



## **Urban Development Institute of Australia (NSW)**

**A review submission of  
Sydney Water Corporation's  
calculation of developer charges  
and its compliance with the  
Independent Pricing and  
Regulatory Tribunal  
Determinations Number 9, 1995 and 2000**

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# EXECUTIVE SUMMARY

The Independent Pricing and Regulatory Tribunal (IPART) has not indicated in any of their Determinations or Reports that pre-1970 dwellings or equivalent tenements (ETs) should be excluded from any of Sydney Water Corporation (SWC) developer charge calculations.

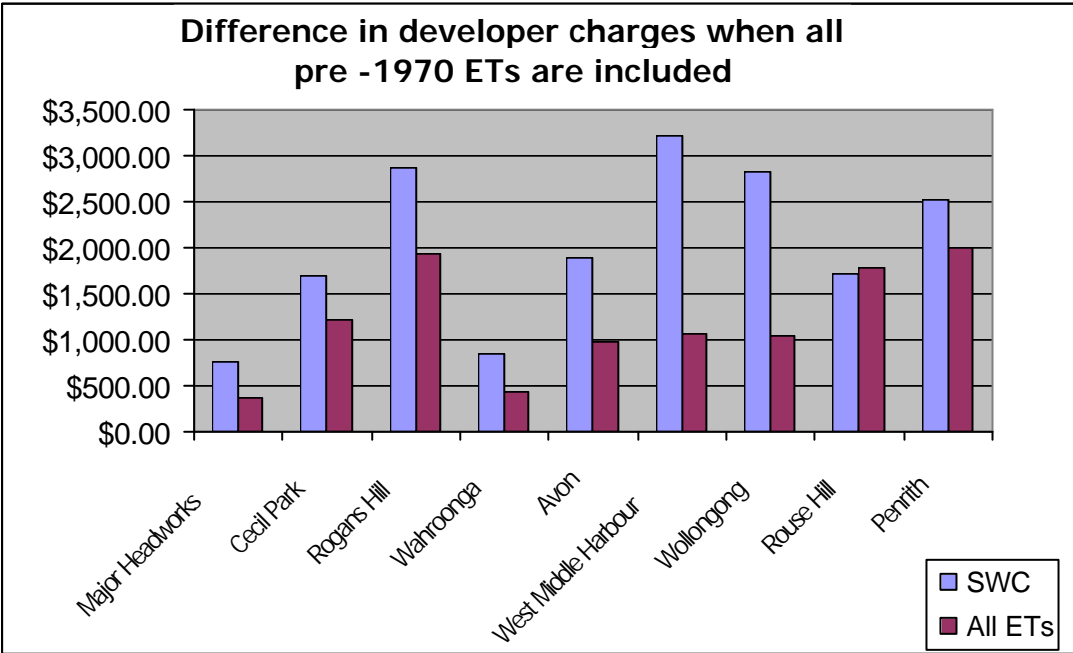
If:

- pre-1970 ETs are still connected to a Developer Servicing Plan (DSP) water or sewerage scheme, and
- these pre-1970 ETs are using the water or sewerage assets in the DSP (including post-1970 assets)

then these pre-1970 ETs should be included in SWC’s developer charge calculations so that they can be allocated their fair allocation of DSP asset usage and hence costs.

However, it is evident that SWC do not include pre-1970 ETs in their developer charge calculations. This is seen as unfair by the Development industry as it significantly increases the developer charges that new development pays.

The table below shows some examples of the significant increases in developer charges that have resulted from SWC not including relevant pre-1970 ETs in developer charge calculations for water supply or sewerage infrastructure (see Section 6 and Appendix 1 for a full breakdown and explanation).



The schedules in IPART’s Determination No 9, 2000, generated price signals in favour of infill development. The cost of amplifying a pre-1970 asset could be included in a DSP but not the whole asset.

The schedules state that part of the asset provided should be excluded if part of an asset was provided for a reason other than to service growth, such as to **accommodate amendments to environmental legislation**

In the case of the Wollongong Sewer DSP, outlined in Section 6 below, The DSP states on P. 12 that "Wollongong sewerage system will radically change in late 2003 when, under the Illawarra Wastewater Strategy, Bellambi and Port Kembla STP's will be consolidated into an amplified and upgraded Wollongong STP. The upgraded (Wollongong) STP will receive all dry weather flows transferred from the Bellambi and Port Kembla STP catchments".

The new transfer system will comprise:

1. a pumping station and 10kms of 750mm rising main to transfer dry weather flows from Bellambi STP to Wollongong STP
2. a pumping station and 6kms of 750mm diameter rising main to transfer dry weather flows from Port Kembla STP to Wollongong STP.

The Sydney Catchment Authority has advised that the Illawarra Wastewater Strategy's ultimate aim is to treat and reuse all the Illawarra's wastewater in the Port Kembla Steelworks operated by Bluescope Steel. Reuse of treated effluent in the steelworks will ultimately save 40ML per day of potable water currently being used there. The steelworks consume about 40% of the total potable water usage of the Illawarra region.

The work outlined in this DSP is obviously associated with environmental improvement rather than to service growth in the Illawarra area. Treated effluent formerly discharged to the ocean will be beneficially reused at the Bluescope steelworks. SWC's charging of new development with the full cost of these works directly counters the 2000 IPART Determination and is an unfair impost of increased upfront charges on new development.

The introduction of the Building Sustainability Index (BASIX) means that home builders are obliged to incorporate water and energy efficient design, materials and technologies in building residential dwellings, in order to obtain development approval. This significantly increases the cost of residential dwellings by an estimated \$5,110 for a 3-bedroom residential dwelling, with greater costs for larger premises.

IPART have indicated that it is appropriate that expenditures made in employing water efficient technology be recoverable through reduced upfront water or sewerage charges.

#### **UDIA Recommendations:**

1. SWC should include all pre-1970 ETs that are using assets contained in particular DSPs in determining their developer charge calculations so that developer charges are not artificially inflated by only apportioning costs to new development.
2. The projected 40% reduction in water usage and associated reductions in waste water generation as a result of the BASIX implementation by house builders should reduce SWC's supply and treatment costs and increase the remaining capacity of existing assets. It should also allow SWC to defer the construction of future assets. Relevant SWC

savings in this area should be passed on to landowners in the form of reduced upfront developer charges.

3. SWC should not be allowed to increase developer charges to make up for reductions in income revenues as a result of customers' more efficient water use.
4. SWC has prepared DSP's like the Wollongong Sewer DSP which involve the provision of infrastructure to accommodate amendments to environmental legislation and to effect environmental improvements. These DSP's should be modified so that the asset costs are more fairly and efficiently recovered by increased annual rate charges across all tenements and consumers, as all development contributes to their need, not just new development.

## 1.0 BACKGROUND TO THE 1995 IPART DETERMINATIONS

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 developer charges by Sydney Water Corporation (SWC).<sup>1</sup> It therefore formed a Water Industry Forum (WIF), consisting of representatives from the Tribunal's secretariat, the water agencies, government agencies, environment groups and the housing development industry. This forum considered the appropriateness of a net present value (NPV) methodology and the issues that could arise from its implementation.

The WIF reported its recommendations in November 1995. Thomas G Parry, the Chairman of the Tribunal, gazetted the report and Determinations relating to SWC, on 14 December 1995 in Determination No. 9.

## 2.0 OUTCOMES FROM DETERMINATION No. 9, 1995 (Matter SRD/95/4)

Determination No. 9 applied to SWC, Hunter Water Corporation, Gosford City Council and Wyong Shire Council Section 64 water, sewerage and drainage developer charges.

The outcomes from the 1995 Determination relating to SWC were:

- A net present value (NPV) methodology was developed for calculating water usage charges that Sydney Water Corporation (SWC) could charge developers for the provision or upgrading of water supply, sewerage and drainage infrastructure works.
- The WIF was asked to continue reporting to the Tribunal for 12 months, on any unanticipated problems with the NPV approach.
- The methodology applied from the date of Gazettal (14 December 1995) of the Determination for all new developments or stages of developments unless:
  - a) a compliance certificate has been issued by SWC pursuant to Section 73 of the Water Board (Corporatisation) Act, 1944 for that development or stage, or
  - b) SWC has given a written "notice of requirements" pursuant to Section 74 of the Water Board (Corporatisation) Act, 1944 in respect of a development in which case the assessment stands for the period specified in the notice of requirements.
- The parameters of the NPV calculation set for SWC were:
  - a) A three percent (3%) real discount rate on existing assets
  - b) A nine percent (9%) real discount rate for future assets
  - c) A forecast horizon for expected net revenue of 30 years
  - d) An efficiency factor of forty percent (40%) to be applied to existing asset values

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<sup>1</sup> SWC, Hunter Water Corporation, Gosford City and Wyong Shire councils were declared government monopoly services in an order dated 27 August 1992.

