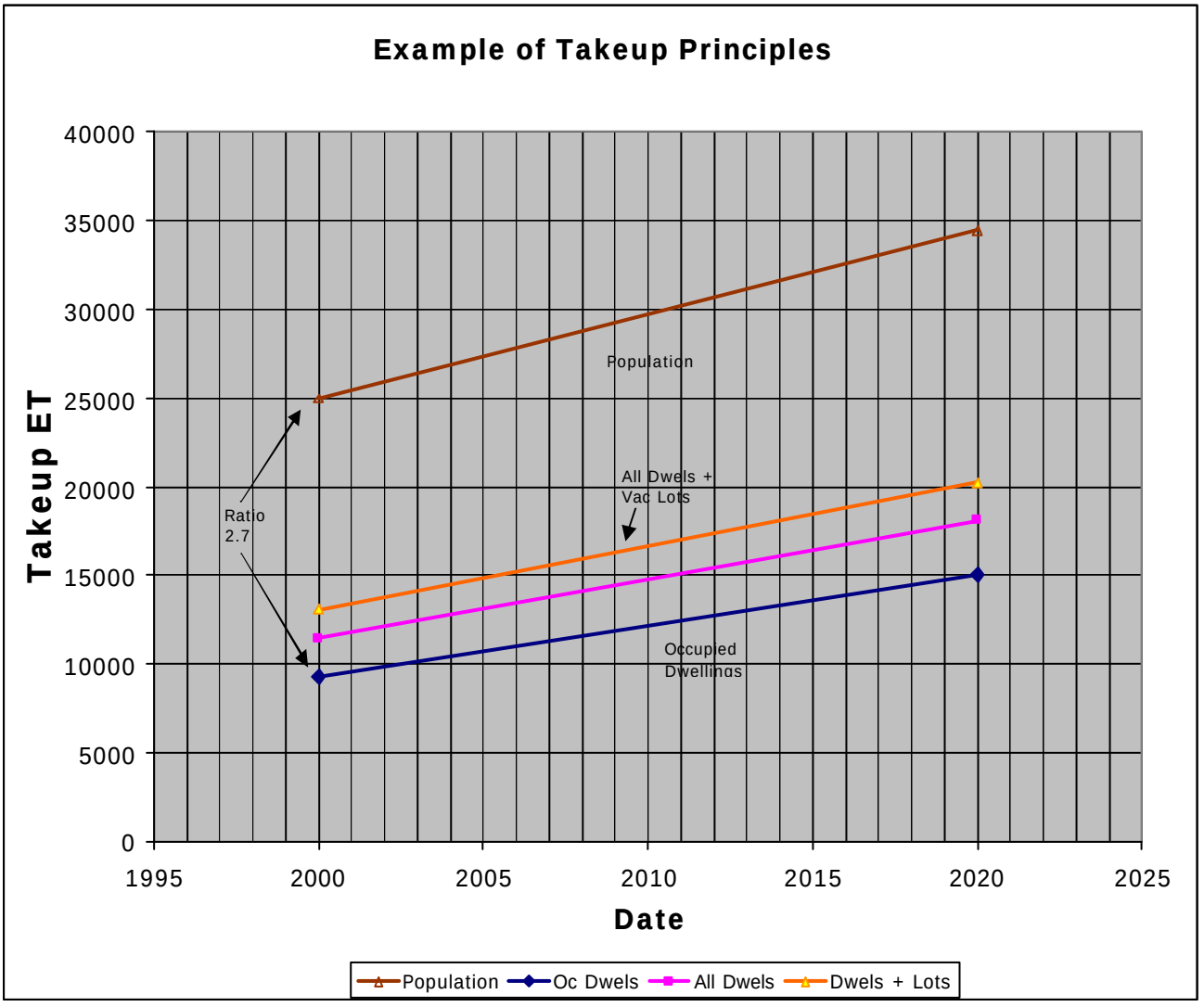
Total Persons (private dwellings)			29731	Dev Stock Ratio		
Total Dwellings & Lots			15990.2174	1.86		
Summary of Dwellings/Lots (in vacancy)						
	Dwels	Persons			ET Ratio	ETs
Separate House (occ)	9353	25245	58.5%	2.70	1.00	9353
	1635	0	10.2%			1635
Semis etc	791	1581	4.9%	2.00	0.74	586
	231	0	1.4%			171
Flats	1299	2375	8.1%	1.83	0.68	880
	513	0	3.2%			347
Other	644	1307	4.0%	2.03	0.75	484
	94	0	0.6%			71
Not stated	106	223	0.7%	2.10	0.78	83
	45	0	0.3%			35
Total Dwels	14711	30731	92.0%			
Vacant Lots (8%)	1279		8.0%		1.10	1407
Total	15990.2174		100%		Total ETs	15052 94.13%

