Discharge factors for non-residential customers

Water — Draft Report
September 2014
Discharge factors for non-residential customers

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Invitation for submissions

IPART invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by 7 November 2014.

We would prefer to receive them electronically via our online submission form <www.ipart.nsw.gov.au/Home/Consumer_Information/Lodge_a_submission>.

You can also send comments or by mail to:

Discharge Factors Review
Independent Pricing and Regulatory Tribunal
PO Box Q290
QVB Post Office  NSW  1230

Late submissions may not be accepted at the discretion of the Tribunal. Our normal practice is to make submissions publicly available on our website <www.ipart.nsw.gov.au> as soon as possible after the closing date for submissions. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed on the previous page.

We may choose not to publish a submission—for example, if it contains confidential or commercially sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please indicate this clearly at the time of making the submission. IPART will then make every effort to protect that information, but it could be disclosed under the Government Information (Public Access) Act 2009 (NSW) or the Independent Pricing and Regulatory Tribunal Act 1992 (NSW), or where otherwise required by law.

If you would like further information on making a submission, IPART’s submission policy is available on our website.
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1 Executive summary

In setting water utilities’ sewerage usage prices ($/kL) for non-residential customers, IPART estimates the volume of sewerage discharged by a customer by applying a discharge factor to the customer’s water consumption. Discharge factors are also applied to non-residential sewerage service charges ($ per property, based on meter size).

In general terms, a water utility’s prices are determined by dividing its notional revenue requirement (reflecting efficient costs) by forecast sales volumes or quantities (customer connections, volumes of water sold, and volumes of wastewater collected and treated).

Discharge factors have an impact on quantity (volume) estimates, and hence price, and are currently set by the water utilities independent of IPART. This means that discharge factors vary across the water utilities and the water utilities can, in theory, change discharge factors at any time.

In 2013, IPART released a Discussion Paper and sought stakeholder comments on whether discharge factors for the same type of customer should be uniform across the water utilities that we regulate.¹ That is, whether a bakery in Sydney should be subject to the same deemed discharge factor as a bakery in Hunter, Gosford and Wyong.

We received five submissions to our review. There was some support from stakeholders for standardising discharge factors to mitigate any inequities. However, both Hunter Water Corporation (Hunter Water) and Sydney Water Corporation (Sydney Water) provided evidence that existing processes for assessing and setting discharge factors are sufficient. Given these processes, and the low level of stakeholder concern about the current arrangements, we do not consider there is a strong case for regulation of discharge factors at this stage.

Our draft decision is to maintain our current practice for pricing determinations where we adopt the values for discharge factors that are set by the regulated water utilities – unless we identify a strong case to do otherwise during the price review process. We will continue to ask for information from utilities on discharge factors as part of our price review process. Utilities should ensure customers understand the impact that discharge factors have on their bills, and the process for seeking an assessment of their discharge factor.

This report outlines the context for the review, stakeholders’ views and our considerations for our draft decision. We are seeking comments from stakeholders on our draft decision.

¹ Five of the water utilities that IPART regulates use discharge factors: Gosford City Council (Gosford Council), Hunter Water Corporation (Hunter Water), Sydney Water Corporation (Sydney Water), Wyong Shire Council (Wyong Council) and Essential Energy (Broken Hill).
1.1 Key issues for the review and stakeholders’ views

Different classes of businesses would be expected to have different discharge volumes and hence discharge factors. For this review, we were particularly interested in issues associated with similar businesses in different geographical areas having different discharge factors applied to them, as a result of each water utility calculating its own discharge factors.

The key issues that we sought comment on in our Discussion Paper were:

- Standardising discharge factors for small businesses across water utilities.
- A proposal to achieve this by a two-part process:
  - firstly, a list of discharge factors for an extensive range of small business types, and
  - secondly, where the water utility or the individual customer disagrees with this discharge factor, a site-specific discharge factor would be calculated for that premise.
- A proposal to use the list of standard discharge factors published by the NSW Office of Water (NOW)\(^2\) as a starting point.
- Using a formula to address instances where a business has a sewerage service charge that is disproportionately high relative to its actual sewerage discharge volumes, due to a combination of:
  - a large metered water capacity demand (predominately for firefighting purposes) – and hence a large meter, and
  - a high discharge factor (due to low levels of actual water demand).