### **3.0 DETERMINATION No 9, 2000 (Reference 99/175-178)**

#### **3.1 The review process**

The Water Industry Forum met prior to the beginning of the October 1999 review process to discuss the emerging issues in developer charges. By that stage the Government Pricing Tribunal had been changed to the Independent Pricing and Regulatory Tribunal (IPART).

IPART – hereafter referred to as the Tribunal - published an issues paper at the beginning of the review process that sought submissions from the water agencies and other interested parties.

The Tribunal held a public hearing where interested parties aired their views.

The Tribunal made its Determination, taking into account all the information and analysis obtained from the consultation process.

#### **3.2 Problems with the Development Servicing Plan and NPV methodology approach**

Developers accepted the Development Servicing Plan (DSP) and net present value (NPV) approach but were worried about the following problems:

- Even though the Tribunal had published a pamphlet describing the DSP process in 1998, the process was not well known to developers outside those involved in the Developer Charges Water Forum
- The way in which water agencies calculate the agency contribution
- The way in which agencies calculate the capital charge
- The lack of clarity in the way the DSP boundaries are defined
- The application of a real discount rate of three per cent from the date of commissioning an asset to the date at which the NPV of assets is calculated.
- The inconsistencies in the calculation of operating revenues and expenditure
- The lack of transparency in setting DSP's and how they are prepared. Developers wanted to see enough information to be able to assess:
  - The appropriateness of the assets used to service the development (nexus)
  - The basis on which the charge has been calculated

#### **4.0 OUTCOMES FROM DETERMINATION No. 9, 2000**

The 2000 IPART No. 9 Determination replaced 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 developer charge (DC) and the information used to calculate the charge (see schedule 3 part A) to developers 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 annual consumption that must be used in calculations for an average SWC residential customer is 240 kilolitres.

The Tribunal believed that as a result of the changes there would be a reduction in the average developer charge across the SWC supply area of 27 per cent.

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

1. a developer first requesting the agency to review the charge (as per section 31 IPART Act)
2. 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.

## 5.0 ISSUES ADDRESSED BY THE 1995 and 2000 DETERMINATIONS

### 5.1 Overview of developer charges

Developer charges are up-front charges paid by developers to water agencies to:

- Recover part of the infrastructure costs incurred in servicing new developments
- Provide signals about the costs of urban development that encourage less costly forms and areas of development

The 1995 GPT and subsequent IPART 2000 report and associated Determinations aimed to introduce a consistent approach to the calculation of developer charges.

### 5.2 Recommendations on the approach to developer charges (DCs)

Chapter 13 of the Government Pricing Tribunal's 1993 report (*Inquiry into Water and Related Services, 1993*, Chapter 13, pp 201-205) made two main proposals as follows:

'Proposal 13.1: ...the Tribunal proposes that developer charges should:

- involve full net cost recovery
- reflect variations in the costs of servicing different development areas
- result in new developments meeting the costs, but no more, of the services provided through developer charges and/or annual charges
- cover infrastructure expenditures which can be clearly linked to the development in question and are able to be forecast reliably
- be applied to existing and fringe areas alike
- be calculated transparently so that developers can understand and assess the calculated charges.

Proposal 13.2: The Tribunal endorses, in principle, the net present value approach for calculation of developer charges. A working party comprising representatives of the Tribunal secretariat, the Public Works Department and suppliers in the Sydney, Central Coast and Hunter regions has been directed to examine the application of this approach on a uniform basis.'

### 5.3 Why NPV ?

When expenditures and net revenues are reduced to NPV they can be compared to show the amount required in today's dollars for the agency to fully recover its costs.

Under the Government Pricing Tribunal Act, 1992, the Tribunal may set maximum prices or may determine a methodology for setting maximum prices. The Tribunal chose to determine a methodology for fixing maximum prices for developer charges.

To comply with Section 14A and 13A(3) the Tribunal explained the reasons for this decision. They were:

- The developer charges must be calculated by a consistent and transparent methodology.

- It is impractical for the Tribunal to calculate developer charges on a case by case, individual basis.
- Developers need to include developer charges in their planning and need a rapid response when applying for an assessment of charges.
- The NPV methodology will ensure that agencies regulated by the Tribunal recover only the efficient costs of water and sewerage works.
- The NPV methodology allows the actual calculations to be completed by the agencies in-house.

## 5.4 Key principles of the NPV methodology

### 5.4.1 Which costs are to be recovered

Developments should only be charged for the **efficient** cost of supplying water and sewerage infrastructure. Developments often draw upon part of the service capacity of a number of assets in a catchment or geographic area. Each development should be charged for that share of each of the service capacity of existing and future assets it will use. The final charge will be the summation of these partial charges.

### 5.4.2 Calculation of developer charges using the NPV approach

The initial calculation formula was published in 1995 and then revised in 1997. The formula was revised again, in the 2000 Determination. The 2000 methodology is outlined below.

Each DSP will contain a NPV calculation of the cost of total service capacity in an area or catchment **less** the expected net operating profits (or losses) from providing services to that area or catchment. The resultant net cost is then expressed per equivalent tenement (ET). A development is charged a multiple of this "per ET" charge, according to the number of lots in the development.

The developer charge (DC) using NPV is calculated as:

$$DC = \frac{K_1}{L_1} + \frac{K_2}{L_2} - \frac{NPV (R_i - C_i)}{L_3} \quad \text{for } i = \text{years } 1, \dots, n$$

Where:

DC = Developer charges per equivalent tenement (ET)

$K_1$  = the capital charge for the pre 1996 assets which serve the DSP area calculated on an NPV basis and discounted at a rate  $r_1$  from 1 January 1996 (*note that 1996 value to be used*)

$K_2$  = the capital charge for the post 1996 assets which serve the DSP area calculated on an NPV basis and discounted at a rate  $r_2$

$L_1, L_2, L_3$  = the present value of the number of equivalent tenements in the DSP area, or to be developed in the DSP area, calculated at discount rate  $r_1, r_2, r_3$  respectively

$R_i$  = the future periodic revenues expected to be received from new customers in the DSP area in each year (i)

$C_i$  = the future expected annual operating, maintenance and administration costs of providing services to new customers in the DSP area in each year (i)

$r_1$  = the discount rate to be used for deriving the NPV of pre 1996 assets under schedule 5.

$r_2$  = the discount rate to be used for deriving the NPV of post 1996 assets under schedule 5.

$r_3$  = the discount rate to be used for deriving the NPV of expected revenues and costs under schedule 5.

$n$  = 30 years from the date of review of the developer charge as required by the determination. It is the forecast period for the assessment of expected revenues and costs

#### 5.4.3 Indexation in lieu of review

If there is no review of DCs during any given year, the DCs prevailing must be multiplied by the number derived from the application of the following formula on 1 July each year:

$$QCPI_{\text{year}} = \frac{\overset{-GST}{CPI_{\text{Jun year-1}}} + \overset{-GST}{CPI_{\text{Sep year-1}}} + \overset{-GST}{CPI_{\text{Dec year-1}}} + \overset{-GST}{CPI_{\text{Mar year}}}}{\overset{-GST}{CPI_{\text{Jun year-2}}} + \overset{-GST}{CPI_{\text{Sep year-2}}} + \overset{-GST}{CPI_{\text{Dec year-2}}} + \overset{-GST}{CPI_{\text{Mar year-1}}}}$$

### 5.5 Development Servicing Plans (DSPs)

#### 5.5.1 Transparency and certainty

As revised in the 2000 Determination No. 9, each water agency should develop a Development Servicing Plan (DSP) for each DSP area. Each plan must:

- be exhibited for a minimum of 30 working days
- follow the format laid down by the Determination (schedule 3 Section A)
- show the calculated developer charges for the services and the basis on which it has been calculated.
- clearly explain the basis on which boundaries have been established

- include charges on a per equivalent tenement (ET) basis, and
- compare the calculated developer charge with the existing charge.

#### 5.5.2 The process for publishing a DSP

The approach for preparing, exhibiting and registering DSPs is set out in schedule 3 (Det 9, 2000) and involves:

- exhibiting a draft DSP for at least 30 days before adoption ('exhibition period') to allow for examination by interested parties to make submissions. The agency must consider any submission made by interested parties
- advertising the date when a DSP is to be made or reviewed and the start date of the exhibition period
- informing the Urban Development Institute of Australia (UDIA), The Housing Industry of Australia (HIA), any relevant developers and landowners of the start date of an exhibition period at least 10 working days before the start date
- forwarding the DSP adopted by the agency to the Tribunal for registration. At the time of forwarding the DSP, the agency is to inform the Tribunal of any submissions lodged during the exhibition period. The Tribunal will then register the DSP.

