

Conducting a regulatory change measurement

Guide to assessing and calculating costs - Toolkit 2

Version 1.1 - March 2010

Conducting a regulatory change measurement

Guide to assessing and calculating costs – Toolkit 2

- The manual is available on the DTF website at <http://www.dtf.vic.gov.au/betterregulation>.
- See Toolkit 1 for information on Mapping

Contents

T2.0	Introduction	1
	T2.0.1 General principles.....	1
	T2.0.2 Typical cost variables.....	1
	T2.0.3 Typical sources of data	2
T2.1	Definitions and sources of data for typical cost variables	3
	T2.1.1 Price variables	3
	T2.1.2 Quantity variables	4
T2.2	Calculating compliance costs	6
	T2.2.1 Administrative costs	6
	T2.2.2 Substantive compliance costs	7
T2.3	Calculating delay costs	8
T2.4	Underlying spreadsheets, working calculations and assumptions	11
T2.5	Annualised figure for uneven regulatory change.....	12
	T2.5.1 Change distributed unevenly over 10 years.....	12
	T2.5.2 Change distributed unevenly over less than 10 years	13
Appendix T.2A	Version record	14

T2.0 Introduction

This toolkit provides details relevant to s.2.6.2 of the Victorian Regulatory Change Measurement (RCM) manual . It assumes that mapping of the regulatory change or regulatory process has been completed and the drivers of costs identified .

T2.0.1 General principles

The following general principles apply to the assessment and calculation of costs:

- **Use this Toolkit only to the extent practicable:** Where it is deemed impractical or onerous to assess and calculate costs in the manner outlined in this Toolkit, alternative defensible methods can be used and relevant assumptions documented.



Tip

Where an alternative method of cost calculation is considered by a department, the Better Regulation Unit (BRU) in DTF should be consulted for advice on the suitability of the approach, and to agree the criteria by which the alternative approach would be assessed.

In agreeing to such criteria, the BRU will consult with VCEC where changes are estimated to be greater than \$10 million per annum.

- **Default duration of a regulatory change:** For the purpose of an RCM, the default duration of a regulation or regulatory change should be taken as ten years except where the change is implemented over a shorter period.
- **Annualising the cost estimates:** For an RCM, an annualised measure of the change (not discounted present value) should be calculated in the following manner:
 - for regulatory change, the uptake of which does not vary over time, the impact of the change in the first year should be treated as the annualised measure of change; or
 - for regulations that impose varying costs over time, the total change over the duration of the regulation or regulatory process should be divided by that duration (s.T2.5 provides more detail).

T2.0.2 Typical cost variables

The basic formula for a cost calculation is Price x Quantity (or P x Q). Table T2.1 lists the typical price and quantity variables for different types regulatory obligations¹ . Their definitions are provided in s.T2.1.

¹ Note that this is not an exhaustive list: other relevant variables will be discussed later in this Toolkit.

Table T2.1: Typical price and quantity variables for different regulatory cost categories

Cost category	P (price)		Q (quantity)	
Administrative cost	labour tariff or external tariff	interest costs	population compliance (or uptake) rate	annual frequency
Substantive compliance cost	one-off cost of a physical asset annualised depreciation	number of physical assets	population compliance (or uptake) rate	annual frequency
Delay costs	interest costs	duration of holding	population	

As already discussed in **Toolkit 1** (on mapping), for an RCM only the **change in price or quantity** is considered. Thus, for instance, time refers only to the change in time taken. If an earlier activity took 30 minutes and the new one takes 10 minutes, then time in the above calculation is 20 minutes. It is unlikely that tariff, population, or frequency, will change.

T2.0.3 Typical sources of data

Typical data sources are outlined below. Data sources should be suitably referenced to allow the cost estimates to be independently replicated.

- **Australian Bureau of Statistics (ABS)** is a good starting point in most cases. An illustrative list of data sources from the ABS is provided below.
 - Australian Bureau of Statistics 2004, Employee Earnings and Hours, Australia, Cat. No. 6306.0, www.abs.gov.au
 - Australian Bureau of Statistics 2001, Small Business in Australia Update, 1999-2000, Cat. No. 1321.0.40.001, www.abs.gov.au
 - Australian Bureau of Statistics 2005, Australian Bureau of Statistics Business Register, Counts of Businesses, June 2004, cat. no. 8161.0.55.001, www.abs.gov.au
- **Departmental and business experts.** They will often be able to identify other relevant sources.
- **Publicly available cost estimates** (e.g. from previous measurements of similar obligations or activities) can be used where available.

