

**Independent Pricing and
Regulatory Tribunal
Review of Sydney Water Trade Waste
Costs and Charges**

2 December 2011

Lucy Garnier
Water Program Manager
IPART
Level 8, 1 Market St
Sydney NSW 2000

2 December 2011

Dear Ms Garnier

Re: Review of Sydney Water Trade Waste Costs and Charges

Please find attached our final report on Sydney Water's proposed trade waste costs and charges. We would like to thank the staff of both the Independent Pricing and Regulatory Tribunal and Sydney Water for assisting us with collecting data and developing the report.

If you have any questions in relation the report, please do not hesitate to contact me on 03 9671 6648 or Michael Black on 03 9671 7764.

Yours sincerely



Paul Liggins
Partner
Deloitte Touche Tohmatsu Ltd

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In preparing this Report we have relied on the accuracy and completeness of the information provided to us by Sydney Water, IPART and from publicly available sources. We have not audited or otherwise verified the accuracy or completeness of the information. We have not contemplated the requirements or circumstances of anyone other than IPART.

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Executive Summary

Background

Deloitte and the Strategic Economics Consulting Group (SECG) have been engaged by IPART to assist it in examining the cost reflectivity and efficiency of Sydney Water's proposed trade waste charges. There are four key tasks within the scope of work:

- Assess the methodology that Sydney Water has employed to allocate costs to trade waste services
- Assess the cost reflectivity of trade waste charges for the period 1 July 2008 to 30 June 2012 to the extent necessary to assess the cost reflectivity of the proposed trade waste charges
- Compare how trade waste charges are calculated, and practices for the same services across similar metropolitan agencies (including overseas systems if appropriate), identifying any clear differences and investigating and commenting on the reasons for the differences
- Assess and review Sydney Water's charging approach against IPART's Trade Waste Pricing Principles.

Efficient cost and drivers

Sydney Water divides its trade waste costs into three primary areas:

- Ancillary costs – such as the costs of establishing and managing discharge agreements with commercial and industrial customers, undertaking inspections etc
- Pollutant and quality costs – the costs associated with treating trade waste at sewerage treatment plants
- Wastesafe cost – the cost associated with administering Sydney Water's tracking system used to monitor the generation, collection transportation and disposal of liquid waste.

The following table sets out Sydney Water's current and forecast costs for trade waste.

Table 1 Sydney Water's current and forecast trade waste costs (\$2011-12, 000s)

	Current regulatory period				Next regulatory period			
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Ancillary	6,936	5,850	4,764	4,707	4,359	4,085	3,963	3,810
Pollutant and quality	19,594	18,750	18,270	19,158	18,591	18,211	17,846	17,497
Waste safe	828	1,650	1,570	1,367	1,244	1,199	1,077	1,050
Total	27,357	26,250	24,604	25,232	24,195	23,495	22,885	22,357

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls.

Note: Wastesafe costs shown exclude payments to depots (that is, they include only the actual costs to Sydney Water of administering the Wastesafe system. See section 2.4 for further details).

Summary of key findings and conclusions – trade waste costs

We have reviewed Sydney Water's proposed trade waste costs in order to assess:

- Whether the proposed costs reflect the efficient costs of providing trade waste services

Deloitte: Review of Sydney Water Trade Waste Costs and Charges

- Whether Sydney Water has employed an appropriate methodology in allocating costs to trade waste services.

This review provides the basis for our assessment of the extent to which Sydney Water's charges reflect these costs (or an alternative estimate of efficient costs) and are consistent with the IPART Trade Waste Pricing Principles.

In some cases it has been difficult to assess proposed costs against historic benchmarks for efficiency and reasonableness due to:

- The lack of data on historic costs, particularly costs over 2009-10 and 2010-11, as Sydney Water has indicated that the majority of costs and approaches used to develop the proposed trade waste costs have been referenced back to 2008-09
- Changes in business processes, both for delivering services and also for allocating and recording budgets.

In general, we have found that Sydney Water has applied appropriate methodologies for identifying and allocating costs. However, there are a few exceptions where further work, clarifications or amendments may be required to ensure that only efficient costs are recovered through trade waste charges. The key issues we have identified concern the following:

- **Allocation of corporate overheads** – given the magnitude of Sydney Water's corporate operating expenditure forecasts, the decision not to allocate a share of corporate overheads to trade waste results in significantly lower costs being allocated to trade waste than if the same approach to allocating these costs to other areas had been applied. Sydney Water has advised that its decision not to include corporate overhead costs to trade waste customers was based on a number of factors, including that trade waste customers are served by a dedicated team and IT system, with administration, customer support and management costs included. Sydney Water has also noted that its approach is consistent with the IPART pricing principles. Based on the advice provided by Sydney Water and in the context of the significant price increases proposed for many trade waste charges, we consider that Sydney Water's approach to corporate overheads is appropriate for this review. For future reviews Sydney Water should provide more detail on the composition of corporate operating expenditure and apply a consistent approach to allocating these across the business.
- **Allocation of pollutant and corrosion costs** – Sydney Water's 'top down method' of allocating costs may be producing overly generalised results, which limits the ability of charges to reflect efficient costs and provide signals about differences in treatment costs at different locations. While we consider that this approach is acceptable for the current review, Sydney Water should consider a more detailed, bottom up approach for future reviews which accurately reflects the incremental costs of treating trade waste. Sydney Water has advised that in future reviews, detailed assessment of a broader range of treatment plants will be included
- **Wastesafe costs** – Sydney Water has proposed significant increases in costs of administering the Wastesafe system, largely due to increases in IT contract costs. From our review of Sydney Water's documentation concerning the updated IT system and contract variations, we consider that the costs of the IT system used to develop the charges are not supported by the documentation provided by Sydney Water (costs overstated by around \$213 000). We have recommended that these costs be excluded when calculating charges to recover Wastesafe costs.

Trade waste charges

Sydney Water has proposed a number of changes to its trade waste charges for the next regulatory period, reflecting both the under-recovery of costs identified over the course of the current period, and also some revised approaches to structuring charges.

Waste quality charges

For industrial waste quality charges, Sydney Water has identified a core set of substances which significantly drive trade waste related costs and is proposing to adjust the charges set as follows:

- BOD – increase charges by 71 per cent for primary wastewater treatment plants and 121 per cent for secondary/tertiary plants
- Suspended solids – reduce charges by 49 per cent for primary plants and increase charges by 49 per cent for secondary plants
- Grease – reduce charges by 67 per cent for primary treatment plants
- Nitrogen – remove charge for primary plants and increase charge for secondary / tertiary plants by 754 per cent
- Phosphorous – remove charge for primary plants and increase charge for secondary / tertiary plants by 286 per cent
- Temperature – introduce new charges
- pH – introduce new charges.

For commercial waste quality charges, Sydney Water is proposing to reduce the current number of chargeable processes from 66 to 8.

Ancillary charges

For ancillary charges, Sydney Water is proposing the following changes for the next regulatory period:

- Consolidation of industrial agreement charges from seven to three (while maintaining seven risk levels), based on revised inspection schedules for each risk level
- Increasing charges to improve cost recovery (commercial agreement charges and application fees for industrial customers)
- Revising charges for additional inspections by adding a minimum charge and increasing the hourly rates for inspections, reflecting Sydney Water investigations which have identified significant effort in managing compliance and additional costs for inspections
- Reducing fees for the sale of trade waste data.

Wastesafe charges

For the next regulatory period, Sydney Water is proposing to cease its current per litre charges for Wastesafe customers, and transfer responsibility for billing customers for the treatment and processing of waste to contractors who clean the traps and transport the waste from customers' premises.

Sydney Water is proposing to introduce the following charges to recover its costs for Wastesafe:

- A fixed charge per waste trap
- Charges for inspections required as a result of missed pump-outs (i.e. 'missed service charges').

Summary of key findings and conclusions – trade waste charges

We have reviewed Sydney Water's proposed trade waste charges in order to:

- Assess the cost reflectivity of trade waste charges for the period 1 July 2008 to 30 June 2012 to the extent necessary to assess the cost reflectivity of the proposed trade waste charges
- Compare how trade waste charges are calculated, and practices for the same services across similar metropolitan agencies (including overseas systems if appropriate), identifying any clear differences and investigating and commenting on the reasons for the differences

- Assess and review Sydney Water's charging approach against IPART's Trade Waste Pricing Principles.

We have applied the principle that charges should be cost-reflective as the key consideration. In the context of trade waste, this is necessary to provide appropriate signals to customers concerning incentives to reduce or apply pre-treatment processes to waste.

However, cost reflectivity needs to be balanced against considerations of how effective price signals are likely to be in relation to the complexity or simplicity of charges. This is particularly important given that many costs are 'allocated' rather than 'direct', which may dilute the efficiency of more complex pricing structures.

In cases where we have identified issues concerning the robustness and appropriateness of Sydney Water's approach to determining charges, we have provided alternative estimates or approaches for setting charges. This has primarily occurred where:

- We consider that the costs being recovered are not efficient or there are issues with the allocation of costs
- We consider that the charges being proposed are not cost reflective, or are unlikely to recover Sydney Water's costs.

Waste quality charges

While average increases in industrial and commercial waste quality charges are relatively moderate, some customers are likely to face significant increases in bills. These customer impacts are exacerbated by Sydney Water's proposal to apply price increases fully (or almost fully) in the first year of the next regulatory period.

Pending the results of Sydney Water's consultation with customers on transitioning to full cost recovery, we recommend that Sydney Water implement transitional arrangements for waste quality charges. One way of doing this would be to work towards full cost recovery by the last year of the regulatory period.

Sydney Water should reconsider the removal of sulphate charges in the context of its criticality in creating corrosive conditions. In the event that Sydney Water maintains its decision to remove sulphate charges, we consider that it should undertake work to identify the primary sources of sulphate and take steps to manage sulphate levels as appropriate.

While Sydney Water's revision to the number of commercial process codes is contradictory to IPART's pricing principle concerning locational signals, we consider that on balance, the changes proposed are appropriate due to the reduced administration costs and apparent customer support. However, we recommend that Sydney Water undertake customer consultation to understand any customer impact issues. While we note that Sydney Water is proposing to inform its Business Customer Forum commencing 30 November 2011, customer consultation on impacts would have been beneficial prior to IPART's review process, so that any reasonable changes can be made.

Ancillary charges

Our key finding with respect to Sydney Water's proposed ancillary trade waste charges was the expected under-recovery of costs over the next regulatory period, amounting to \$823 000 and potentially significant customer impacts due to the majority of the price increase being applied in the first year of the next regulatory period.

Sydney Water has advised that its proposed prices were set to achieve almost full cost recovery by 2015-16 (with under-recovery in this year of only 2.2 per cent of costs), and also noted that applying a transition period to full cost recovery would result in much larger cost under-recovery.

Charges should be set with the aim of full cost recovery based on the most accurate information available at the time. Addressing the under-recovery identified would require charges to be increased and could potentially exacerbate customer impacts. However, given the significant increases required

to move towards cost recovery over the next regulatory period, relatively minor under-recovery of costs forecast by Sydney Water, and potential for greater customer impacts for increasing cost recovery, we consider that Sydney Water's proposed ancillary charges are appropriate. We also note that the increases to fixed ancillary charges, while significant in percentage terms, are less significant in absolute terms and are therefore less likely to result in severe customer impacts than increases in waste quality charges.

For future reviews, Sydney Water should develop its pricing proposals based on full cost recovery and undertake earlier customer consultation to inform its pricing proposals and understand any customer impacts more clearly.

Wastesafe charges

Our key findings with respect to Wastesafe charges are the inconsistency between the IT costs used by Sydney Water to set charges and the IT costs approved in the contract variation documentation provided as part of this review. Accordingly, we have recommended that Sydney Water reduce its fixed Wastesafe charges to ensure cost recovery based on the costs set out in the contract variation documentation provided by Sydney Water (on the basis of current expectations of the number of traps as set out in Sydney Water's Trade Waste Cost Model).

The table below summarises Deloitte's recommended Wastesafe ancillary charges for Sydney Water for the next regulatory period.

Table 2 Recommended adjustments to Sydney Water Wastesafe charges (\$2011-12)

	Charges	Units	2012-13	2013-14	2014-15	2015-16
Sydney Water proposal	Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	102.30	102.30	102.30	102.30
Deloitte recommendation	Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	92.85	92.85	92.85	92.85

Source: Sydney Water proposal and Deloitte analysis

In addition, we have made the following recommendations and observations regarding Sydney Water's proposed missed service charges:

- Sydney Water's submission to IPART is unclear as to how and when missed service charges would apply. Further information provided by Sydney Water has clarified the approach to levying missed service charges (i.e. when two consecutive services are missed). Sydney Water should ensure that its policy on the application of these charges is made clear to customers prior to their introduction
- We also note that Sydney Water has not provided any forecasts of revenue from missed service charges. Further information provided by Sydney Water identified that it currently experiences around 2,600 events that would accrue a charge per annum, but also noted that it expects the introduction of the missed service charge to significantly reduce this amount. Sydney Water also noted that the (marginal) costs associated with managing missed service events were not included in the calculation of charges. However, we consider that most of the costs of managing compliance will be reflected in the largely fixed business customer service costs identified by Sydney Water (i.e. labour and non-labour ancillary costs). However, we agree that the new charge is likely to reduce non-compliance significantly, and also note that Sydney Water is forecasting significant reductions in its overall trade waste costs (not least of which is the assumption that efficiency gains will offset the 4 per cent increase in wage rates in the EBA). Therefore, we have not recommended any adjustments to Sydney Water's Wastesafe charges. For future reviews Sydney Water should ensure that it includes revenue forecasts for missed services events in the calculation of its Wastesafe charges.

1 Introduction

1.1 Background

1.1.1 Sydney Water trade waste services

Sydney Water Corporation (Sydney Water) is Australia's largest water utility, with over 3000 staff. It collects and treats more than 1.3 billion litres of wastewater each day through over 22 000 km of sewer pipes in 24 sewerage systems, with 29 wastewater treatment plants, and provides drinking water, recycled water, wastewater (including trade waste) and storm water services to 4.4 million people in Sydney, Illawarra and the Blue Mountains.

Trade waste is defined as any liquid and any substances contained in it, which may be produced at the premises in an industrial and commercial activity, but does not include domestic wastewater (e.g. from hand-basins, showers & toilets). Acceptance of trade waste by the sewerage system is subject to Sydney Water's Trade Waste Policy and Management Plan.