#### 5.5.3 Review of DSPs

The 2000 Determination advised that agencies should review DSPs, and hence developer charges, every five years or as required by the Tribunal as part of a periodic review of charges. Agencies had until 30 June 2001 to review their DSPs following this Determination. Between the reviews, developer charges should be maintained in real terms (i.e., indexed to CPI).

### **5.6 Selection of the discount rate**

The discount rate should reflect:

- the opportunity cost to the agency of funding infrastructure works
- the risks in providing infrastructure prior to development (rate of connection, cost of construction, changes in interest rates).

The WIF advised the Tribunal that a discount rate of between 7 and 10 percent would be appropriate for the normal activities of water agencies (water agencies and environmental groups argued that a discount rate of up to 12 percent would better reflect the specific risks associated with urban development). In 2000 the Tribunal revised the discount rates to:

- Seven percent (7%) for future expenditures

- Three percent (3%) for expenditures incurred between 1970 and 1996

## 5.7 Valuation of assets

The Tribunal determined (Det 9, 1995) that a reduction factor of forty percent (40%) would be applied by SWC. This values assets at their modern equivalent value and ensures that SWC only charges for least cost/most efficient means of providing the service.

For the 2000 Determination IPART specified that MEERA (Modern Engineering Equivalent Replacement Asset)

### 5.7.1 Exclusion of some existing assets

The 1995 and 2000 Determinations specified that an asset is to be excluded if:

- the capacity is unlikely to be fully utilised over its planning horizon
- the service capacity was created before 1970
- the service capacity was made available by changes in land use
- an asset was funded by developers and transferred free of charge to the agency.

Excess capacity will most commonly exist for infill development of long-established areas. The schedules (Det 9, 2000) generate price signals in favour of infill development. However, the cost of amplifying a pre-1970 asset can be included (but not the whole asset).

In the following cases only, that part of the asset provided for the reason stated is to be excluded:

- Part of an asset was provided for a reason other than to service growth, such as to **accommodate amendments to environmental legislation**
- Part of an asset was, in the light of relevant demographic statistics available for the DSP area at the time it was commissioned, significantly and unreasonably oversized in respect of system and capacity requirements.

### 5.7.2 Treatment of headworks

The Tribunal decided that all headworks infrastructure should be included in the calculation of the developer charge (Det 9, 1995).

## 5.8 Demand management and water conservation assumptions

Targets have been set in SWC's license agreement for projections of demand for water or discharges of waste per household. Developer charges should be **reduced** where developments include features that reduce the development's demands on water, sewerage and drainage infrastructure<sup>2</sup>.

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<sup>2</sup> The design of on-site systems, the design of the development and building-covenants can all reduce demands on water infrastructure.

## 6.0 POINTS OF DIFFERENCE BETWEEN SWC DEVELOPER CHARGE CALCULATIONS AND THE IPART DETERMINATIONS

The IPART Determinations specify that all existing ETs should be included in calculations and yet this is not being done in SWC DSPs. SWC is not including any ETs prior to 1970 in the calculation of their DSPs. If these pre-1970 ETs are still connected to a water supply or wastewater disposal and treatment system and are using the assets making up that system (including post-1970 assets) then in fairness they should be included in the calculation for allocating payment.

Because SWC does not include pre-1970 ETs in their developer charge calculations, up-front charges paid by developers for new developments are unfairly increased. The asset costs are not being allocated fairly across all SWC customers.

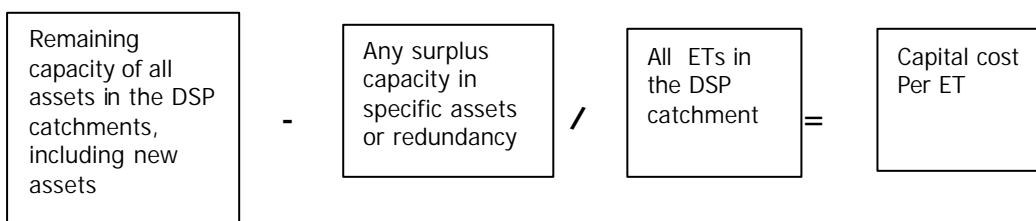
Difference in developer charges when all relevant pre-1970 ETs are included (see Appendix 1 for full details)		
	SWC (post 1970)	Including all ETs
Major Headworks	\$764.90	\$366.16
Cecil Park	\$1,689	\$1,209
Rogans Hill	\$2,879	\$1,940
Wahroonga	\$839	\$440
Avon	\$1,891	\$986
West Middle Harbour	\$3,215	\$1,075
Wollongong	\$2,833	\$1,044
Rouse Hill	\$1,728	\$1,782
Penrith	\$2,527	\$1,996

### 6.1 Cost Nexus and Apportionment Options - First Principles<sup>3</sup>

The diagrams below contrast the IPART Guidelines' approach with SWC's current methodology and illustrate SWC's non-compliance with the IPART Determinations.

#### Developer Charges for Water and Sewer

##### 1. IPART method



(excluding pre-1970 assets)

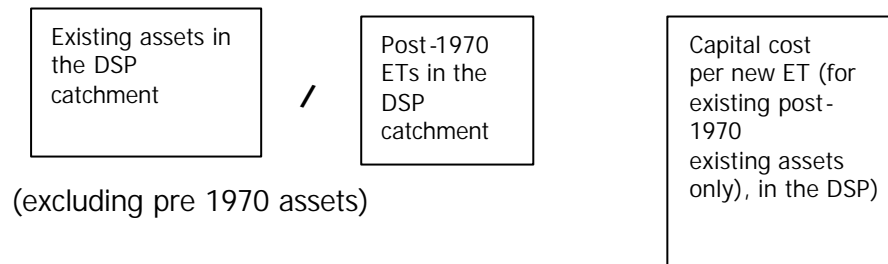
<sup>3</sup> Source: Peter Price, Economic Planning Advocacy, September 2005

## Assumptions:

1. New ETs have a nexus to net asset (existing and new) capacity as per Part 5.1 (c) of the Determination.
2. Exclusion of existing and new assets per Parts 5.1(b) and 5.4(a) of the Determination.

## 2. SWC method (whole of system approach)

### Existing Assets



### New Assets

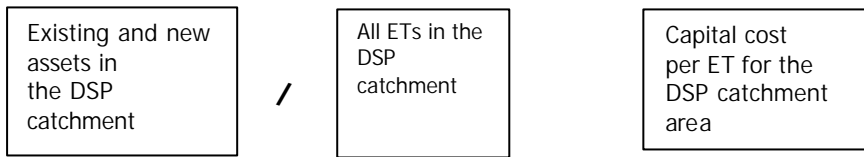


## Assumptions

Requirement to delete sunk cost of pre-1970 assets has been matched **arbitrarily** by SWC by the deletion of pre 1970 ETs. This is incorrect as the only Determination requirement is for pre-1970 assets (not ETs) to be excluded.

1. New users are required to pay a proportional share of existing assets (true, where capacity is available)
2. New users are required to pay a full share of the new asset costs (false, only required to pay a fair share of the capacity for which they have a demonstrable nexus (i.e. same as for existing assets)).

### **3. Suggested change to SWC method**



(excluding pre 1970 Assets)

#### **Assumptions**

1. The NPV model for a 2005 charge should include:
  - a planning period of 2005 – 2035
  - the ETs created in the planning period
  - the proportion of the total asset cost applicable to new users (i.e.: total asset cost divided by total ETs multiplied by those ETs planned for 2005 to 2035)
2. The per ET capital cost is the average current cost per ET (at 2005), as all assets are valued in 2005 dollars (In principle - excluding discount adjustments).
3. All ETs benefit from the various parts of the whole system (i.e. whole of system nexus approach)

## 7.0 ALLOCATION OF COSTS OF INFRASTRUCTURE PROVIDED TO IMPROVE ENVIRONMENTAL OUTCOMES

The schedules in Determination No 9, 2000, generated price signals in favour of infill development. The Determination stated that the cost of amplifying a pre-1970 asset could be included in a DSP but not the whole asset.

The Determination schedules state that part of the asset provided should be excluded if:

- Part of an asset was provided for a reason other than to service growth, such as to **accommodate amendments to environmental legislation**
- Part of an asset was, in the light of relevant demographic statistics available for the DSP area at the time it was commissioned, significantly and unreasonably oversized in respect of system and capacity requirements.

Although both the 1995 and 2000 Determinations specifically exclude the costs of pre-1970 assets from DSP preparation, they made **no mention** of a corresponding exclusion of pre-1970 ETs.