Notes

1. Assume 25% of vacant lots will have 2 flats (same ratio as existing)
2. Thus 10% added to vacant lot ratio to allow for future multiple dwels.
3. Adjust dwelling/lot numbers down to get ETs by 5.87% (overall) - ie Multiply by 0.9413
4. The principle assumption is that this ratio will remain constant which may not always be the case

Example of the Takeup Principle and Net Growth Ratio

	2000	2020	Growth pa		NOR Pop/Lots	
Population	25000	34500	1.6%	Growth	9500	
Occ Rate	2.7	2.3				
Occ Dwellings	9259	15000	2.4%			
	17%	15%				
inc Vacant Dwellings	11500	18100	2.3%			
	12%	10%				
inc Vacant Dwels + lots	13100	20200	2.2%	Growth	7100	
Development Stock Ratio	1.91	1.71			1.34	NGR - Net Growth Ratio



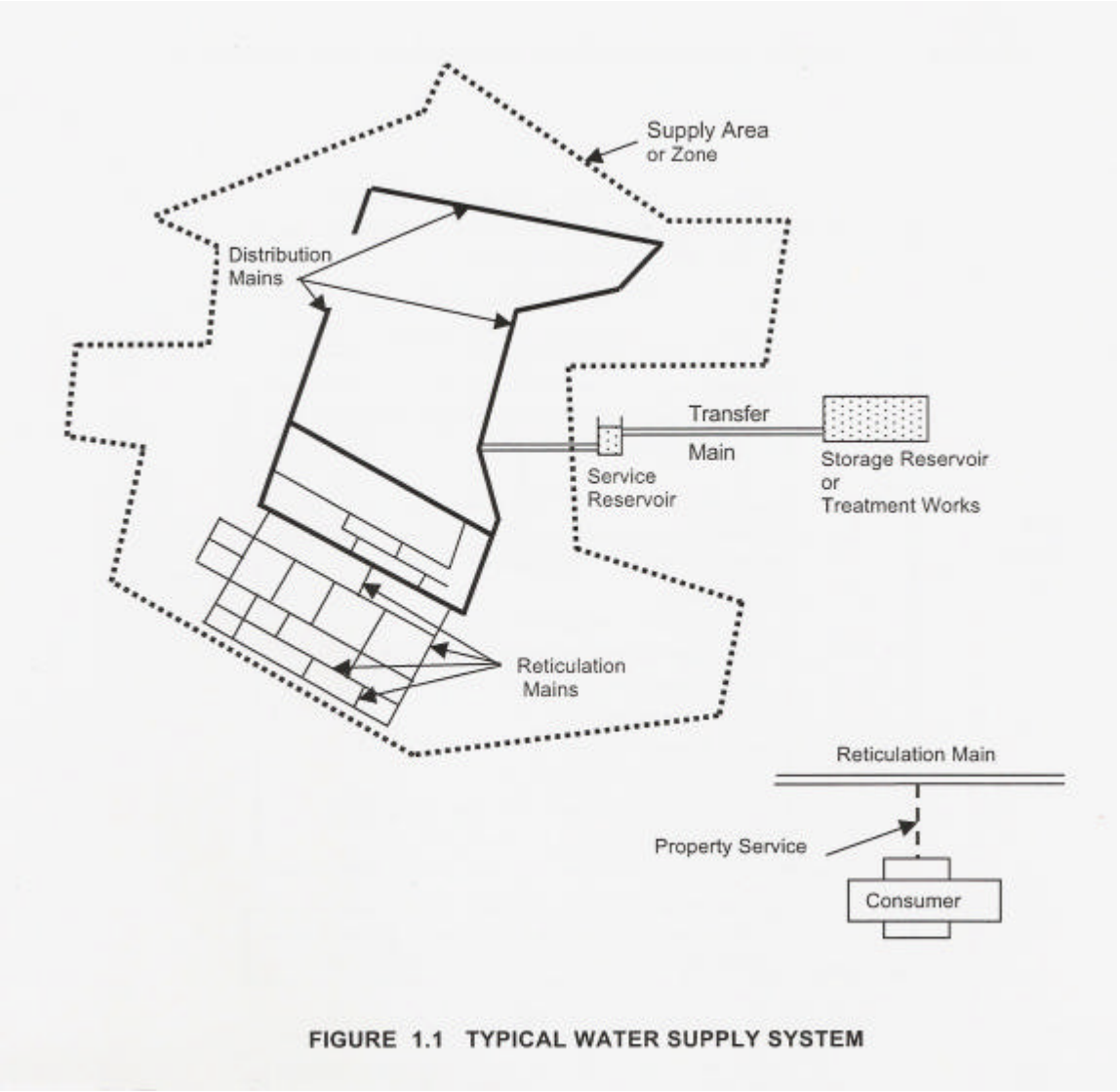


FIGURE 1.1 TYPICAL WATER SUPPLY SYSTEM

(Extract from the WSAA Code 03-2002 V2.3)

