

20 July 2018

1 What is this review about?

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is reviewing the method we use to calculate the working capital allowance we include in regulated businesses' notional revenue requirement (NRR) for price setting purposes.

This allowance compensates businesses for delays between them delivering regulated goods or services and receiving payment for those goods or services, after taking into account delays between them receiving goods or services and paying for those goods or services. It typically represents less than 1% of their NRR.

We established the current method for calculating the working capital allowance in 2005. In this review we aim to incrementally improve on our 2005 method. We engaged Deloitte Access Economics to provide advice on how to improve our method.¹

This Information Paper explains what our current method is and how we propose to change it, and seeks stakeholders' comment.

2 Questions for stakeholders

We particularly seek stakeholder views on whether we should:

1. Calculate a business' net working capital requirement as receivables *minus* payables *plus* inventory.
2. For water businesses, measure receivables:
 - a) in days of total revenue based on half the *net* number of days in the billing cycle for which services are billed in arrears, *plus* a benchmark number of days of delay between the last day of the billing cycle and the receipt of payment, and
 - b) determine the benchmark number of days of delay on a case-by-case basis in the context of the review, on the principle that this number should:
 - i) represent the average number of days of delay for an efficient business providing the same service, and
 - ii) assume that all customers pay their bills on or before the due date, because late payment fees compensate the business for payments made after the due date.
3. For non-water businesses, measure receivables in days of total revenue and decide on the appropriate number of days on a case-by-case basis in the context of the review and with reference to:
 - a) our updated method for measuring receivables for water businesses, and
 - b) the business' actual historical receivables where suitable information is available for the regulated part of the business.
4. For all businesses, continue to measure payables:

¹ Deloitte, *Return on Working Capital in the Notional Revenue Requirement, Final report for the Independent Pricing and Regulatory Tribunal*, 5 July 2018. The report is available on our website at <https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Reviews/Working-capital/Review-of-working-capital-allowance>

- a) in days of operating expenditure plus capital expenditure (net of capital contributions), and
 - b) use 30 days as the number of days unless there is a compelling reason to use a different number of days.
5. For all businesses, calculate inventory as a fixed (real) dollar amount with reference to the business' actual inventory in the recent past and/or other relevant information.
 6. For all businesses, calculate the allowance for working capital as the return on the net working capital requirement using a nominal weighted average cost of capital (WACC).

3 Review process

We plan to release a Policy Paper on working capital in November 2018. Our indicative timetable for this review is outlined in Table 1 below.

Table 1 Timetable for the review of IPART's working capital policy

	Date
Release information Paper	20 July 2018
Submissions due on the Information Paper	14 September 2018
Release Policy Paper	2 November 2018

Source: IPART

Submissions are due by Friday, 14 September 2018. Submissions can be lodged on our website at the working capital allowance review page (see link at bottom of page).²

Enquiries regarding the review should be directed to:

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4 Why we include a working capital allowance

In setting prices for a regulated business we estimate the business' NRR, which reflects our view of the total efficient costs it must recover from customers to meet its service obligations. One of the costs we include in this estimate is working capital.

All regulators recognise that working capital is a legitimate business cost and provide for it to be recovered through regulated prices. However, some include an implicit allowance rather than an explicit allowance as we do (see Box 1 for more information).

² <https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Reviews/Working-capital/Review-of-working-capital-allowance>

Box 1 Why we provide an explicit working capital allowance

Some regulators do not provide an explicit working capital allowance. The reason for this is that they use a *year-end* value of the return of assets and a *proxy* for the mid-year value of the return on assets^a in the NRR. This approach tends to create a 'bias' in favour of businesses that receive payments throughout the year, providing these businesses with extra income they can use to fund their working capital requirements. Thus, it provides an implicit working capital allowance.^b AER, ESC, OFGEM and OFWAT all use this approach.