SWC, in its preparation of DSPs after both the 1995 and 2000 Determinations, have unilaterally taken the decision to exclude pre-1970 ETs from DSP calculations. This means that these pre-1970 ETs do not absorb their fair share of post-1970 asset costs.

This approach by SWC distorts the allocation of costs, by burdening post-1970 ETs with the full cost of these assets, even when the assets obviously service ETs that existed in 1970.

The Wollongong Sewer DSP is a clear example of this. In this DSP, SWC states that “the Wollongong sewerage system will radically change in late 2003 when, under the Illawarra Wastewater Strategy, Bellambi and Port Kembla STP’s will be consolidated into an amplified and upgraded Wollongong STP. The upgraded (Wollongong) STP will receive all dry weather flows transferred from the Bellambi and Port Kembla STP catchments”.

Wastewater from the whole of the Illawarra region will be transferred via the new pumping stations and transfer mains to an augmented and upgraded Wollongong STP, **not just** that wastewater generated by post-1970 development.

This project will produce major environmental benefits across the whole Illawarra region, as treated effluent will no longer be discharged to ocean outfalls. In addition, ultimate reuse of this effluent at the Port Kembla Steelworks will reduce potable water usage by 40ML per day. This will reduce the costs of transferring water from the Shoalhaven system and will allow environmental flows to remain in the Shoalhaven.

There will be resulting substantial reductions in the Sydney Catchment Authority’s potable water supply costs as well as environmental benefits provided to the residents and natural ecosystems of the Shoalhaven.

The work outlined in this DSP is obviously associated with environmental improvement rather than to service growth in the Illawarra area. Treated effluent formerly discharged to the

ocean will be beneficially reused at the Bluecope steelworks. SWC's charging of new development with the full cost of these works directly counters the 2000 IPART Determination and is an unfair impost of increased upfront charges on new development.

It is therefore inappropriate that post-1996 development in the Illawarra should bear an unfair major cost of this initiative, and directly counters IPART's Determination No. 9 instructions.

The Water Headworks DSP also attributes an unfair cost burden to post-1996 development. The infrastructure provided under this DSP directly supplies all users in greater Sydney and the Illawarra and is vital for the cities' continued economic security. These assets also have extremely long economic lives, in many cases well over 100 years, and capacity that should extend well beyond the 30-year horizon allowed in the preparation of DSPs.

There has been no mention of asset capacity provided in this or any other SWC DSP.

## 8.0 THE IMPACT OF BASIX

### 8.1 Background

BASIX, the Building Sustainability Index, is a web-based sustainability assessment tool compulsory for all new detached homes in Sydney from 1 July 2004. BASIX applies to all residential developments, including multi-unit developments, in NSW from 1 July 2005.<sup>5</sup>

BASIX was an initiative developed from the NSW Sustainable Advisory Council which recommended the establishment of a sustainable design tool to ensure that new residential developments were resource-efficient and designed for the NSW environment in a cost effective and measurable way. The Department of Infrastructure, Planning and Natural Resources (DIPNR), which is now the Department of Planning (DoP), developed BASIX and continues to manage it.

The NSW residential sector is rapidly growing with estimates suggesting that a new dwelling is completed approximately every 14 minutes. Currently it is estimated that some 300 people move into Sydney each week adding to the city's water and energy usage.

BASIX was designed with the aim of ensuring that all residential developments use 40 percent less potable water and initially produce 25 percent less greenhouse gas emissions compared to the average existing dwelling of similar size and location.

### 8.2 UDIA's feedback regarding BASIX

UDIA attended numerous industry briefings on the development of BASIX and some of their members trialed the planning tool. Using the results from these trials UDIA made a detailed submission to DIPNR dated 9 May 2004.

The submission made some comments that are relevant to the BASIX impact on developer charges:

- Intent

UDIA supports the consistency and accountability offered by BASIX and concurs with the NSW Government that residential buildings should be more energy and water efficient than the current average housing stock.

- Incentives

UDIA suggested that local councils could offer incentives to applicants to adopt BASIX commitments over and above the standards required to meet the BASIX criteria. It stressed that they must be **appropriate to the development and be fully conscious of the costs and benefits to the developer**. UDIA also made the point that council incentives should not be permitted to introduce inconsistencies by raising local performance benchmarks higher than the BASIX benchmarks.

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<sup>5</sup> A History of BASIX, the Building Sustainability Index in NSW – David Eckstein, Blair Palse, DIPNR

<sup>7</sup> Where PV = present value; FV= future value; r = discount rate; n = number of periods to apply r.

- Cost

The proponents of BASIX argue that the increased capital cost of a building, incurred by incorporating sustainable design features in compliance with BASIX, is merely transferring the true cost of providing those services from the community to the home owner and that the associated savings are realised by the occupant over time. Nevertheless, the increased capital cost may add a significant amount to the price of a new home or renovation at a time when housing affordability in Sydney is comparatively low.

UDIA acknowledge that some of these costs may increase over time as the technology becomes mainstream and mass produced and that some of these price increases may be offset by a trend toward the smaller dwellings encouraged by BASIX. Nevertheless, it is difficult to predict how BASIX will affect the market other than to say that costs will most likely be transferred to the purchaser.

An opportunity however does exist to request infrastructure rebates or differential rating to reflect the resource savings. The IPART determination No. 9 states '**.....reduced headwork charges may be sought in line with reduced infrastructure outlays...**'

Conversely, SWC may attempt to increase future upfront developer charges to compensate their revenue flows for reduced sales of potable water due to BASIX demand management. The upcoming SWC revision of developer charges will give a clear indication as to what approach SWC will take to this issue. Similarly, ongoing water and energy savings realised through lower consumption could be further rewarded through differential ratings to lower the payback period on technology installed to achieve those efficiencies.

The submission by UDIA to DIPNR (now DoP) calls for:

- DIPNR to work closely with industry to monitor and assess the cost of compliance with BASIX on housing affordability.
- DIPNR liaise with water utilities and councils to facilitate infrastructure rebates (e.g. lower headwork charges) or differential rating to reflect the resource savings achieved at the cost of the home purchaser.

The UDIA submission concluded:

*"UDIA NSW is conscious of the cost to the industry and consumers associated with the application of sustainable technology and design solutions. These measures will deliver considerable resource savings to the community which should be transferred back to the consumer **through reduced infrastructure charges or differential rating.**"*

### **8.3 The implementation of BASIX**

BASIX was officially launched on 1<sup>st</sup> July 2004 and applies to new houses and dual occupancies in the Sydney metropolitan area. From 1<sup>st</sup> July 2005 BASIX has been applied throughout NSW FOR:

- Houses
- Dual occupancies
- Villas
- Town houses
- Multi-unit apartments.

For this second stage of BASIX, specific data for each region of NSW such as climate and rainfall has been inserted into the model.

From 1<sup>st</sup> October 2005 BASIX applies to alternations and additions made to existing homes across NSW.

A one-year review of the take-up of BASIX from single dwellings and dual occupancies has been planned by DoP to track the tool's impact on residential development.

It may be possible in this review to determine the average water saving per dwelling and extrapolate this across all new development by obtaining quantities of water saved and applying a value of water (cost to consumer, or cost to supply) to estimate savings resulting from BASIX and measure these against the cost of BASIX.

### **8.4 BASIX for existing homes**

With an estimated 2.5 million existing home in NSW, the NSW government is likely to expand BASIX's focus to include existing homes. DoP supports utility and other government-related retrofit programs currently in operation, such as SWC's "retrofit" scheme to help homeowners become more water efficient.

In future, however, it is likely that one overarching retrofit requirement, perhaps at point-of-sale, will be required to ensure that the existing residential stock in NSW becomes more energy- and water-efficient over time. This phase of implementation will be called RETROFIX and DIPNR anticipates that it will apply across the state from July 2006.

Overall across NSW, DoP have advised the industry that new residential growth averages 2% per annum.

Even if the NSW government achieves its desired ultimate 40% reductions on potable water and energy usage through BASIX on new development, overall usage of potable water and energy in the residential sector will still increase by 1.2% per annum.

Over the next 30 years, overall water and energy usage in the residential sector could still increase by between 40% and 50% with BASIX, which increases the need to gain water and energy savings in existing development.

## 8.5 DIPNR investigations of BASIX costs to industry

- To assess the economic impact of the BASIX targets, DIPNR engaged consultants, the Allen Consulting Group, to undertake a benefit cost analysis (BCA) on the impact of implementation of BASIX across NSW.

The benefit cost analysis evaluated both water and energy costs/benefits.

The incremental cost of achieving the 40% reduction in water usage was determined by the consultants to be \$5,110 per single dwelling (see Table 1 below).