Sydney Water monitors the quality of the waste at many points in its systems, including at the point of discharge. Customers wishing to dispose of trade waste must have a permit and comply with standards determined by Sydney Water requiring appropriate pre-treatment of wastewater before it enters the sewerage system. Pretreatment equipment is also subject to maintenance standards approved by the NSW Office of Environment and Heritage. Trade waste customers pay charges to Sydney Water that cover the costs of transporting and treating wastewater, to encourage them to reduce and pre-treat their wastewater where efficient to do so.

1.1.2 2012 review of prices

The Independent Pricing and Regulatory Tribunal (IPART) is the economic regulator responsible for setting the maximum prices that can be charged by NSW metropolitan water businesses for their monopoly services. IPART is conducting a review under Section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992* to determine Sydney Water's charges for the provision of water, sewerage, storm water, trade waste and other ancillary and miscellaneous services. This review will set maximum charges for Sydney Water customers for up to five years, commencing 1 July 2012. One of IPART's key roles in this review is to ensure that only the efficient costs of providing Sydney Water's regulated monopoly services are passed through to customers. Charges for the acceptance of trade waste into the sewerage system are being considered by IPART as part of this price review.

In the 2008 Sydney Water price review, IPART accepted Sydney Water's proposal to maintain the previous period's trade waste charges, adjusted for inflation. As part of its 2008 review IPART signalled its intention to carry out a more detailed review of Sydney Water's trade waste charges as part of the 2012 price review.

In aid of this, IPART has established a set of Trade Waste Pricing Principles to apply to metropolitan water businesses going forward, as follows:

- Standards for acceptance of trade waste should be set on the basis of the capacity of current systems to treat wastes
- Trade waste charges should at least cover the (efficient) costs to the water supplier of handling these wastes
- Charges should vary to reflect differences in the cost of treating waste to the required standards at particular locations
- Water suppliers should set charges and standards in a manner that is transparent and accurate, and the basis for setting charges should reflect costs incurred as far as possible.

As agreed with IPART at the commencement of this engagement, our review focuses on the latter three of the pricing principles.

In June 2011, IPART published an Issues Paper to explain how its review of Sydney Water's prices will be undertaken, inviting submissions from stakeholders on general and specific issues related to the review. To date, IPART has received one submission that commented specifically on Sydney Water's proposed trade waste pricing, from the Australian Sustainable Business Group.

IPART's final report on Sydney Water's prices will be released in June 2012.

1.2 Scope of our review

Deloitte and Strategic Economics Consulting Group (SECG) have been engaged by IPART to assist it in examining the cost reflectivity and efficiency of Sydney Water's proposed trade waste charges. There are four key tasks within the scope of work:

- Assess the methodology that Sydney Water has employed to allocate costs to trade waste services
- Assess the cost reflectivity of trade waste charges for the period 1 July 2008 to 30 June 2012 to the extent necessary to assess the cost reflectivity of the proposed trade waste charges
- Compare how trade waste charges are calculated, and practices for the same services across similar metropolitan agencies (including overseas systems if appropriate), identifying any clear differences and investigating and commenting on the reasons for the differences
- Assess and review Sydney Water's charging approach against IPART's Trade Waste Pricing Principles.

1.3 Structure of this report

This report outlines Deloitte and SECG's advice to IPART concerning Sydney Water's proposed trade waste costs and prices.

- Chapter 2 sets out our assessment of Sydney Water's proposed costs for trade waste services
- Chapter 3 assesses the extent to which Sydney Water's charges reflect these costs (or an alternative estimate of efficient costs) and are consistent with the IPART Trade Waste Pricing Principles.

2 Efficient costs and cost drivers

2.1 Overview

Sydney Water divides its trade waste costs into three primary areas:

- Ancillary costs – such as the costs of establishing and managing discharge agreements with commercial and industrial customers, undertaking inspections etc
- Pollutant and quality costs – the costs associated with treating trade waste at sewerage treatment plants
- Wastesafe cost – the cost associated with administering Sydney Water’s tracking system used to monitor the generation, collection transportation and disposal of liquid waste.

The following table sets out Sydney Water’s current and forecast costs for trade waste.

Table 3 Sydney Water's current and forecast trade waste costs (\$2011-12, 000s)

	Current regulatory period				Next regulatory period			
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Ancillary	6,936	5,850	4,764	4,707	4,359	4,085	3,963	3,810
Pollutant and quality	19,594	18,750	18,270	19,158	18,591	18,211	17,846	17,497
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Total	27,357	26,250	24,604	25,232	24,195	23,495	22,885	22,357

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls.

Note: Wastesafe costs shown exclude payments to depots (that is, they include only the actual costs to Sydney Water of administering the Wastesafe system. See section 2.4 for further details).

2.2 Pollutant and quality costs

2.2.1 Wastewater treatment plant costs

Sydney Water’s wastewater treatment system comprises three main treatment levels:

- Primary – consists of screening, partial suspended solids, BOD, oil and grease removal, sludge digestion and biosolids disposal.
- Secondary – includes the above and additional BOD removal
- Tertiary – includes above processes and additional removal of phosphorous and nitrogen.

In the wastewater treatment system, trade waste is managed using essentially the same processes as domestic waste with incrementally higher operating costs required to manage the more concentrated wastewater stream caused by trade waste.

The wastewater treatment system does not have any specific assets that are exclusively used to treat trade waste and as such the majority of costs associated with treating trade waste are derived from a proportional allocation of wastewater treatment system costs.

The most recent investigation undertaken by Sydney Water in relation to wastewater treatment costs was done in 2008-09 when the Strategic Asset Management team collated operating and asset costs for three of Sydney Water's primary treatment plants: Malabar and North Head (as deep ocean plants); and St Marys (as an inland plant). Operating costs were then categorised into six key drivers, with an additional driver related to assets, as set out below:

- Energy
- Maintenance
- Load Based Licence (LBL) fees
- Chemicals
- Biosolids
- Other costs (asset and system planning, plant operations, operations projects, laboratory testing/sampling/monitoring)
- Asset costs (depreciation, return on assets).

Total wastewater treatment costs were determined from a variety of sources, however all data is referenced from the 2008-09 investigations. Sydney Water presented a summary of the wastewater treatment costs in Appendix 22 (Table 22.1) of its submission to IPART. The data presented is shown below in Table 4.

Table 4 Sydney Water's Wastewater Treatment and Trade Waste Costs (\$2011-12, 000s)

	Driver of TW costs		TW costs	Sewerage costs	Total STP costs	% of costs allocated to TW
	Ocean STP	Inland STP	\$ 000's	\$ 000's	\$ 000's	
Energy	none	BOD	1,354	20,794	22,148	6%
Maintenance	SS, grease	BOD, SS, grease, P, N	1,109	28,607	29,716	4%
LBL fees	SS, grease	P, N	236	7,445	7,681	3%
Chemicals	BOD, SS	BOD, P, N	197	7,513	7,710	3%
Biosolids	BOD, SS, grease	BOD, SS, grease	2,879	22,892	25,771	11%
Other opex	BOD, SS, grease	BOD, SS, grease, P, N	2,664	33,427	36,091	7%
Total opex			8,439	120,678	129,116	7%
Asset costs [1]	BOD, SS, grease	BOD, SS, grease, P, N	5,965	71,652	77,617	8%
Total opex and asset costs			14,404	192,329	206,733	7%

Ref: "STP cost drivers 0809" from "Copy of Sydney Water_Trade Waste_October 2011 (eric).xls".

Notes: 1. asset costs represent asset depreciation and return on asset (ROA), both based on Regulated Asset Base (RAB) asset values

The total STP costs identified in Table 4 are derived from a combination of sources within the overall trade waste model including measured energy consumption, Sydney Water's Activity Based Costing model, and load based licensing data.

The trade waste costs for each of the seven categories listed in Table 4 are derived from the total STP costs using a pollutant mass and location specific allocation method shown in Table 5 below.

Table 5 Trade waste cost allocation method

Trade Waste Pollutant	Allocation Percentage						
	St. Marys	Other inland STPs	Other ocean STPs	North Head	Bondi	Malabar	SWC total
BOD	8.3%	13.3%	10.5%	26.3%	22.3%	26.1%	21.5%
Suspended Solids	2.0%	2.3%	2.7%	4.2%	4.5%	2.4%	3.0%
Grease and oil	1.4%	1.6%	1.8%	1.7%	9.3%	1.6%	1.9%
Phosphorous	0.7%	2.1%					1.9%
Nitrogen	0.4%	0.9%					0.8%

Source: "TW SUMMARY 08-09" from "Copy of Sydney Water_Trade Waste_October 2011 (eric.xls)".

The percentages above represent the proportion of trade waste only mass of each pollutant (or driver as identified in Table 4) as a percentage of the total mass of each pollutant measured at the treatment plant.

The costs associated with each trade waste pollutant are calculated by applying the allocation percentage in Table 5 above to the total cost of treating the pollutant at the treatment plant. For example, at St Marys STP, the trade waste BOD related maintenance cost (\$39k, nominal) is calculated by multiplying the total BOD related maintenance cost (\$468k, nominal) by the allocation percentage in Table 5 above (8.3%).

While this method provides a standardised approach to allocating costs related to trade waste, a number of assumptions are implied in the approach, in particular that the cost of treating each pollutant at each plant is related only to the mass of the pollutant rather than the type of pollutant. This is clearly not the case as evidenced by the varied charges for each pollutant. The locational variation in cost allocation shown in Table 5 above does not necessarily represent the differential cost of treating pollutants, merely the differing proportions of each pollutant compared to the total pollutant load. Again by using this generalised approach, the implied assumption appears to be that the costs of treatment are the same for each pollutant.

The approach used by Sydney Water to calculate the costs seems to be a 'top down' approach rather than a 'bottom up' approach, which would identify the actual costs of treating each specific pollutant. The top down method described makes it difficult to determine if the costs identified actually reflect the true costs of treatment. Reviewing the consistency of this approach with the principle of cost reflectivity is difficult, however our initial assessment was that it may not be consistent, and in particular, that it may produce generalised results.

In response to our initial view, Sydney Water has advised that:

- The approach was developed by a combined team of experts from Operations, Asset management and Finance areas, which considered objectives of the review, character of treatment processes and data availability.
- The implied costs of treatment differ. For example:
 - Biosolid costs were allocated only to BOD, suspended solids and grease (not phosphorous and nitrogen). The biosolids model weights the contribution of each of these pollutant (to reflect the contribution each makes to biosolids) For example solids result in bulking of the biosolids which then means additional truck movements)
 - For maintenance costs – the 'weighting' of grease was reduced to 25 per cent and the 'weighting' of suspended solids to 45 per cent
 - Some of the costs are not allocations but direct costs, e.g. Load Based License (LBL) fees and chemical costs related to phosphorous and nitrogen

- The top-down approach was necessary as a single treatment process serves to remove several pollutants. Costs of treatment for each individual pollutant are not directly measurable and can occur only through cost allocation.
- Sydney Water would welcome any advice on an alternative approach. However, consideration has to be given to the costs and benefits of this task (e.g. tracking costs on more detailed level would require significant effort and cost).

After considering Sydney Water's comments, our interpretation of the method of allocating costs remains is that it based on the ratio of pollutant mass to total mass with this ratio applied to the total costs to calculate the pollutant costs. The use of a ratio that depends only on the mass of pollutant implies that the unit cost of treatment is the same for each pollutant given that all other parameters are known and constant. The use of factors to allocate a certain percentage of costs as described is only an artificial means of allocation and it is not clear upon what basis the factors are derived.

A bottom up approach would break down the individual components of the treatment process and identify the specific costs associated with each stage of the process. Some objective assessment of whether higher strength trade waste would be harder or easier to treat can be made and then costs allocated on an appropriate basis.

For example, the first two stages of the primary treatment process are coarse debris screening and sand and grit removal. It is likely that the majority of material removed in these two stages comes from residential wastewater or objects entering the network via internal network degradation (cracks, holes, cross connections to storm water, etc.). The costs associated with these stages would cover the assets used (screens, pits) and the costs to remove and dispose of screenings. In this case the costs allocated to trade waste would be quite small or negligible.

The third stage in the process is primary clarification whereby the wastewater is processed with oil and grease, suspended solids, and biosolids partially removed. Costs associated with this stage would include any chemical dosing to assist the clarification process, asset costs (tanks, pits, pipes, pumps, etc.) and costs for removal and disposal of materials. Costs allocated to trade waste could be derived by determining the incremental increase in tank size to cater for BOD, SS, and oil and grease in trade waste stream, any increase in chemical dosing required, increases in sludge pumping costs, increased maintenance of assets due to more concentrated waste stream, decrease in asset life, etc.

The allocation of costs requires information on the specific costs of assets however this information should be available in the relevant asset registers. Proportional allocation of the specific costs identified above could be achieved using the current method of proportioning mass of pollutant over total mass. The difference with this alternative method is that the costs used are bottom up costs rather than top down costs.

We also note that Sydney Water's trade waste model is somewhat complicated and unwieldy with numerous work sheets that have little bearing on the determination of trade waste costs and charges and often present conflicting information. The model would benefit greatly from a reorganisation and simplification process. Sydney Water has advised the complexity is driven by the changes within the Trade Waste team and processes, resulting in a need to adopt a different approach to estimating future costs (in comparison to the 2008-09 analysis), and also that it is committed to undertaking a full review of the model prior to any future trade waste reviews.

Recommendations:

- We note that Sydney Water has advised that it is committed to reassessing costs but also maintains that the current approach is appropriate given the data availability and character of treatment processes. Nevertheless, we remain of the view that Sydney Water's top down method of allocating costs for trade waste needs to be reassessed as it may be producing inconsistent and generalised results. However, we also note that Sydney Water is likely to face significant time and costs constraints in terms of undertaking this reassessment prior to the next regulatory period
- Sydney Water should undertake a review and reorganisation of the trade waste model to simplify the model and reduce inconsistency and redundancy that complicates the review process. We note

that Sydney Water has committed to undertaking a full review of the model prior to any future trade waste reviews.

2.2.2 Corrosion costs

Sydney Water has identified that it incurs a significant annual cost in managing the corrosion of its wastewater network by chemical dosing and odour management and has stated that wastewater streams with high chemical/biological oxygen demands can lead to an increased need for chemical dosing.

In order to quantify the impact that trade waste streams had on corrosion rates, Sydney Water developed a corrosion cost model for the North Head wastewater treatment plant catchment. The results of the model produced unit rate costs for managing corrosion that were then applied by Sydney Water across the entire wastewater system to calculate the total trade waste corrosion costs. Table 6 below shows the total cost results.