IPART differs from these regulators because we use a *mid-year* value of the return on and of assets in the NRR^c. Using a mid-year value does not create the same bias in favour of businesses that receive payments throughout the year, and so does not provide them with an implicit working capital allowance. Therefore, we must include an explicit allowance to ensure the businesses we regulate have sufficient working capital to cover their working capital requirements.

^a For example, ESC, OFWAT and OFGEM provide a return on the average of the opening and closing value of the RAB (ie, they apply the WACC to the mid-year value of the RAB).

^b See The Allen Consulting Group, *Working Capital Relevance for the Assessment of Reference Tariffs. Report to the ACCC*, March 2002

^c The IPART cost building block and pricing model on our website shows how we calculate the mid-year values in the NRR. The model is available at:

<https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Regulatory-policy/IPART-cost-building-block-and-pricing-model>

Source: IPART

5 Our current method for calculating this allowance

Under our price setting approach, the working capital allowance represents the return the business could earn on the net amount of working capital that it requires each year to meet its service obligations. Our current method for calculating the allowance involves two main steps. For each year of the determination period, we:

1. Calculate the net amount of working capital the business requires, then
2. Calculate the return on this amount by multiplying it by the WACC.

5.1 Calculating the net working capital amount

We currently calculate the net working capital amount as follows:

(1) Net working capital = receivables – payables + inventory + prepayments

'Receivables' refers to payments not yet received for good and services already delivered. 'Payables' refers to payments not yet made for goods and services already received. Inventory refers to goods held by the business which are inputs into the production process and are necessary for it to meet its service obligations (for example spare parts and chemicals).³ 'Prepayments' refers to payments made by the business in advance of receiving goods or services.

We measure:

³ For regulated utilities inventory does not include goods held in stock for sale, eg, water held in a reservoir.

- ▼ 'receivables' in days of revenue equal to half the length of the business' billing cycle (eg, if the business has a 90-day billing cycle, we measure receivables as 45 days of revenue)⁴
- ▼ 'payables' in days of operating expenditure (opex) and capital expenditure (capex),⁵ usually 30 days of each
- ▼ 'inventory' in days of opex and capex, with reference to the business' actual inventory and/or other relevant information, and
- ▼ 'prepayments' in days of opex and capex, with reference to the business' actual prepayments and/or other relevant information.

5.2 Calculating the working capital allowance

We currently calculate the return on net working capital using a real post-tax WACC as follows:

$$(2) \quad \text{Working capital allowance} = (\text{Net working capital} \times \text{real WACC}) / (1 + \text{real WACC})^{0.5} \quad 6$$

Appendix A sets out our current method in mathematical notation and provides a worked example.

6 What we propose to change

We propose to change our method by:

- ▼ excluding prepayments from net working capital
- ▼ improving how we measure receivables
- ▼ improving how we measure inventory, and
- ▼ using a nominal WACC to calculate the working capital allowance instead of a real WACC.

Table 2 summarises the key differences between our current and proposed method.

⁴ This policy is difficult to apply to transport businesses.

⁵ Net of cash capital contributions.

⁶ The last term discounts the return back to its mid-year value, ie, $(1 + \text{real WACC})^{0.5}$. See Box 1 for more information.

Table 2 Key differences between our current and proposed methods

	Current method	Proposed method
Prepayments	Days of opex and capex	Excluded
Receivables, water businesses	Based on half the number of days in billing cycle	Based on half the net number of days in the billing cycle for which services are billed in arrears plus benchmark days of delay between last day of billing cycle and receipt of payment
Receivables, non-water businesses	No explicit method or guidance	Measured in days of total revenue on a case-by-case basis, guided by method for water businesses and actual historical receivables where suitable information is available
Inventory	Days of opex and capex	Fixed real \$ amount
Payables	30 days of opex and capex	30 days of opex and capex
Net working capital	Receivables – payables + inventory + prepayments	Receivables – payables + inventory
Rate of return	Real post-tax WACC	Nominal post-tax WACC

Source: IPART

6.1 Exclude prepayments from net working capital

We propose to exclude prepayments from net working capital because we frequently do not have any information on them and, when we do have information, we generally find that they are very small. In past reviews, for modelling purposes, the prepayments we have included in the net working capital calculation have mostly been either zero or very small. For this reason, we expect that excluding prepayments from the calculation will have a negligible impact on the NRR in future reviews.