The study was conducted on a "typical detached house", defined as a three-bedroom, two-bathroom dwelling, with a gross floor area of 250 square metres on a 550 square metre site. The majority of the costs below are constant irrespective of house size.

<b>TABLE 1 BASIX 40 WATER ACTIONS AND COSTS FOR A SINGLE DWELLING</b>		
<b>Target for July 2004</b>	<b>Actions</b>	<b>Additional costs of typical single dwelling</b>
Water index: BASIX 40 rating  Stormwater index: Enabled	AAA – rated shower heads (9 litres per minute)	\$59
	Dual flush toilets	Industrial Standard (no additional cost)
	Flow arrestors on all kitchen taps (9 litres per minute) and bathroom taps (4.5 litres per minute)	\$136
	Rainwater tank for toilet flushing and garden irrigation	\$4,915 (5,000L above ground tank including connection to garden taps and toilet)
	<b>TOTAL COST</b>	<b>\$5,110</b>
Source: DIPNR summary of CBA for BASIX		

The costs itemised in Table 1 are assumed to be typical industry costs that would be passed on to the purchaser of the home. There is no readily available cost data on multi-unit apartments or retrofitting devices to existing development, though it could be assumed that they would not differ greatly (except for rainwater tanks) from those for new development.

Discussions with BASIX staff at DoP indicate that the retrofitting to existing development while planned for July 2006 is still very preliminary.

## 8.6 Conclusions regarding BASIX

UDIA NSW maintains that the increased cost to the industry and consumers associated with the application of sustainable technology and design solutions will deliver considerable resource **savings to the community which should be transferred back to the consumer through reduced infrastructure charges or differential ratings.**

## 9.0 CONCLUSIONS

The 1993 Tribunal report on developer charges proposed that charges should:

- involve full net cost recovery
- reflect variations in the costs of servicing different development areas
- result in new developments meeting the costs, **but no more**, of the services provided through developer charges and/or annual charges
- cover infrastructure expenditures which can be clearly linked to the development in question and are able to be forecast reliably
- be applied to existing and fringe areas alike
- be calculated transparently so that developers can understand and assess the calculated charges.'

The 1995 and 2000 Determinations specified that an asset is to be excluded if:

- the capacity is unlikely to be fully utilised over its planning horizon
- the service capacity was created **before 1970**
- the service capacity was made available by changes in land use
- an asset was funded by developers and transferred free of charge to the agency.

The schedules in Determination No 9, 2000, generated price signals in favour of infill development. The cost of amplifying a pre-1970 asset could be included in a DSP but not the whole asset.

The schedules state that part of the asset provided should be excluded if:

- Part of an asset was provided for a reason other than to service growth, such as to **accommodate amendments to environmental legislation**
- Part of an asset was, in the light of relevant demographic statistics available for the DSP area at the time it was commissioned, significantly and unreasonably oversized in respect of system and capacity requirements.

Although both the 1995 and 2000 Determinations specifically exclude the costs of pre-1970 assets from DSP preparation, they made **no mention** of a corresponding exclusion of pre-1970 ETs.

SWC, in its preparation of DSPs after both the 1995 and 2000 Determinations, have unilaterally taken the decision to exclude pre-1970 ETs from DSP calculations. This means that these pre-1970 ET's do not absorb their fair share of post-1970 asset costs.

This approach by SWC distorts the allocation of costs, by burdening post-1970 ETs with the full cost of these assets, even when the assets obviously service ETs that existed in 1970.

The Wollongong Sewer DSP is a clear example of this. In this DSP, SWC states that “the Wollongong sewerage system will radically change in late 2003 when, under the Illawarra Wastewater Strategy, Bellambi and Port Kembla STP’s will be consolidated into an amplified and upgraded Wollongong STP. The upgraded (Wollongong) STP will receive all dry weather flows transferred from the Bellambi and Port Kembla STP catchments”.

Wastewater from the whole of the Illawarra region will be transferred via the new pumping stations and transfer mains to an augmented and upgraded Wollongong STP, **not just** that wastewater generated by post-1970 development.

This project will produce major environmental benefits across the whole Illawarra region, as treated effluent will no longer be discharged to ocean outfalls. In addition, ultimate reuse of this effluent at the Port Kembla Steelworks will reduce potable water usage by 40ML per day. This will reduce the costs of transferring water from the Shoalhaven system and will allow environmental flows to remain in the Shoalhaven.

There will be resulting substantial reductions in the Sydney Catchment Authority’s potable water supply costs as well as environmental benefits provided to the residents and natural ecosystems of the Shoalhaven.

It is therefore inappropriate that post-1996 development in the Illawarra should bear an unfair major cost of this initiative, and directly counters IPART’s Determination No. 9 instructions.

The Water Headworks DSP also attributes an unfair cost burden to post-1996 development. The infrastructure provided under this DSP directly supplies all users in greater Sydney and the Illawarra and is vital for the cities’ continued economic security. These assets also have extremely long economic lives, in many cases well over 100 years, and capacity that should extend well beyond the 30-year horizon allowed in the preparation of DSPs.

There has been no mention of asset capacity provided in this or any other SWC DSP.

Determination No. 9 states ..... ***reduced headwork charges may be sought in line with reduced infrastructure outlays.***

The introduction of BASIX with its aim to reduce potable water usage will add to the costs of new residential construction but may result in such “reduced infrastructure outlays”.

The benefit cost study that DIPNR commissioned from the Allen Consulting Group on the impact of implementation of BASIX across NSW reported that more than \$5,000 of additional costs would result for a typical new house.

If BASIX is extended to the retrofit of existing residential buildings, then these costs will be spread across the entire community, but SWC will gain a benefit in that existing infrastructure will gain a boost in capacity and thus extend its effective operating life.

There is widespread industry concern that SWC may attempt to **increase** future upfront developer charges to compensate their revenue flows for reduced sales of potable water due to improved BASIX demand management. The upcoming SWC revision of developer charges will give a clear indication as to what approach SWC will take on this issue.

It is obvious that the current trend by many branches of local and state government to increase upfront developer charges is having a marked impact on the affordability of new housing development across NSW. Apart from being an unfair imposition of costs, this process is also "regressive", in that it has the greatest relative impacts on those members of the community least able to afford it.

There are also significant inter-generational equity effects from this process, in that young families with children bear a greater share of the cost burden of infrastructure provision than ever before, and the impacts on the budgets of these families are greatest while children are youngest.

The development industry has indicated over the last 15 years its willingness to absorb a fair and reasonable share of infrastructure charges. Over recent years, this has become a deluge.

UDIA considers that Sydney Water are using an unfair and unreasonable method of apportioning asset costs to new development in its DSPs. UDIA also contends that this method is inconsistent with the 1995 and 2000 Determinations.

## REFERENCES AND ACKNOWLEDGEMENTS

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***Rogans Hill Water Development Servicing Plan***, Sydney Water Corporation, 2001

***Wahroonga Water Development Servicing Plan***, Sydney Water Corporation, 2001

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Mr. Scott Woodcock              Deputy Director, UDIA-NSW

## GLOSSARY OF ECONOMIC TERMS

**Amortisation period** is the period over which the current replacement or NPV cost of an asset, and revenue and income is amortised. The period may be the IPART notion of "capacity take-up period" or the Institution's more reasonable 'planning period'.

**Capital Charge** means the net present value of all expenditures on assets used to service the development.

**Capacity** is the design capacity of an infrastructure element defined in per ET terms. The term EP is also used but this can be misleading as average and peak EP capacity is used as a design measure, often in the same DSP.

**CPI** means the consumer price index, *All Groups* index number for the weighted average of eight capital cities as published by the Australian Bureau of Statistics (ABS). If the ABS does not or ceases to publish the index, then CPI will mean an index determined by the Tribunal.

**CPIr–GST** means the CPI exclusive of the net impact of:

(a) the GST; and

(b) changes to any other Commonwealth, State, or Territory taxes or charges, consequent upon the introduction of GST (as calculated and published by the ABS from time to time or the Commonwealth Treasury (CT); the Reserve Bank of Australia (RBA); a person appointed by the Tribunal; the Tribunal itself; in this order if any of these parties cease to publish CPIr–GST **statistics**).

**Discount Rate** means the rate used to calculate the present value of money in the future and, in the case of calculating Developer Charges (under Det 9, 2000); the discount rates in Schedule 5.

**DSP** means a Development Servicing Plan which describes the means of providing water and sewer services and the methodology and justification for development charges for catchments within a planning area. For S64 determinations it may be a local government area or part thereof.

**Equivalent Person (EP)** is a basic demand factor in water servicing and community facility assessment. All types of uses may be expressed as creating a demand in EPs. In some infrastructure the demographic breakdown of the population is the basis of need.