We received five submissions with varying views, three from the public and two from our regulated water utilities. Whilst the public submissions and Hunter Water (in principle) supported IPART’s proposal for standardising discharge factors, there were also concerns from Hunter Water that NOW’s list of discharge factors is overly prescriptive, and from Sydney Water that NOW’s list of discharges is outdated and not suitable for application to their customers. Sydney Water also reported members of its Business Customer Forum were concerned about the additional costs of regulation and that they do not appear to be justified.

Regarding our proposal to use a formula for customers with fire-fighting meters, both Sydney Water and Hunter Water report the issue has been addressed through site specific discharge factors or other metering arrangements.

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\(^2\) The list is intended to help the large number of Local Water Utilities in NSW regulated by NOW, by giving guidance as to appropriate discharge factors for different types of businesses.
1.2 Our draft decision

One of the principles that we apply in our price reviews is that customers imposing similar costs on the system should pay similar charges. In this review, we took account of concerns raised by stakeholders that the costs of a standardised approach would outweigh the benefits. We also took account of evidence reported by utilities that their existing processes have been effective in reviewing and updating discharge factors as needed.

Our draft decision is to maintain our current approach of using the discharge factors as set by the water utilities - unless we identify a strong case to do otherwise during the price review process.

However, to improve the transparency of the process, we consider it good practice that utilities should communicate with customers on their websites (eg, on fact sheets):

- how the discharge factor affects customers’ bills
- a list of discharge factors used for different businesses, industries or customer types
- the process, cost and information required for customers to seek assessment.

We will also include some of this information in our reports and fact sheets on our price determinations.

While some of this information is listed on water utilities’ websites, the process for seeking an assessment is not always clear. We consider that improving transparency around discharge factors and the assessment process is a cost effective way for customers to address any concerns about the application of discharge factors. The assessment process would also deal with businesses with fire-fighting capacity.

We consider that customers should pay for the cost of individual assessments. However, we consider that Sydney Water’s practice of refunding customers who can show that their discharge factors were set too high is good practice.

1.3 Providing input to the review

We invite written comment on this Draft Report and encourage all interested parties to provide submissions addressing the matters discussed. The timetable for submissions to be received and the completion of the review is provided below.
Table 1.1 Indicative dates

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release Draft Report</td>
<td>26 September 2014</td>
</tr>
<tr>
<td>Submissions due</td>
<td>7 November 2014</td>
</tr>
<tr>
<td>Release Final Report</td>
<td>Mid December 2014</td>
</tr>
</tbody>
</table>

2 Context for the review

In 2013, IPART began a review of the discharge factors that regulated water utilities use to calculate non-residential sewerage bills. Discharge factors have been developed because of the difficulty in metering and thus measuring sewage flows and are currently calculated by the water utilities. Consequently, discharge factors vary from one utility to another. When we determine prices, we adopt those values as part of our pricing process.

This chapter provides background information on how discharge factors affect customers’ bills, recent price reforms and our Discussion Paper.

2.1 How IPART sets prices and the use of discharge factors

IPART is responsible for setting water and sewerage prices. We do this by first using the building block approach to estimate the revenue a water utility needs to efficiently and sustainably run its business (Figure 2.1).

Figure 2.1 The building block approach

Note: This chart is indicative only. Actual building block ratios vary significantly between utilities and depend on their capital structure, operating environment and actual costs.
Sewage quantities (volumes) are expensive to measure directly and such measurement is not cost effective for the majority of customers. Therefore, for a given customer, the volume of sewage discharged is calculated by estimating the percentage of their water usage that is discharged to the sewerage system. This is called a **discharge factor**.