T2.1 Definitions and sources of data for typical cost variables

Only the definitions of typical variables are provided here, with definitions of other variables being provided in later sections, as appropriate.

T2.1.1 Price variables

Labour tariff is the wage rate plus overheads and on-costs for activities performed internally. It is calculated by multiplying the hourly **wage rate** with a suitable **rate for overheads and on-costs**.

- The hourly wage rate is the gross wage received by an employee in payment for his work. The rate for a paid job with comparable skills is used for volunteers or the unemployed.
- **Overhead costs and on-costs** include the non-wage costs of employees such as fixed administration costs, for example expenses for premises (rent or building depreciation), telephone, heating, electricity, IT equipment, etc, as well as on-costs such as superannuation guarantee payments, payroll tax, WorkCover premiums and fringe benefits tax. The default overhead and on-cost rate is 75 per cent of the wage rate.

Illustrative sources of data:

Where possible, **wage rates** can be determined through published rates (e.g. Australian Bureau of Statistics Average Weekly Earnings). These rates can be verified by asking relevant information during business consultation (including interviews where appropriate). Appendix C.2.1 of the Victorian Guide to Regulation (VGR) provides more information on valuing staff time.

*A default rate of 75 per cent of the hourly wage rate should be used for **overheads and on-costs** unless circumstances suggest otherwise (please see page C-4 of the VGR).*

External tariff is what a regulated entity pays to external service providers for activities undertaken by that service provider to enable the regulated entity to comply with a regulatory obligation.

Illustrative sources of data:

Appropriate **external tariff** for regulatory costs should be determined in consultation with policy and industry experts and, where appropriate, through business interviews.

One-off price of a physical asset is its purchase price, such as the market price of a ladder.

Illustrative sources of data:

Market data can be used for this purpose. Departmental experts and, where appropriate, business interviews, can help confirm the validity of the data.

The **annualised depreciation rate** is the rate by which a physical asset loses value (i.e. depreciates by) each year. This rate is normally a proportion of its purchase price (historical cost) distributed over its effective life. In some cases the effective life of an asset could be directly impacted by the duration of regulation: for instance where a regulation requires the purchase of a durable asset for five years but that asset then has no market value after that period. Such considerations should be taken into account when estimating the depreciation rate.

Illustrative sources of data:

The **depreciation rate** should generally be calculated using the straight line method which allocates the purchase price (historical cost) of the asset over its effective life. If a particular plant has an effective life of 5 years, 20 per cent of its value is depreciated each year.

The **effective life** of most assets can be obtained from the Australian Taxation Office website or refer to the Australian Taxation Office 2005, Taxation Ruling TR 2000/18, Addendum Income tax: effective life of depreciating assets, 21 December, <http://law.ato.gov.au/pdf/tr0018a11.pdf>. Please speak to your finance area regarding other potential sources of data on effective life.

Interest is the amount paid out as interest on borrowed capital.

Illustrative sources of data:

The **interest costs** borne by a regulated entity depend on the risk category of that entity (e.g. large and well-established businesses generally pay lower interest costs compared with a newly established small business).

Appropriate market proxies should be identified for the actual interest costs borne by a business or regulated entity. Where a riskless rate is appropriate (only in very rare cases), the annual rate set by the Treasurer as part of the state budget process² can be used.

Time refers to the internal time (in minutes or hours) that it takes a business to perform a regulatory activity.

Illustrative sources of data:

Time taken to complete a regulatory activity can be determined in consultation with policy and industry experts (and where appropriate, through business interviews).

T2.1.2 Quantity variables

Population refers to the number of regulated entities (e.g. businesses or not-for-profit organisations) affected by a particular regulatory obligation. The analysis of population may require segmentation, as defined below:

- **Segmentation:** Where the affected population is diverse, prices experienced by different parts of the population (sector) may vary significantly. For instance, large businesses may take much less time to complete a particular regulatory task in comparison with smaller businesses. Where the variation in prices is significant, the affected sector can be

² This rate can be found on the DTF website at www.dtf.vic.gov.au.

disaggregated into (generally not more than three) **segments** (e.g. large, medium and small³).

Illustrative sources of data:

Data regarding the number of affected regulated entities (i.e. the **population**) can be obtained from statistical sources (ABS) or industry registers. Departmental information can often supplement these sources.

Annual frequency is the number of times an affected business or other entity delivers or complies with a regulatory obligation each year. Thus, where an obligation is required every second year, its frequency becomes 0.5.

Illustrative sources of data:

The annual **frequency** of an obligation should be derived directly from the regulation. In some cases departmental or agency information, such as the number of inspections or audits, can be a useful source.