Definition of Reticulation (WSAA Code 03-2002 V2.3)

reticulation main	A water main that connects a distribution main with service pipes. Reticulation mains are generally sized DN 100 to DN 375

Table 6

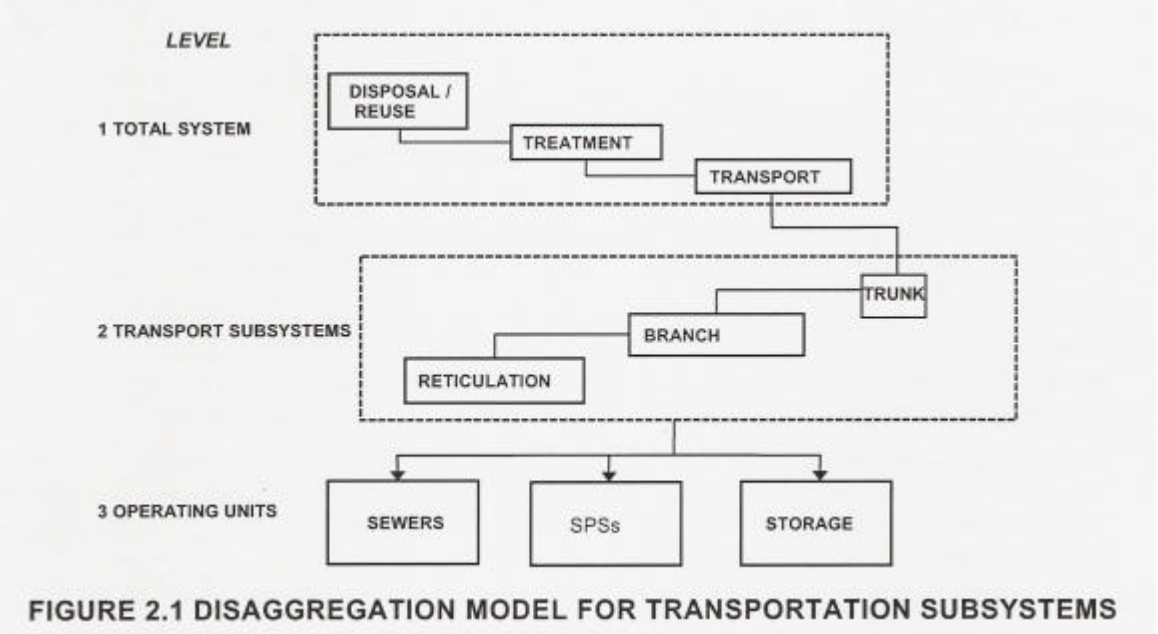


FIGURE 2.1 DISAGGREGATION MODEL FOR TRANSPORTATION SUBSYSTEMS

(Extract from the WSAA Code 02-2002 V2.3)

Definition of Reticulation (WSAA Code 02-2002 V2.3)

reticulation sewer	A sewer operated by the Water Agency, generally DN 100 to DN 300, for the collection of wastewater from individual properties and conveyance to branch and trunk sewers or to a point of treatment. See also *branch sewer*, *main sewer*, *trunk sewer*