IPART sets **service** (fixed, $ per meter) charges for residential sewerage customers and a combination of **service** ($ per meter, per meter size) and **usage** (variable, $ per kL) charges for non-residential sewerage customers.

Whilst residential water usage can vary significantly, residential sewage discharges have a much smaller variation. This small variation, and the difficulty in metering sewage flows, has lead IPART to set a common sewerage service charge for residential customers of each water utility, but no sewerage usage charge.

In the case of non-residential customers, IPART generally sets a sewerage service charge per connection (based on water meter size multiplied by the discharge factor) and a sewerage usage charge per kL of estimated sewage discharged above the discharge allowance (estimated by applying the discharge factor to metered water consumption).

### 2.2 Recent reforms in price structures

Prior to 2012, there were differences between each regulated water utility’s application of discharge factors to non-residential sewerage charges (Table 2.1), for example:

- Discharge factors ranged from an average of 74% to 90%.
- Sydney Water allowed a discharge of 500 kilolitres (kL) before levying sewerage usage charges but other water utilities did not.

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3 This is because large water users tend to have high outdoor consumption that is not discharged to the sewer system.
4 This fixed charge incorporates a usage charge for a deemed 150 kL discharge.
5 Residential customers are levied a common service charge only, and no sewerage usage charge.
Table 2.1 Comparison of non-residential sewerage charges across water utilities prior to 2012

<table>
<thead>
<tr>
<th></th>
<th>Sydney Water</th>
<th>Hunter Water</th>
<th>Gosford Council</th>
<th>Wyong Council</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge allowance</td>
<td>500 kL</td>
<td>0 kL</td>
<td>0 kL</td>
<td>0 kL</td>
</tr>
<tr>
<td>Usage charge</td>
<td>Per kL charge for all customers.</td>
<td>Per kL charge for all customers.</td>
<td>Per kL charge for all customers.</td>
<td>Per kL charge for all customers.</td>
</tr>
<tr>
<td></td>
<td>Most small businesses had a default discharge factor of 78% applied.</td>
<td>Discharge factors were between 10% and 85% with an average of 74%.</td>
<td>The average and default discharge factor was 90%.</td>
<td>A minimum sewerage bill value applied.</td>
</tr>
<tr>
<td>Service charge</td>
<td>Based on meter size.</td>
<td>Based on meter size.</td>
<td>Based on meter size.</td>
<td>Based on meter size.</td>
</tr>
<tr>
<td></td>
<td>Adjusted by discharge factor.</td>
<td>Adjusted by discharge factor.</td>
<td>No discharge factors applied.</td>
<td>Adjusted by discharge factor.</td>
</tr>
<tr>
<td></td>
<td>Most small businesses had a default discharge factor of 78% applied.</td>
<td>Discharge factors were between 10% and 85% with an average of 74%.</td>
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</tr>
</tbody>
</table>

a A discharge allowance is the amount of sewerage discharge a customer is allowed before usage charges are levied. Billable Sewerage Usage = (Water Consumption x Discharge Factor) – Discharge Allowance.

b An example of how sewerage bills are calculated generally can be shown by the following example for a Sydney Water customer. If a small non-residential Sydney Water customer had metered water consumption of 1,000kL pa, the base service charge was $1,000, the usage charge was $1.00/kL, the discharge allowance was 500kL and the discharge factor was 78%, their sewerage bill is calculated thus: Sewerage Service = $1,000 x .78 = $780 and the Sewerage Usage Charge = [(1,000kL x .78)-500kL]*$1.00 = $230 for a total sewerage bill of $1010.

c Service charges were proportionate to the residential charge, which was based on a 20mm meter. For example, if the 20mm charge was $500 and a non-residential customer had a 40mm meter, then the 40mm service charge was calculated by multiplying $500 by 40² and dividing by 20². (40² and 20² being the respective ratios of the cross sectional areas of the connections). The resultant 40mm base charge would be $500 x 1600/400 = $2000.

d The actual service charge paid would be adjusted by the discharge factor. Eg, $2,000 x .78 = $1,560.

e Prior to the 2013 Determination, Hunter Water’s non-residential sewerage service charge was 200% of the equivalent residential service charge. Low discharge factors went some way to addressing the imbalance in the ratio of residential to non-residential base (20mm) service charges prior to 1 July 2013.

