Treasury Board Secretariat of Canada – Regulatory Affairs Sector

The Regulatory Costing Calculator 2.1

User Manual

2016

1 What is the Regulatory Costing Calculator (Calculator)?

The purpose of the Regulatory Cost Calculator is to provide federal departments and agencies with a standardized tool to conduct the analysis required for the One-for-One Rule and the Small Business Lens (SBL). For the One-for-One Rule, the calculator is to be used to quantify and monetize increases or decreases in administrative costs. For the Small Business Lens, the role of the calculator is to help quantify and monetize both compliance and administrative costs associated with the initial and flexible options assessed for the regulatory flexibility analysis.

The calculator is based on the internationally recognized Standard Cost Model methodology and provides key data from Statistics Canada such as the number of businesses by industry sector and various hourly wage rates. Standard default parameters are also set (such as the discount rate and number of years over which to assess impacts) to allow results to be aggregated across departments to showcase the outcomes of the SBL or the One-for-One Rule. As per the Treasury Board of Canada Secretariat guidance documents on the One-for-One Rule and the SBL, departments are required to use the Regulatory Cost Calculator to monetize administrative burden costs for regulatory proposals. This helps ensure consistent results and allows for easy review and aggregate reporting by the Regulatory Affairs Sector of the Treasury Board of Canada Secretariat (TBS-RAS).

The Calculator is implemented through Microsoft Excel. The spreadsheet was an adaptation of the "Regulatory Cost Model" developed by the Regulatory Review Secretariat of the Government of Alberta. It makes use of Excel formulas and functions as well as customized VBA (*Visual Basic for Applications*) codes, forms, and functions. It automates calculations, enforces a standard methodology and attempts to provide a user-friendly experience. The current version of the Calculator was developed in Excel 2010 and the instructions provided in this manual assume the user is operating in an Excel 2010 environment.

Due to the custom features of the Calculator, the user may be required to enable certain macro content features for it to function properly. The process for this will depend on the version of Excel being used.

2   Purpose of this Guide

By reviewing and referencing this guide the reader will have:

1. A basic understanding of the theory of the Standard Cost Model that underpins the Calculator.
2. Practical instructions and advice on how to use the Calculator to estimate regulatory administrative burden and compliance costs as required under the Small Business Lens and the One-for-One Rule.
3. Transparency on what the calculator is doing in the background between inputs and final results.

Departments and agencies should be aware that the Calculator is only a tool, and it remains the responsibility of those using it to understand and be able to explain the estimated outcomes it produces based on the various content entered.

3   Theoretical Foundation: The Standard Cost Model (SCM)[1]

The Standard Cost Model (SCM) was initially developed in the Netherlands, but has been adopted and extensively applied in several jurisdictions and organizations, including the Organisation for Economic Cooperation and Development.   It has been used in support of a number of initiatives aimed at measuring and consequently reducing the level administrative burden costs imposed on businesses. According to the SCM Network, it is today, the most widely applied methodology for measuring administrative costs.

The basic idea of the SCM is a fairly simple one. Essentially, there are two key factors to cost: price multiplied by quantity. This simplicity in concept, however, can sometimes be more complicated to implement. Issues of when and how often an activity occurs, economic growth, accounting for time preference (discounting) and determining the most appropriate method to estimate model inputs all come into play. Addressing these issues appropriately helps to remove potential bias and inconsistencies; this is a central goal of the Calculator's implementation of the SCM.

As a starting point to further understanding how this is done, the main components of the SCM are described below:
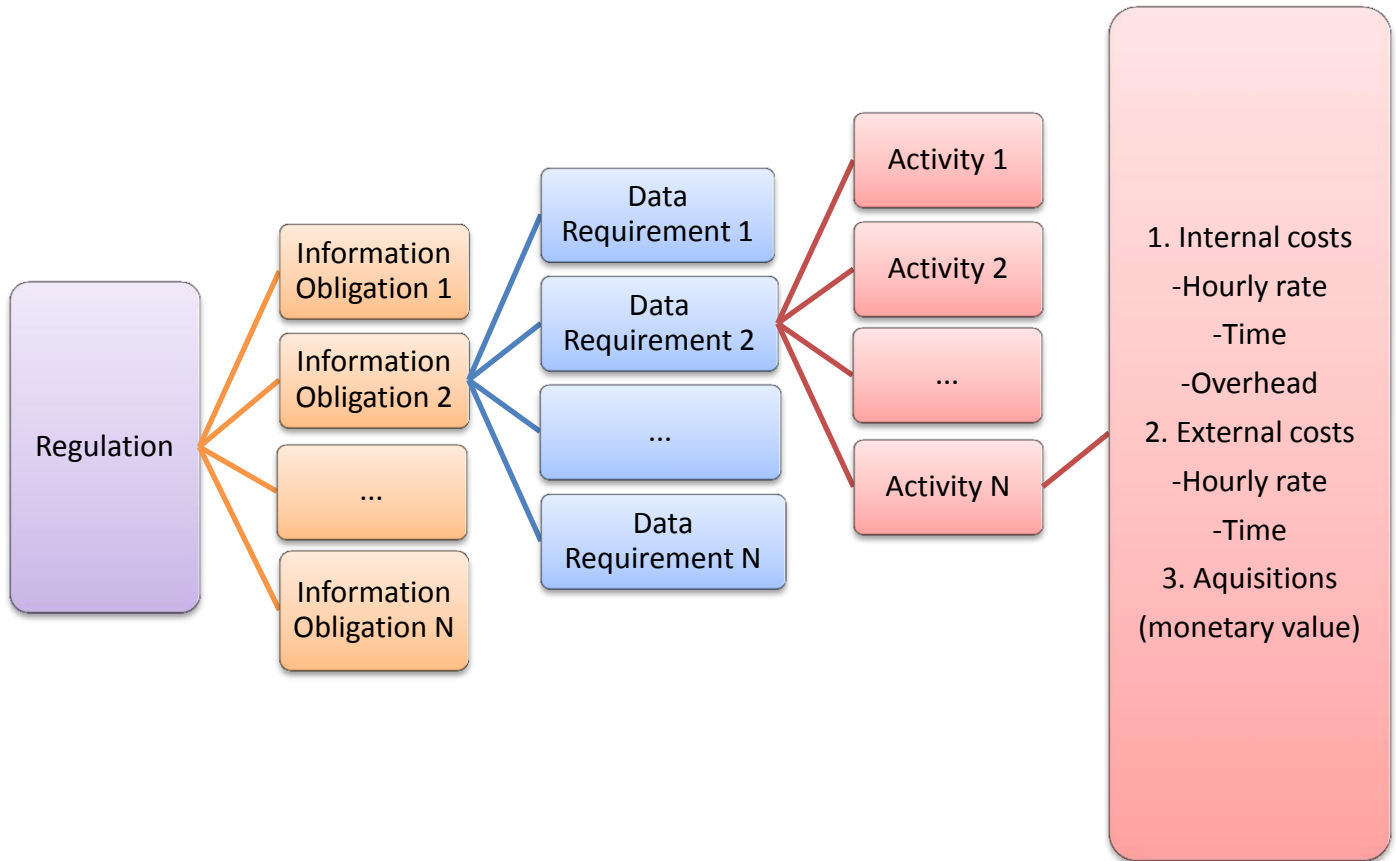
> *The SCM method breaks down regulation into a range of manageable components that can be measured: information obligations, data-requirements and activities.*
>
> *Information obligations: Information obligations (IO) are the obligations arising from regulation to provide information and data to the public sector or third parties. An IO does not necessarily mean that information has to be transferred to the public authority or private persons, but may include a duty to have information available for inspection or supply on request. A regulation may contain many information obligations.*
>
> *Data requirements: Each information obligation consists of one or more data requirements. A data requirement is each element of information that must be provided in complying with an IO.*
>
> *Administrative activities: To provide the information for each data requirement a number of specific administrative activities must be undertaken (e.g. filling in information, sending information, archiving information, etc). Activities may be done internally or be outsourced (i.e. done externally).*