STANDARD RESIDENTIAL SUBDIVISION/S64 ASSESSMENT MODEL **Table**

LOCALITY:
REFERENCE: Example only
DATE PREPARED: 20-Dec-06

			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		Year	0	1	2	3	4	5	6	7	8	9	10	11	12
NO OF PROPOSED ETs PA			0	200	200	200	200	200	0	0	0	0	0	0	0
CUMULATIVE NO. OF PROPOSED ETs			0	200	400	600	800	1000	1000	1000	1000	1000	1000	1000	1000
NO OF EXISTING ETs (Cost excluded)		0			**Allotment (ET) Take Up** ---------->										
NO OF ADDITIONAL ETs	New	1000													
	Total	1000													
				PV											
DISCOUNT RATE (Future works & Income)		7.00%		820											
DISCOUNT RATE (Post 1996 works)		7.00%													
DISCOUNT RATE (Existing Works)		3.00%													
RESIDENTIAL INCOME PER PROPERTY															
Water - Net Revenue Component	Nominal	($10)													
Sewer - Net Revenue Component	Nominal	($10)													
				NPV <----------					**Expenditure Stream**						
CAPITAL COST	Check	Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Capital Cost Water (post 1996 and future)			$0	$100,000	$0	$0	$900,000	$0	$300,000	$0	$0	$0	$0	$0	$0
Capital Cost Water (pre 1996)			$0												
Capital Cost Sewer (post 1996 and future)			$0	$200,000	$0	$0	$100,000	$0	$0	$700,000	$0	$0	$0	$0	$0
Capital Cost Sewer (pre 1996)			$0												
NPV CAPITAL COST WATER (post 1996 and future)	(1)	$979,966													
CAPITAL COST WATER (pre 1996)	(2)	$0													
NPV CAPITAL COST SEWER (post 1996 and future)	(3)	$699,130													
CAPITAL COST SEWER (pre 1996)	(4)	$0													
				NPV <----------					**Revenue Income Stream**						
REDUCTION AMOUNT		Year	0	1	2	3	4	5	6	7	8	9	10	11	12
Water - Net Revenue Component x Cum Lots			$0	$0	($2,000)	($4,000)	($6,000)	($8,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)
Sewer - Net Revenue Component x Cum Lots			$0	$0	($2,000)	($4,000)	($6,000)	($8,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)
													30 Years ---------->		
NPV REDUCTION AMOUNT - WATER	(5)	($105,268)													
NPV REDUCTION AMOUNT - SEWER	(6)	($105,268)													
CONTRIBUTION REQUIRED WATER (post 1996 and future)	(1)	$874,698													
CONTRIBUTION REQUIRED WATER - Existing (Pre 96)	(2)	$0													
CONTRIBUTION REQUIRED SEWER (post 1996 and future)	(3)	$593,862													
CONTRIBUTION REQUIRED SEWER - Existing	(4)	$0													
	Total	$1,468,560	**(Total Current Contribution)**												

	@	7.0%	3.0%	Total												
PER LOT CONTRIBUTION - WATER		$1,066.65	$0.00	$1,066.65	1000 ETs	]										
						] **Per lot contribution amounts amortised up to support contribution income stream**										
PER LOT CONTRIBUTION - SEWER		$724.19	$0.00	$724.19	1000 ETs	]										
S64 PAYMENTS (NPV of Income) - Future + Post '96				($1,468,560)	$0	($358,168)	($358,168)	($358,168)	($358,168)	($358,168)	$0	$0	$0	$0	$0	$0	$0
S64 PAYMENTS (NPV of Income) - Existing				$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Total				($1,468,560)		**NPV** <----------					**Contribution Income Stream (Check)**						
				Year	0	1	2	3	4	5	6	7	8	9	10	11	12

Notes:
- If there are existing lots to be served the capital cost needs to be amended to that applicable to the new lots only (ie per ET)
- The Net Revenue component amounts are for Year 0
- The capital costs are the current cost estimates to be spent in the relevant year
- Any share of existing assets may be shown in Year 0 at their prorata replacement cost (1970 limit)
- The net revenue amounts have been shown as being received in the following year to the lot creation.
- No new assets beyond Year 10

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)
($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)	($10,000)

$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Table 8

Capital Charge Calculation Example	Service Area	Sewerage	
	Capital Charge	$3,370.88	per ET
	Base DPS Date	2003/04(ie 2004)	Charge from 1 July 2004