Compliance rate: In general, a default compliance rate of 100 per cent should be used. However, not all affected sectors comply fully with a given regulatory requirement either due to lack of knowledge, lack of enforcement, or because technological change has made the regulatory requirement redundant. Where evidence exists of lower (i.e. less than 100 per cent) compliance with a regulatory requirement, the (actual) rate should be used to avoid overstating the actual regulatory burden.

Illustrative sources of data:

Data on the **actual compliance rate** can be obtained from departmental experts and inspectorates. Where no information is available regarding actual compliance, 100 per cent compliance should be assumed.

Where the uptake of a forthcoming regulatory change is expected to vary over time (such as is often the case with information technology solutions), there is a need to account for such variation through an appropriate **uptake rate**.

Illustrative sources of data:

Data on the **uptake** of a regulatory processes can be estimated in consultation with departmental or industry experts and, where appropriate, through business interviews.

³ According to ABS, a small business employs less than 20 people, medium between 20 and 200, and large more than 200.

T2.2 Calculating compliance costs

This section discusses the formulae for calculating compliance costs.

T2.2.1 Administrative costs

The basic formula for calculating administrative costs is:

$$\begin{aligned} \text{Administrative cost} &= \text{Price} \times \text{Quantity} \\ &= (\text{tariff} \times \text{time}) \times (\text{population} \times \text{annual frequency}) \text{ OR} \\ &= \{\text{internal price (i.e. tariff} \times \text{time)} + \text{external tariff} + \text{other significant costs}\} \times \\ &\quad (\text{population annual frequency}) \end{aligned}$$

Price

The price of an administrative obligation consists of the sum of (a) internal wage tariff (cost of employees who undertake administrative activities), (b) the external tariff (cost of contracting out administrative activities), and (c) other costs necessary to complete the administrative activity. Thus:

$$\text{Price} = \text{internal price (tariff} \times \text{time)} + \text{external tariff} + \text{other significant costs}$$

where:

the **tariff** is labour tariff (see s.T2.1.1);

the **time** refers to the internal time (in minutes or hours) that it takes a normally efficient business to perform an administrative activity;

the **external tariff** consists of what a regulated entity pays to external service providers for administrative activities undertaken by that service provider to enable the regulated entity to comply with an information obligation. The external tariff includes the cost of accountants, legal workers and the like and is usually expressed as a total cost; and

other significant costs include capital costs incurred by a business directly to comply with a specific information obligation, noting that some capital costs such as internet connections are captured in overheads. Where a capital investment is made specifically for the purpose of meeting an information obligation, e.g. the purchase of a meter, it will generally have a service life of several years. A fixed annual cost, equivalent to the total cost divided by expected service life, should be used in the calculation.⁴

Illustrative sources of data:

Other significant costs can be determined in consultation with policy and industry experts, and where appropriate, through business interviews.

⁴ This is similar to the straight line depreciation method.

Quantity

The formula for calculating the quantity for an administrative cost calculation is described below:

Quantity

$$= \text{population} \times \text{compliance rate} \times \text{annual frequency}$$

where:

population, or the number of regulated entities the information obligation affects, has been defined in s.T2.1.2;

compliance rate has been defined in s.T2.1.2, noting that the compliance rate for an information obligation may not always be the same as the compliance rate for the overall regulation; and

the **annual frequency** of the information obligation has been defined in s.T2.1.2.

T2.2.2 Substantive compliance costs

In the case of substantive compliance costs it may be useful to distinguish between transition and structural costs, as discussed below:

- **Transition costs** are one-off adjustment costs or investments that are incurred in moving to a new regulatory regime or process. In the cost calculation, these costs are spread over the duration of the regulation (the default being 10 years).
- **Structural costs** are ongoing costs that recur each year, and are therefore measured on an annual basis.

The general formula for calculating substantive compliance costs is provided below:

Substantive Compliance Cost

$$\begin{aligned} &= \text{Price} \times \text{Quantity} \\ &= (\text{tariff} \times \text{time}) \times (\text{population} \times \text{frequency}) \text{ OR} \\ &= (\text{one-off price of physical asset} \times \text{number of assets}) \times (\text{population} \times \text{frequency}) \text{ OR} \\ &= (\text{annualised depreciation} \times \text{number of assets}) \times (\text{population} \times \text{frequency}) \end{aligned}$$

Price

Substantive compliance costs include labour or capital costs or a combination thereof. Where:

- **labour costs** are involved, the formulae outlined in the administrative costs section (T2.2.1), would be applicable.
- **capital costs** are involved, these are generally of two types:
 - a) purchase costs, being a one-off purchase price of a physical asset; and
 - b) **investment costs**, being ongoing costs (e.g. annualised depreciation of the relevant asset).