6.2 Improve how we measure receivables

There is a diversity of billing/payment arrangements amongst regulated businesses. For example:

- ▼ a water business may bill customers for all fixed and usage charges in arrears
- ▼ a water business may bill customers for a proportion of fixed charges in advance and all usage charges in arrears
- ▼ a private ferry business may receive farebox revenue before or at the time it provides the service, and receive government subsidy payments in arrears, or
- ▼ a private bus operator may receive contract payments in arrears and not keep farebox revenue.

Because of this diversity of billing/payment arrangements, and particularly among non-water businesses, we propose to:

1. update the method for measuring receivables for water businesses, and

2. provide guidance on how we will measure receivables for non-water businesses.

Proposed method for measuring receivables for water businesses

Under our current method, we assume a water business delivers its services smoothly over each billing cycle, pays the associated costs as it delivers the services, and is paid by its customers at the end of each cycle for services that it has already delivered. The delay between the business paying the cost of a service delivered on one day and being paid for it at the end of the billing cycle means the business ‘carries’ this cost for each day remaining in the cycle.

To account for this delay, we measure the working capital required for receivables based on half the number of days in the business’ billing cycle. Box 2 explains our rationale for this approach using an example.

We continue to consider that this is a reasonable way to measure receivables for a business that bills all services in arrears, to account for the delay between delivering a service and the last day of the billing cycle. However, our method does not make provision for:

- ▼ a delay between the last day of the billing cycle and when the business actually receives payment, and
- ▼ the practice by some water businesses of billing a proportion of fixed charge in advance, which means that customers provide a proportion of the business’ working capital requirements.

We propose to improve our method for measuring receivables for water businesses by making provision for each of the above.

To provide for the delay between the last day of the billing cycle and when the business receives payment, we propose to include a ‘benchmark number of days of delay’ in the total number of days. We would decide what the appropriate ‘benchmark number days of delay’ is on a case-by-case basis in the context of the review. In making this decision, we would apply the principle that the ‘benchmark number of days of delay’ should represent the average number of days for an efficient business providing the same service. However, we would also have regard to current business practice because current practice might reflect customers’ preferences. For example, customers might prefer to have more time to pay their bills rather than pay slightly lower prices. Further, we would assume that all customers pay their bills on or before the due date, because late payment fees compensate the business for payments made after the due date.

To provide for the practice of billing a proportion of fixed charges in advance, we propose to measure receivables based on the net number of days for which charges are billed in arrears rather than the total number of days in the billing cycle.⁷ Appendix A sets out our proposed method for this measurement in mathematical notation and provides a worked example.

Including a ‘benchmark number of days of delay’ would result in a significantly higher working capital allowance for most water businesses. On the other hand, accounting for the

⁷ For businesses that bill all services in arrears, the net number of day for which services are billed in arrears is equivalent to the total number of days in the billing cycle.

practice of billing in advance would reduce the allowance. Section 8 below shows the net impact of these two adjustments for a hypothetical business.

Box 2 Rationale for measuring receivables based on half the number of days in the billing cycle

In measuring receivables, we assume that a business with a billing cycle of 90 days (for example), delivers a service each day of the cycle. Under this assumption, the business needs to ‘carry’ the cost of services delivered on day 1 for 90 days, day 2 for 89 days, day 3 for 88 days etc, until it finally carries the cost of services delivered on day 90 for only 1 day (because our current method assumes that the business is paid at the end of day 90).

This means that on average, the business ‘carries’ the cost for half the number of days in the billing cycle, ie, 45 days in this example. Therefore, it makes sense to measure the working capital required for receivables based on half the number of days in the billing cycle.