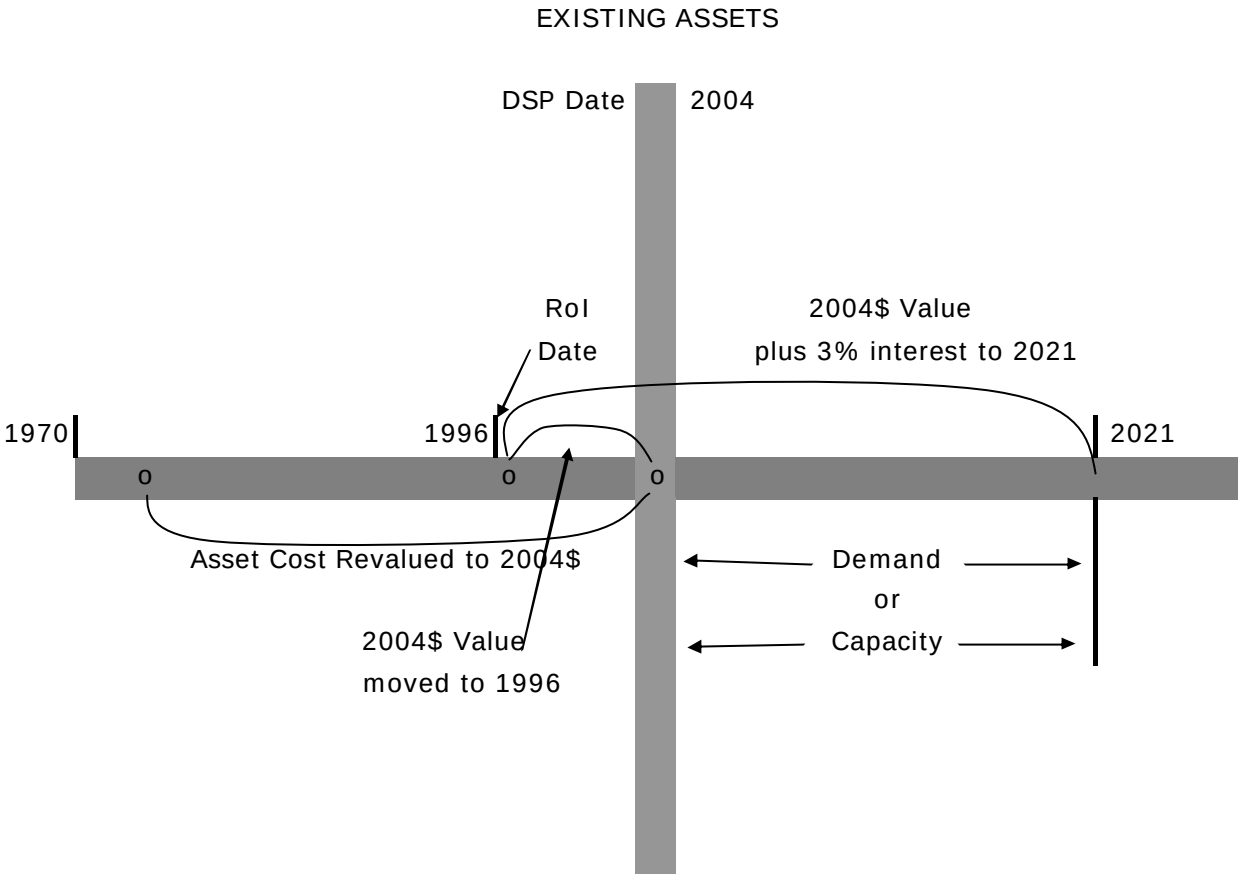
Pre 1996 discount rate	3%
Post 1996 discount rate	7%
Transfer System Capacity (ET)	7,010
Treatment Plant Capacity (ET)	6,000

Asset	Capital cost ($'000)	Year dollars[2]	Capital Cost ($'000)	Year commiss-ioned	Effective year commiss-ioned	Present value 2003/04 ($'000)[4]	Capacity (ML or ML/d)	Capacity (ETs)	Capital cost ($/ET)	Year of full take-up	Years to full take-up	Discount Rate	ROI factor	Capital Charge ($/ET)
Algorithms	$1,000	2004	$2,000	2010	2004	$1,333		1000	$1.33	2034	30	7%	2.26	$3.01
TRANSFER SYSTEM														
Existing Assets (pre-1996)														
Rising Mains	$ 3,703.50	2004	$3,703.5	1990	2004	$3,704		7,010	$528.32	2034	30	3%	1.49	$785.08
Existing Assets (post 1996)														
Future Assets														
Main Extension	$ 50.00	2004	$50.0	2006	2004	$44		7,010	$6	2034	30	7%	2.26	$14.08
Mains Extension	$ 190.00	2004	$190.0	2010	2004	$127		7,010	$18	2034	30	7%	2.26	$40.81
Trunk Main	$ 835.00	2004	$835.0	2015	2004	$397		7,010	$57	2034	30	7%	2.26	$127.86
Rising Main 4A	$ 555.00	2004	$555.0	2015	2004	$264		7,010	$38	2034	30	7%	2.26	$84.99
Total Transfer System	**$5,334**					**$4,534**		**7,010**	**$647**					**$1,052.81**
PUMPS														
Existing Assets (pre-1996)														
Town														
SPS 1	$ 500.00	2004	$500.0	1990	2004	$500		7,010	$71	2034	30	3%	1.49	$105.99
SPS 2	$ 225.00	2004	$225.0	1990	2004	$225		7,010	$32	2034	30	3%	1.49	$47.70
SPS 3	$ 335.00	2004	$335.0	1990	2004	$335		7,010	$48	2034	30	3%	1.49	$71.01
SPS 4	$ 205.00	2004	$205.0	1990	2004	$205		7,010	$29	2034	30	3%	1.49	$43.46
SPS 5	$ 365.00	2004	$365.0	1990	2004	$365		7,010	$52	2034	30	3%	1.49	$77.37
SPS 6		2004	$0.0	1990	2004	$0		7,010	$0	2034	30	3%	1.49	$0.00
SPS 7	$ 170.00	2004	$170.0	1990	2004	$170		7,010	$24	2034	30	3%	1.49	$36.04
SPS 8	$ 260.00	2004	$260.0	1990	2004	$260		7,010	$37	2034	30	3%	1.49	$55.12
SPS 9	$ 170.00	2004	$170.0	1990	2004	$170		7,010	$24	2034	30	3%	1.49	$36.04
SPS 10	$ 170.00	2004	$170.0	1990	2004	$170		7,010	$24	2034	30	3%	1.49	$36.04
Town														
SPS 1	$ 200.00	2004	$200.0	1990	2004	$200		7,010	$29	2034	30	3%	1.49	$42.40
SPS2	$ 200.00	2004	$200.0	1990	2004	$200		7,010	$29	2034	30	3%	1.49	$42.40
Existing Assets (post-1996)														
None														
Future Assets														
Pump Station 4A	$ 555.00	2004	$555	2010	2004	$370		7,010	$52.76	2034	30	7%	2.26	$119.20
Total Pumps	**$3,355**					**$3,170**		**7,010**	**$452**					**$712.75**
TREATMENT														
STPs														
Town	$ 6,160.00	2004	$6,160	1990	2004	$6,160		6,000	$1,027	2011	7	3%	1.09	$1,119.91
Town	$ 2,670.00	2004	$2,670	1990	2004	$2,670		6,000	$445	2011	7	3%	1.09	$485.41
Existing Assets (post-1996)														
None														
Future Assets														
Inlet works building	$ 20.00	2004	$20	2010	2004	$12		6,000	$2	2011	7	7%	1.21	$2.52
Total Treatment	**$8,830**					**$12**		**6,000**	**$2**					**$1,605.32**