Quantity

The formula for calculating the quantity is the same as that used for administrative costs:

Quantity

$$= \text{population} \times \text{compliance rate} \times \text{annual frequency}$$

T2.3 Calculating delay costs

A precise calculation of delay costs can potentially require the consideration of:

- complex time values of future costs and returns; and
- difficult-to-obtain data for the relevant variables.

Given the difficulties inherent in calculating delay costs, simplifying assumptions should be made where doing so would be reasonable.



Tip

Where an RCM requires the assessment of delay costs, departments should contact the BRU to agree on the precise nature of costs and valid approaches to measuring them.

Delays impose both direct costs and opportunity costs.⁵ The general formula for assessing delay costs is, therefore:

Delay costs = Price x Quantity

= (tariff x time) x (population) **OR**

= {(costs incurred + opportunity cost) x delay period} x (affected units)

Businesses often take actions to mitigate the costs imposed by delays. For instance, they may rent out the asset which they are required to hold during an application process. Revenues received from these mitigating actions must be counted, and used to offset some of the costs imposed by regulatory delays. An example of a delay cost calculation that takes into account such a mitigating action is provided in Box T2.1.

Box T2.1 An example of a delay cost calculation

Planning application process

Scenario

Box A.2 (section A.2.3 of the Victorian RCM Manual) discussed an example of a delay cost (approval delay) imposed by a planning approvals process. This Box calculates the savings delivered to developers if the time for approval is reduced. The quicker approval process saves property developers an amount of time = . This time saved is over and above various BAU processes (see section T1.2.1 in Toolkit 1 for a discussion on how this time is assessed).

⁵ **Opportunity costs** are costs imposed through opportunities foregone during the period of delay. *For example*, the cost of choosing to train as a lawyer is not merely the direct cost (i.e. tuition fees, the price of books, and so on), but also the opportunity cost (e.g. lost income from a salaried job). The total cost incurred is therefore the direct cost plus the opportunity cost, or: the tuition fees plus lost salary.

Assumptions

- Assume that some property developers are able to rent out the land during the approval period, thus minimising idle capital.
- Assume that the best alternative use for capital (equity) for the developer is to invest in other property development. The annual value of such alternative use is calculated by considering the return from such equity spread over the duration of the entire property development project.

The calculation

Two types of savings are delivered by reducing the time for approvals by t :

- direct savings (from reduced holding costs of land) during the period t ; and
- savings in opportunity costs (of capital locked into less productive use) during the period t .

The formula for reduced holding costs of land is provided first:

$$\text{Holding costs incurred} = \frac{\{C \times (i + \tau + r)\} - (\theta \times R)}{12}$$

where

- C = total land cost, per hectare
- i = interest rate, in percent per annum, charged by lenders
- τ = land tax, in percent per annum per hectare
- r = council rates, in percent per annum per hectare
- θ = proportion of area rented out (if any) during application process, per annum
- R = rents, in dollars per annum per hectare

The opportunity costs reduced can be worked out as follows:

where:

- TC = total cost of the investment project per hectare, including land, raw material, wages
- IT = total interest and taxes paid out on the investment project, per hectare (excluding interest payments on land which have been separately counted)
- D = originally planned project duration, in years
- ROI = return on investment of the investment project, percent per annum

Combining these two terms, and multiplying them by the total land (in hectares) affected by the more efficient approvals process gives us the estimate for the delay costs reduced.

$$\text{Delay costs reduced} = \frac{\{[C \times (i + \tau + r)] - (\theta \times R)\} + \left[\frac{TC - IT}{D} \times ROI \right]}{12} \times t \times L$$

where:

$t =$ reduction in time in the approval process, in months over and above BAU time of acquisition of the asset
 $L =$ total land affected in hectares

Sources of data

It would be almost always necessary in the case of delays to talk to a few industry experts and, where appropriate, to conduct business interviews, to arrive at data relevant to the calculation. Simplifying assumptions and rules of thumb may need to be used where appropriate.

T2.4 Underlying spreadsheets, working calculations and assumptions

Spreadsheets that show detailed calculations of price and quantity for each cost obligation (and possibly at the ‘action; or ‘activity’ level) should be prepared. To the extent possible these should be published as an attachment to the RCM report. In any event, detailed working calculations and assumptions should be appropriately documented in the report as part of a text-based description.