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[1] Excerpt from SCM Network *"Delivering reductions in administrative burdens: An executive summary of the SCM method"*

```
Regulation → Information Obligation 1
             Information Obligation 2
             ...
             Information Obligation N

Information Obligation 2 → Data Requirement 1
                           Data Requirement 2
                           ...
                           Data Requirement N

Data Requirement 2 → Activity 1
                     Activity 2
                     ...
                     Activity N

Activity N → 1. Internal costs
               -Hourly rate
               -Time
               -Overhead
             2. External costs
               -Hourly rate
               -Time
             3. Aquisitions
             (monetary value)
```

The SCM estimates the costs of completing each activity on the basis of a couple of cost parameters:

- *Price: Price consists:*
  - *Tariff or wage (hourly) costs plus overhead for administrative activities done internally or hourly cost for external service providers.*
  - *Time, the amount of time (in hours) required to complete the administrative activity.*
- *Quantity: Quantity comprises:*
  - *Population or the number of businesses and or enterprises affected.*
  - *Frequency that the activity must be completed each year.*

Combining these elements give *the basic SCM formula:*

Activity Cost = Price x Quantity
= (tariff x time) x (population x frequency)

4 Implementing the Standard Cost Model using the Regulatory Cost Calculator

4.1 Implementation Overview

The best way to implement the Standard Cost Model with the C alculator is to follow a logical series of steps, as laid out in Figure 1: Steps to implement the Calculator. The following sections of the guide contain further details on how to complete each of these steps and how to enter this information into the Regulatory Cost Calculator. The   appendix also contains a number of forms that are designed to help the user document required inputs.

Figure 1: Steps to implement the Calculator

Step 1: Set the Context
• Describe the regulation being proposed and how business will be impacted

Step 2: Identify Regulated Community
• Select and divide impacted businesses into stakeholder groups
• Estimate stakeholder populations and growth projections

Step 3: Specify Changes to Regulatory Requirement
• Determine increase/decrease in compliance activities and capital/material costs
• Administrative burden: Identify information obligations, data requirements and activities.

Step 4: Link Changes
• Match stakeholder groups to changes
• Determine business size (small/medium & large) per-cent of stakeholders impacted

Step 5: Estimate Cost Parameters
• Timing - upfront / ongoing / custom
• Unit cost/staff level (cost of labour)
• Average #units/time (hours) required
• Frequency (times per year)
• Consult stakeholders and document assumptions

6. Review and Confirm Results
• Create reports and incorporate results into CBA and RIAS
• Adjust calculations as needed as a result of stakeholder feedback

4.2   Opening and Navigating the Calculator

If you are opening the Calculator for the first time, Excel may bring up a Security Warning, and ask if you want to "Enable Content" of the file. The Calculator uses customized code and functions to complete calculations and automate features. This, depending on your security settings, can trigger warnings in Excel. Code from an unknown source has the potential to harm your computer, but in the case of the Calculator there is nothing to worry about as it is safe to enable the contents.

Once the Calculator's content has been enabled, a form should automatically pop-up. If your copy of the Calculator has information already entered, then the form will show you the basic details of the regulatory scenario. If it is blank the form will allow you to enter details on a new regulatory scenario. The form also provides the option to load information from an existing regulatory scenario file (regulatory scenario files are explained later in this guide).   Definitions for each of these inputs are included in the next section.

In addition to this form, when opened, the Calculator will add a menu to Excel's ribbon called the "Regulatory Costing Calculator".
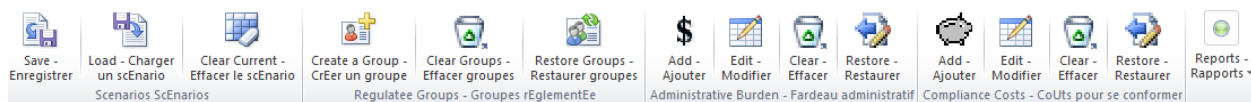
Figure 4: The Regulatory Costing Calculator Menu

This menu provides a quick and central way to access the key functions of the Calculator.   Most of these functions can also be triggered by other controls throughout the spreadsheet in the appropriate tabs.

4.3   Step One: Setting the Context - Initiative Profile

When using the Calculator, information that sets the regulatory context should be entered on the second worksheet within the tab named *Profile*.   If you already entered this information in the form that appears when opening the Calculator, you will see that it has been stored here.

If you need to, you can edit this information directly on the spreadsheet. If you wish to copy and paste from another document, it is best to click on the appropriate cell and press "F2" first. The F2 key is a short-cut in Excel to edit a cell's contents. By doing this you will retain formatting such as carriage returns, which otherwise might result in text appearing in cells below the targeted destination. If you are typing the results directly into the cell you can enter a carriage return in a cell by pressing "alt-enter".

> **USER TIP:** When copying and pasting descriptions from another document into a cell, select the cell and press "F2" before pasting. This avoids Excel interpreting carriage returns as data to be entered in subsequent rows.

Figure 5: Initiative Profile

The first information you should provide is a **clear and concise description** of the regulations that your department or agency is proposing. Because the Calculator is designed to measure incremental business impacts this description should focus on how the proposed regulation would cause business to change the way it/they operate if approved. For context purposes, the user may also wish to briefly describe the objectives of the regulation. Never assume that a second party, who may review the Calculator, has access to supplemental documents such as the Regulatory Impact Analysis Statement. In summary, the regulatory context should briefly describe:

1. what the regulation does;
2. what is its intended outcome; and
3. how it will impact businesses.

In addition to the regulation description there are six inputs to enter:

1. Name of the regulatory change (Cell **C4**): The title the regulation will be given when published within the Canada Gazette. **For reference purposes it is advised that you add the Statutory Orders and Regulation number (SOR number) to this field after the regulation has been registered**. As regulatory titles are not unique, the SOR number will allow cross-referencing Calculator scenarios to regulations in the future.