Table 6 Corrosion Costs for 2008-09 (\$2011-12, 000s)

Cost driver	Trade Waste Annual Costs		Total
	Operating costs	Asset costs	
BOD	3,762	722	4,484
Temperature above 25°C	605	101	706
TOTAL	4,368	823	5,190

Sydney Water also determined that pH was a driver of corrosion costs, however it was not included in the cost base given a lack of information on pH levels across the wastewater catchments. The additional cost of corrosion management is equivalent to approximately 52 per cent of the total trade waste operating costs presented in Table 6.

Whilst the corrosion cost model approach appears to be relatively robust, the model includes a number of broad assumptions which could have material impacts on the costs developed. These assumptions include:

- Transportation costs represent an average of 20 per cent of the chemical costs
- Required chemical dosing levels and associated costs are the same across all wastewater treatment plant catchments
- Additional size of chemical storage tank required was 50 per cent the previous volume of storage
- No modelling has been undertaken concerning potential interactions between parameters/scenarios that might affect results.

The use of a standardised approach to applying corrosion based charges significantly simplifies the approach however it also raises issues regarding whether the approach is consistent with the IPART Trade Waste Pricing Principles of cost reflectivity and the ability to give locational signals.

While these assumptions have the potential to materially impact on costs, the general approach is considered reasonable, however further investigations on the assumptions used would likely produce results that are more consistent with the pricing principles.

Recommendation:

- Sydney Water should undertake further work on the assumptions made in the corrosion cost model to ensure that they do not over generalise the results and that the model is consistent with the trade waste pricing principles with respect to reflecting efficient costs and signalling the costs of treatment in different locations.

2.2.3 Pollutant unit cost allocations

Sydney Water is proposing significant changes to pollutant unit cost allocations across the wastewater network including:

- Addition of corrosion related costs to the BOD costs
- Significant shift of costs from primary to secondary treatment plants
- Removal of phosphorous and nitrogen costs from primary treatment plants
- Removal of sulphate, ammonia, total dissolved solids and numerous other non-domestic pollutant related costs incorporating these into the basic wastewater charges
- Introduction of pH and temperature based costs for primary and secondary treatment plants.

The resulting unit costs are shown in below.

Table 7 Pollutant unit costs (\$2011-12)

Pollutant	Units	2008-09 charges	Costs (opex and asset costs; include corrosion costs)		
			North Head, Bondi, Malabar (primary)	Other (secondary and tertiary)	Sydney Water Average
BOD – treatment only	\$/tonne	Primary treatment 114 + [16.9 x (BOD kg/L) / 600] Secondary treatment 641 + [16.9 x (BOD kg/L) / 600]	242.99	1,573.14	447.16
BOD – treatment and corrosion	\$/tonne	n/a	422.03	1,752.19	626.21
SS	\$/tonne	814	439.71	1,272.64	651.30
Grease	\$/tonne	1,147	396.38	1,216.02	616.23
Phosphorous	\$/tonne	1,321	n/a	5,167.70	5,167.70
Nitrogen	\$/tonne	161	n/a	1,441.98	1,441.98
pH	\$/1pH/ML	None		54.8	
Temperature	\$/1oC/ML	None		576.4	
Sulphate	\$/tonne	126 x [SO4 mg/L] / 2,000		None	
Total dissolved solids (TDS)	\$/tonne	5.5 if no advanced treatment; 164 x fraction of average dry weather flow treated		None	

The basis for the costs presented in Table 7 appears to be reasonable with the costs deriving from the relevant components of the trade waste model.

2.2.4 Updating costs from 2008-09

Sydney Water has indicated that the majority of costs and approaches used to develop the proposed trade waste costs have been referenced back to 2008-09. Escalation figures have been used to update figures however no substantial analysis of costs has been undertaken since 2008-09. Sydney Water indicated that a review of the analysis conducted in 2008-09 was undertaken prior to developing the current submission however no major changes to the treatment processes were identified that would suggest the analysis was not still valid.

At present, the figures used are at least three to four years old and by the time the proposed regulatory period is completed, the figures will be at least seven to eight years old. Given the changes that would be expected to occur over this period, Sydney Water should endeavour to complete a comprehensive review of costs and provide updated figures in time for the following regulatory period.

2.2.5 Energy cost increases

Energy is a major cost input for trade waste services, constituting around 7 per cent of total trade waste costs. As discussed in section 2.2.1 above, Sydney Water allocated energy costs to pollutant classes according to treatment processes.

Sydney Water identified four key drivers of its forecast energy cost growth, as outlined in the following table for the February energy cost forecast.

Table 8 February energy cost forecast - drivers (\$/MWh, nominal)

	2011-12	2012-13	2013-14	2014-15	2015-16	Total increase 2011-12 to 2015-16
Regulated Network costs	58.0	64.7	69.1	74.2	77.9	19.9
<i>Annual % growth</i>		11%	7%	7%	5%	34%
Mandatory environmental charges	11.3	12.3	8.2	6.9	7.1	-4.2
<i>Annual % growth</i>		9%	-33%	-16%	3%	-37%
Retail energy costs	56.7	58.5	72.4	75.8	76.2	19.5
<i>Annual % growth</i>		3%	24%	5%	1%	34%
Cost of carbon	0.0	0.0	16.2	15.9	16.5	16.5
<i>Annual % growth</i>				-2%	4%	n/a
Total energy cost	126.0	135.4	166.0	172.9	177.8	51.8
<i>Annual % growth</i>		7%	23%	4%	3%	41%

Sources: Sydney Water, IPART – Sydney Water trade waste follow up questions, 3 November 2011; Information in response to IPART's Trade Waste Audit, Sydney Water's electricity volume assumptions, 27 October 2011.

Sydney Water provided the following details on these drivers of energy cost increase:

- Regulated network tariff costs were based on the Australian Energy Regulator's (AER) 2009-10 to 2013-14 network determinations for NSW for those years. For 2014-15 and 2015-16, Sydney Water has relied on advice provided by consultant Energetics suggesting average annual network cost increases of 10 per cent. Sydney Water assumed that a 7 per cent real increase in regulated network tariffs in 2015-16 would apply to waste water services, based on the peak/off peak usage profile of waste water management as compared to the rest of its business. This is reflected in Table 8 above
- Mandatory environmental charges increases, including the costs of Renewable Energy Certificates, NSW Greenhouse Gas Reduction Scheme (GGAS) and Energy Saving Certificates, as advised by Energetics. These costs were assumed to decline from 2014-15 (as the schemes are assumed to be largely replaced by the Federal Government's proposed carbon policies)

- Retail and wholesale energy costs, based on a weighted average of electricity contract prices over the past 3 years. From 2012-13 onwards, Sydney Water has applied an additional fuel cost increase to account for expected increases in coal and natural gas price inputs to electricity generation. Fuel costs were expected to rise by \$5 per MWh from 2012-13 and up to \$15 per MWh in 2015-16.
- Carbon pricing of \$23/tonne commencing in the fourth quarter of 2012-13 was also applied to the energy cost forecasts. The carbon price is escalated by CPI for 2013-14, 2014-15 and 2015-16.

Network cost increases

Within Sydney Water's network region, there are two electricity distribution network businesses (Ausgrid and Endeavour Energy), and two electricity transmission network business (Ausgrid and TransGrid). The AER's 2009-10 to 2013-14 distribution determination for Ausgrid (formerly EnergyAustralia) and Endeavour Energy (formerly Integral Energy) (as varied by the Australian Competition Tribunal) resulted in the approval of annual distribution and transmission network price increases, as set out in the table below, which also lists the approved transmission network price increases for Ausgrid and TransGrid.

Table 9 Approved network price increases 2011-12 to 2013-14

	2011-12	2012-13	2013-14
Ausgrid - Distribution	18.18%	18.18%	0.77%
Ausgrid - Transmission	18.46%	18.46%	2.02%
Endeavour Energy - Distribution	13.00%	0.15%	1.72%
TransGrid - Transmission	5.61%	5.61%	5.61%

Source: Ausgrid Network Pricing Proposal for the Financial Year ending June 2012, 30 April 2011; AER Statement on updates for TransGrid transmission determination 2009-10 to 2013-14.

Based on the range of AER approved network tariff increases (from its 2009 distribution and transmission determinations for NSW) shown in Table 9 above, we consider that Sydney Water's February 2011 energy cost forecast may have overstated the regulated network tariff increases, in particular for 2013-14. Sydney Water has advised that in calculating its trade waste energy costs, it relied on average increases determined by the AER and that year on year variances would have a minimal effect on trade waste costs.

Retail and wholesale energy costs and carbon price

The information provided by Sydney Water indicates that it has assumed fuel price rises of \$5 to \$15 per MWh over the next regulatory period, in addition to the impact of carbon pricing. Sydney Water indicated that these fuel price rises are anticipated due to the imminent ending of contracts underpinning NSW power generation assets. Sydney Water then separately added carbon price impact onto its forecast energy costs.

Consistency with expenditure forecasts

Sydney Water prepared its trade waste cost forecast using a forecast of energy costs prepared in February 2011. However, Sydney Water has advised Deloitte that the remainder of its pricing proposal (i.e. water and wastewater) is based on an updated energy cost forecast, which differs in that it accounts for the introduction of carbon pricing several quarters earlier than the February 2011 forecast, as well as applying some updated assumptions regarding the way that the carbon pricing would impact energy prices. Sydney Water stated that it did not update its trade waste model

assumptions for the new energy cost forecast because the impact of the changes was small, while the effort required in making the changes was significant.²

Subsequent to Sydney Water providing its updated energy cost forecast, IPART's expenditure consultants (Atkins Business Analysis) provided Deloitte with an outline of the energy cost forecast used by Sydney Water in determining costs for the rest of its business. This energy cost forecast differed again from that provided by Sydney Water to Deloitte.

Table 10 outlines these three energy cost forecasts.

Table 10 Forecast energy cost increases 2010-11 to 2015-16 (nominal)

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Cumulative increase 2012-13 to 2015-16
Forecast used to determine proposed Trade Waste costs (February 2011)	10%	9%	11%	26%	7%	5%	57%
Sydney Water updated forecast	10%	12%	27%	8%	6%	5%	53%
Forecast used to determine other Sydney Water business costs			16%	11%	7%	7%	47%

Sources: Trade Waste Model, Sydney Water, IPART – Sydney Water trade waste follow up questions, 3 November 2011, email from expenditure consultations (Atkins Business Analysis), 11 November 2011.

The following table presents the impact on pollutant costs of replacing the February 2011 forecast (used in Sydney Water's Trade Waste Model) with each of the other forecasts. Pollutant cost escalations were applied directly to Sydney Water's current pollutant charges to develop Sydney Water's proposed pollutant charges.

Table 11 Annual pollutant cost escalation – Impact of different energy cost forecasts over 2012-13 to 2015-16 (% , real)

Energy cost forecast	2012-13	2013-14	2014-15	2015-16
Forecast used to determine proposed Trade Waste costs (February 2011)	0.60%	1.88%	0.49%	0.39%
Sydney Water updated forecast	1.74%	0.58%	0.42%	0.34%
Forecast used to determine other Sydney Water business costs	0.96%	0.78%	0.49%	0.51%

Source: Sydney Water Trade Waste Model, Deloitte analysis.

Note: Deloitte was not provided with Sydney Water's assumed energy cost increase applied to other business costs for 2011-12, accordingly this analysis presents data from 2012-13.

Sydney Water has advised that the energy forecasts used to determine its other business costs (provided to Deloitte by Atkins Business Analysis) are not directly comparable to the forecasts applied to trade waste, because the figures reported by Atkins do not incorporate the impact of carbon pricing.

Sydney Water also stated that the energy cost forecasts applied to trade waste (and updated in February 2011) only allocated energy costs to the main asset class affected by energy costs and not to the whole of trade waste costs (unlike the approach taken in forecasting energy costs for the rest of Sydney Water's business).

In principle, Deloitte recommends that the energy cost assumptions within Sydney Water's Trade Waste Model should be consistent with those applied to other energy cost forecasts within Sydney Water's proposal. However, we acknowledge that there may be reasons to apply different assumptions

² Sydney Water, IPART – Sydney Water trade waste follow up questions, 3 November 2011.

on energy costs depending on the different cost allocation methodologies applied to each business group and which asset classes are affected by changes in energy costs.

Noting that the impact of changing the forecasts on pollutant unit costs and proposed prices is very small (typically less than 1 per cent per annum), we consider this issue is not material.

Recommendation

- Sydney Water's energy price escalation assumptions should be consistent between trade waste and other areas of its business. However, given that the impact of this change would be extremely small, we consider that Sydney Water's current approach is acceptable.

2.2.6 Labour rates

Sydney Water's pollutant charges over the next regulatory period incorporate a wage escalator of 4 per cent (in nominal terms) as per Sydney Water's current Enterprise Bargaining Agreement (EBA).³ However, we also note that the wage rates used to calculate ancillary costs and charges do not incorporate any escalation beyond CPI.

Sydney Water has advised that the 4 per cent wage growth assumption has only been applied to a small proportion of its labour costs (i.e. 23 per cent of 2012-13 costs), specifically, those related to maintenance and operations which impact pollutant costs and charges. For the other 77 per cent of labour costs (i.e. those incurred in the business customer service groups which provide the basis for ancillary charges) Sydney Water has assumed that efficiency gains will offset any future real wage increases.

On this basis, we consider that Sydney Water's approach to forecasting labour rates over the next regulatory period for pollutant charges is appropriate.

2.3 Ancillary costs

2.3.1 Overview of proposed costs

This section provides an assessment of Sydney Water's proposal in relation to costs incurred in the provision of ancillary trade waste services, including:

- Establishing and managing agreements for industrial and commercial customers
- Undertaking inspections
- Providing trade waste data upon request.

The costs of Wastesafe, Sydney Water's system for tracking and monitoring the management of liquid waste from grease traps, are discussed separately in section 2.4.

Table 12 outlines Sydney Water's trade waste ancillary costs from 2008-09 to 2015-16. As shown in the table, Sydney Water has achieved significant reductions in the costs of delivery of trade waste ancillary services, and is forecasting further reductions over the next period.

Table 12 Trade waste ancillary costs summary (\$2011-12, 000s)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Labour (including on-costs)	4,785	4,329	3,525	3,448	3,371	3,259	3,269	3,207
Non-labour	2,150	1,521	1,238	1,259	1,133	1,066	1,032	1,031

³ Sydney Water (2011), *Review of Trade Waste Costs and Charges – Methodology, findings and proposals*, October

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
and vehicles								
Total	6,935	5,850	4,764	4,707	4,503	4,325	4,301	4,238

Source: Sydney Water (2011), *Review of Trade Waste Costs and Charges – Methodology, findings and proposals*, October

Note: Breakdown of labour and non-labour for 2008-09 is based on Deloitte analysis of Sydney Water Trade Waste Model

In reviewing Sydney Water's labour and non-labour costs for trade waste ancillary services we have considered the information set out in its proposal to IPART, and the cost data in its Business Customer Services (BCS) Model and Trade Waste Model:

- The BCS Model provides the raw cost data for the next regulatory period for the entire BCS team, which has been allocated to various service areas based on high-level assessments by section leaders
- The Trade Waste Model takes the costs for the next regulatory period from the BCS Model and collates them into labour and non-labour costs for quality and pollutant services, ancillary services and Wastesafe.