In addition to the utilities listed above, Essential Energy also applies discharge factors to non-residential sewerage charges (but no discharge allowances are currently applied to the calculation of its bills).
Our review into price structures in 2012 brought about changes\(^6\) that mean that water utilities are transitioning to more standardised price structures, as part of our last price determinations:\(^7\)

- **Discharge Factors** - no change to discharge factors set by water utilities.
- **Discharge allowances** - regulated water utilities headed towards a 150 kL discharge allowance for non-residential customers, in line with the deemed allowance for residential customers. Sydney Water’s discharge allowance for non-residential customers is reducing from 500 kL pa to 300 kL pa over the current determination period. Hunter Water’s discharge allowance for non-residential customers is rising from 0 kL to 75 kL pa over the current determination period. Gosford and Wyong Councils’ 2013 determinations incorporated a 150 kL pa discharge allowance for non-residential customers.
- **Non-residential sewerage usage charges** - water utilities transitioned to levels that are more reflective of the marginal (incremental) cost of transporting, treating and disposing of domestic strength effluent.
- **Non-residential sewerage service charges** - discharge factors now apply to the non-residential sewerage service charge of all water utilities.

### 2.3 Our Discussion Paper

We published a Discussion Paper\(^8\) in September 2013, which set out the range of discharge factors charged by the different water utilities and sought stakeholders’ views on whether a more standardised approach was needed.

#### 2.3.1 A two-part approach with standardised discharge factors

In our Discussion Paper, we proposed a two-part approach for discharge factors, comprising:

- **Part 1**: A list of discharge factors for an extensive range of business types, which IPART would likely include in future price determinations.
- **Part 2**: Where the water utility or the individual customer disagrees with this discharge factor, then a site-specific discharge factor can be calculated for that premises. This could occur under the following arrangements:
  - where the water utility initiates a site specific assessment, there is no cost to the individual customer
  - where the individual customer requests a site specific assessment, then the water utility may levy a charge for the assessment

\(^7\) In our last determination for Essential Energy, we decided to concentrate reforms in the price of water supply and so deferred any changes associated with our price structure reform.
\(^8\) IPART, Discharge factors for non-residential customers – Discussion Paper, September 2013.
- the applicable assessment charges could be published in future determinations, as a miscellaneous charge
- only where the site specific assessment varies by 10% or more from the standard discharge factor, could the site specific discharge factor apply.

### 2.3.2 Use of discharge factors published by the NSW Office of Water (NOW)

We proposed that, if a standard list of discharge factors is to be adopted, a good starting point may be the standard discharge factors published by NOW. This list was first compiled in 2002 by the then Department of Land and Water Conservation. It was intended to help the large number of Local Water Utilities in NSW, by avoiding duplication in the research and assessment necessary to formulate the table. The table was expanded and updated in 2006 and 2009.

We also proposed that, if there is a case for developing a standard list of discharge factors, we would consult with the water utilities we regulate and NOW to derive such a list. We noted that, if such a list were applied at future price determinations, it would not impact on the financial position of the water utilities. Changes to their current discharge factors would not change the water utilities’ revenue, only the distribution of charges amongst non-residential customers.

### 2.3.3 Large water meters installed for fire-fighting purposes

We noted in our Discussion Paper that there is a potential anomaly in the application of sewerage discharge factors for customers who have large water meters (due to their need for large water capacity, predominately for fire-fighting purposes) and high discharge factors, but only low levels of actual sewerage discharge. These customers can face disproportionately high sewerage service charges, relative to the demand they are placing on the sewerage system.⁹

Whilst the numbers of customers in this situation is small and the impact on the water utilities’ revenue is relatively minor, there is the potential for inequity and burden for the customers involved.