**Equivalent Tenement (ET)** refers to a single stand-alone dwelling. Other uses are expressed as multiples or parts of the equivalent of a dwelling, thus ET. It is also necessary to define a dwelling in terms of the average occupancy rate.

**GST** means the Goods and Services Tax as defined in *A New Tax System (Goods and Services Tax) Act, 1999*.

**Headworks** mean significant assets at the end of water, sewerage and drainage systems that provide services to two or more DSP areas. For example, in development servicing plans

adopted by Sydney Water Corporation, water headworks are comprised of a system of dams, major storage reservoirs, water treatment works and major supply conduits.

**Infrastructure Element** may be a pipe, reservoir, pump station etc for distribution and a dam, WTP and STW for headworks that are distinctly identified as necessary to serve a DSP area (S64 or equivalent).

**Modern Engineering Equivalent Replacement Asset or MEERA** means an asset value calculated at the time of valuation using modern engineering practice, the most economically viable technologies and providing similar utility functions to the existing asset in service.

**Net present value or NPV** means the difference between the present value of revenue and the present value of costs. Net Present Value is a standard technique for comparing the cost of projects. It considers the time value of money and discounts future payments and costs to a current date using a net discount/interest rate (net of inflation). It is used in determinations to assess the current per lot charge or contribution which will be charged now or in the future (the latter will be indexed by the CPI to retain the value of the money). NPV is the complement of a cash flow analysis (CFA).

**Present value** is the value now of money earned or spent in the future. Derived by the formula:  $PV = FV (1+r)^{-n}$ .<sup>7</sup>

**Year** means from 1 July and ending 30 June in the ensuing calendar year.

# APPENDIX 1: EXAMPLES OF REWORKED DEVELOPER CHARGE CALCULATIONS

These examples include all pre-1970 ETs (maximum day ET calculations) and notes of discrepancies detected in DSPs <sup>8</sup>

## Water charges

### 1) Major Headworks - Water

Every Sydney Water water charges DSP has a part of its cost made up by a major headworks charge. The major headworks charge is a combination of one or more of 14 components.

These components are:

1. Dams
2. Warragamba Pipelines
3. Upper Canal
4. Prospect Reservoir Complex
5. Prospect to Pipehead
6. Delivery "A" - Avon
7. Delivery "B" - Warragamba
8. Delivery "C" - Orchard Hills, Blue Mountains
9. Delivery "D" - Nepean Dam
10. Delivery "E" - Macarthur
11. Delivery "F" - Prospect South (WPS 184)
12. Delivery "G" - Prospect North and East, Ryde
13. Delivery "H" - Potts Hill and Woronora
14. Delivery "J" – North Richmond

All delivery areas except "14" ie North Richmond, take water from Dams (component "1"). North Richmond delivery area uses water directly drawn from the Hawkesbury River, which is then treated at SWC's North Richmond water treatment plant and from there distributed to consumers.

Some delivery areas use the Dams infrastructure (component "1") and one other component. Others, such as area "G", Prospect North and East, Ryde, use up to 6 components. Area "G" uses components 1 to 5 and then 12.

In the Dams DSP, Sydney Water provides the following data on existing and projected ETs in the Greater Sydney area up to 2031.

Major headworks-water development rates			
	ETs	SWC Ratio	UDIA revised ratio
Existing Developments at 1970	1,362,286		52.0%
Existing Developments at 1996	1,854,406		
Past Developments 1970-1996	492,120	39.0%	18.7%
Projected Developments 1996 -2031	768,561	61.0%	29.3%
Total Developments post 1970 - 2031	1,260,681	100.0%	
Total projected developments at 2031	2,622,967		100.0%

The following assets are included in existing developments at 1970 (with 2001 MEERA values).

### Shoalhaven and associated works

#### Item

	<u>2000/1 MEERA value</u> <u>(\$'M)</u>
Wingecarribee Dam & Glenquarry Gate ( included deviation of Moss Vale-Wollongong Railway )	32.56
Fitzroy Falls Dam (includes Wildlife Refuge, multiple outlet works, saddle dams )	24.82
Tunnel from Nepean Reservoir to Avon Reservoir ( includes intake shaft & flow control )	9.38
Tallowa Dam	109.81
Bendeela Pipeline	3.25
Kangaroo Pipeline	22.20
Kangaroo Tunnel	12.82
Fitzroy Canal	17.92
Wildes Meadow Canal	10.37
Bendeela Pondage	16.68
Burrawang Tunnel	14.81
Glenquarry Cut	6.42
Burrawang Canal	4.22
Glenquarry Cut Pipeline	6.42
<b>Subtotal Shoalhaven and associated works</b>	<b>292.92</b>
<b>Shoalhaven pumping stations</b>	
Bendeela WPS	26.2
Kangaroo WPS	53.00
Burrawang WPS	8.36
Gauging Stations on Shoalhaven System	0.99
<b>Subtotal Shoalhaven pumping stations</b>	<b>88.47</b>
<b>Total Shoalhaven to Nepean and Warragamba storages</b>	<b>381.39</b>

SWC argues that the costs of these assets should only be borne by post-1970 ETs and ascribes 61% of the \$381.39M (\$232.51M) to post-1996 ETs, as per their Headworks – water components table above.

SWC then discounts the annual projected increase in ETs between 1996 and 2031 to derive the "NPV" of post-1996 ETs. This "NPV" figure of 526,864 is used to divide the \$232.51M to produce a cost per ET for the "Dams" component of \$441.

#### UDIA Reworked Charge per ET

It is UDIA's contention that the IPART Determination specifies that major headworks infrastructure costs should be shared by all users on the water supply system, whether pre- or post-1970, and upgrade costs should be spread across all ETs accordingly. UDIA argues that this infrastructure transfers about one sixth of the entire water supply for the Greater Sydney area and the Illawarra from the Shoalhaven and its cost should be therefore spread across all ETs in the total supply area.

According to the Sydney Catchment Authority, water from the Illawarra is transferred:

1. into Warragamba Dam via the Wingecarribee dam and Wingecarribee River,
2. into Nepean Dam via Glenquarry Cut and then down the Nepean River to Pheasants Nest Weir to both Prospect water treatment plant via the Upper Canal and to the Macarthur water treatment plant from Broughton Pass Weir, or
3. into Nepean Dam via Glenquarry Cut and then via the Avon Gravity Tunnel to Avon Dam and thence to the Illawarra

The "Dams" headworks are vital infrastructure for all areas of greater Sydney and the Illawarra and their cost should fairly be spread over all ETs, not just the post-1970 ones. Instead of post-1996 ETs bearing 61% of the Dams infrastructure costs as in the Sydney Water model, the proportions should be recalculated as follows:

UDIA contend that 29.3% of the total 2000/1 MEERA value of \$381.39M ie \$111.75, should then be ascribed to post-1996 ETs.

This revised figure of \$111.75M, when divided by the NPV value of 526,864, would reduce the charge per ET from Sydney Water's \$441 down to **\$212**.

Sydney Water ascribes a constant 61% of all other headworks cost components:

1. Warragamba Pipelines
2. Upper Canal
3. Prospect Reservoir Complex
4. Prospect to Pipehead

to post-1996 ETs in the "Dams" DSP. UDIA argues that this approach is incorrect according to the IPART Determinations and that all these headworks infrastructure costs should be spread across both pre- and post-1970 ETs. Applying the UDIA revised ratios of 29.3% to these costs would reduce the "headworks" component of developer charges for water supply to 48% of those charged by Sydney Water.

The Sydney Water calculations and UDIA's adjustments as outlined above assume that the operating capacity of all these headworks infrastructure assets is fully used up by 2031, but there is no statement of capacity of the individual assets shown anywhere in the DSP.

The transfer of potable water from the Shoalhaven River up to the Southern Highlands plateau and then down to either greater Sydney or the Illawarra would not be limited by the capacity of the transfer system as much as by the **sustainable amount** of water that could be safely withdrawn from the Shoalhaven system. Sufficient flows must be left in the Shoalhaven system by Sydney Catchment Authority to service the needs of the Shoalhaven City Council water supply system into the future as well as to maintain adequate environmental flows.

If the capacity of these headworks infrastructure assets can provide for development after 2031, then the fair and reasonable share of costs that can be attributed to pre-2031 ETs should be further reduced.