Labour costs

Historically, Sydney Water's trade waste team has operated as a separate unit with dedicated staff, largely independent of the remainder of the customer services division (aside from some manager positions that operate across other areas of the business).

Since the previous IPART review, Sydney Water has revised its business model for the customer services division (for the business as a whole), which has implications for the costs and delivery of trade waste ancillary services. Sydney Water's revised approach to delivering ancillary services involves a greater level of sharing of roles, with staff roles now bridging a range of service provision areas in addition to trade waste.

Sydney Water provides the following description of the cost allocation process for the customer services division (including trade waste ancillary services) in its proposal to IPART:

This review did not use time and motion studies to derive an activity rate for each trade waste ancillary service. A top-down allocation of budgeted costs and distribution of resources across the Business Customer Services group was used instead, to reflect changes in the business structure and its practices, which involve significant efficiency improvements and savings. The top-down approach involved socialising the cost of agreement fees across commercial and industrial customers on an 'assumed time spent' basis.⁴

The approach taken by Sydney Water in forecasting its trade waste ancillary labour costs over 2011-12 to 2015-16 was largely based on management judgement, and involved the following steps:

- Beginning with the FTE numbers and salaries in 2011-12 across the BCS division of Sydney Water, personnel were allocated to various tasks, based on the advice of section managers and headcount ratios
- Managers then determined the likely numbers of FTEs required in each category service (including trade waste, demand management, new connections, etc) for the next five years, based on their expectations following the re-structure of Sydney Water's business and the impact of the new project scheduling tool.⁵

⁴ Sydney Water (2011), *Submission to IPART 2012 pricing determination*, September, p.413

⁵

The following table sets out labour costs as provided by Sydney Water in the BCS Model and Trade Waste Model.

Table 13 Trade waste ancillary labour costs (\$2011-12, 000s)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Labour costs	4,785	4,329	3,525	3,448	3,371	3,259	3,269	3,207
FTEs	42	N/A	N/A	29	29	28	28	28

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls

Notes: N/A = not available

As shown in Table 13, Sydney Water has achieved significant reductions in labour costs since 2008-09, and is forecasting further reductions over the next regulatory period. Sydney Water has identified the following drivers of reduced FTEs and costs for trade waste ancillary services:

- General efficiency gains and staff reductions from the internal re-organisation
- A new project scheduling tool has recently been implemented to reduce inspection travel time and increase the efficiency of trade waste and other service operations, which has resulted in fewer staff being required
- Going forward, the inspection schedules for some industrial customers have been amended, which will significantly reducing the number of annual inspections.

The reduction in FTEs from 2011-12 to the end of the next regulatory period (2015-16) is broadly consistent with the reduction in FTEs across the BCS group as a whole, which is falling from 85 to 80 FTEs over this timeframe. Sydney Water indicated that the forecast reduction in FTEs for trade waste is reflective of similar reductions across other business areas.⁶

Labour costs in Table 13 are inclusive of on-costs, which have been derived in the following manner:

- For 2008-09: 20 per cent for managers and 40 per cent for administrative and support staff
- For 2011-12 to 2015-16: 29.15 per cent for all staff, based on assumptions for annual leave (9.2 per cent), long service leave (5.5 per cent), superannuation (9 per cent) and payroll tax (5.45 per cent).⁷
- Allowances for on-costs are not available for 2009-10 and 2010-11.

Based on our experience in similar engagements, we consider that Sydney Water's allowances for on-costs for the next regulatory period are reasonable and appropriate.

However, we also note that Sydney Water has not applied any real increases to labour rates across the next regulatory period. Sydney Water has stated that it expects labour rates to increase in line with its enterprise bargaining agreement, which it has advised allows for nominal growth in wages of 4 per cent per annum. This increase has been included in the calculation of costs and charges for pollutants (discussed in section 2.2.6).

As noted above, Sydney Water has advised that the 4 per cent wage growth assumption has only been applied to costs related to maintenance and operations which impact pollutant costs and charges. On this basis, we consider that Sydney Water's approach to forecasting labour rates over the next regulatory period for ancillary charges is appropriate.

⁶ Comments made by Sydney Water staff during meetings with Deloitte and SECG, 20-21 October 2011.

⁷ Sydney Water (2011), *Review of Trade Waste Costs and Charges – Methodology, findings and proposals*, October

2.3.2 Non-labour costs

Similarly to the approach for labour costs, Sydney Water has applied a top-down approach to identifying and allocating non-labour costs from the customer services division to trade waste ancillary services. While the approach has developed from previous years, it remains relatively high-level and subjective.

Previous approaches

In order to calculate trade waste ancillary costs for 2008-09, Sydney Water followed the following general process:

- Annual motor vehicle costs of \$10,500 per person were allocated to individual staff, as deemed appropriate according to staff roles.
- Internal and external trade waste monitoring costs from 2008-09 were added to the Customer and Community Relations Division (CCRD) labour and on-costs to determine total ancillary costs.

To determine 2009-10 and 2010-11 ancillary services costs, Sydney Water started with each year's total annual CCRD budget of \$5.5 million and \$4.6 million, respectively, and applied broad allocations to identify the costs of ancillary services labour (74 per cent) and non-labour costs (26 per cent).⁸

Forecasts for 2011-12 to 2015-16

For non-labour costs from 2011-12 onwards, costs that were attributable to a single business area were allocated to those areas, while shared costs were pooled and then allocated initially to departments and then subsequently to tasks and activities. The following non-labour costs were allocated to trade waste ancillary services:

- Vehicles, including leases, permits and tolls: 67 per cent of total CCRD vehicle costs are allocated to trade waste ancillary services
- Administrative costs (including consumables, catering, couriers): 54 per cent of total CCRD administrative costs are allocated to trade waste ancillary services
- Materials (waste water samplers, batteries and replacement antennas): 83 per cent of total CCRD materials costs are allocated to trade waste ancillary services
- Partial allocations of costs related to audits, strategy, and systems and capability areas.⁹

The following table provides a breakdown of non-labour costs for ancillary trade waste over the current and next regulatory periods. Note that while 2008-09 to 2010-11 figures are provided for comparison, these may not be directly comparable to figures from 2011-12 onwards due to the significant revisions to Sydney Water's business model and budgeting processes as set out above.

⁸ Sydney Water Trade Waste Model.

⁹ Sydney Water BCS Model

Table 14 Trade waste ancillary non-labour costs (\$2011-12, 000s)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Vehicles	354			233	233	233	233	233
Admin				29	29	29	29	29
Materials				103	39	39	39	39
Strategy				182	174	121	86	86
Seminars & training				201	209	195	195	195
Audit				206	155	155	155	155
Systems and capability				312	310	310	310	310
Monitoring	1,796							
Total	2,150	1,521	1,239	1,267	1,148	1,081	1,046	1,046

Source: 2008-09 figure from Copy of Sydney Water_Trade Waste_October 2011 (eric).xls
2011-12 and onwards costs from BCS SCI(2011)_FINAL_VERSION with 5 year matrix for Tradewaste audit.xls
Note: Totals do not match those in Table 12 above due to the use of different inflation assumptions (Sydney Water original figures use 2.5%, while Deloitte figures use 3.1% as advised by IPART).

We note that seminar and training costs are substantial, at around \$200 000 per annum, or \$7 000 per FTE. This is somewhat higher than seminar and training costs across the rest of the customer group. However, given the technical nature of trade waste services, we consider that it is not unreasonable to expect that employees with trade waste related roles might require higher levels of seminar and training expenditure. Furthermore, given the relatively insignificant nature of these costs, we have not recommended any amendments.

Given the substantial changes to Sydney Water's business structure and operations that have occurred since the last price review, we consider that the high-level approach taken in allocating forecast labour and non-labour costs to trade waste is reasonable. However, we note that improving the data collection and internal business modelling processes would improve future reviews of trade waste costs.

Sydney Water has advised that since the development of the approach, it has started collating the actual labour and non-labour cost data for these activities (in the customer services division) on an on-going basis. This is expected to assist in improving the internal business modelling results going forward and could be used for future reviews.

2.4 Wastesafe

2.4.1 Overview of proposed costs

Wastesafe is Sydney Water's tracking system for monitoring the generation, collection, transportation and disposal of liquid waste. Sydney Water is proposing a change to the Wastesafe system for the next regulatory period.

Under the current approach:

- Contractors are responsible for cleaning customers' liquid waste traps and transporting the liquid waste to depots for treatment
- These contractors bill customers directly for cleaning the traps and transporting the waste

- Customers pay Sydney Water a volumetric charge for processing and treatment of the liquid waste at (privately owned) depots, and depots bill Sydney Water for processing and treatment.

Under the revised approach, Sydney Water is proposing that contractors will bill customers for cleaning, transport, processing and treatment, thereby taking over responsibility for payments to the depots for processing and treatment.

The following table provides a high level breakdown of Sydney Water's proposed costs attributable to the Wastesafe system.

Table 15 Wastesafe costs summary (\$2011-12, 000s)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Payments to depots	7,660	7,405	7,503	7,446				
IT system	348	338	619	619	619	619	619	619
Labour and vehicles	480	1,313	952	752	675	660	558	558
Total	8,488	9,055	9,074	8,817	1,294	1,279	1,177	1,177
Total (excl depot payments)	828	1,650	1,570	1,371	1,294	1,279	1,177	1,177

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls, "Cost GROWTH" (cells P77:V79)

Note: Deloitte conversion to \$2011-12 results in slightly higher costs for IT than specified in the Trade Waste Model, as Sydney Water uses two different inflation assumptions.¹⁰

Due to the significant changes to Sydney Water's approach to delivering ancillary services, and in particular, the change in approach to costs of the customer services group to different segments of the business, only very limited information is available on costs in years 2009-10 and 2010-11. For this reason, our analysis is primarily focussed on changes in costs between 2008-09 (the last year of detailed data) and 2012-13 (the first year of the next regulatory period).

As shown in the table, Wastesafe costs in 2012-13 are forecast to increase significantly from 2008-09 levels, with IT system costs close to doubling, and labour and vehicle (or, other) costs increasing by around 40 per cent.

The following sections provide a brief analysis of the drivers of these cost increases.

2.4.2 Labour and vehicle/non-labour costs

There are two key sources of labour and vehicle costs set out in the Sydney Water proposal:

- The Business Customer Services (BCS) cost model, which provides the raw cost data for the next regulatory period for the entire BCS team, which has been allocated to various service areas based on high-level assessments by section leaders (see section 2.3 above for a description and assessment of this approach)
- The Trade Waste Model, which takes the costs for the next regulatory period from the BCS Model and collates them into the categories outlined in Table 15 above and the Sydney Water submission. The Trade Waste Model also includes some detail on Wastesafe costs for the current regulatory period.

¹⁰ Wastesafe IT costs are assumed to increase in line with inflation. However, the inflation figure used initially in the Trade Waste Model is 2.5 per cent per annum (in line with the inflation assumption used to estimate CCRD costs). These figures are then converted to real (2011-12) dollars using 3.1 per cent in 2012-13, then 2.5 per cent per annum thereafter.

Labour costs

The following table sets out labour costs as provided by Sydney Water in the BCS Model and Trade Waste Model.

Table 16 Wastesafe labour costs (\$2011-12, 000s)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Labour costs	434	N/A	N/A	328	328	328	328	328
FTEs	5	N/A	N/A	3	3	3	3	3

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls

Notes: N/A = not available

Sydney Water has identified the following drivers of reduced FTEs and costs for Wastesafe:

- Efficiency gains from the internal re-organisation (described in section 2.3 above)
- Improvements in efficiency and processes from the implementation of the new IT system (see section 2.4.3 below).

Non-labour costs

The following table sets out the build-up of non-labour costs for Wastesafe for the next regulatory period as set out in the BCS Model, with costs for the current regulatory period provided for comparison.

Table 17 Wastesafe non-labour costs (\$2011-12, 000s)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Vehicles	46			116	116	116	116	116
Admin				17	17	17	17	17
Materials				82	10	10	10	10
Wastelink IT support				619	619	619	619	619
Letter printing/ issuing				186	186	186	82	82
Seminars				28	28	12	12	12
Total	46	N/A	N/A	1047	975	959	856	856

Source: 2008-09 figure from Copy of Sydney Water_Trade Waste_October 2011 (eric).xls

2011-12 and onwards costs from BCS SCI(2011)_FINAL_VERSION with 5 year matrix for Tradewaste audit.xls

The approach to determining non-labour costs ('labour and vehicles') in the Trade Waste model was to take the full amount of non-labour costs from the BCS Model, then deduct payments to depots (which are to be discontinued) and IT system costs (which are specified separately).

While we consider that the costs outlined are generally appropriate, we note that seminar costs, while relatively minor in absolute terms, are significant for a team of only 3 FTEs, particularly in the first year of the next regulatory period. However, given the relatively insignificant nature of these costs, we have not recommended any changes for the next regulator period.

We also raised concerns with Sydney Water about the magnitude of letter printing and issuing costs, as they appear to be high on the basis of only around 12,600 liquid waste traps receiving services under Wastesafe.

Sydney Water indicated that these costs are driven by the introduction of the new approach for managing compliance with the Wastesafe system. One of the risks identified by Sydney Water as a result of the change in the operating model was an increased level of missed (pump out) services. To combat this, Sydney Water proposes to issue reminder letters to all customers every time a service is due. These reminder letters are designed to ensure customers understand the new arrangements and maintain or improve current high levels of compliance. This equates to approximately 60 000 letters per year (previously, customers were issued with documents setting out servicing requirements only at the commencement of the agreement). The associated costs are an estimate based on the costs of an existing contract to issue reminder letters to backflow customers when the annual testing is due. Sydney Water also indicated that the approach to issuing letters is expected to be scaled back after two years as the operating model is introduced.

2.4.3 IT system costs

Overview of investment decision

As shown in Table 15 above, Wastesafe IT system costs are nearly doubling from the current regulatory period to the next. Sydney Water has advised that this is due to the upgrade of the Wastesafe IT system and corresponding renegotiation of the Wastesafe IT contract.