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⁹ For example, if the non-residential customer has a small kitchen, shower and toilet, their wastewater discharged to the sewerage system may represent a high proportion of their actual water consumption (hence the high discharge factor). When the high discharge factor is applied to the large meter (which is in place to allow for high water consumption capacity – eg, for firefighting purposes), their sewerage service charge would be disproportionately high relative to the volumes of wastewater they discharge to the sewerage system.
We therefore proposed that, for the purpose of calculating non-residential sewerage service discharge factors for customers in the above-mentioned situation, water consumption is deemed to be the greater of:

1. Actual Water Consumption; and

2. $100 \text{ kL} \times 25\text{mm Equivalent Water Connection(s)} = \left(100\text{ kL} \times \sum_{n=1}^{\infty} \frac{\text{Meter Size}_n^2}{25^2} \right)$

We have previously estimated average water consumption for a 25mm water connection to be about 475 kL/pa.\(^{10}\) However, we proposed using 100 kL per 25mm equivalent water connection because we considered this would achieve the desired effect of reducing the resultant sewerage service charge for customers we are trying to remedy, without causing unnecessary calculations for the utilities\(^{11}\) or introducing other unforeseen consequences from setting deemed water consumption higher.

We considered that calculating water consumption using this method may result in more cost-reflective sewerage service charges for customers with large meters installed for fire-fighting purposes.

3 Stakeholders’ views on our Discussion Paper

We received five submissions in response to the Discussion Paper. These were from Mr Ray Carter (commercial property owner), Mr Roger Heath (Heath Consulting Engineers), Mr Peter Price (Economic Planning Advocacy), Hunter Water and Sydney Water. These submissions are available on our website.

The following sections summarise the views expressed by stakeholders in their submissions.

3.1 A two-part approach with standardised discharge factors

Mr Carter and Heath Consulting Engineers generally favour IPART’s proposals. They consider that standardisation would mitigate inequitable sewerage charges and that non-residential customers should only be charged for the actual load placed on the sewerage system.

\(^{10}\) This is calculated from Hunter Water’s price structures special information request. Where total consumption for all 25mm connections for 2011/12 was 1,171,230 kL and there were 2,462 customer connections (25 mm).

\(^{11}\) If the average water consumption was used, then 50% of customers may seek to avail themselves of this clause. This would not be the intention.
Hunter Water is supportive of IPART’s proposed two-part approach to discharge factors, but strongly advocates grouping the discharge factors into bands. Hunter Water currently groups discharge factors into five bands and its non-residential customers are assigned to a band based on customer class or property type.

Sydney Water raised concerns with IPART’s proposed approach. According to Sydney Water:

- a standardised set of discharge factors is costly to compile and too prescriptive
- there is no substantive evidence that there is a problem:
  - Sydney Water carries out assessments and there are minimal complaints\(^\text{12}\)
  - there are strong incentives for Sydney Water to regularly review and validate its standard discharge factors – because, if it reviews and subsequently reduces a customer’s discharge factor, the customer may seek a refund, which can be significant
- an assumption that discharge factors are homogeneous for all geographical areas needs further investigation – Sydney has higher density developments and discharge factors may be different to other less developed areas of NSW.

Both Sydney Water and Hunter Water currently allow non-residential customers to have their discharge factors reviewed. The customer is required to provide the necessary information to allow assessment.

### 3.2 Use of discharge factors published by NOW

Mr Price considers that the NOW tables of discharge factors for local councils do not provide enough assistance regarding sewage outflows.\(^\text{13}\)

Both Sydney Water\(^\text{14}\) and Hunter Water\(^\text{15}\) raised concerns about using the discharge factors published by NOW as the basis for a standardised list of discharge factors. Sydney Water is concerned that the NOW publication is outdated for its purposes, and notes that the level of discharge for customers can vary over time. It maintains that it is able to demonstrate to customers that its discharge factors are based on current customer and industry assessments.\(^\text{16}\)

Instead, both Sydney Water and Hunter Water suggest IPART could publish a set of guidelines, in consultation with the water utilities.