Source: IPART

Proposed guidance on how we measure receivables for non-water businesses

Currently, we don’t have an explicit method for measuring receivables for non-water businesses. However, in practice, for past reviews we have measured receivables in days of total revenue, and have decided on the number of days with reference to our current method for water businesses (outlined above). We have also had regard to the business’ actual historical receivables where suitable information has been available, and/or where it has not been sensible to apply a pure billing cycle approach (eg, Sydney Trains).

We propose to continue to use this approach but formalise it. Specifically, we propose to continue to measure receivables in days of total revenue, and decide on the appropriate number of days on a case-by-case basis in the context of the review. We will make this decision with reference to:

- ▼ our updated method for measuring receivables for water businesses, and
- ▼ the business’ actual historical receivables where suitable information is available for the regulated part of the business.

6.3 Improve how we measure inventory

We currently measure inventory in days of opex and capex. We decide on the appropriate number of days with reference to the business’s actual historical data and/or other relevant information, as appropriate.

The problem with this method is that it can lead to unrealistic variations in inventory due to, for example, wage increases or lumpy capex. In addition, given that inventory for a regulated business is likely to be made up of items such as spare parts and inputs (eg, chemicals), there is no reason why it should vary in proportion to capex. Table 3 provides a simple example of how variations in capex could lead to unrealistic variations in inventory.

We propose that we instead measure inventory as a fixed dollar amount that remains unchanged in real terms over the determination period. We would establish the appropriate

dollar amount on a case-by-case basis in the context of the review, and with reference to the business's actual inventory in recent years (if available) and/or other relevant information. We consider that this is a simpler and more transparent approach than our current method.

Inventory is usually a very small share of net working capital, and our proposed change is likely to have a negligible impact on the NRR in future reviews.

Table 3 Inventory under our current method (\$)

	Year 1	Year 2	Year 3
Opex	75	75	75
Net capex	25	75	15
Opex + net capex	100	150	90
Opex + net capex per day	0.27	0.41	0.25
Inventory @ 2 days of opex + net capex	0.55	0.82	0.49

a Totals may not add due to rounding.

Source: IPART

6.4 Use a nominal WACC to calculate the return on working capital

We currently use a real WACC to calculate the value of the return on net working capital, in line with our approach for calculating the return on the regulatory asset base (RAB). However, unlike our approach for the return on the RAB, we do not capitalise a cumulative inflationary gain in working capital. Instead, we calculate a working capital amount each year based on our estimate of the business' requirements for that year.

The reason we use a real WACC to calculate the return on RAB is to avoid compensating the business twice for inflation (because inflation is added to the RAB). But this reason does not apply to working capital. Therefore, we propose to use a nominal WACC to calculate the return on working capital.

We used a nominal WACC when we established our original policy on working capital when we forecasted costs over the regulatory period in nominal terms. However, since 2007 we have forecast costs in real terms and have applied the principle that we should use a nominal WACC in a nominal environment and a real WACC in a real environment.

We propose to return to using a nominal WACC to calculate the return on working capital because the 2007 principle is inappropriate and leads to an anomaly: if net working capital and the WACC are exactly the same in the base year (Year 0) and Year 1 of the new determination period (in Year 0 dollars),⁸ the working capital allowance in Year 0 will be substantially larger than the allowance in Year 1. The reason for this outcome is because we express Year 0 costs in nominal dollars (and therefore use a nominal WACC) and Year 1 costs in real (Year 0) dollars (and therefore use a real WACC). Table 4 provides a simple example of this anomaly.

⁸ For example, for a determination commencing on 1 July 2019, Year 0 would be 2018-19 and Year 1 would be 2019-20. We would forecast costs and revenues in \$2018-19.