The upgrade in the Wastesafe IT system was driven primarily by the following issues:

- Transitioning from the former paper-based docket tracking system to a docket-less system, expected to provide cost savings, enhanced data and improved communications
- Monitoring additional waste types, in particular, oily waste customers (approximately 3,500) that were not being managed as effectively and efficiently as they could be
- System reliability. Ageing IT platforms were continually being upgraded, presenting risks of incompatibility with the Sydney Water IT environment and failure
- Reducing support costs, which was becoming more limited and expensive due to the legacy systems.

The previous Wastesafe IT contract was due to expire in July 2008. The existing contract holder for Wastesafe was [REDACTED] developed an updated Wastesafe system called Wastelink offering additional functionality to address the above issues.

Against this backdrop, the following options were identified by Sydney Water for ongoing development of the Wastesafe system:

- Base case: Do nothing – continue with current Wastesafe system (Wastesafe 2), and persist with the current database
- Option 1: Develop new Wastesafe 3 – start from scratch and develop a new database from the ground up to meet all system needs. This could be done internally by Sydney Water IT or via an open tender
- Option 2: Wastelink hosted in externally & updated to Oracle – modify the existing Wastelink database application to meet Sydney Water IT requirements & host externally
- Option 3: Wastelink hosted in Sydney Water & updated to Oracle – modify the existing Wastelink database application to meet Sydney Water IT requirements
- Option 4: Wastelink hosted externally – use the Wastelink database application via an externally hosted site and access via secure connection.

Sydney Water developed a business case and undertook a cost benefit analysis of the above options. The business case found that investment in Option 4, externally hosted Wastelink, had the highest expected net present value to the business.¹¹

The business case was approved by management in November of 2008, with the contract awarded to ██████████ in July of 2009 amounting to approximately \$1.5 million over five years, or \$300 000 per annum in nominal terms (from 2009-10 to 2013-14).

While we understand that Sydney Water did not approach any other potential service providers for the provision of IT contract services, Sydney Water has advised that ██████████ was considered the only firm capable of providing the specified service, due to their history with the existing system and specialisation in this area. On the basis of this, and our review of the business case presented by Sydney Water, we consider that the decision to continue with ██████████ as the IT contract was justified.

Cost increases

Subsequent to the commencement of the contract, a number of issues arose necessitating a variation in the contract for increased costs of \$1.13 million (in nominal terms), or around 74 per cent. The drivers of the increases in costs included:

- During the first year of implementation, additional training, roll-out support and resolution of problems encountered were requested (the fee for these additional services was approved and paid)
- Disaster recovery and other additional requirements imposed by Sydney Water IT after the contract was awarded
- The requirement for annual fee increases of the greater of CPI or 5 per cent to be included (according to Sydney Water these were agreed to during contract negotiations, but mistakenly left out of the contract)
- Increases in the number of transporters and trucks registered to service grease traps
- Modification to the Wastelink application to meet the needs of the Business Customer Services (BCS) group.

In August 2011, the approval was granted by management for the contract variation. The changes to the contract and associated cost increases were considered necessary to allow business as usual to continue until completion of the contract on 30 June 2014.

The following table provides a breakdown of the increased costs due to the issues outlined above.

¹¹ Sydney Water (2010), *Project Initiation Business Case – Wastesafe Application Upgrade/Replacement*

Table 18 Wastelink contract cost variation (\$2011-12, 000s)

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Total to contract end (2013-14)
Initial contract	322	315	305	295	288	281	274	1,525
Additional services received and paid for								326
Agreed items not covered in initial contract	47	81	101	120	143	171	204	491
Costs due to growth beyond base			82	109	117	125	134	308
Total revised contract costs	369	395	488	525	548	577	612	2,650

Source: Wastelink cost estimates, provided by Sydney Water 3/11/11

Notes: 2014-15 and 2015-16 figures are Deloitte forecasts based on growth rate over last two years of contract costs

While the increases in costs from the original contract are significant, we consider that Sydney Water's decision to approve a variation to the contract costs to correct for errors in the original contract and enhance the system was prudent. We also note that Sydney Water has followed internal protocols for approving the variation. In particular, the threshold for General Manager approval for variations to contracts is that cost increases must be less than 75 per cent of the contract value – the increase in costs for the Wastelink contract was 74 per cent.

However, based on the cost information provided by Sydney Water with respect to the variation, it appears as though the Wastesafe IT costs set out in the Trade Waste Model and proposal to IPART are somewhat overstated. Table 19 below provides a comparison of total Wastelink costs identified in the variation documentation and the Wastesafe IT costs in the model over the next regulatory period.

Table 19 Wastesafe IT cost difference – contract variation (\$2011-12, 000s)

	2012-13	2013-14	2014-15	2015-16	Total
Trade Waste Model Wastesafe IT cost estimates	619	619	619	619	2,476
Wastelink cost estimates (variation documentation)	525	548	577	612	2,263
Difference	-94	-71	-42	-7	-213

Sources: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls; and Wastelink cost estimates, provided by Sydney Water 3/11/11

Note: Trade Waste Model IT costs diverge slightly from Sydney Water costs as set out in the model due to different inflation assumptions

Sydney Water has advised that:

- The Wastesafe IT support costs figure used in the Trade Waste Model included the costs of the existing Wastelink contract (including variations) plus other additional scope that is planned to be developed over the next regulatory period. The scope will expand WasteSafe to include additional waste types (oily waste) and modifications to Wastelink to enable the implementation of modified process as outlined in IPART submission (these items are not within the scope of the current contract).

- This additional scope will cost an additional estimated \$60 000 per year, and is included in the cost models.

None of the documentation provided by Sydney Water supports a requirement for the IT costs to be increased above the amount set out in the contract variation documentation. In particular, Sydney Water's original business case for updating the Wastesafe IT support contract (value of \$300 000 p.a.) specifically identifies the ability to include additional waste types (oily waste), and also identifies cost savings of \$400 000 due to this improvement. We also note that any additional increase in contract costs would breach the threshold for General Manager approval of contract variations as outlined above. In the absence of any documented evidence of the need for further contract variations or that this has or will be approved under Sydney Water's delegation processes, we consider that Sydney Water's Wastesafe charges should be based on the contract costs as set out in the contract variation documentation provided to Deloitte, and reflected in the table above.

Recommendation

- Sydney Water's Wastesafe IT costs for the next regulatory period should be reduced to reflect contract costs as set out in the contract variation documentation provided to Deloitte on 3 November 2011.
- This amounts to a \$213 000 decrease in total costs attributable to Wastesafe.

2.5 Allocation of corporate overheads

Sydney Water has not allocated any corporate business overheads (aside from management time) to its trade waste services cost forecasts.

Corporate costs are allocated to the main areas of Sydney Water's business according to the percentage of direct operating costs, as per the following:

- Water – 33.5 per cent
- Wastewater – 64.7 per cent
- Stormwater – 1.7 per cent
- Miscellaneous charges and recycled water – 0 per cent.¹³

The following table sets out trade waste costs as a proportion of regulated operating expenditure over the next regulatory period (excluding bulk water costs), and applies this percentage to forecast corporate operating expenditure.

Table 20 Theoretical allocation of overhead costs to trade waste (\$2011-12, millions)

	2012-13	2013-14	2014-15	2015-16	Total
Total operating expenditure (excl. bulk costs)	887.5	894.1	893.8	895.8	3,571.2
Trade waste operating expenditure	25.0	25.2	25.2	25.2	100.6
Trade waste as a proportion of total opex	2.8%	2.8%	2.8%	2.8%	2.8%
Corporate operating expenditure	176.5	179.6	180.3	183.7	720.1
Theoretical allocation to trade waste	5.0	5.1	5.1	5.2	20.3

¹³ Ibid.

Sources: Sydney Water (2011), *Submission to IPART 2012 pricing determination*, September; and Deloitte analysis

As shown in Table 20, trade waste operating expenditure is not insignificant in comparison to total regulated operating expenditure (less bulk water costs).

Sydney Water indicated that its rationale for not allocating a proportion of corporate overheads to trade waste is that these costs are not incremental to servicing trade waste customers or treating pollutants.¹⁴ Trade waste business customers are served and products planned and administered by a dedicated team, a part of the Business Customer Services group. Billing of trade waste products requires specific IT systems such as Trade Waste Database and Wastelink and does not rely on and does not drive costs of corporate systems used to support major products and services.

Sydney Water identified the following overhead costs:

- Corporate overhead costs such as human resources, IT, Shared Services, Finance, Property (excludes land tax and council rates), Managing Director and Sustainability (excludes CCF and DM) costs. These costs are allocated to major products based on the direct costs.
- Business /customer support costs such as are customer services, business division support (general managers, administration and business/strategic planning). These costs are allocated to products (water, wastewater and stormwater) based on the direct costs.

Sydney Water has noted that based on the above, and its interpretation of IPART's Trade Waste Pricing Principles it appeared appropriate to do not allocate corporate costs to trade waste. However, identifiable trade waste specific costs, such as administration, customer support, management and IT costs were included. An inclusion of 'corporate overhead costs' would increase customer impact by further charge increases and could lead to incorrect customer incentives if factored in volumetric pollutant charges.

We agree that corporate overheads will generally not be incremental with the provision of services to trade waste customers. We also note that Sydney Water's decision not to allocate overhead costs to trade waste customers is not necessarily inconsistent with IPART's trade waste pricing principles, which require only that trade waste charges should at least cover the costs of handling wastes, and the basis for setting charges should reflect costs incurred as far as possible.

However, in the case of business overheads, which cannot typically be directly linked to the provision of a particular service, and also for costs more generally, we consider that it is important that charges reflect efficient costs and provide appropriate signals to customers:

- Costs of service provision should be determined using an appropriate and consistently applied methodology
- Charges should then be determined based on full-cost recovery.

Based on the advice provided by Sydney Water and in the context of the significant price increases proposed for many trade waste charges, we consider that Sydney Water's approach to corporate overheads is appropriate for this review. However, for the purpose of future reviews, we consider that Sydney Water should investigate and clearly identify any corporate overheads that should be shared across its business areas, particularly in relation to the corporate overhead costs identified by Sydney Water above.

Recommendation:

- Based on the advice provided by Sydney Water and in the context of the significant price increases proposed for many trade waste charges, we consider that Sydney Water's approach to corporate overheads is appropriate for this review. However, for future reviews Sydney Water should provide more detail on the composition of corporate operating expenditure and apply a consistent approach to allocating these across the business..

¹⁴ Information provided by Sydney Water, 3 November 2011.

2.6 Summary of key findings and conclusions

We have reviewed Sydney Water's proposed trade waste costs in order to assess:

- Whether the proposed costs reflect the efficient costs of providing trade waste services
- Whether Sydney Water has employed an appropriate methodology in allocating costs to trade waste services.

This assessment provides the basis for the next chapter of the report, which assesses Sydney Water's the extent to which charges reflect these costs (or an alternative estimate of efficient costs) and are consistent with the IPART Trade Waste Pricing Principles.

In some cases it has been difficult to assess proposed costs against historic benchmarks for efficiency and reasonableness due to:

- The lack of data on historic costs, particularly for 2009-10 and 2010-11, as Sydney Water has indicated that the majority of costs and approaches used to develop the proposed trade waste costs have been referenced back to 2008-09
- Changes in business processes, both for delivering services and also for allocating and recording budgets.

In general, we have found that Sydney Water has applied appropriate methodologies for identifying and allocating costs. However, there are a few exceptions where further work, clarifications or amendments may be required to ensure that only efficient costs are recovered through trade waste charges. The key issues we have identified are:

- **Allocation of corporate overheads** – given the magnitude of Sydney Water's corporate operating expenditure forecasts, the decision not to allocate a share of corporate overheads to trade waste results in significantly lower costs being allocated to trade waste than if the same approach to allocating these costs to other areas had been applied. Sydney Water has advised that its decision not to include corporate overhead costs to trade waste customers was based on a number of factors, including that trade waste customers are served by a dedicated team and IT system, with administration, customer support and management costs included. Sydney Water has also noted that its approach is consistent with the IPART pricing principles. Based on the advice provided by Sydney Water and in the context of the significant price increases proposed for many trade waste charges, we consider that Sydney Water's approach to corporate overheads is appropriate for this review. For future reviews Sydney Water should provide more detail on the composition of corporate operating expenditure and apply a consistent approach to allocating these across the business.
- **Allocation of pollutant and corrosion costs** – Sydney Water's 'top down method' of allocating costs may be producing overly generalised results, which limits the ability of charges to reflect efficient costs and provide signals about differences in treatment costs at different locations. While we consider that this approach is acceptable for the current review, Sydney Water should consider a more detailed, bottom up approach for future reviews which accurately reflects the incremental costs of treating trade waste. Sydney Water has advised that in future reviews, detailed assessment of a broader range of treatment plants will be included
- **Wastesafe costs** – Sydney Water has proposed significant increases in costs of administering the Wastesafe system, largely due to increases in IT contract costs. From our review of Sydney Water's documentation concerning the updated IT system and contract variations, we consider that the costs of the IT system used to develop the charges are not supported by the documentation provided by Sydney Water (costs overstated by around \$213 000). We have recommended that these costs be excluded when calculating charges to recover Wastesafe costs.

3 Trade waste pricing

3.1 Overview

Sydney Water has proposed a number of changes to its trade waste charges for the next regulatory period, reflecting both the under-recovery of costs identified over the course of the current period, and also some revised approaches to structuring charges.

3.1.1 Waste quality charges

For industrial waste quality charges, Sydney Water has identified a core set of substances which significantly drive trade waste related costs and is proposing to adjust the charges set as follows:

- BOD – increase charges by 71 per cent for primary wastewater treatment plants and 121 per cent for secondary/tertiary plants
- Suspended solids – reduce charges by 49 per cent for primary plants and increase charges by 49 per cent for secondary plants
- Grease – reduce charges by 67 per cent for primary treatment plants
- Nitrogen – remove charge for primary plants and increase charge for secondary / tertiary plants by 754 per cent
- Phosphorous – remove charge for primary plants and increase charge for secondary / tertiary plants by 286 per cent
- Temperature – introduce new charges
- pH – introduce new charges.

For commercial waste quality charges, Sydney Water is proposing to reduce the current number of chargeable processes from 66 to 8.

3.1.2 Ancillary charges

For ancillary charges, Sydney Water is proposing the following changes for the next regulatory period:

- Consolidation of industrial agreement charges from seven to three (while maintaining seven risk levels), based on revised inspection schedules for each risk level
- Increasing charges (commercial agreement charges, and application fees for industrial customers) to improve cost recovery
- Revising charges for additional inspections by adding a minimum charge and increasing the hourly rates for inspections, reflecting Sydney Water investigations which have identified significant effort in managing compliance and additional costs for inspections
- Reducing fees for the sale of trade waste data.