Notes
1. Capital cost from Council's asset registers and MEERA cost for future works
2. Base year of capital cost varies depending on asset data. Assets constructed prior to 1970 are not included.
3. Capital cost adjusted to 2004$ using CPI for Sydney (ABS)
4. Capital cost of future works discounted to 2004$

Table 9

DEUS Principles



Industry Principles

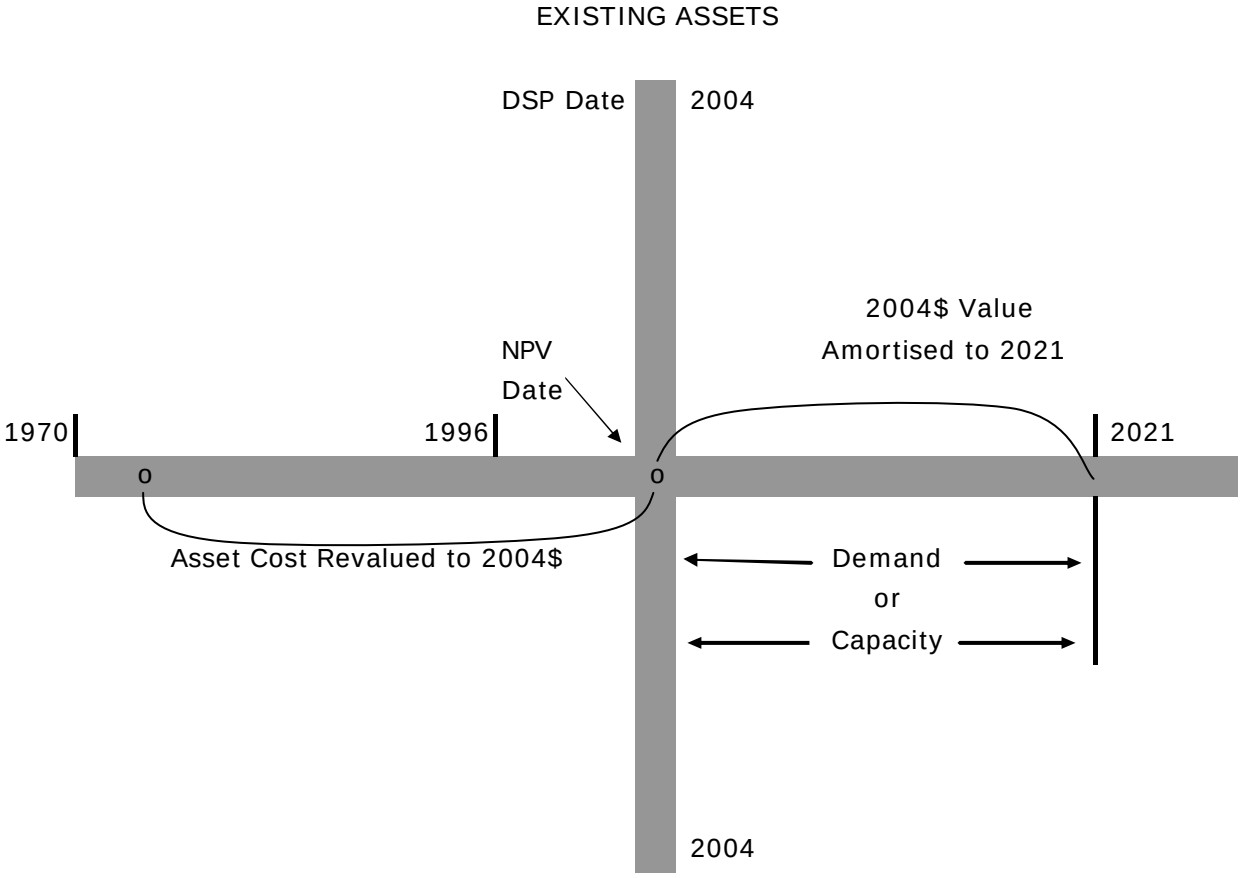


Table 10

Comparison of Factors in Annual Charges and Development Charges Calculations

Factors in Annual Charges Calculation	Factors in Development Charge Calculation
1. Only those existing assets yet to be paid for, at historical cost (subsidy excluded)	1. All existing assets at full current (new) cost estimate (including all assets serving the DSP catchment - subsidy included)
2. Future new assets costs to serve existing users included at estimated cost less subsidy.	2. Future new assets included at full current replacement cost estimate (subsidy included)
3. Interest cost on outstanding and projected debt (residual debt only)	3. Interest cost calculated by an assessment, using a NPV or RoI model to calculate interest over the planning period for all assets.
4. Interest income (Interest from short term investment of current cash income)	4. Pro rata share of interest income to avoid double dipping
5. Other operational income (annual user, connection and other charges and fees).	5. Pro rata share of net operational revenue to avoid double dipping
6. State subsidy (less than 50%)	6. No subsidy allowed by S64
7. Renewal costs included	7. Renewal costs excluded as all assets are paid for as if new.
8. No rate of return charged on assets	8. Interest/discount rates charged. Real rates (net of CPI) are used at 3% and 7%.

Summary

The basis of each calculation is completely different as it is based upon different values and financial assumptions, including the method of calculating interest.

Therefore the claim that a reduction in the charges will have an affect on the rates is wrong in principle. The charges are calculated independently and can only be based upon the principles agreed to by IPaRT and the housing industry.