Table 4 Return on working capital under our current method (\$)

	Year 0 (base year) ^a	Year 1 ^a
Costs expressed in	Nominal (Yr0) \$	Real (Yr0) \$
Net working capital	1,000	1,000
Applicable WACC	6.5%	4.0%
Return on working capital (year-end value) ^b	65	40

a For example, for a determination commencing on 1 July 2019, Year 0 would be 2018-19 and Year 1 would be 2019-20. We would forecast costs and revenues in \$2018-19.

b The table shows the year-end value for simplicity. The amount that we would include in the NRR would be slightly lower because we would discount the amount to a mid-year value. See Box 1 and Appendix A for more information.

Source: IPART

7 What we propose to maintain

We propose to continue to:

- ▼ measure payables as 30 days of opex and capex as our default position, and
- ▼ use the WACC to calculate the return on working capital (rather than the cost of debt).

7.1 We measure payables as 30 days of opex and capex

We include payables in net working capital because we expect that an efficient business would delay making payments to its suppliers for as long as possible. This delay in payments means that the suppliers are, in effect, providing some of the business' working capital requirements.

To measure a benchmark number of days of delay in making payments to suppliers, we use the standard contract payment period of 30 days as our default position. However, we may use a different number of days if there is a compelling reason to do so. For example, we may use fewer days for a transport business whose expenditure is dominated by fuel and labour.

Working capital is primarily held to fund day-to-day operations, rather than capital expenditure. However, we measure payables in days of both opex and capex. The reason we include capex is because we:

- ▼ assume that capex enters the RAB evenly throughout the year, and
- ▼ allow the business to earn a return on capex as soon as it enters the RAB.

This means that the business earns a return on the last (say) 30 days' worth of capex before it has paid for it (that is, while the supplier bears the financial burden). By including capex in our measure of payables we correct for this (because we remove from the NRR the return on the last 30 days of capex).

7.2 We use a WACC to calculate the return on working capital

In principle, we could use either a WACC or a cost of debt to calculate the return on working capital. We use a WACC is because we think it is the simplest, most consistent and most transparent approach, for two reasons.

First, when we set a WACC, we consider the financing requirements of the ‘benchmark business’ as a whole including its need to finance both capex and working capital. If we were to use the cost of debt to calculate the return on working capital, in principle we would need to estimate two sets of WACC parameters – that is, one for the capex component and one for the working capital component of the business. But estimating two sets of WACC parameters would introduce a great deal of complexity into the regulatory process and reduce its transparency. On the other hand, if we were to use the cost of debt for working capital but estimate a single set of WACC parameters we would introduce inaccuracy into our calculations.⁹

Second, if we use the cost of debt, we are implicitly assuming that the business debt-funds all of its working capital requirements. However, regulated entities sometimes fund part of their working capital requirements from operating profits, and thus use a mix of debt and equity.¹⁰

8 Likely impact of our proposed changes

The net impact of our proposed changes on a regulated business will depend mainly on what proportion of revenue the business receives in arrears and what proportion it receives in advance.

For a business that receives all revenue in arrears, the net impact would be to increase the working capital allowance. This business would benefit from both a larger allowance for receivables and the application of a nominal WACC. The worked example in Appendix A calculates the impact for a hypothetical business that bills all charges in arrears and has a 90-day billing cycle (‘Business A’). The allowance for this business would increase from \$1.7 million to \$6.2 million per year (Table 5). Just less than half of the increase would be due to the increase in receivables, and the remainder would be due to the application of a nominal WACC (Chart 1).

For a business that receives some revenue in advance the net impact could be either positive or negative, depending on what proportion of revenue it receives in advance. The worked example in Appendix A calculates the net impact for ‘Business B’ that receives around 30% of its revenue in advance and the rest in arrears. ‘Business B’ is the same as ‘Business A’ in all other respects. The allowance for ‘Business B’ would fall from \$1.7 million under our current method to \$1.3 million under our proposed method (Table 5). For this business, the increase due to the application of a nominal WACC would be more than offset by the reduction in receivables (Chart 1).