2. Type (**C6**): Indicate if the Calculator is being used to calculate an "IN" or "OUT" under the One-for-One Rule or if it is being used to calculate the "Initial option", or a "Flexible option" for the Small Business Lens. In some cases the calculator could be used for more than one of these categories, so information to indicate this should be added to the column "assumptions/notes". **If a regulatory proposal's net impact is calculated in combination with other Calculator scenarios this should be documented in the assumptions/notes area**. **If the type selected is for the SBL, a reference to where the other scenarios (initial or flexible options) are located should be included.**

> **USER TIP:** When the scenario type selected is IN or an option under the Small Business Lens, the final result should be an increase in costs. In this case any element of the proposal that *decreases costs* should be entered with a negative parameter. This should be done by indicating a negative in the number of hours for a task or a negative for the number of units purchased.
>
> Similarly, if the selected type is an OUT, this implies the final result is a decrease in cost and any element that *increases costs* should include a negative hour parameter.

3. Responsible Department (**C8**): Name of the department under the minister that will propose or approve the regulation. **When a regulation is jointly managed by several departments, this should be mentioned in the assumptions and notes area as well as any information relevant in support of the decision of which minister is responsible**.

4. Description (**C10**): The Regulatory context, as previously described.

5. Year of coming into force (**C12**): The year the regulation is anticipated to be registered. Analysis over the time period is considered to start from this year. This should coincide with the expected registration date of the regulation - the date the regulation becomes law, not the date on which requirements of the regulation are enforceable. Years entered are based on the calendar year, not fiscal years.

6. Time period for the analysis (**C14**): Period over which costs will be discounted. A minimum ten years for Cost Benefit Analysis (CBA), and must be set at ten for INs and OUTs under the One-for-One Rule and cost estimates for the Small Business Lens. Note, before extracting results as part of an integrated CBA, you should set this number to match the period of assessment you are using in the CBA.

7. Discount rate for the analysis (**C17**): This value is set as 7% for the One-for-One Rule and Small Business Lens analysis. You can also temporarily adjust this number for sensitivity analysis purposes within a Cost-Benefit Analysis context.

4.4 Identify Regulated Community – Setting Stakeholder Groups

The next step in the process is to identify, group and estimate the number of businesses that the regulatory proposal will impact.

The Calculator has built-in information from Statistics Canada on counts of businesses using categories from the North American Industrial Classification System (NAICS). This information is contained in the *Business Counts_Canada* tab, Figure 6: Selecting NAICS in the Calculator.

In order to use this data first, a "**1***"* must be entered beside the NAICS codes (**column A**) that are included in your regulated community.

Figure 6: Selecting NAICS in the Calculator

Once you have selected all the industries that will be impacted by the proposed regulation, the button "***Update industry list***" on the *Profile* tab must be pressed – as shown in Figure 7: Calculator List of Industries Impacted. This will transfer the information from the selected NAICS codes in the *Business Counts_Canada* tab to the *List of industries impacted* on the *Profile* tab.

Update Industry List

List of industries impacted (do not enter data here):

Industry	1. Small	2. Medium and Large	3. All Businesses
All Selected Industries	3,803	29	3,832
1	111120 - Oilseed (except Soybean) Farming - Culture de plantes oléagineuses (sauf le soja)	1147	0	1,147
2	111160 - Rice Farming - Culture du riz	2	0	2
3	111310 - Orange Groves - Culture d'oranges	0	0	0
4	111419 - Other Food Crops Grown Under Cover - Autres cultures vivrières en serre	443	7	450
5	111422 - Floriculture Production - Floriculture	1286	22	1308
6	111910 - Tobacco Farming - Culture du tabac	924	0	924
7	111920 - Cotton Farming - Culture du coton	1	0	1
8				
9				
10				
11				
12				

Figure 7: Calculator List of Industries Impacted

Next, stakeholder groups need to be created. Regulations often have compliance and administrative burden cost changes that do not impact the entire regulated community or have impacts on businesses that cannot be clearly allocated using the NAICS system. This is why the Calculator includes the ability to create multiple *Stakeholder Groups*. This function enables several NAICS codes to be combined together, or for the creation of groups with business counts that are user defined, based on sub-totals entered for the number of small businesses and medium and large businesses.

The form to create a stakeholder group is activated by pressing the "*Create A Stakeholder Group*" button on the *Profile* tab or from the Calculator Menu. The form includes five inputs:

1. The name to be used to reference the stakeholder group (***required**).
2. The memory slot in the *Table of stakeholder groups and business sizes* in which the information on the group will be entered (***required**). If a slot that already has data is selected this data will be overwritten. There is a maximum of ten[2] slots available for the creation of Stakeholder groups.
3. Select whether the business counts for this group will come from pre-selected NAICS codes or if they will be a custom count.
4. Business Counts:

   a. If in (3), the C*ustom Counts* option was selected then fields to enter the number of small businesses and medium and large businesses will become active. The *Total* field will automatically be calculated for you.
   b. If in (3), the *Industry Class Counts* was selected, a list of all of the NAICS codes selected and loaded to the *List of industries impacted* will appear. You can select any combination of these codes as desired and the business counts for the selected codes will be aggregated. This can be seen in Figure 9: Table of Stakeholder Groups, where the *Wheat and Rice* group is an aggregate of NAICS 111140 (Wheat Farming) and 111160 (Rice Farming).

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[2] An earlier version of the RCC was limited to 5 stakeholder groups. Updated versions including this 2015 version have the option for 10.

Figure 8: Entering a Stakeholder Group

5.   If applicable, you can enter an annual growth rate for the number of businesses. This information should be based on evidence that the impacted sector is growing or declining. For example, a growth rate of a business can be estimated using historical trends.

In order to help you prepare information on stakeholder groups, *Table 1: Stakeholder Group Worksheet* has been included in the appendix. Completing this table will enable users to collaborate and document inputs for the calculator as they are collected. This will make it an easier process to enter information into the Calculator, when you are ready, and enable you to share information with others for review or contribution without sending the entire Calculator file.

4.5   Completing Costs – Specifying, Linking and Costing Requirement Changes

Figure 10: Form to Add an Administrative Activity

This section discusses steps three, four and five of the Calculator implementation process. This information can be entered manually into the spreadsheet, or you can opt to use the Calculator forms. The form for administrative burden activities is activated by pressing the *Add Administrative Cost* button on the *Admin Costs* tab, or from the Calculator Menu. The information obligation to complete this form for the Calculator contains 9 data requirements:

1.   Activity Name: Text entered here will be added into the spreadsheet in the first available row of tab *Admin Costs* in **column B**: This is where the descriptive title for the activity identified should be entered (step 3).   The description should be clear so as to easily make a cross reference to the Regulatory Impact Analysis Statement and regulatory text to be published in the Canada Gazette.