An illustrative spreadsheet is provided in Table T2.2, noting that this can be expanded, as appropriate, to cover more sectors and other regulatory costs.

Table T2.2: Illustrative spreadsheet for the cost calculations

Obligation that has changed	Details	Price	Quantity	Annual Change	Assumptions and sources of data
Information obligation 1: <i>Lodge a licence application</i>	Application made online to reduce time taken to lodge	-\$50	1,000	-\$50,000	Tariff (Wage rate = \$100 per hour), time reduced = 0.5 hours, for 1,000 new businesses each year.
Compliance obligation 1: <i>Induct all staff on worksite</i>	New requirement introduced (activities below are summed up here)			+\$800,000	
Activity 1:	One-off time of existing staff induction at the commencement of the regulatory change	+\$200	20,000	+\$400,000	Same tariff as above, time increased =2 hours. All 20,000 workers in the industry inducted in the first year (one off cost, distributed over 10 years),
Activity 2:	Increased time of staff induction for new staff	+\$200	2,000	+\$400,000	Assuming 10 per cent turnover rate in the industry
Total				+\$850,000	

T2.5 Annualised figure for uneven regulatory change

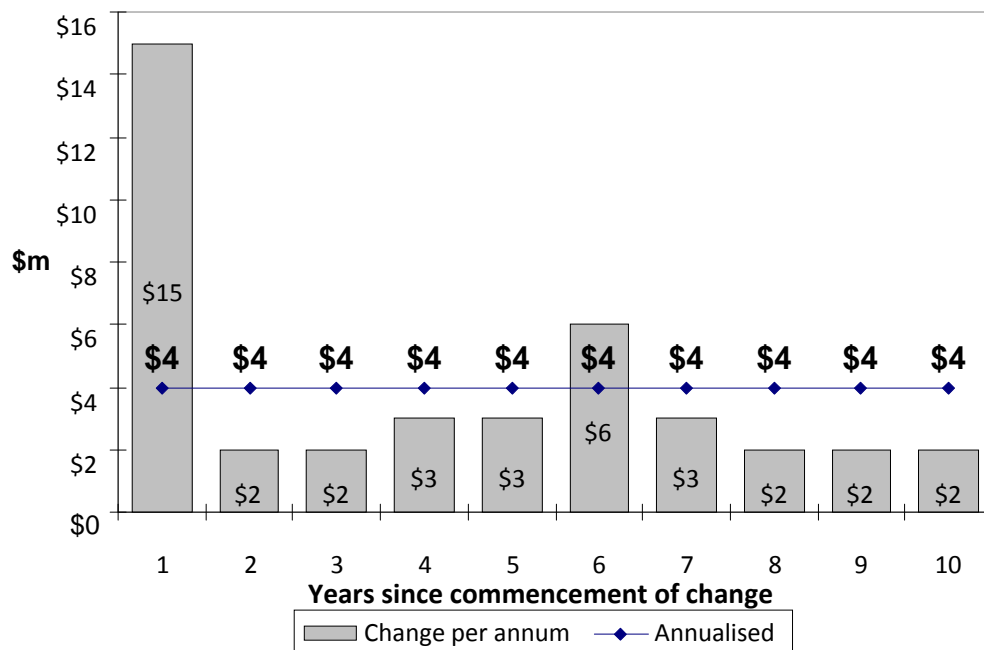
In s.T2.0.1 it was indicated that an annualised measure of the change (not discounted present value) should be calculated. For regulatory change which does not vary over time, the change in the first year is the relevant annualised measure.

For regulations that impose varying costs over time (uneven regulatory change), the total change over the duration of the regulation or regulatory process should be divided by that duration. Two cases are illustrated below:

T2.5.1 Change distributed unevenly over 10 years

Where the change in regulatory burden is distributed unevenly over 10 years, the average of the change over 10 years yields the relevant annualised figure for an RCM. For instance, in Figure T2.1, the annual change in burden reported in the RCM report should be \$4 million.

Figure T2:1: Uneven change over 10 years



T2.5.2 Change distributed unevenly over less than 10 years

Where a change in regulatory burden is distributed unevenly over less than 10 years, the average of the change taken over the relevant duration yields the appropriate figure for an RCM. For instance, in Figure T2.2, the annual change in burden reported in the RCM report should be \$4 million.

Figure T2.2: Uneven change over less than 10 years



Appendix T.2A Version record

Date and version

March 2010 – Version 1.1

Details of update

Minor typographical errors corrected in Box T2.1
An example of a delay cost calculation