3.1.3 Wastesafe charges

For the next regulatory period, Sydney Water is proposing to cease its current per litre charges for Wastesafe customers, and transfer responsibility for billing customers for the treatment and processing of waste to contractors who clean the traps and transport the waste from customers' premises.

Sydney Water is proposing to introduce the following charges to recover its costs for Wastesafe:

- A fixed charge per waste trap
- Charges for inspections required as a result of missed pump-outs.

3.2 Waste quality charges

3.2.1 Industrial customers

Current approach to pricing

Industrial customers are dischargers of trade waste whose processes are not listed as a commercial or deemed process, and include large food processing operations, metal finishing, waste treatment facilities, petroleum refining, oil recycling and customers who discharge more than 12 kL of trade waste a day from processes that would otherwise be ‘commercial’.

Waste quality charges are determined based on the mass of particular substances discharged. For substances with a ‘domestic equivalent’ (where the substance is similar to domestic waste which is processed by Sydney Water’s sewerage system), Sydney Water subtracts the mass of substances up to the ‘equivalent domestic mass’. That is, customers are only charged for the mass discharged above the domestic equivalent. IPART determined the domestic equivalent for each waste substance as part of its 2008 price determination.

Volumetric charges for industrial customer trade waste are determined according to the ‘Threat level’ for non-domestic substances (which itself is dependent on the acceptance standard for that substance). For each industrial customer, Sydney Water determines the Long term average daily mass and Maximum daily mass, based on industry standards and the yearly arithmetic average of all daily mass discharges by that customer. When the mass of waste discharged above the domestic equivalent exceeds the determined Maximum daily mass set out in the customer’s Consent or the Acceptance Standard, the rates for excess substances are doubled.

Critical mass charges are applied when sections of Sydney Water’s sewerage system are declared ‘critical’ or ‘over capacity’ due to limitations on the sewer catchment capacity. Customers discharging where a system has been declared ‘critical’ or ‘over capacity’ face higher mass-based charges for the affected substances, calculated by reference to a ‘Charging Rate Multiplier’.

Proposed charges

Sydney Water is proposing significant changes to the charges levied on industrial customers with the intention of recovering new, adjusted, or previously under recovered trade waste costs in order to comply with the relevant trade waste pricing principles related to cost reflectivity and cross subsidisation of charges.

Sydney Water has identified a core set of substances which significantly drive trade waste related costs and is proposing to adjust the charges set as follows:

- BOD – increase charges by 71 per cent for primary wastewater treatment plants and 121 per cent for secondary/tertiary plants
- Suspended solids – reduce charges by 49 per cent for primary plants and increase charges by 49 per cent for secondary plants
- Grease – reduce charges by 67 per cent for primary treatment plants
- Nitrogen – remove charge for primary plants and increase charge for secondary / tertiary plants by 754 per cent
- Phosphorous – remove charge for primary plants and increase charge for secondary / tertiary plants by 286 per cent
- Temperature – introduce new charges
- pH – introduce new charges.

Table 21 below presents Sydney Water's proposed industrial charges. Each charge is generally referenced by the concentration or mass above domestic strength, that is, what would reasonably be expected from typical residential customers.

Table 21 Proposed industrial charges (\$2011-12)

Pollutant	Unit	2012-13	2013-14	2014-15	2015-16
BOD - primary STPs		0.427	0.435	0.437	0.439
BOD - secondary and tertiary STPs	\$/kg of mass above domestic strength	1.774	1.807	1.816	1.823
SS - primary STPs		0.445	0.454	0.456	0.458
SS - secondary and tertiary STPs	\$/kg of mass above domestic strength	1.288	1.313	1.319	1.324
Grease - primary STPs		0.401	0.409	0.411	0.412
Grease - secondary and tertiary STPs	\$/kg of mass above domestic strength	1.231	1.254	1.260	1.265
Nitrogen – secondary / tertiary plants	\$/kg of mass above domestic strength	1.460	1.487	1.495	1.500
Phosphorous - secondary / tertiary plants	\$/kg of mass above domestic strength	5.232	5.330	5.356	5.377
Temperature – all plants	5.6 \$/°C/ML of TW waste water for temperature > 25°C	6.137	6.252	6.283	6.307
pH – all plants	\$/pH/ML of TW waste water for pH<7.0	55.433	56.476	56.752	56.973

Customer impacts and transitioning to full cost recovery

The proposed changes to industrial charges will, overall, have a minor impact on customers discharging to a primary wastewater treatment plant with an expected average increase of 13 per cent, while customers discharging to a secondary / tertiary treatment plant will experience an average increase of 54 per cent.

This average impact, however, does not reflect the significant impacts on individual industrial customers with some customers likely to experience increases in charges of up to 122 per cent and others experiencing reductions in charges of up to 90 per cent.

The likely impacts on customers are amplified as Sydney Water is proposing to commence the new charging schedule from the 1 July 2012 giving customers relatively little time to respond and adjust practices prior to the implementation of the new charges. The widely varying impact on customers and the lack of prior consultation with customers was highlighted in a detailed submission to IPART from the Australian Sustainable Business Group (ASBG). The submission from the ASBG recommended that Sydney Water:

- Use a transitional pricing structure to introduce the new trade waste charges over a period of four years
- Continue to use a linear pricing system for BOD given high on-site treatment costs
- Consider an exponential pricing system for temperature to reflect true costs and send price signals to customers to improve practices

- Adjust the proposed pH charging schedule to better reflect the likely cost impacts from pH variation and to reward customers who discharge higher pH waste streams that can help offset corrosion forming conditions.

Sydney Water is proposing to inform customers through its Business Customer Forum after 30 November 2011 and has stated that ongoing consultation is occurring with large industrial customers including developing a trade waste cost calculator to estimate price impacts. We consider that informing customers is a minimal action in the consultation process. Ideally, customer consultation should have occurred prior to the submission to gauge customer reception to the proposed significant changes and to quantify actual customer reaction. Customer comments could then have been incorporated into the submission demonstrating Sydney Water's commitment to its trade waste customers and allowing any reasonable changes to occur.

Sydney Water has advised that it recognises concerns about customer impacts from full trade waste charge increases from year one of the next determination period and that transitional trade waste pricing (gradual charge increases over the next determination period) may be appropriate. However, should the final non-residential wastewater usage or other charges set by IPART be lower than the charges proposed by Sydney Water, transitional trade waste pricing may not be necessary or limited only to the BOD charges.

We note that due to the absence of a comprehensive customer consultation strategy during the development of Sydney Water's pricing proposal limited information exists about customer impacts and views on the proposed price increases. However, we note that the lone submission to IPART supports a transitional pricing strategy.

On this basis, we have outlined a possible approach to transitioning to full cost recovery in the table below, which is based on applying consistent annual increases (or decreases) to current charges. Where the specification of charges has changed (e.g. for BOD charges we have based our proposed charges on a theoretical \$/kg charge as back solved from the revenue calculations in the Sydney Water Trade Waste Model).

While this approach will result in under-recovery of costs from trade waste customers, shortfalls can be recovered from waste water customers. Sydney Water should undertake detailed customer consultation to support the approach taken to transitioning to full cost recovery, to ensure that customer preferences are taken into account.

Table 22 Possible approach to transition period for industrial charges (\$2011-12)

Pollutant	Unit	2011-12	2012-13	2013-14	2014-15	2015-16
BOD - primary STPs		0.255 ^a	0.292	0.334	0.383	0.439
BOD - secondary and tertiary STPs	\$/kg of mass above domestic strength	0.821 ^a	1.003	1.224	1.494	1.823
SS - primary STPs		0.887	0.752	0.637	0.540	0.458
SS - secondary and tertiary STPs	\$/kg of mass above domestic strength	0.887	0.980	1.084	1.198	1.324
Grease - primary STPs		1.250	0.947	0.718	0.544	0.412
Grease - secondary and tertiary STPs	\$/kg of mass above domestic strength	1.250	1.254	1.257	1.261	1.265
Nitrogen – secondary / tertiary plants	\$/kg of mass above domestic strength	0.175	0.299	0.512	0.877	1.500
Phosphorous - secondary / tertiary plants	\$/kg of mass above domestic strength	1.386	1.945	2.730	3.831	5.377

Temperature – all plants	5.6 \$/°C/ML of TW waste water for temperature > 25oC	NA	6.137	6.252	6.283	6.307
pH – all plants	\$/pH/ML of TW waste water for pH<7.0	NA	55.433	56.476	56.752	56.973

Source: Deloitte analysis and Sydney Water Trade Waste Model.

Note: ^a \$/kg charge based on inferred charge in Sydney Water Trade Waste Model

Removal of pollutant charges

Sydney Water has identified pollutants that are not believed to drive costs, including total dissolved solids, sulphate, ammonia and 42 non-domestic (i.e. don't appear in a typical domestic stream) pollutants. Acceptance standards for these and other pollutants will remain in place for the abolished pollutants with compliance to be managed through adjusted risk level assessments and risk index based trade waste agreement charges.

Sydney Water's proposed removal of sulphate charges is inconsistent with similar agencies including Hunter Water Corporation which has maintained a sulphate charge in order to assist in managing corrosion. Sydney Water advises that it has undertaken a study in partnership with University of Queensland's Advanced Water Management Centre and other utilities to develop a model that predicts sulphide levels in a wastewater system. This was used in combination with a hydrodynamic and dynamic air transport model to develop odour and corrosion strategies for wastewater systems. The model identified that sulphate on its own does not cause corrosion (at certain concentrations), however high BOD levels (in combination with temperature and pH) in the wastewater triggers the conversion from sulphate to sulphide due to the depletion of dissolved oxygen. Hence Sydney Water charges for BOD, pH and temperature to cover corrosion costs, and not sulphate.

Nevertheless, sulphate remains the primary source of corrosive conditions and presumably without it or at much lower levels, the formation of sulphide and hence corrosive conditions, would not be as significant an issue.

Sydney Water may wish to reconsider the removal of sulphate subject to consideration of the importance of controlling sulphates in corrosion management, particularly given that Sydney Water has identified the cost of corrosion at more than \$5 million per annum. Identification of the primary sources of sulphate might allow identification of a major trade waste source that could be specifically targeted and result in a significant reduction. Alternatively, it may be identified that the domestic wastewater has the greatest impact on sulphate levels. If this were the case, corrosion costs should be incorporated into the general wastewater charges.

Managing compliance

Sydney Water's acceptance standards are intended to be managed through a risk assessment process and risk index, however we have concerns over how this arrangement will assist in managing exceptions. In particular, the recovery of costs associated with the monitoring, analysis, investigation and enforcement of acceptance standards is unclear. It is understood that some costs will be recovered through inspection charges and agreement fees however some clarification on this issue would be warranted.

Recommendations

- Pending the results of Sydney Water's consultation with customers on transitioning to full cost recovery, we recommend that Sydney Water consider a smoothed transition to higher industrial charges which aims at full cost recovery in the last year of the regulatory period.
- Sydney Water should reconsider the removal of sulphate charges in the context of its criticality in creating corrosive conditions. In the event that Sydney Water maintains its decision to remove

sulphate charges, it should undertake work to identify the primary sources of sulphate and take steps to manage sulphate levels as appropriate..

3.2.2 Commercial customers

Current approach to pricing

Commercial trade waste customers are those with standard commercial processes, such as retail food outlets, motor vehicle and small photographic, printing and x-ray processes that discharge up to 12 kL of trade waste per day.

Waste quality charges for commercial customers are based on the results of representative sampling of the concentration of wastes. Metered sites are charged based on a 'discharge factor', while unmetered sites are charged based on a sample of similar businesses.

Commercial customers pay charges based on the processes undertaken on their premises that produce trade waste, and also the type of treatment plant they discharge to (primary or secondary/tertiary). Rates for each process are expressed on a \$/kL basis, and a series of 'charging codes' apply, which are determined on the basis of the processes required for each type of commercial business. Sydney Water currently has 66 process charging codes, which determine the volumetric charges for commercial customers. Current charges range from \$0.021/kL for a laundromat, up \$64.429/kL for a microfilm processing lab with a silver recovery unit.

Proposed charges

In recognising that identifying and administering 66 separate commercial business processes was likely to be inefficient, Sydney Water undertook a process of consolidation, reducing the number of chargeable process codes to 8. The process of consolidation involved reviewing each customer group and identifying common processes based on the costs of treating the trade waste.

Sydney Water's proposed reduction in the number of process codes from 66 to eight reflects a desire to consolidate a wide ranging list of customer categories that was the legacy of previous assessments and minor adjustments to cater for the individual circumstances of particular customers. This included consideration for lower or higher volume discharges or varying concentrations of waste streams from the 'typical' customer in each category.

Table 23 Sydney Water's Proposed Commercial Charges (\$2011-12)

Commercial code / process	Unit	2012-13	2013-14	2014-15	2015-16
low strength BOD food	\$/kL	1.90	1.94	1.95	1.96
higher strength BOD food	\$/kL	3.14	3.20	3.21	3.22
automotive	\$/kL	0.63	0.64	0.64	0.64
laundry	\$/kL	0.39	0.39	0.39	0.40
lithographic	\$/kL	0.30	0.30	0.30	0.31
photographic	\$/kL	0	0	0	0
equipment hire wash	\$/kL	2.84	2.89	2.91	2.92
ship to shore	\$/kL	13.49	13.74	13.81	13.86
Shopping centres with centralised pre-treatment	\$/kL	Site specific charges			
miscellaneous	\$/kL	0	0	0	0
other (default)	\$/kL	0	0	0	0

Locational signals

One of the key changes associated with the new charging approach is the removal of locational signals for commercial customers. Where customers were previously charged different rates according to

whether they discharged to primary or secondary/tertiary treatment plants, Sydney Water has proposed to charge a single fee per process regardless of treatment plant from 2012-13. Sydney Water has outlined the following drivers for this decision:

- The treatment plant pricing was resulting in different charges for competing customers within the same locality (i.e. in some cases similar customers on different sides of the same street were facing different charges, which did not appear appropriate to customers)
- Given commercial customers have little control over which treatment plant they discharge to, locational pricing signals are unnecessary
- Trade waste discharge costs for commercial customers reflect a very small proportion of their overall costs (including domestic strength wastewater and water), and therefore locational signals are likely to be limited
- Commercial customers are required to install an item of pre-treatment, usually a grease-trap, for which maintenance and regular cleaning has a greater impact on waste quality and sewer costs than trade waste discharge rates. Focussing on incentives for maintaining and cleaning grease-traps is likely to have a more beneficial impact on waste quality and sewer maintenance than the current pricing structure.