⁹ For further explanation see Deloitte, *Return on Working Capital in the Notional Revenue Requirement, Final report for the Independent Pricing and Regulatory Tribunal*, 5 July 2018, pp 18-20.

¹⁰ Deloitte, *Return on Working Capital in the Notional Revenue Requirement, Final report for the Independent Pricing and Regulatory Tribunal*, 5 July 2018, p20.

Table 5 Hypothetical example of the working capital allowance under our current and proposed methods (\$ million pa)

	Current approach	Proposed approach Business A ^a	Proposed approach Business B ^b
Total receivables	123	178	101
Payables	84	84	84
Inventory ^c	4	4	4
Prepayments	1	0	0
Net working capital	44	98	21
Return on working capital	1.7	6.2	1.3

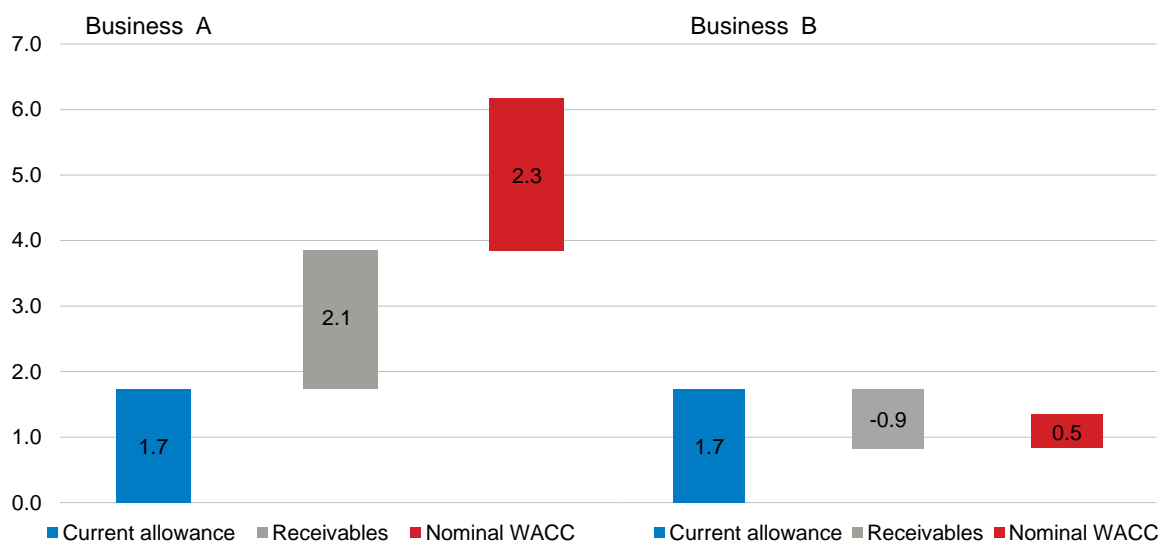
^a Business A bills all charges in arrears, has a 90-day billing cycle and receives payment 20 days after the end of the cycle.

^b Business B bills 20 days of fixed charges in arrears and 70 days of fixed charges in advance during a 90-day billing cycle. Revenue from fixed charges provides 40% of Business B's total revenue from charges. It received payment 20 days after the end of the billing cycle.

^c Under our current approach the value of inventory would vary from year to year, whereas under our proposed approach the dollar value would remain constant over the determination period (in real terms).

Note: Totals may not add due to rounding.

Source: IPART


Chart 1 Cumulative impacts of our proposed methods (\$ million pa)

Source: IPART


A How we calculate the working capital allowance

This appendix shows how we currently calculate the working capital allowance and how we propose to calculate the allowance in the future. It also provides worked examples of both our current and proposed methods.