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\(^\text{12}\) According to Sydney Water, only a very small number of non-residential customers have raised concerns.

\(^\text{13}\) Mr Peter Price submission, October 2013, p 2.

\(^\text{14}\) Sydney Water submission, October 2013, p 16.

\(^\text{15}\) Hunter Water submission, October 2013, p 2.

\(^\text{16}\) Sydney Water submission, October 2013, p 19.
3.3  Payment for individual assessments

If a customer questions their discharge factor, Hunter Water considers that the customer should be responsible for providing supporting evidence and therefore bear the costs of the individual assessment.

Sydney Water also considers that the customer is responsible for supplying the information necessary to review a discharge factor, but will refund the customer where a customer’s discharge factor is shown to have been set too high. Sydney Water is not in favour of imposing a set fee for individual discharge factor assessments and considers that its current process is effective.

3.4  Meters for fire-fighting

Both Hunter Water and Sydney Water maintain that their current arrangements address the circumstances of businesses with capacity for fire-fighting. Hunter Water requires separate water metering arrangements for fire and business components and fire services are not metered for sewer service charge purposes. In cases where there are not separate metering arrangements, customers are advised to seek consultancy assistance to attain the optimal water metering arrangements.

Sydney Water maintains its current approach, where customers who do not accept a standard discharge factor can choose to provide evidence, is flexible and effective. Sydney Water advises that of the 17 customers in this situation, 15 have been assigned a site-specific discharge factor.

4  Our considerations

Our concern at the start of this review was the potential inequity from different discharge factors applied by different water utilities, with the outcome that users that impose the same cost on the system are being charged different prices. As outlined in our review into price structures, one of the principles that we apply in our price reviews is “customers imposing similar costs on the system should pay similar charges.”

Although there was some support from stakeholders on our proposal of a two-part approach to standardising discharge factors, both Hunter Water and Sydney Water raised concerns about the approach on the basis that it would be overly prescriptive and costly to compile and maintain.

17  Sydney Water submission, October 2013, p 19.
18  Sydney Water submission, October 2013, p 19.
19  Hunter Water submission, October 2013, p 2.
20  Sydney Water submission, October 2013, p 19.
Non-residential customers currently have the ability to ask their utility to conduct an individual assessment of the discharge factors used to determine their bills and obtain an individual discharge factor. We therefore consider the costs of implementing a standardised approach at this time, and the resulting higher level of regulation, would outweigh the potential benefits. We were also influenced by the low level of complaints received about the current level of discharge factors and the assessment process.

Utilities are best placed to review and update discharge factors as they respond to customer queries and carry out assessments. Sydney Water, for example, advises it is reviewing its industry standard discharge factors and its default discharge factor as part of the transition to a lower discharge allowance.

Our draft decision is that we will continue to adopt the discharge factors calculated by water utilities as inputs to our price determination process – unless we identify a strong case to do otherwise during the price review process. However, to improve the transparency of the process, utilities should communicate with customers on their websites (eg, on fact sheets):

- how the discharge factor affects customers’ bills
- a list of discharge factors used for different industries and businesses
- the process, cost and information required for customers to seek an assessment of their deemed discharge factor.

We will continue to seek discharge factor information from utilities in their pricing submissions and annual information returns. We will also include some of this information in our reports and fact sheets accompanying price determinations.

While some of this information is listed on water utilities’ websites, the process for seeking an assessment is not always clear. We consider that improving transparency around discharge factors and the assessment process is a cost effective way for customers to address any concerns about inequitable charges. The assessment process would also deal with businesses with fire-fighting capacity.

We consider that customers should pay for the cost of individual assessments of discharge factors. In their submissions, several stakeholders supported this view. We also consider that Sydney Water’s practice of refunding the customer, where a customer’s discharge factor is shown to have been set too high, is good practice.

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22 Heath Consulting Engineers, Mr Peter Price, Hunter Water and Sydney Water supported the view that the requesting customer should be responsible for having their own assessment carried out. Mr Ray Carter did not comment on this aspect of the discharge factors review.