While the decision to move away from locational pricing represents a direct contradiction to IPART's third Trade Waste Pricing Principle that 'charges should vary to reflect differences in the cost of treating waste to the required standards at particular locations', our view is that Sydney Water's commercial code consolidation approach is likely to substantially improve the efficiency of managing commercial trade waste customers.

We agree with Sydney Water's assessment that providing locational pricing signals to commercial customers is unlikely to drive more efficient behaviour, and may in fact cause Sydney Water to incur net costs in identifying (and explaining) the appropriate treatment plant for each customer.

Customer impacts

The impact of the adjusted charging arrangements for commercial customers is likely to be smaller in overall terms than that experienced by industrial customers however the percentage increases are still significant. On average, customers discharging to a primary wastewater treatment plant will face increases in quality charges of up to 188 per cent or \$219 per year, while customers discharging to a secondary / tertiary treatment plant will face increases of up to 53 per cent or \$92 per year.

We note that in its submission to IPART, the ASBG noted that simpler charging systems were generally beneficial for smaller customers due to administrative ease.¹⁵ However, we consider that Sydney Water should undertake more detailed customer consultation to more clearly identify customer preferences and impacts with respect to the consolidation of process codes and the potential for phasing in price changes.

Managing compliance

In cases where customers do not follow the normal process for maintaining pre-treatment equipment, Sydney Water is proposing higher (penalty) charges, for example, an additional charge of \$10.06/kL for BOD process codes. In accordance with the stated pricing principles, Sydney Water needs to ensure that the higher charges reflect the cost of managing the non-compliance by the customer. Charges which simply penalise customers and raise revenue are not likely to be consistent with the IPART Trade Waste Pricing Principles. However, we also note that the pricing principles allow for charges to exceed costs where there are environmental justifications for doing so.

Sydney Water has advised that its proposed higher charge of \$10.06/kL if the pre-treatment equipment is not maintained, (which applies to 'low strength BOD' and 'higher strength BOD' food chargeable

¹⁵ Australian Sustainable Business Group (2011), *Submission on IPART's Sydney Water price determination*, October

process codes) is reflective of the deteriorating quality of trade waste discharged to the sewer (increased BOD, suspended solids and grease load) increasing the costs of treatment and corrosion

Recommendation

- While Sydney Water's revision to the number of commercial process codes is inconsistent with IPART's pricing principle concerning locational signals, we consider that on balance, the changes proposed are appropriate due to the reduced administration costs and apparent customer support. However, we recommend that Sydney Water undertake customer consultation to understand any customer impact issues
- As discussed above for industrial customers, Sydney Water should consider a transition period over which the new and adjusted charges can be implemented.

3.3 Ancillary charges

This section covers charges levied by Sydney Water for ancillary services, including:

- Industrial application, variation and agreement fees
- Commercial agreement charges
- Additional inspection charges (for industrial and commercial customers)
- Sale of trade waste data.

Charges related to the recovery of costs of administering the Wastesafe system, Sydney Water's system for monitoring the generation, collection, transportation and disposal of liquid waste from grease traps, are covered in section 3.4.

Sydney Water's review of its trade waste costs and charges (based on 2008-09 data) highlighted a number of issues, including:

- The number of deemed annual industrial customer inspections for some risk levels were not necessarily reflective of the risks associated with those customers
- Labour rates used to determine the current ancillary charges were not reflective of actual labour costs, due to significant wage increases
- Significant effort was being spent in managing non-compliant trade waste customers, particularly commercial customers, and the time and effort being spent on inspections had been underestimated.¹⁶

Accordingly, Sydney Water is proposing the following changes to its ancillary trade waste charges for the next regulatory period:

- Consolidation of industrial agreement charges from seven to three (while maintaining seven risk levels), based on revised inspection schedules for each risk level
- Increasing charges (commercial agreement charges, and application fees for industrial customers) to improve cost recovery
- Revising charges for additional inspections by adding a minimum charge and increasing the hourly rates for inspections, reflecting Sydney Water investigations which have identified significant effort in managing compliance and additional costs for inspections
- Reducing fees for the sale of trade waste data.

¹⁶ Sydney Water (2011), *Review of Trade Waste Costs and Charges – Methodology, findings and proposals*, October

Sydney Water's current (2011-12) and proposed trade waste ancillary charges are outlined in Table 24. All charges are proposed to remain constant in real terms from 2012-13 over the course of the next regulatory period. Changes to industrial agreement charges are covered in the following section.

Table 24 Current and proposed trade waste ancillary charges (\$2011-12)

	2011-12	2012-13	% change
Commercial agreement (permit) – first process	20.84	30.63	47%
Commercial agreement (permit) – each additional process	6.94	10.20	47%
Additional inspection (\$/hour)*	78.50	86.96	11%
Minimum increment per additional inspection	39.55	N/A	N/A
Minimum cost for additional inspection	N/A	173.91	N/A
Trade waste application fee for industrial customers – standard	285.55	419.80	47%
Trade waste application fee for industrial customers – non standard (\$/hour)	128.60	128.60	0%
Trade waste application fee for industrial customers – variation	343.35	504.72	47%
Sale of Trade waste data	137.85	137.85	0%

Notes: Current prices are as reported in Sydney Water (2011) *Trade Waste Fees and Charges for Commercial Customers* and *Trade Waste Fees and Charges for Industrial Customers* fact sheets.

*Current (2011-12) charge is \$/hour per Sydney Water attending officer, revised (2012-13) will be the same hourly fee, regardless of the number of Sydney Water representatives attending.

3.3.1 Industrial agreement charges

Industrial agreement charges are levied on a quarterly basis, and are intended to cover the costs of managing consents to discharge industrial trade wastewater to sewer, including planned inspections, monitoring and administration.

Sydney Water splits industrial trade waste customers into seven groups based on the risks associated with their discharge. Industrial agreement fees vary according to the customer's calculated risk index, each of which currently has a different number of scheduled annual inspections. The risk level also reflects the particular treatment plant(s) likely to be affected by the customer's trade waste. Industrial customers are able to maintain or improve their risk index on the basis of regular inspections, providing an incentive to reduce the risks associated with their discharge.

For the next regulatory period, Sydney Water is proposing to realign the number of inspections for each risk level to better reflect the risks and costs of each group. In particular, in its review Sydney Water found that the lowest risk customers posed a higher risk of breaching agreed discharge volume and quality standards, and accordingly has proposed to increase inspections for this group.

Current and proposed industrial agreement fees, as well as current and proposed numbers of inspections are outlined in the table below.

Table 25 Industrial agreement fees and inspections by risk index (\$2011-12)

Risk Index	Customers	Inspections per customer p.a.		Quarterly charges		
		Current	Proposed	Current	Proposed	% change
1	2	52	13	6,434.52	1,806.00	-72%
2	1	52	13	5,808.44	1,806.00	-69%
3	8	26	13	2,712.93	1,806.00	-33%
4	34	13	6	1,530.36	834.00	-46%
5	240	5	4	591.25	556.00	-6%
6	407	4	4	208.65	556.00	166%
7	54	2	4	139.10	556.00	300%

Source: Sydney Water (2011) *Trade Waste Fees and Charges for Industrial Customers 2011-12*, Trade Waste Model; Sydney Water (2011), *Submission to IPART 2012 pricing determination*, September, p.417.

As shown in Table 25, Sydney Water is proposing reductions in charges for all groups except 6 and 7, which face significant increases in charges. Given these increases in charges, despite reducing its overall number of inspections, Sydney Water will be able to significantly increase its revenue from industrial agreement charges.

Sydney Water's proposed industrial customer risk index quarterly industrial agreement fees, are based on an assumed unit rate for an 'inspection/sampling/administration event', which has been set to move industrial agreement fees (and trade waste ancillary charges more generally) towards cost recovery.¹⁷

While we support Sydney Water's approach to amending inspection frequencies based on risks of non-compliance, we note the following implications of the new inspection schedules and quarterly charges:

- By consolidating the numbers of inspections and having same charges for customers in separate risk groupings, Sydney Water may reduce incentives for customers to improve their risk level (i.e. customers in risk level 1 or 5 have little incentive to improve, as they will not see any reduction in fees before improving by 3 levels). However, we note that this may be a cosmetic issue only, and if the inspection numbers are reflective of costs and risks of each group, then a simple solution will be to consolidate the risk levels into three levels reflecting the new inspection frequencies
- Despite the significant increase in industrial agreement charges, Sydney Water expects that charges will not recover costs in the next regulatory period, with ancillary charges under-recovering costs by \$823 000 over the period (see Table 27, below)

Sydney Water has advised that it is not ideal to consolidate its risk index into three levels, as each risk index is linked to the number of sampling events per year that a customer must undertake as part of their agreement to discharge trade waste, as follows:

- Risk index 1 requires 91 samples /quarter
- Risk index 2 requires 45 samples/quarter
- Risk index 3 requires 22 samples/quarter
- Risk index 4 requires 11 samples/ quarter
- Risk index 5 requires 4 samples/quarter
- Risk index 6 requires 3 samples every 6 months
- Risk index 7 requires 2 samples every 6 months.

¹⁷ Deloitte analysis of information provided by Sydney Water on 3 November 2011 – Copy of SW Trade Waste Ancillary Charges _Oct 2011.xlsx

Samples must be sent to a NATA (National Association of Testing Authorities, Australia) accredited laboratory for analysis. Multiple breaches can affect a customer's risk index, so while it may not result in higher agreement fees (depending on the customer's original risk index) the sampling frequency will increase which is a direct cost to the customer.

3.3.2 Revisions to inspection charges

Industrial agreement charges and commercial agreement charges are designed to cover the costs to Sydney Water of establishing and managing trade waste agreements with these customers, including planned inspections during the year. Where additional inspections are required to manage a trade waste discharge, Sydney Water levies an additional inspection fee, which is applied as a per hour charge (with minimum increments of half an hour).

In its 2008-09 review, Sydney Water found that significant effort was being spent in managing non-compliant trade waste customers, particularly commercial customers, and that the time and effort being spent on inspections had been underestimated. In addition, it was also identified that labour rates used to set ancillary charges for the current regulatory period were not reflective of current wages.

Accordingly, Sydney water is proposing to:

- Increase its current hourly rate for additional inspections by 11 per cent (to \$86.96 per hour)
- Implement a minimum fee per inspection, equivalent to double the hourly inspection rate, or two hours (i.e. \$173.91).

Time and motion studies would be required to accurately determine the average cost of providing additional inspections, however, Sydney Water has not undertaken such detailed analysis for the purposes of determining ancillary charges. After reviewing the salaries in Sydney Water's customer services division, we consider that the proposed hourly rate for additional inspections is not inconsistent with wage rates in the division.

3.3.3 Increases in commercial agreement charges and industrial application fees to improve cost recovery

In its 2008-09 review of trade waste costs and subsequently in preparation for the current review, Sydney Water has identified a significant shortfall in revenue from ancillary services.

Table 26 Trade waste ancillary services current period under-recovery (\$2011-12, 000s)

	2008-09	2009-10	2010-11	2011-12	Total
Revenue	2,933	2,953	2,942	2,938	11,766
Costs	6,936	5,850	4,764	4,707	22,257
Under-recovery	- 4,003	- 2,898	- 1,822	- 1,769	- 10,491

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls

As noted in section 2.3 above, Sydney Water is in the process of undertaking a number of procedural changes to its business to improve efficiency and reduce costs. Nevertheless, it has identified that significant increases in charges will be required to move towards cost recovery in the next regulatory period. In particular, Sydney Water has identified that labour rates used to determine the current ancillary charges were not reflective of actual labour costs, due to significant wage increases.

This shortfall in revenue is the basis for Sydney Water's proposal to increase its industrial customer trade waste application fees and commercial customer agreement fees (first and additional processes) by 47 per cent for the next regulatory period (see Table 24 above).

While Sydney Water appears to have used some high-level judgments concerning the approach to improving cost recovery, decisions on the specific charges to increase and how much to increase them have been a matter of judgement.

A more detailed approach, using time and motion studies would be likely to result in charges that were more cost reflective in relation to the specific services being provided. However, we also note that the revised business model being implemented by Sydney Water for its customer services division appears to involve a more sharing of roles and tasks between teams.

The following table sets out Sydney Water's expected costs and revenues for ancillary trade waste services over the next regulatory period. As shown in the table, Sydney Water expects that a small gap will remain between costs and revenues. While we note that this forecast is based on the volume data Sydney Water has collected for 2008-09, and therefore may turn out to be inaccurate, we nevertheless consider that charges should be set to recover fully recover costs based on the best information available.

Table 27 Trade waste ancillary services next period under-recovery (\$2011-12, 000s)

	2012-13	2013-14	2014-15	2015-16	Total
Revenue	4136	4136	4136	4136	16,544
Costs	4503	4325	4301	4238	17,367
Under-recovery	-367	-189	-165	-102	-823

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls

As noted above, in the absence of a detailed understanding of the costs of providing individual services, the selection of which charges to increase to improve cost recovery is a somewhat arbitrary decision. Given that commercial agreement charges have the most significant volumes, we consider that increasing these charges is likely to have the least significant impact on customers (in general), as cost increases will be able to be spread over a larger base. However, this approach should be supported by customer consultations and bill analysis to manage impacts on customers.

In summary, we consider that while Sydney Water's proposed charges are reasonably cost reflective, in that they are set to broadly recover costs of providing ancillary services. However, the cost reflectivity of specific charges is highly uncertain due to the lack of any detailed data on the costs of providing individual services.

Improving cost recovery

The approach taken by Sydney Water both in terms of allocating costs and adjusting charges to move towards improved cost recovery is relatively high-level, and relies upon somewhat subjective judgements about time and materials costs of providing ancillary services, and which charges to adjust (and by how much) to increase revenue. Given the recent changes to Sydney Water's businesses processes, and the relatively minor contribution to business revenue from trade waste services, we consider that this is a reasonable approach for the purposes of the current review.

Sydney Water has advised that its proposed prices were set to achieve almost full cost recovery by 2015-16 (with under-recovery in this year of only 2.2 per cent of costs), and also noted that applying a transition period to full cost recovery would result in much larger cost under-recovery.