1a. Activity Type (**column C**) provides a space to categorize administrative burden according to the types of administrative burden that are listed in the document "*Controlling Administrative Burden That Regulations Impose on Business: Guide for the "One-for-One" Rule*" (appendix). If aggregated government wide, this will provide information on how much administrative burden is changing and on how its composition is changing.

2. Stakeholder Group (**column H**): Here you will link the regulatory requirement (step 4 in the process of implementing the Calculator) with one of the stakeholder groups you have previously defined (step 2). The form will contain a drop-down list of all the available stakeholder groups you have previously created.

3. Business Size (**column I**): This will allow you to further define the stakeholder group impacted by the regulatory requirement by specifying if it impacts small businesses, medium and large businesses, or all businesses.

4. <u>Proportion Impacted</u> (**column J**): A further refinement on the stakeholder group impacted by the regulation can be made by specifying the percentage impacted. If within one year all stakeholders are impacted by the requirement then 100% should be entered here. However, if you have evidence that only a portion of all stakeholders need to complete the activity described then you can incorporate this information here. For instance if 25% of stakeholders voluntarily prepare information that the regulation proposes to make mandatory, then the percent impacted would be 100%-25% = 75%. **When using the Calculator custom form percentages should be entered in decimal form, for example 75% should be entered as 0.75. If entered as a whole number (i.e. 75), the form will automatically change this to a decimal.**

This field can be used to represent a probability that any given stakeholder within the group may need to incur a particular requirement. For instance, a business may be subject to random inspection. If the probability of inspection for any given business in a year was 25%, then you would enter the value 0.25 for the proportion impacted.

If the probability of inspection increases as a result of past infractions of the regulation, then this should not be considered as administrative burden cost. In essence, these costs are a result of non-compliance with requirements of the regulations, not costs to meet requirements.

5.
<u>Timing</u> (**column D**): The classic standard cost model includes two options for timing of a regulatory activity. These are either upfront (one-time) or ongoing. In addition to these two categories, the Calculator includes an option to add greater precision by using custom timing. Each category is described in more detail below.

> **USER TIP (Timing):** The years set in timing are associated with January 1. This means that a regulation set to run between the years 2016 – 2016 would start January 1, 2016 and end January 1, 2026 (i.e. not include costs incurred in 2026).

a. An **upfront** activity/capital cost is one that is assumed to occur only once at the very beginning of the regulation. An example of this kind of cost for administrative burden is requirements for businesses to learn about information obligations of the regulation.

b. An **ongoing** activity/capital cost is one that occurs on a regular frequency over the time frame of analysis.

c. A **custom** time period for an activity/capital cost is one that occurs at a regular frequency over a sub-set of the entire time frame of analysis. For instance if a regulation had a time frame of 2013-2023, you could set a sub-time frame of 2013-2016 or 2015-2018. If a custom time period for an activity/capital cost occurs for one year, but is not an upfront cost, you can also set the start year and end year to account for this. For instance, a cost incurred for only one year in 2018 would be recorded as a custom timing from 2018 to 2019 (January 1, 2018 – January 1, 2019).

> **USER TIP (Timing 2):** The RCC handles custom timing by considering the population of businesses impacted in a period that occurs outside of the custom time frame to be 0 (see appendix, Equation 7: Population). This will cause the adjusted business counts in the RCC (columns **AO-AQ**) to be below the normal populations even when no growth rate for that stakeholder group has been specified.

5C. <u>New Entrants</u> (**Column K**): When the option to include new entrants is selected, the manner in which the Calculator costs activities is dependent on timing of the activity:

- **Upfront**: Although an upfront cost only occurs once for currently existing businesses, these costs can also be thought of as an ongoing cost incurred by new entrants. If this box is checked, the Calculator will take this into consideration when calculating the cost for the action described.

    As an example, consider a new requirement to complete and submit a registration application within an industry with 100 businesses. When identifying this stakeholder group, you determined that the industry will grow at a rate of 10% per year over the assessment period. At time t=0, the existing businesses are all assumed to register and incur this cost. At the end of year one (t=1), 10 new businesses enter the industry and need to register (100 * 0.1), at the end of year two (t=2), 11 new businesses (110 * 0.1) and so on.

Upfront Cost for New Entrants

> Assumptions/Suppositions: Each business has to register once. This applies to both existing businesses and new businesses that enter the market over the 10 year period of analysis.

Year	Period (F)	Cost of Labour (C)	Hours to Complete (D)	Businesses Impacted (E)	Cost - C x D x E	Discounted Cost - C x D x E ÷ 1.07^(F ÷ G)
2016	0	$32	1	100	$3,150	$3,150
2016	1	$32	1	10	$315	$294
2017	2	$32	1	11	$347	$303
2018	3	$32	1	12	$381	$311
2019	4	$32	1	13	$419	$320
2020	5	$32	1	15	$461	$329
2021	6	$32	1	16	$507	$338
2022	7	$32	1	18	$558	$348
2023	8	$32	1	19	$614	$357
2024	9	$32	1	21	$675	$367
2025	10	$32	1	24	$743	$378
Total						$6,495
Discounted to 2012						$4,955 [3]

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[3] The cost of labour displayed in this table has been rounded up from $31.50 to $32 per hour.

- **Ongoing and Custom**: If the timing selected is upfront or custom then the interpretation of including entrants changes. In this case, instead of applying the cost to both existing businesses and new entrants, the cost is applied **ONLY** to new entrants.

  This can be useful for regulatory requirements that are introduced with a grandfathering scheme. For instance, following the previous example of businesses registering, the regulator may already have all of the information required to register existing businesses and thus exempt the 100 businesses from the requirement to re-submit information the regulator already has as a result of previous interactions. However, new entrants would still need to register and submit the required information.

  This can also be useful for estimating savings from regulatory modernization that result in existing requirements being made easier to understand. As existing businesses have already spent resources to learn the old, more complex requirements, they cannot save time by "unlearning" them (a sunk cost). However, new entrants will find the requirements in the new regulations easier to understand and thus have incremental savings as compared to the old regulations.

6. <u>Staff Level</u> (**column P**):   This field provides a list of occupational categories. The occupation selected will determine the cost of labour for the regulatory activity. In SCM language this is the "tariff" component of the equation *tariff * hours* which is used to calculate price. The price for a capital cost requirement (used for capital compliance costs), is simply the price of the item.   The list of occupational categories and related wages are given in the appendix under Table 4: Occupational Categories.

You are also able to add up to five custom occupational wage rates in the Calculator on tab *Prices-Do not Modify* in cells **C31-C35**.

   a. <u>Internal/External</u> (**column O**): In order to further refine the *tariff*, i.e. cost of labour, you need to select whether the work to complete the activity will be completed by staff that are internal to the business or externally contracted.

   In the case of internal, an adjustment is made to account for overhead costs to the employer of keeping an employee on staff. If the worker is considered external then a premium is added to the wage to account for the profit margin of the company providing the service. For reference, the equations for these adjustments are provided below.