## 2) Cecil Park Water

Sydney Water's Cecil Park water supply DSP includes four existing assets and no future assets. These existing assets are:

WO	Start Year	Description Of Work	Diam. (mm)	Length (m)	Material	% Incl. DSP	MEERA (2000/01) \$
WO 31000	1977	Cecil Park Outlet main - Elizabeth Drive	450	2,920	DICL	100%	1,470,297
WO 31367	1981	Elizabeth Drive Amplification	450	1,490	DICL	100%	750,281
WO 31368	1984	Elizabeth Drive Amplification	300	1,070	DICL	100%	360,791
	1985	Cecil Park 336 Reservoir		30ML capacity	Steel	100%	2,609,094
<b>Total DSP Assets</b>							<b>5,190,463</b>

The DSP sets out maximum day ETs as follows

	1970	1996	2030
<b>System Demand (Max. Day ET)</b>	2,006	3,837	6,318
<b>% of pre 1996 costs included in the developer charge</b>			58%
<b>Existing costs included in the developer charge (\$M)</b>			\$2.99
<b>Proposed costs included in the developer charge (\$M)</b>			\$0.00

The DSP charges ETs predicted post-1996 up to **2030** account for 58% of the entire asset costs. This is based on the SWC ratio calculation where only developments from 1970 are included.

It may be that the pre-1970 ETs in the DSP catchment area are supplied with water from other reservoirs and trunk mains but that is not indicated anywhere in the DSP.

If that is not the case, and all ET's,(before and after 1970) in the catchment area are supplied from the Cecil Park Reservoir and Elizabeth Drive outlet mains as listed, UDIA's contention is that the IPART Determinations specify that the cost of assets should be shared across all ETs using them, and the DSP cost allocation should be recast as follows:

<b>Cecil Park water development rates</b>			
	<b>ETs</b>	<b>SWC Ratio</b>	<b>UDIA revised ratio</b>
Existing Developments at 1970	2,006		<b>31.7%</b>
Existing Developments at 1996	3,837		
Developments 1970 - 1996	1,831	42.0%	<b>29.0%</b>
Projected Developments 1996 - 2030	2,481	<b>58.0%</b>	<b>39.3%</b>
Total Developments post 1970 - 2030	4,312	100.0%	
Predicted Developments by 2030	6,318		<b>100.0%</b>

On this basis, the cost share for ETs predicted between 1996 and 2030 reduces from Sydney Water's 58.0% of asset costs to **39.3%**.

UDIA also contends that new DSPs should have existing and future assets amortised from 1996 to the starting date of the new DSP, and the fair cost proportion of these assets divided by the present value of future DSPs starting from the new DSP date.

When the cost share of existing assets to be paid for by future ETs is adjusted from 58.0% to 39.3% and both the present value of the asset share and the present value of future ETs are adjusted to a 2001 start date, the capital works charge is reduced from the SWC figure of \$1,689 per ET in the Cecil Park Water DSP to a revised figure of **\$1,209** per ET.

### 3) Rogans Hill Water

The DSP sets out maximum day ETs as follows:

	<b>1970</b>	<b>1996</b>	<b>2030</b>
<b>System Demand (Max. Day ET)</b>	13,368	18,248	44,705
<b>% of pre 1996 costs included in the developer charge</b>			84%
<b>Existing costs included in the developer charge (\$M)</b>			\$25.21
<b>Proposed costs included in the developer charge (\$M)</b>			\$27.48

The DSP charges ETs predicted post-1996 up to **2030** for 84% of the entire asset costs. This is based on the SWC Ratio calculation that only includes developments after 1970.

<b>Rogans Hill water development rates</b>			
	<b>ETs</b>	<b>SWC Ratio</b>	<b>UDIA revised ratio</b>
Existing Developments at 1970	13,368		<b>29.9%</b>
Existing Developments at 1996	18,248		
Developments 1970 - 1996	4,880	16.0%	<b>10.9%</b>
Projected Developments 1996 - 2030	26,457	<b>84.0%</b>	<b>59.2%</b>
Total Developments 1970 - 2030	31,337	100.0%	
Predicted Developments by 2030	44,705		<b>100.00%</b>

It may be that the pre-1970 ETs in the DSP catchment area are supplied with water from other reservoirs and trunk mains but that is not indicated anywhere in the DSP.

If pre-1970 ETs are included, the cost share for ETs predicted between 1996 and 2030 reduces from Sydney Water's 84.0% of asset costs to **59.2%**.

UDIA also contends that new DSPs should have existing and future assets amortised from 1996 to the starting date of the new DSP, and the fair cost proportion of these assets divided by the present value of future DSPs starting from the new DSP date.

When the cost share of existing assets to be paid for by future ETs is adjusted from 84.0% to 59.2% and both the present value of the asset share and the present value of future ETs are adjusted to a 2001 start date, the capital works charge is reduced from the SWC figure of \$2,879 per ET in the Rogans Hill Water DSP to a revised figure of **\$1,940** per ET.

#### **4) Wahroonga Water**

The DSP sets out maximum day ETs as follows:

	<b>1970</b>	<b>1996</b>	<b>2030</b>
<b>System Demand (Max. Day ET)</b>	21,156	28,242	40,875
<b>% of pre 1996 costs included in the developer charge</b>			64%
<b>Existing costs included in the developer charge (\$M)</b>			\$15.80
<b>Proposed costs included in the developer charge (\$M)</b>			\$0.00

The DSP charges ETs predicted post-1996 up to **2030** for 64% of the entire asset costs. This is based on the SWC calculation.

A discrepancy has been detected in the DSP. The DSP states that the Wahroonga water supply area is supplied by the Potts Hill delivery system when in fact it is supplied by the Prospect and Ryde East delivery system. Delivery area "G" corresponds to Pumping Station 159, not Delivery area "H".

It may be that the DSP catchment area is supplied with water from other reservoirs and trunk mains but that is not indicated anywhere in the DSP.

If that is not the case, and all ET's, pre- and post-1970, in the catchment area are supplied from the assets as listed, UDIA's contention is that the cost of assets should be shared across all ETs as per the UDIA calculation in the table below.

<b>Wahroonga water development rates</b>			
	<b>ETs</b>	<b>SWC Ratio</b>	<b>UDIA revised ratio</b>
Existing Developments at 1970	21,156		51.8%
Existing Developments at 1996	28,242		
Developments 1970 - 1996	7,086	36.0%	17.3%
Projected Developments 1996 - 2030	12,633	<b>64.0%</b>	<b>30.9%</b>
Total Developments post 1970 - 2030	19,719	100.0%	
Predicted Developments by 2030	40,875		100.0%

On this basis, the cost share for ETs predicted between 1996 and 2030 reduces from Sydney Water's 64.0% of asset costs to **30.9%**.

UDIA also contends that new DSPs should have existing and future assets amortised from 1996 to the starting date of the new DSP, and the fair cost proportion of these assets divided by the present value of future DSPs starting from the new DSP date.

When the cost share of existing assets to be paid for by future ETs is adjusted from 64.0% to 30.9% and both the present value of the asset share and the present value of future ETs are adjusted to a 2001 start date, the capital works charge is reduced from the SWC figure of \$839 per ET in the Wahroonga Water DSP to a revised figure of **\$440** per ET.

## 5) Avon Water

The DSP sets out maximum day ETs as follows:

	<b>1970</b>	<b>1996</b>	<b>2030</b>
<b>System Demand (Max. Day ET)</b>	38,775	86,679	114,033
<b>% of pre 1996 costs included in the developer charge</b>			36%
<b>Existing costs included in the developer charge (\$M)</b>			\$22.95
<b>Proposed costs included in the developer charge (\$M)</b>			\$13.94

Avon water development rates			
	ETs	SWC Ratio	UDIA revised ratio
Existing Developments at 1970	38,775		34.0%
Existing Developments at 1996	86,679		
Developments 1970 - 1996	47,904	64.0%	42.0%
Projected Developments 1996 – 2030	27,354	<b>36.0%</b>	<b>24.0%</b>
Total Developments post 1970 - 2030	75,258	100.0%	
Predicted Developments by 2030	114,033		100.0%

The DSP charges the ETs predicted post-1996 up to **2030** for 36% of the entire asset costs. This is based on SWC calculation where no ETs prior to 1970 are included.

UDIA's contention is that all ET's, pre- and post-1970, in the catchment area are supplied from the assets as listed, and the cost of assets should be shared across all the ETs using them as per UDIA's calculation in the table above.

On this basis, the cost share for ETs predicted between 1996 and 2030 reduces from Sydney Water's 36.0% of asset costs to **24.0%**.

UDIA also contends that new DSPs should have existing and future assets amortised from 1996 to the starting date of the new DSP, and the fair cost proportion of these assets divided by the present value of future DSPs starting from the new DSP date.

When the cost share of existing assets to be paid for by future ETs is adjusted from 36.0% to 24.0% and both the present value of the asset share and the present value of future ETs are adjusted to a 2001 start date, the capital works charge is reduced from the SWC figure of \$1,891 per ET in the Avon Water DSP to a revised figure of **\$986** per ET.