The DEUS Guidelines contrive to shift capital and operational cost to development charges.

The industry's complaint is that the charges are excessive because the calculations are wrong and will result in over collecting the costs to be incurred.

1st Draft for Water Supply Plan : Reduction Amount Iteration 2

Note: This table has been based upon a similar table supplied for the Bega Valley DSP

Operating Statement

		2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
EXPENSES									
	Management Expenses	2072	2106	2143	2178	2216	2253	2292	2331
	Administration	1662	1690	1719	1748	1778	1808	1839	1870
	Engineering and Supervision	410	417	424	431	438	445	453	461
	Operation and Maintenance Expenses	1538	1564	1591	1618	1646	1672	1700	1730
	Operation Expenses	788	801	815	829	843	857	872	887
	Maintenance Expenses	509	518	527	536	545	554	563	573
Energy Costs		241	245	249	253	257	261	265	270
	Chemical Costs	0	0	0	0	0	0	0	0
	Purchase of Water	0	0	0	0	0	0	0	0
Depreciation		0	0	0	0	0	0	0	0
	System Assets	0	0	0	0	0	0	0	0
	Plant & Equipment	0	0	0	0	0	0	0	0
Interest Expenses		0	0	0	0	0	0	0	0
Other Expenses		0	0	0	0	0	0	0	0
	TOTAL EXPENSES	7220	7341	7468	7593	7723	7850	7984	8122
REVENUES									
	Rates & Service Availability Charges	1746	1847	1985	2022	2062	2104	2143	2181
Residential		1437	1520	1634	1664	1698	1731	1764	1796
	Non-Residential	309	327	351	358	364	372	379	385
User Charges		2349	2485	2671	2721	2776	2829	2883	2936
	Sales of Water : Residential	1774	1877	2017	2055	2097	2137	2177	2218
	Sales of Water : Non-Residential	575	608	654	666	679	692	705	718
Extra Charges		19	20	22	22	23	23	24	24
Interest Income		492	473	498	576	593	555	513	463
Other Revenues		200	200	200	200	200	200	200	200
Grants		0	0	0	0	0	0	0	0
	Grants for Acquisition of Assets	0	0	0	0	0	0	0	0
	Pensioner Rebate Subsidy	111	110	109	109	108	106	106	105
Other Grants		0	0	0	0	0	0	0	0
Contributions		0	0	0	0	0	0	0	0
	Developer Charges	0	0	0	0	0	0	0	0
	Developer Provided Assets	0	0	0	0	0	0	0	0
	Other Contributions	0	0	0	0	0	0	0	0
	TOTAL REVENUES	9012	9467	10141	10393	10600	10749	10894	11026
	OPERATING RESULT - '000	1792	2126	2673	2800	2877	2899	2910	2904