   Equation 1: Internal Cost of Labour

   $$Internal\ Cost\ of\ Labour = Wage * (1 + Overhead) = Wage * 1.25$$

   Where:
   Wage = Average wage for occupation category
   Overhead = Percent of wage that is assumed to represent overhead cost of an employee = 25%

   Equation 2: External Cost of Labour

   $$External\ Cost\ of\ Labour = Wage * (1 + Premium) =\ Wage * 1.5$$

   Where:

Wage = Average wage for occupation category

Premium = Additional percent cost for businesses that hire external staff to complete an activity = 50%

USER TIP: Overhead and premium factors are added to wage rates to transfer them into costs of labour (the cost to the employer as opposed to the wage received by the employee).   If you have a <u>custom labour cost</u> that you wish to use, it can be derived by dividing it by 1.25 (Internal) or 1.5 (External).

For example, if you desired to use a custom labour cost of $10 you would enter 10/1.25 = 8 in cell <u>C31</u> of the tab *Prices-Do not modify*, select Custom1 for Staff Level list, and select Internal.

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7. Time (Hours) (**column Q**): The number of hours it takes to complete the activity. This, combined with the cost of labour, will determine the *price* of the activity. This time factor is supposed to be the time it takes for the *average* business to complete the task. While some businesses may take more time and others less, using the average time will give the most accurate overall estimate for the cost of all businesses to complete the requirement.

8. Frequency (x/year) (**column R**): The frequency number is the times per year the regulation requires the activity to be performed or the change in the number of times a year an existing activity is required. For instance, if a report was required four times a year and a regulatory proposal would reduce it to one time a year the change would be three times a year.

9. Explanation of Assumptions (**column V**): It is here that you should include the explanation of what the requirement is, how you estimated the cost parameters, and any assumptions you have made in the calculation. This is very important information to enter into the Calculator for an activity/capital cost. While it is not required to arrive at a result, this enables others who view the calculator to understand the values used.

As with the stakeholder group form, a template for each requirement has been provided in the appendix Table 2: Requirement Parameters Worksheet. This will assist you in collaboration with others and in documenting the inputs required before using the Calculator.

4.5.1 Costing Compliance Costs

An analogous form is available on the *Compliance Costs* tab. The difference between compliance and administrative burden costs is that this tab and the associated form have additional areas for capital cost information. In place of staff level (which determines wage and labour costs), a unit cost field is required. In place of Time (hours), a Number of Units field is required. These parameters are equivalent in terms of cost estimation.

A compliance cost can have an activity component (labour cost) and/or a capital cost component.   If the requirement does not have one of these components simply leave their associated list fields as blank.

USER TIP: In some cases a regulator will have statistics on the number of applications they receive. They may also have a good idea on the cost to complete an application. In such a case it is tempting to cost a requirement by the number of applications rather than by number of businesses. However, it is recommended that applications per year be divided by an estimated number of businesses to arrive at an estimate of application per business per year. In cases where this number is greater than one, use it to set the frequency. If this number is less than one, then use it as the proportion of businesses impacted. This will ensure that the Calculator costs these requirements at the appropriate time when they occur.

Figure 11: Costing Compliance

4.5.2   Add & Open or Add & Close?

If, after you have completed filling out one of the above forms (Compliance or Administrative Cost), you wish to then immediately add another requirement using the same form you should press the *Add & Open* button. If you wish to transfer the information to the spreadsheet and then close the form press the *Add & Close* button. If you wish to just close the form without transferring any information you can press the *Cancel* button.

4.5.3   Editing Costs

For both compliance costs and administrative burden costs you can edit existing entries either directly in the spreadsheet or you can load the data into the customized form by pressing the *Edit Compliance Cost* button (tab

Compliance Costs) or *Edit Administrative Cost* button (tab *Admin Costs).* Both of these options are also available in the Regulatory Costing Calculator Menu.
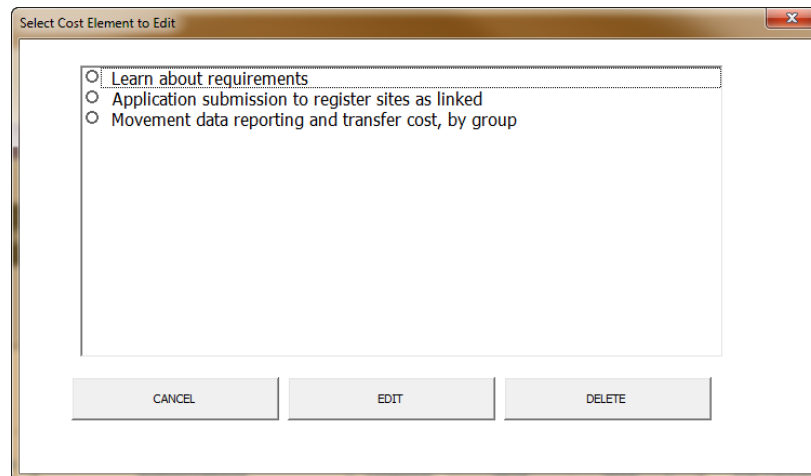
Figure 12: Editing Cost Actions

From this form, click the activity you wish to edit, then click *Edit* and the form will open with the appropriate data loaded.

If you want to delete one cost item, you can also select it from the list and click "DELETE". Once the action has been confirmed, the item will be removed and any items listed below it shifted upwards to avoid blank rows. Blank rows should be avoided in the Calculator as this is used to signal to the application when it saves scenario files or creates reports, the end of activities. Activities listed after a blank will therefore not be saved in a scenario file or listed in any Calculator reports.

4.5.4   Calculating Total Present Value and Annualized Values

As with cost benefit analysis, the Calculator takes into account time preference and opportunity cost of capital by using a discount rate to decrease the value of benefits or costs that occur in future. The method by which the Calculator calculates total present values and annualized values (the equivalent to a total present value expressed in annual terms) works on discrete time periods that are normalized such that an activity a business performs always occurs once at the end of that period. More traditional methods using annual time periods result in bias when the frequency of an activity is not equal to one (different than once a year). This is especially true for frequencies that are less than once a year, for instance once every three years. Such cases result in an upward bias (over-estimation) of administrative burden costs/savings when using annual time periods.

This method is mathematically equivalent and produces the same results as those describe in the *Red Tape Reduction Regulations.* The technical details are included in this document in appendix 8.4 Calculating Total Present Value and Annualized Values.

5   Review, Confirm and Report Results

Now that you have entered all the parameters needed it is time to review the outcomes that are summarized in the Calculator tab *Reporting*. The *Reporting* tab has three summary tables (listed below) in addition to two tables that are specific to reporting requirements for the One-for-One Rule and the Small Business Lens.

1. Total present values (*Figure 13: Total Present Value Summary Report* –reports on up to 10 separate custom business groups.