How we currently calculate the working capital allowance




Net working capital = receivables - payables + inventory + prepayments



Receivables = $\frac{50\% \times \text{billing cycle number of days}}{365 \text{ days}} \times \text{annual revenue from charges}$



Payables = $\frac{\text{benchmark number of days (usually 30)}}{365 \text{ days}} \times \text{forecast (opex+net capex)}$



Inventory = $\frac{\text{benchmark number of days}}{365 \text{ days}} \times \text{forecast (opex+net capex)}$

where

Benchmark number of days = $\frac{\text{efficient base year inventory}}{\text{base year (opex + net capex)}} \times 365 \text{ days}$

and which we can simplify by cancelling out the '365 days' in both equations, so that

Inventory = $\frac{\text{efficient base year inventory}}{\text{base year (opex+ net capex)}} \times \text{forecast (opex+ net capex)}$



$$\text{Prepayments} = \frac{\text{Benchmark number of days}}{365 \text{ days}} \times \text{forecast (opex+net capex)}$$

where

$$\text{Benchmark number of days} = \frac{\text{efficient base year prepayments}}{\text{base year (opex + net capex)}} \times 365 \text{ days}$$

and which we can simplify by cancelling out the '365 days' in both equations, so that

$$\text{Prepayments} = \text{base year prepayments} \times \frac{\text{forecast (opex + net capex)}}{\text{base year (opex + net capex)}}$$



$$\text{Return on net working capital} = \frac{\text{net working capital} \times \text{real WACC}}{(1 + \text{real WACC})^{0.5}}$$

How we propose to calculate the working capital allowance

$$\text{Net working capital} = \text{receivables} - \text{payables} + \text{inventory}$$



$$\text{Receivables} = \frac{50\% \times \text{net number of days billed in arrears} + \text{days delay before payment}}{365 \text{ days}} \times \text{annual revenue}$$

Where we calculate the net number of days billed in arrears as follows:

$$\text{Net number of days billed in arrears} = \frac{\text{days fixed charges in arrears} - \text{days fixed charges in advance}}{\text{days usage charges in arrears}} \times \frac{\% \text{ revenue from fixed charges}}{\% \text{ revenue from usage charges}}$$

For simplicity, we propose to use the same split in revenue between fixed and usage charges for the whole regulatory period. For example, we may assume that 40% of revenue comes from fixed charges and the remaining 60% comes from usage charges. We would decide what the split should be on a case-by-case basis in the context of a review, with reference to actual historical revenue and other relevant information.

Note that, for a business that bills all services in arrears, the net number of days billed in arrears is equal to the number of days in the billing cycle and the formula for receivables may be simplified as follows:



$$\text{Receivables} = \frac{50\% \times \text{billing cycle number of days} + \text{days delay before payment}}{365 \text{ days}} \times \text{annual revenue}$$



$$\text{Payables} = \frac{\text{benchmark number of days (usually 30)}}{365 \text{ days}} \times \text{forecast (opex + net capex)}$$



$$\text{Inventory} = \text{a fixed \$ amount based on our assessment of efficient inventory}$$



$$\text{Return on net working capital} = \frac{\text{net working capital} \times \text{nominal WACC}}{(1 + \text{nominal WACC})^{0.5}}$$

Worked example of our current and proposed methods

Table A2 provides a worked example of the working capital allowance under our current and proposed methods. The example shows the allowance for two businesses:

- ▼ Business A, which bills all services in arrears, and
- ▼ Business B, which bills a proportion of fixed charge in advance.

Table A1 shows the assumptions that we have made for the worked example. The businesses are the same in all respects except that Business B bills 20 days of fixed charges in arrears and 70 days of fixed charges in advance. Both have a 90-day billing cycle and bill all usage charges in arrears.