## Sewer charges

### 1) West Middle Harbour Sewer

The DSP sets out peak day discharge ETs as follows:

	1970	1996	2030
System Demand (Peak Day ET)	61,494	65,757	78,345
% of pre 1996 costs included in the developer charge			75%
Existing costs included in the developer charge (\$M)			\$26.96
Proposed costs included in the developer charge (\$M)			\$8.22

The DSP charges ETs predicted post-1996 up to **2030** for 75% of the entire asset costs. This is based on the SWC calculation that does not include ETs prior to 1970.

UDIA's contention is that all ET's, pre- and post-1970, in the catchment area are serviced by the assets as listed, and the cost of assets should be shared across all ETs using them, and that the DSP cost allocation as per UDIA calculation in the table below.

<b>West Middle Harbour sewer development rates</b>			
	<b>ETs</b>	<b>SWC Ratio</b>	<b>UDIA revised ratio</b>
Existing Developments at 1970	61,494		78.5%
Existing Developments at 1996	65,757		
Developments 1970 - 1996	4,263	25.0%	5.4%
Projected Developments 1996 -2030	12,588	<b>75.0%</b>	<b>16.1%</b>
Total Developments post 1970 - 2030	16,851	100.0%	
Predicted Developments by 2030	78,345		100.0%

On this basis, the cost share for ETs predicted between 1996 and 2030 reduces from Sydney Water's 75.0% of asset costs to **16.1%**.

UDIA also contends that new DSPs should have existing and future assets amortised from 1996 to the starting date of the new DSP, and the fair cost proportion of these assets divided by the present value of future DSPs starting from the new DSP date.

When the cost share of existing assets to be paid for by future ETs is adjusted from 75.0% to 16.1% and both the present value of the asset share and the present value of future ETs are adjusted to a 2001 start date, the capital works charge is reduced from the SWC figure of \$3,215 per ET in the West Middle Harbour Sewer DSP to a revised figure of **\$1,075** per ET.

## 2) Wollongong Sewer

The DSP sets out peak day discharge ETs as follows:

	<b>1970</b>	<b>1996</b>	<b>2030</b>
<b>System Demand (Peak Day ET)</b>	27,885	72,513	90,701
<b>% of pre 1996 costs included in the developer charge</b>			29%
<b>Existing costs included in the developer charge (\$M)</b>			\$18.51
<b>Proposed costs included in the developer charge (\$M)</b>			\$7.05

The DSP charges predicted ETs post-1996 up to **2030** for 75% of the entire asset costs. This is based on the SWC calculation where ETs before 1970 are not included.

The DSP states on P. 12 that “Wollongong sewerage system will radically change in late 2003 when, under the Illawarra Wastewater Strategy, Bellambi and Port Kembla STP’s will be consolidated into an amplified and upgraded Wollongong STP. The upgraded (Wollongong) STP will receive all dry weather flows transferred from the Bellambi and Port Kembla STP catchments”.

The new transfer system will comprise:

3. a pumping station and 10kms of 750mm rising main to transfer dry weather flows from Bellambi STP to Wollongong STP
4. a pumping station and 6kms of 750mm diameter rising main to transfer dry weather flows from Port Kembla STP to Wollongong STP.

The Sydney Catchment Authority has advised that the Illawarra Wastewater Strategy’s ultimate aim is to treat and reuse all the Illawarra’s wastewater in the Port Kembla Steelworks operated by Bluescope Steel. Reuse of treated effluent in the steelworks will ultimately save 40ML per day of potable water currently being used there. The steelworks consume about 40% of the total potable water usage of the Illawarra region.

UDIA’s contention is that all ET’s, pre- and post-1970, in the catchment area are serviced by the assets as listed, and the cost of assets should be shared across all ETs using them as calculated in the following table. It is especially obvious in this example that dry weather flows from **all** tenements in the Illawarra will be transferred from Bellambi and Port Kembla STP’s via the new transfer system to the augmented and upgraded Wollongong STP.

<b>Wollongong Sewer Development Rates</b>			
	<b>ETs</b>	<b>SWC Ratio</b>	<b>UDIA revised ratio</b>
Existing Developments at 1970	27,885		30.7%
Existing Developments at 1996	72,513		
Developments 1970 – 1996	44,628	71.0%	49.2%
Projected Developments 1996 - 2030	18,188	<b>29.0%</b>	<b>20.1%</b>
Total Developments post 1970 - 2030	62,816	100.0%	
Predicted Developments by 2030	90,701		100.0%

On this basis, the cost share for ETs predicted between 1996 and 2030 reduces from Sydney Water’s 29.0% of asset costs to **20.1%**.

UDIA also contends that new DSPs should have existing and future assets amortised from 1996 to the starting date of the new DSP, and the fair cost proportion of these assets divided by the present value of future DSPs starting from the new DSP date.

When the cost share of existing assets to be paid for by future ETs is adjusted from 29.0% to 20.1% and both the present value of the asset share and the present value of future ETs are adjusted to a 2001 start date, the capital works charge is reduced from the SWC figure of \$2,833 per ET in the Wollongong Sewer DSP to a revised figure of **\$1,044** per ET.

### 3) Rouse Hill Sewer

The DSP sets out peak day discharge ETs as follows:

	1970	1996	2030
<b>System Demand (Peak Day ET)</b>	0	2,109	52,184
<b>% of pre 1996 costs included in the developer charge</b>			96%
<b>Existing costs included in the developer charge (\$M)</b>			\$30.30
<b>Proposed costs included in the developer charge (\$M)</b>			\$21.81

The DSP charges predicted ETs post-1996 to **2030** for 96% of the entire asset costs. This is based on the SWC calculation that excludes ETs prior to 1970.

UDIA's contention is that all ET's in the catchment area, before and after 1970, are supplied from the assets as listed, and the cost of assets should be shared across all ETs using them as per the calculation in the following table.

<b>Rouse Hill sewer development rates</b>			
	ETs	SWC Ratio	UDIA revised ratio
Existing Developments at 1970	0		0
Existing Developments at 1996	2,109		
Developments 1970 - 1996	2,109	4.0%	4.0%
Projected Developments 1996 - 2030	50,075	<b>96.0%</b>	<b>96.0%</b>
Total Developments post 1970	52,184	100.0%	100.0%
Predicted Developments by 2030	52,184		100.0%

On this basis, the cost share for ETs predicted between 1996 and 2030 remains at the Sydney Water level of 96.0% of asset costs.

UDIA also contends that new DSPs should have existing and future assets amortised from 1996 to the starting date of the new DSP, and the fair cost proportion of these assets divided by the present value of future DSPs starting from the new DSP date.

When the present value of the asset share and the present value of future ETs are adjusted to a 2001 start date, the capital works charge increases from the SWC figure of \$1,728 per ET in the Rouse Hill Sewer DSP to a revised figure of **\$1,782** per ET.

#### 4) Penrith Sewer

The DSP sets out peak day discharge ETs as follows:

	1970	1996	2030
<b>System Demand (Peak Day ET)</b>	10,952	24,152	41,449
<b>% of pre 1996 costs included in the developer charge</b>			57%
<b>Existing costs included in the developer charge (\$M)</b>			\$37.76
<b>Proposed costs included in the developer charge (\$M)</b>			\$2.26

The DSP predicted ETs post-1996 up to **2030** for 57% of the entire asset costs. This is based on the SWC calculation where no ETs prior to 1970 are included.

UDIA's contention is that all ET's, pre- and post-1970, in the catchment area are serviced by the assets as listed, and the cost of assets should be shared across all ETs using them, and that the DSP cost allocation should be recast as follows:

<b>Development Rates</b>			
	ETs	SWC Ratio	UDIA revised ratio
Existing Developments at 1970	10,952		26.4%
Existing Developments at 1996	24,152		
Developments 1970 - 1996	13,200	43.0%	31.8%
Projected Developments 1996-2030	17,297	<b>57.0%</b>	<b>41.8%</b>
Total Developments post 1970-2030	30,497	100.0%	
Predicted Developments by 2030	41,449		100.0%

On this basis, the cost share for ETs predicted between 1996 and 2030 reduces from Sydney Water's 57.0% of asset costs to **41.8%**.

UDIA also contends that new DSPs should have existing and future assets amortised from 1996 to the starting date of the new DSP, and the fair cost proportion of these assets divided by the present value of future DSPs starting from the new DSP date.

When the cost share of existing assets to be paid for by future ETs is adjusted from 57.0% to 41.8% and both the present value of the asset share and the present value of future ETs are adjusted to a 2001 start date, the capital works charge is reduced from the SWC figure of \$2,527 per ET in the Penrith Sewer DSP to a revised figure of **\$1,996** per ET.