2. Annualized averages.

Within each of these tables, sub-totals of costs for requirements are provided for:

- all businesses and the cost per business
- business size (Small, Medium & Large, and All businesses)
- by type of cost (Administrative, Compliance, Total)
- by stakeholder groups

5- Summary of costs
A. Present values

	Small businesses		Medium and large businesses		All businesses	
	Per small business (average)	All small businesses	Per medium and large business (average)	All medium and large businesses	Per business (average)	All businesses
Total administrative costs (present value)	*$244*	$548,913,186	*$272*	$4,769,753	*$245*	$553,682,939
Regulatory Departments	*$0*	$0	*$7,329*	$146,581	*$7,329*	$146,581
Treasury Board Secretariat	*$0*	$0	*$339,627*	$339,627	*$339,627*	$339,627
Canadian Businesses	*$244*	$548,913,186	*$244*	$4,283,544	*$244*	$553,196,730
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Total compliance costs (present value)	*$0*	$0	*$0*	$0	*$0*	$0
Regulatory Departments	*$0*	$0	*$0*	$0	*$0*	$0
Treasury Board Secretariat	*$0*	$0	*$0*	$0	*$0*	$0
Canadian Businesses	*$0*	$0	*$0*	$0	*$0*	$0
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Total costs (present value)	*$244*	$548,913,186	$272	$4,769,753	$245	$553,682,939
Regulatory Departments	*$0*	$0	*$7,329*	$146,581	*$7,329*	$146,581
Treasury Board Secretariat	*$0*	$0	*$339,627*	$339,627	*$339,627*	$339,627
Canadian Businesses	*$244*	$548,913,186	*$244*	$4,283,544	*$244*	$553,196,730
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						
Empty/Vide						

Figure 13: Total Present Value Summary Report

3. Sub-Totals by Administrative Burden Type

If you identified administrative burden changes by type then the reporting area will also include a break-down of those costs (Figure 14: Reporting on Administrative Burden Types). This information will be of use in anal*ysing the sources of regulatory administrative burden government wide.*

C. Administrative Burden Types

	Total Present Value	Annualized Value
Returning and reporting or submitting informations	$97,347	$13,860
Authorizations	$87,612	$12,474
Notification of activities	$1,569,359	$223,441
Familiarization with the information obligation	$949	$135
Information retrieval	$0	$0
Calculation, assessment and checking	$0	$0
Meetings	$35,880	$5,109
Copying, distribution, filing, etc	$0	$0
Enforcement, audits and inspections	$0	$0
Other	$0	$0
TOTAL	**$1,791,147**	**$255,019**

Figure 14: Reporting on Administrative Burden Types

The Calculator provides tables that you will need when reporting your results within the Regulatory Impact Assessment Statement of your regulatory proposal for the One-for-One Rule and the Small Business Lens. In these tables you also have the ability to set a rounding level by which to display results in the report (Figure 15: One-for-One Rule Report). To capture this table there is also a button "**COPY ONE-FOR-ONE TABLE**" which will select the table and copy the contents to the clipboard. You can now open your document (e.g. Regulatory Impact Analysis Statement etc.) and easily add the table directly into it by pasting the copied information.

Figure 15: One-for-One Rule Report

Values reported in the table for the Rule are different than those reported in the summary of costs tables or the Small Business Lens Table (to follow). For the One-for-One Rule, INS and OUTS need to be measured from an equivalent perspective, since they are used to offset each other. As such, all costs for the rule are discounted back to the same base year for t=0 (t=0 is set for 2012). Thus, the reported figures for the Rule are all discounted back to 2012 for consistency purposes. How the Calculator accomplishes this is explained in the appendix, Discounting back to 2012, on page 33.

At the time of writing of this manual the required discount rate used for the One-for-One Rule was 7%. However, this rate will continue to be reviewed and updated as appropriate. If the recommended rate changes, users can adjust the Calculator by changing cell "C17" on the "Profile" tab. The changing of the discount rate for the One-for-One Rule would require an amendment to the *Red-Tape Reduction Regulations* (SOR/2015-202) made under the *Red-Tape Reduction Act*.

Under the SBL, results are mainly used to compare the initial option with flexible options for the same regulatory proposal that would start at the same time. Thus the values in the Small Business Lens are discounted back to the year the regulation will be introduced as t=0.

The Calculator also contains a table to report on results for the SBL, Figure 16: Small Business Lens Report. The SBL report contains sub-totals by cost type (compliance/administrative) and an average cost per small business. The report, as with the One-for-One report, contains an option to round the results to an appropriate level.

The information contained in the Flexible Option section of the table is directly linked to costs that result from the scenario that is currently entered in the Calculator. The Initial Option section will have a copy of this information added by pressing the "**Set Initial Option**" button. The procedure for preparing this table is explained below.

(2) Small Business Lens

(applies to both administrative and compliance costs)

Regulatory Flexibility Analysis Statement

Set Initial Option

COPY SBL TABLE

	Flexible Option		Initial Option	
Short Description	e.g. all firms face the same reporting requirements		e.g. small businesses can report less frequently	
Maximum number of small businesses impacted:	50		5,334	
	Annualized average ($ 2012)	Present Value* ($ 2012)	Annualized average ($ 2012)	Present Value* ($ 2012)
Compliance costs	$0	$0	$1,271,830	$8,932,820
Administrative costs	$1,350	$9,450	$291,960	$2,050,610
Total costs	$1,350	$9,450	$1,563,790	$10,983,420
Average cost per small business	$30	$190	$290	$2,060
Risk considerations				

Figure 16: Small Business Lens Report

For the Small Business Lens regulatory flexibility analysis, create a scenario using the calculator for the initial option, save the Scenario File (see next section), then press the "**Set Initial Option**" button. This will copy and paste the results to the "Initial Option" section in the Small Business Lens reporting table.

Next, change the Calculator inputs of the initial option scenario to be compatible with the flexible option you have developed for the regulation. This may involve changing things like the frequency of a reporting requirement, or even the removal of certain requirements completely. Once you have completed the required changes, the table will now have both the initial option results and the flexible option results and can be copy and pasted for inclusion in the Small Business Lens section of the Regulatory Impact Analysis Statement.

The button, "**COPY SBL TABLE**", will automatically select the table and copy its contents for easy pasting in your analysis document.

It is a good idea to also export the flexible option to a separate scenario file for future reference. Note that all of the values in the SBL table are discounted back to the start year of the regulation as opposed to the year 2012 for values in the One-for-One table. Also, as this table only examines costs for small business, costs for medium and large businesses are not included in this table.

5.1   Incorporating Results into the Cost-Benefit Analysis (CBA)

In the course of carrying out CBA associated with medium- and high-impact proposals with new administrative burden costs to business (i.e., INs), departments are required to use the Calculator to monetize the costs of the

proposed IN. For low-impact proposals that impose new administrative burden costs on business, departments must use the Calculator to quantify these impacts. Other costs and benefits associated with low-impact proposals can be described qualitatively.