Table A1 Assumptions about Business A and Business B for the worked example

	Business A	Business B
Billing cycle number of days	90 days	90 days
Allowed days between end of billing cycle and receiving payment	20 days	20 days
Number of days fixed charges billed in advance	0	70 days
Forecast revenue from charges (\$m)	1,000	1,000
Share of fixed charges in total revenue	40%	40%
Current opex (\$m)	600	600
Forecast opex (\$m)	605	605
Current capex (\$m)	400	400
Forecast capex (\$m)	420	420
Base year allowed inventory (\$m)	4	4
Base year allowed prepayments (\$m)	1	1

Source: IPART

Under our current method both businesses receive a working capital allowance of \$1.7 million (Table A2). However, under our proposed method the allowance for Business A will be substantially larger than under our current method (\$6.2 million). This increase is due to the combined impact of:

- ▼ including in receivables an allowance for a delay between the end of the billing cycle and when payments are received by the business (\$2.1 million), and
- ▼ using a nominal WACC to calculate the return on working capital instead of a real WACC (\$2.3 million). (See Table A3.)

For Business B, the above positive impacts are more than offset by the practice of billing fixed charges partially in advance, where billing in advance means that customers provide some of Business B's working capital requirements. Business B receives 31% of revenue in advance,¹¹ and for this business the increase due to the application of a nominal WACC is more than offset by the net reduction in receivables due to the practice of billing in advance (Table A3).

¹¹ The 31% is calculated as follows: 70 days / 90 days x 40% revenue from fixed charges = 31% total revenue.

Table A2 Worked example of the working capital allowance under current and proposed methods (\$ million)

	Current method	Proposed method Business A ^a	Proposed method Business B ^b
Net working capital			
<i>Net number of days billed in arrears</i>	90	$(90-0) \times 40\% + 90 \times 60\%$ = 90	$(20-70) \times 40\% + 90 \times 60\%$ = 34
Total receivables	$(90/2)/365 \times \$1,000$ = \$123	$(90/2+20)/365 \times \$1,000$ = \$178	$(34/2+20)/365 \times \$1,000$ = \$101
Payables	$30/365 \times (\$605+\$420)$ = \$84	$30/365 \times (\$605+\$420)$ = \$84	$30/365 \times (\$605+\$420)$ = \$84
Inventory ^c	$\$4 \times (\$605+\$420)/$ $(\$600+\$400)$ = \$4 ^d	\$4	\$4
Prepayments	$\$1 \times (\$605+\$420)/$ $(\$600+\$400)$ = \$1 ^d	\$0	\$0
Net working capital	$\$123 - \$84 + \$4 + \1 = \$44	$\$178 - \$84 + \$4$ = \$98	$\$101 - \$84 + \$4$ = \$21
Working capital allowance			
WACC	4.0%	6.5%	6.5%
Return on working capital	$(\$44 \times 4.0\%)/(1+4.0\%)^{0.5}$ = \$1.7	$(\$98 \times 6.5\%)/(1+6.5\%)^{0.5}$ = \$6.2	$(\$21 \times 6.5\%)/(1+6.5\%)^{0.5}$ = \$1.3

a Business A bills all charges in arrears.

b Business B bills 20 days of fixed charges in arrears and 70 days of fixed charges in advance over a 90 day billing cycle. Revenue from fixed charges provides 40% of Business B's total revenue from charges.

c Under our current method the value of inventory would vary from year to year, whereas under our proposed method the dollar value remains constant over the determination period (in real terms).

d The formula has been simplified by cancelling out the term '365 days' because the term appears in both the numerator and the denominator, as discussed on pages 12 – 13 above.

Note: Totals may not add due to rounding.

Source: IPART

Table A3 Cumulative impacts of our proposed method (\$ million)

	Current method	Proposed method Business A	Proposed method Business B
Net working capital ^a	44	98	21
Working capital allowance using real WACC (4%)	1.7	3.8	0.8
Working capital allowance using a nominal WACC (6.5%)	na	6.2	1.3
Cumulative increase due to			
Net working capital (mainly receivables)	na	2.1	-0.9
WACC	na	2.3	0.5
Total increase	na	4.4	-0.4

^a The change in networking capital is almost entirely due to the change in receivables.

Note: Totals may not add due to rounding.

Source: IPART