Charges should be set with the aim of full cost recovery based on the most accurate information available at the time. Addressing the under-recovery identified would require charges to be increased and could potentially exacerbate customer impacts. However, given the significant increases required to move towards cost recovery over the next regulatory period, relatively minor under-recovery of costs forecast by Sydney Water, and potential for greater customer impacts for increasing cost recovery, we consider that Sydney Water's proposed ancillary charges are appropriate. We also note that the increases to fixed ancillary charges, while significant in percentage terms, will be relatively minor in absolute terms and are therefore less likely to result in severe customer impacts than increases in waste quality charges.

For future reviews, Sydney Water should develop its pricing proposals based on full cost recovery and undertake earlier customer consultation to inform its pricing proposals and understand any customer impacts more clearly.

Noting these issues Sydney Water has advised that:

- it will inform the Business Customer Forum (with representatives from various industry groups – commercial and industrial) on proposed changes to trade waste charges, and has acknowledged that for future submissions earlier customer consultations pertaining to trade waste charges would be beneficial
- due to ongoing changes to the business structure, which includes efficiency improvements, a top-down allocation of costs was used instead of time and motion studies and has acknowledged that at the next pricing review a more detailed analysis can be undertaken.

Recommendation

- Sydney Water should consult with its customers to ensure it is aware of the impact on customers from its pricing proposal.
- Sydney water should investigate the costs of undertaking more detailed analysis, such as time and motion studies, to ensure that individual trade waste ancillary charges are cost reflective.

3.4 Wastesafe charges

Wastesafe customers currently pay Sydney Water a variable charge per litre of grease trap waste, of \$0.14/L (\$2011-12). Sydney Water then pays licensed processing facilities (depots) a per litre amount for the treatment and processing of grease trap waste.

We note that Sydney Water does not currently levy any direct charges for the recovery of costs incurred in administering the Wastesafe system. However, Sydney Water has advised that the per litre rate it pays to depots is significantly below the rate it charges customers, with the result that Sydney Water has over-recovered the costs related to administering the Wastesafe system during the current period.

Table 28 Wastesafe current period over-recovery (\$2011-12, 000s)

	2008-09	2009-10	2010-11	2011-12	Total
Revenue (from volumetric charges)	11,051	10,809	11,378	11,340	44,578
Costs (including payments to depots)	8,488	9,055	9,074	8,813	35,429
Over-recovery	2,564	1,754	2,305	2,527	9,149

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls

As set out above, for the next regulatory period, Sydney Water is proposing to transfer responsibility for billing customers for the treatment and processing of waste to contractors who clean the traps and transport the waste from customers' premises.

With the cessation of the per litre charge (which will presumably be replaced by a similar charge levied by transport operators on behalf of depots), Sydney Water is proposing to introduce the following charges to recover its costs:

- A fixed charge per waste trap
- Charges for inspections required as a result of missed pump-outs.

The following table sets out Sydney Water's proposed charges for Wastesafe services for the next regulatory period.

Table 29 Proposed Wastesafe charges (\$2011-12)

Charges	Units	2012-13	2013-14	2014-15	2015-16
Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	102.30	102.30	102.30	102.30
Missed service (pump-out) inspection charge for liquid waste traps <= 2kL	\$/liquid waste trap/event	255.75	255.75	255.75	255.75
Missed service (pump-out) inspection charge for liquid waste traps > 2kL	\$/liquid waste trap/event	511.50	511.50	511.50	511.50

Source: Sydney Water proposal

3.4.1 Fixed charges and cost recovery

The fixed, per liquid waste trap charge is derived in the Trade Waste Model from a base amount of \$100, which has been escalated by an inflation factor of 2.3 per cent to obtain the rate of \$102.30.

While there is no direct link in the Trade Waste Model between Wastesafe costs and prices, the fixed charge appears to be designed to achieve cost recovery (or close to it) in the first year of the next regulatory period (Table 30). However, as shown in the table, this approach leads to an increasing level of over-recovery in the next period.

Table 30 Wastesafe revenue recovery forecast (\$2011-12)

	units	2012-13	2013-14	2014-15	2015-16	Total
Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	102.30	102.30	102.30	102.30	
Number of traps	No.	12,693	12,693	12,693	12,693	
Revenue	\$000	1,298	1,298	1,298	1,298	5,194
Costs	\$000	1,285	1,270	1,169	1,169	4,892
Over-recovery	\$000	13	28	130	130	302

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls

Note: Revenue and costs forecasts are taken directly from the Sydney Water model, and do not include any Deloitte adjustments

We also note that while Sydney Water has forecast no change in the number of traps over the next regulatory period. This is consistent with historical data on the number of traps. However, given that the available historical data covers only a point in time estimate, we are concerned that there may be a risk of under or over-recovery (and therefore over or under-charging of customers) should forecasts turn out to be materially incorrect.

Sydney Water has advised that the Wastesafe charges were set at the level to ensure cost recovery from 2012-13. The potential over-recovery results from declining costs driven by target efficiency improvements, however there are business risks in relation to those ambitious efficiency targets, including the budgeted efficiency gains in labour costs to cover for any future real wage increase in the BCS group. According to Sydney Water, the minor potential over recovery in trade waste product charges could easily be turned into an under-recovery through the non-achievement of some of these ambitious cost efficiency targets. Sydney Water has noted that it will measure and record the number of commercial permits, commercial processes and industrial agreements on a monthly basis. This data will support forecasting by providing 12 data points each year.

While we note these comments from Sydney Water, and also that the over-recovery is relatively minor, we can see no reason why charges should not be set to recover costs on the basis of the best information available at the time.

Recommendations

- Sydney Water should adjust the fixed charges to ensure cost recovery (on the basis of current expectations of the number of traps). This adjustment is quantified in section 3.4.3, which summarises the full set of recommended amendments to Wastesafe charges
- Sydney Water should improve its internal processes with respect to data collection on the number of traps to enable more accurate demand forecasting and pricing in the future.

3.4.2 Missed service charges

Sydney Water is proposing to introduce ‘missed service charges’ for inspections required as a result of missed pump-outs for Wastesafe customers.

Liquid waste traps <= 2 kL

The missed service charge for small liquid waste traps is derived in the Trade Waste Model from a base amount of \$250, which has been escalated by an inflation factor of 2.3 per cent to obtain the rate of \$255.75.

In terms of the underlying calculation, Sydney Water has based the missed service charges on the minimum additional inspection charge for industrial/commercial customers (\$173.91 per inspection) plus an estimate of the additional administrative costs associated with handling a missed service (\$74.47 per event) including:

- Issuing letters
- Receiving calls
- Recording the event in the system.

Costs for these activities are based on overhead costs (i.e. cost of letter) and time costs for employees. While we understand that Sydney Water has not undertaken time and motion studies to inform its estimates, and noting that we are not familiar with the administrative requirements of the Wastelink system, based on our experience in similar engagements we consider that the time and costs identified are not unreasonable.

Volume assumptions

Sydney Water has advised that volume forecasts are not available for missed service charges in the next period, and that the revenue from the penalty charges is not expected to be significant.

Information provided by Sydney Water suggests that historically, there has been a 10 per cent non-compliance rate for pump-outs.²¹ Sydney Water has further advised that it currently experiences around 2,600 events that would accrue a charge per annum, but also noted that it expects the introduction of the missed service charge to significantly reduce this amount. Sydney Water also noted that the (marginal) costs associated with managing missed service events were not included in the calculation of charges. However, we consider that most of the costs of managing compliance will be reflected in the largely fixed business customer service costs identified by Sydney Water (i.e. labour and non-labour ancillary costs). However, we agree that the new charge is likely to reduce non-compliance significantly, and also note that Sydney Water is forecasting significant reductions in its overall trade waste costs (not least of which is the assumption that efficiency gains will offset the 4 per cent increase in wage rates in the EBA). Therefore, we have not recommended any adjustments to Sydney Water’s Wastesafe charges.

²¹ Data provided by Sydney Water, 27 October 2011, Wastesafe OT Expenditure & % Compliance

Nevertheless, we consider that missed pump-out charges could result in the recovery of a significant amount of revenue in the context of total Wastesafe revenue, and therefore recommend that for future reviews Sydney Water should ensure that it includes revenue forecasts for missed services events in the calculation of its Wastesafe charges.

Recommendation

- Sydney Water should clarify the conditions under which missed service charges will apply
- For future reviews, Sydney Water should develop a forecast of missed pump-outs based on historical non-compliance and pump-out numbers and calculate an associated revenue forecast. The resulting revenue forecast should then be used to calculate an appropriate reduction in the fixed service charge.

3.4.3 Summary of Wastesafe charge recommendations

The following table provides a summary of Sydney Water's proposed Wastesafe charges and Deloitte's proposed amendments, based on the recommendations regarding efficient costs and charges outlined in this section and section 2.4 above.

Table 31 Wastesafe summary of recommendations (\$2011-12, 000s)

	Units	2012-13	2013-14	2014-15	2015-16
Sydney Water proposed costs	\$000	1,294	1,279	1,177	1,177
Proposed adjustments					
<i>IT costs (contract variation)</i>	\$000	94	71	42	7
Alternative cost estimate	\$000	1,200	1,208	1,136	1,171
Volumes (no. of traps)	No.	12,693	12,693	12,693	12,693
Required annual price	\$	94.51	95.18	89.46	92.23
Alternative proposal:					
Fixed \$/liquid waste trap charge (averaged over the 4 year period)	\$	92.85	92.85	92.85	92.85

Source: Copy of Sydney Water_Trade Waste_October 2011 (eric).xls; BCS SCI(2011)_FINAL_VERSION with 5 year matrix for Tradewaste audit.xls; and Deloitte analysis

3.5 Summary of key findings and conclusions

We have reviewed Sydney Water's proposed trade waste charges in order to:

- Assess the cost reflectivity of trade waste charges for the period 1 July 2008 to 30 June 2012 to the extent necessary to assess the cost reflectivity of the proposed trade waste charges
- Compare how trade waste charges are calculated, and practices for the same services across similar metropolitan agencies (including overseas systems if appropriate), identifying any clear differences and investigating and commenting on the reasons for the differences
- Assess and review Sydney Water's charging approach against IPART's Trade Waste Pricing Principles.

We have applied the principle that charges should be cost-reflective as the key consideration. In the context of trade waste, this is necessary to provide appropriate signals to customers concerning incentives to reduce or apply pre-treatment processes to waste.

However, it is also necessary to recognise that this needs to be balanced against considerations of how effective price signals are likely to be in relation to the complexity or simplicity of charges. This is particularly important given the often high-level nature of the approaches for allocating costs, which may dilute the effectiveness of detailed pricing structures.

In cases where we have identified issues concerning the robustness and appropriateness of Sydney Water's approach to determining charges, we have provided alternative estimates or approaches for setting charges. This has primarily occurred where:

- We consider that the costs being recovered are not efficient or there are issues with the allocation of costs
- We consider that the charges being proposed are not cost reflective, or are unlikely to recover Sydney Water's costs.

3.5.1 Waste quality charges

While average increases in industrial and commercial waste quality charges are relatively moderate, some customers are likely to face significant increases in bills. These customer impacts are exacerbated by Sydney Water's proposal to apply price increases fully (or almost fully) in the first year of the next regulatory period.

Pending the results of Sydney Water's consultation with customers on transitioning to full cost recovery, we recommend that Sydney Water implement transitional arrangements for waste quality charges. One way of doing this would be to work towards full cost recovery by the last year of the regulatory period.

Sydney Water should reconsider the removal of sulphate charges in the context of its criticality in creating corrosive conditions. In the event that Sydney Water maintains its decision to remove sulphate charges, we consider that it should undertake work to identify the primary sources of sulphate and take steps to manage sulphate levels as appropriate.

While Sydney Water's revision to the number of commercial process codes is contradictory to IPART's pricing principle concerning locational signals, we consider that on balance, the changes proposed are appropriate due to the reduced administration costs and apparent customer support. However, we recommend that Sydney Water undertake customer consultation to understand any customer impact issues. While we note that Sydney Water is proposing to inform its Business Customer Forum commencing 30 November 2011, customer consultation on impacts would have been beneficial prior to IPART's review process, so that any reasonable changes can be made.

3.5.2 Ancillary charges

Our key finding with respect to Sydney Water's proposed ancillary trade waste charges was the expected under-recovery of costs over the next regulatory period, amounting to \$823 000, and potentially significant customer impacts due to the majority of the price increase being applied in the first year of the next regulatory period.

Sydney Water has advised that its proposed prices were set to achieve almost full cost recovery by 2015-16 (with under-recovery in this year of only 2.2 per cent of costs), and also noted that applying a transition period to full cost recovery would result in much larger cost under-recovery.

Charges should be set with the aim of full cost recovery based on the most accurate information available at the time. Addressing the under-recovery identified would require charges to be increased and could potentially exacerbate customer impacts. However, given the significant increases required to move towards cost recovery over the next regulatory period, relatively minor under-recovery of costs forecast by Sydney Water, and potential for greater customer impacts for increasing cost recovery, we consider that Sydney Water's proposed ancillary charges are appropriate. We also note that the increases to fixed ancillary charges, while significant in percentage terms, are less significant in absolute terms and are therefore less likely to result in severe customer impacts than increases in waste quality charges.

For future reviews, Sydney Water should develop its pricing proposals based on full cost recovery and undertake earlier customer consultation to inform its pricing proposals and understand any customer impacts more clearly.

3.5.3 Wastesafe charges

Our key findings with respect to Wastesafe charges are the inconsistency between the IT costs used by Sydney Water to set charges and the IT costs approved in the contract variation documentation provided as part of this review. Accordingly, we have recommended that Sydney Water reduce its fixed Wastesafe charges to ensure cost recovery based on the costs set out in the contract variation documentation provided by Sydney Water (on the basis of current expectations of the number of traps as set out in Sydney Water's Trade Waste Cost Model).

The table below summarises Deloitte's recommended Wastesafe ancillary charges for Sydney Water for the next regulatory period.

Table 32 Recommended adjustments to Sydney Water Wastesafe charges (\$2011-12)

	Charges	Units	2012-13	2013-14	2014-15	2015-16
Sydney Water proposal	Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	102.30	102.30	102.30	102.30
Deloitte recommendation	Fixed \$/liquid waste trap charge	\$/liquid waste trap/year	92.85	92.85	92.85	92.85

Source: Sydney Water proposal and Deloitte analysis

In addition, we have made the following recommendations and observations regarding Sydney Water's proposed missed service charges:

- Sydney Water's submission to IPART is unclear as to how and when missed service charges would apply. Further information provided by Sydney Water has clarified the approach to levying missed service charges (i.e. when two consecutive services are missed). Sydney Water should ensure that its policy on the application of these charges is made clear to customers prior to their introduction
- We also consider that for future reviews Sydney Water should ensure that it includes revenue forecasts for missed services events in the calculation of its Wastesafe charges.