The cost estimate—as well as the underlying methodology, assumptions, data and their limitations—must be included in the cost-benefit analysis report for medium- and high-impact regulatory proposals (where applicable). The calculator must also be used to monetize the administrative burden cost savings of OUTs.

> **Cost Benefit Analysis and the Rule:** While results reported in the CBA and the One-for-One Rule from the Calculator for costs (INs) and benefits (OUTs) will be based on consistent assumptions, the values reported themselves will differ. This difference will result for one or more of the following reasons:
>
> - A base year for discounting in the rule of 2012 and a base year of discounting in the CBA using the current year
> - A price year used in the CBA other than the 2012 price year required for the rule
> - A period of assessment in the CBA longer than the 10 year assessment required for the rule
> - CBA sensitivity analysis on the assumption of a 7% discount rate, or the use of a social discount rate of 3%
>
> To avoid confusion, the source for difference in values reported in the Regulatory Impact Analysis Statement of your regulatory proposal should be well documented.

6   Importing and Exporting Scenario Files

The Calculator has the ability to save and load scenario files. This makes it easier to have multiple cost estimates, switch back and forth between scenarios, share them with others, and preserves disk space. In addition, having scenario files will make it easier to transfer inputs from the current version of the Calculator to future versions as compared to manually re-entering inputs. Having scenario files also makes it easier to aggregate results from multiple scenarios when you use the reporting features of the Calculator discussed in the next section.

Scenario files are saved as text files with the file extension *RCC*.   This unique extension enables the Regulatory Costing Calculator to recognize a scenario file. A scenario text file typically takes up about 1% of the memory of the Calculator Excel file. The buttons that will allow you to Clear, Load, and Save a scenario from the Calculator are all included in the *Model Structure* tab of the spreadsheet and in the customized Calculator menu.

Regulatory Costing Calculator 2.1

Français

Clear Scenario	Load Scenario	Save Scenario
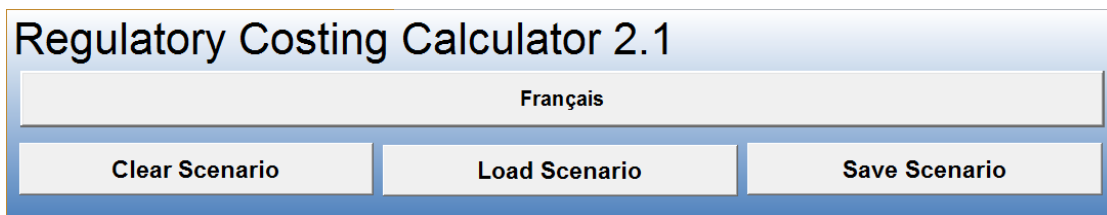
When the "*Save Scenario*" button is pressed, a dialogue box will pop-up asking the user to select the folder location and file name to use when saving the scenario. The extension *RCC* will automatically be added to the file name given by the user.

The "*Load Scenario*" button will also open up a dialogue box that will allow the user to select the folder and Calculator scenario file to import inputs from. Only files with the RCC extension will be visible for selection. When an import is done all the inputs currently entered in the spreadsheet will be cleared.
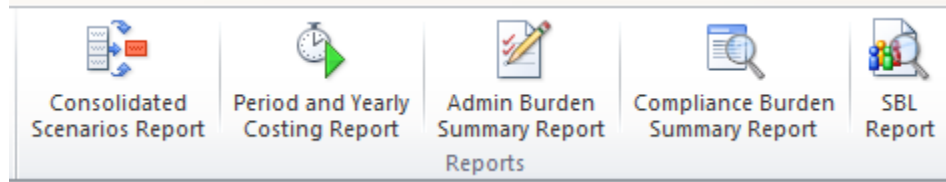
The "*Clear Scenario*" button will remove all the inputs currently entered in the Calculator, leaving a clean slate for a new scenario to be created.

Information on what data gets saved and loaded is listed in the appendix 8.6, ***What gets Exported/Imported?*** on page 34.

7   Specialized Reports

At the time of writing of this manual, the Calculator contains five specialized reports. These reports are created in new spreadsheet Excel files by taking information in the Calculator and presents the results in a new Excel worksheet. This new file is intended to be easier to understand, easier to use for briefings by summarizing or highlighting information. They can be created from either the Calculator menu or the from control buttons contained in the reporting tab.

Consolidated Scenarios Report	Period and Yearly Costing Report	Admin Burden Summary Report	Compliance Burden Summary Report	SBL Report

Reports

7.1   Consolidated Scenarios Report

The first specialized report allows for the consolidation of up to five scenarios. When this report is activated a dialog box will appear to allow you to browse your files to locate the scenarios you wish to consolidate. Once a file is selected you can click on the associated "+" button which will turn into a "-"(or vice-versa). If the plus symbol is selected, results from that scenario will be added to other selected scenarios in the consolidated result. If the minus symbol is selected, then the results from that scenario will be subtracted from the other selected scenarios.

Scenario Aggregator

Scenario 1:	Empty	BROWSE	+
Scenario 2:	Empty	BROWSE	+
Scenario 3:	Empty	BROWSE	+
Scenario 4:	Empty	BROWSE	+
Scenario 5:	Empty	BROWSE	+

Aggregate Scenarios   Cancel
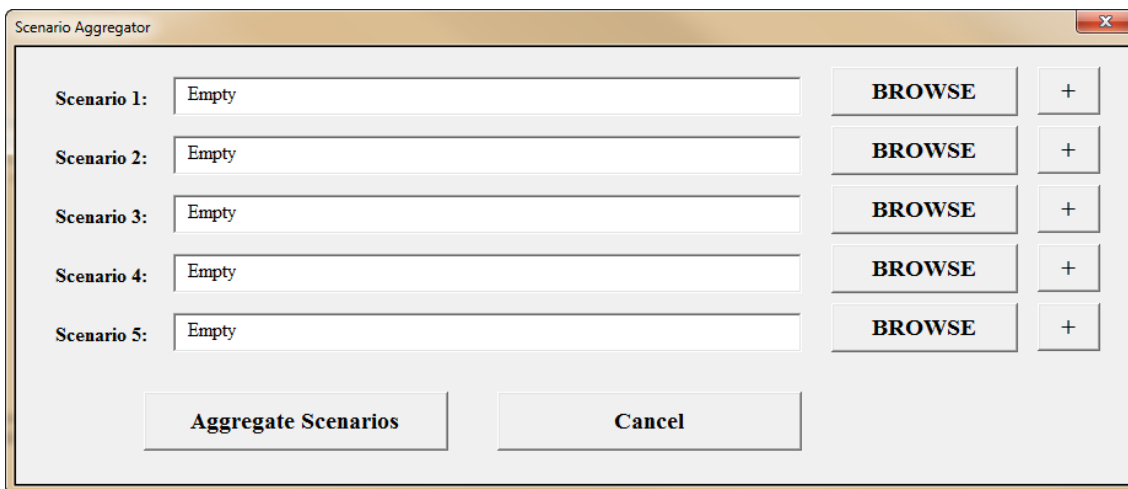
Figure 17: Consolidating Scenarios

The consolidation report can be very useful in situations where you have, for example, estimated the total cost of a new regulatory situation (the regulated scenario), and the total cost of the regulatory situation that will exist if the proposal is not accepted (the baseline). The difference between these two scenarios is the incremental impact of the proposal. This report may also be useful in situations where limitations of the Calculator require the total

regulatory proposal to be described in more than one scenario, or if you want to know the difference between a flexible option and an initial option under the Small Business Lens.