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
ETs - cumulative	11980	12184	12391	12602	12816	13034	13256	13481
ETs - per annum	0	204	207	211	214	218	222	225
ETs - cumulative for growth	0	204	411	622	836	1054	1276	1501
Operational Result for growth - $	0	30	71	132	183	233	279	324

NPV of Operating Result - '000	$4,857
Demand ETs at Year 2003	11,980
Demand ETs at Year 2023	16,784
NPV of Demand Takeup	2,693
Net Revenue Offset per ET	**$1,804**

2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
2370	2413	2453	2494	2536	2580	2624	2669	2714	2760	2807	2854	2903	2953	3003	3054	3106
1902	1935	1968	2001	2035	2070	2105	2141	2177	2214	2252	2290	2329	2369	2409	2450	2492
469	477	485	493	501	510	519	528	537	546	555	564	574	584	594	604	614
1760	1790	1821	1852	1883	1915	1948	1981	2014	2048	2083	2119	2155	2192	2229	2267	2306
902	917	933	949	965	981	998	1015	1032	1050	1068	1086	1104	1123	1142	1161	1181
583	593	603	613	623	634	645	656	667	678	690	702	714	726	738	751	764
275	280	285	290	295	300	305	310	315	320	325	331	337	343	349	355	361
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8261	8405	8548	8692	8838	8990	9144	9300	9456	9616	9780	9946	10116	10290	10464	10642	10824
2225	2264	2305	2353	2393	2438	2488	2531	2579	2625	2677	2727	2777	2826	2878	2929	2984
1832	1863	1898	1937	1970	2007	2048	2084	2123	2162	2204	2245	2286	2326	2369	2411	2457
393	400	408	416	423	431	439	447	456	464	473	482	491	500	509	518	527
2995	3046	3102	3165	3220	3281	3348	3406	3471	3534	3603	3670	3737	3802	3873	3942	4016
2262	2300	2343	2391	2432	2478	2529	2573	2621	2670	2721	2772	2823	2872	2925	2977	3034
733	745	759	774	788	803	819	833	849	865	882	898	914	930	947	965	982
25	25	26	26	27	27	28	28	28	29	29	30	31	32	32	32	33
402	337	277	224	179	141	110	85	66	53	46	44	48	55	67	84	142
200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	103	102	102	101	100	99	99	98	97	96	96	95	94	94	92	92
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11171	11283	11420	11588	11733	11906	12108	12286	12491	12699	12931	13164	13402	13637	13894	14150	14467
2910	2878	2872	2896	2895	2916	2964	2986	3035	3083	3151	3218	3286	3347	3430	3508	3643
2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
13710	13944	14181	14422	14668	14913	15170	15428	15690	15956	16227	16503	16784	17053	17325	17603	17884
229	234	237	241	246	245	257	258	262	266	271	276	281	269	273	277	282
1730	1964	2201	2442	2688	2933	3190	3448	3710	3976	4247	4523	4804	5073	5345	5623	5904
366	410	447	486	531	569	613	662	706	756	807	864	921	977	1033	1096	1158

Table 12

Assessment of non-residential use
Bega Valley Water Supply

	Supply ML per annum 1999/00	% Total	% Consumed
Total Residential Dwelling ET (ie ex lots)	1737	56%	65%
Other (Commercial & Industrial)	633	20%	24%
Other (Rural, Institutional, Public)	308	10%	12%
Unaccounted water	412	13%	
Total Potable Town Water ETs	3090	100%	100%

	Supply ML per annum 2001/02	% Total	% Consumed
Total Residential Dwelling ET (ie ex lots)	2020	58%	69%
Other (Commercial & Industrial)	658	19%	22%
Other (Rural, Institutional, Public)	269	8%	9%
Unaccounted water	510	15%	
Total Potable Town Water ETs	3457	100%	100%

	Supply ML per annum 2003/04	% Total	% Consumed
Total Residential Dwelling ET (ie ex lots)	1890	48%	53%
Other (Commercial & Industrial)	1090	27%	31%
Other (Rural, Institutional, Public)	591	15%	17%
Unaccounted water	397	10%	
Total Potable Town Water ETs	3968	100%	100%
plus vacant lots @ 8%			
Total ETs			