In any case where you are attempting to achieve a final result by using multiple scenarios, it is important to document this information somewhere in the Calculator, for instance the regulatory description, such that another user would be able to replicate the results you intend to publish with the Regulatory Impact Analysis Statement.

As the scenario consolidator needs to load the selected scenarios into the Calculator in order to get the required results, any scenario currently in the Calculator will be cleared. For this reason, you should export any scenario you are working on before producing this report.

Once the report has been created it will look something like appendix 8.7.1 Consolidated Report.

7.2   Period and Yearly Costing Reports

The period and yearly costing report is focused only on administrative burden costs. It is meant to report the results for a One-for-One Rule assessment in a manner that gives a better indication of how these costs evolve over time. This report also includes all the elements required to show equivalence between cost estimates from the Calculator and the procedure described in the *Red Tape Reduction Regulations*.

> **USER NOTE:** An ongoing action tab includes a row for each period, equal to the product of the frequency and 10. For instance, an ongoing action with a frequency of 1,000 would produce a report with 10,000 rows. Since these reports could become lengthy and take considerable time to produce these reports are limited to a maximum frequency of 52, or 520 periods. This can be done without impacting the cost estimate by increasing the number of hours that the action requires by a compensating factor for the lower frequency.

For each single regulatory burden cost requirement activity entered in the Calculator, a sheet in a new spreadsheet excel file is created that shows the costs for each period. The report also includes a summary in sheet one of the new spreadsheet that aggregates the results of all the activities and reports a result that will match what is shown directly in the Calculator One-for-One table.

The best way to understand this report is to create one, or view the outputs as shown in the appendix 8.7.2. This report can be very useful if you want to describe things such as the amount a regulatory proposal will cost business in the first year of the regulation.

7.3   Administrative Burden Summary Report & Compliance Burden Summary Report

These are one sheet summaries of the administrative burden costs or compliance burden costs entered in the Calculator. It is meant to provide the same information as contained in the Calculator, but be presented in a format that makes it easier to share or present to others as compared to the entire Calculator spreadsheet itself. The administrative burden summary report also calculates equivalent saved hours of a regulation, a statistic that is regularly reported in communications regarding the rule.

An example of this report can be seen in appendix 8.7.3.

7.4   SBL Report

The SBL report is a combination of the Admin Burden summary report and the Compliance Burden Summary report, except it only calculates costs on small businesses. This report will contain an end result that will be the same as the information displayed in the SBL table of the Calculator for either the initial or one of the flexibility scenarios.

8   Appendix

8.1   Regulatory Costing Calculator Worksheets

Table 1: Stakeholder Group Worksheet

Custom Stakeholder Groups				
Name	Small	Medium/Large	Total	Growth Rate
Custom Group 1				
Custom Group 2				
Custom Group 3				
Custom Group 4				
Custom Group 5				
NAICS Stakeholder Groups[4]				
Name	Associated NAICS			
NAICS Group 1				
NAICS Group 2				
NAICS Group 3				
NAICS Group 4				
NAICS Group 5				

Table 2: Requirement Parameters Worksheet

Requirement Description:

Activity Name	Stakeholder Group	Timing	Time (hours) / Number of Units	Wage/Cost per Unit	Frequency
Activity 1					
Activity Description					
Sources & Assumptions					
Activity 2					
Activity Description					
Sources & Assumptions					
. . .					
Activity N					

[4] http://www.statcan.gc.ca/subjects-sujets/standard-norme/naics-scian/2007/list-liste-eng.htm - In addition to the RCC refer to Statistics Canada to help find the appropriate North American Industrial Classification System

Activity Description	
Sources & Assumptions	

8.2 Administrative Burden Types

Table 3: Types of Regulatory Administrative Burden

1. Returning and reporting or submitting information: In cases where compliance with an information obligation requires the submission of information on the business, the information must be sent to the federal government.

2. Authorizations: Completing an application seeking permission for or exemption from the federal government from activities, including applications for authorization to carry out activities. In general, this does not include pre-market approval processes (e.g., pharmaceuticals, medical devices, pesticides, telecommunication devices and other goods) because the costs associated with these processes are generally considered to be compliance costs.

3. Notification of activities: This relates to businesses having to notify the federal government of activities.

4. Familiarization with the information obligation: The resources spent by businesses to familiarize themselves with a given federal government information obligation. This would apply only to regulatory changes that represent a strong deviation from current practice.

5. Information retrieval: Retrieving the relevant figures and information needed to comply with a given federal government information obligation.

6. Calculation, assessment and checking: Performing the necessary calculations, assessment of information and checking of calculated figures to ensure that the information is accurate.

7. Meetings: Includes meetings held internally between the various personnel groups involved in complying with the information obligation. Also includes external meetings held in cases where compliance with the information obligation requires meetings with an auditor, lawyer or the like.

8. Copying, distribution, filing, etc.: In some cases, the report is copied, distributed or filed in order to comply with a federal government obligation.

9. Enforcement, audits and inspections: This relates to informing and assisting federal government inspectors who carry out inspections of and auditing work for a business, or who visit a business in connection with enforcement of a regulation. This should be calculated only if the requirements (e.g., number of inspections per year) are included in the regulation.

8.3   Occupational Categories, Wages, Overhead, and External Cost

Table 4: Occupational Categories

1 .Canada average	$25.20	15. Food and beverage services	$15.05
2. Senior management	$47.84	16. Protective service occupations	$26.51
3. Other management	$37.01	17. Childcare and home support workers	$16.27
4. Administrative support	$23.09	18. Travel and accommodation workers, recreation	$15.63
5. Clerical	$20.24	19. Contractors and supervisors in trades and transportation	$29.90
6. Accountant	$31.52	20. Construction trades	$24.54
7. Lawyer	$40.24	21. Other trades occupations	$25.32
8. Natural and applied sciences	$33.27	22. Transport and equipment operators	$22.09
9. Health professionals, nurses and related	$33.88	23. Trades helpers and Labourers	$19.18
10. Health technicians and related	$22.71	24. Oil and gas, agriculture and forestry workers	$21.82
11. Teachers and professors	$34.42	25. Manufacturing and processing workers	$19.89
12. Art, culture, recreation and sport	$25.20	26. Machine operators and assemblers	$20.75
13. General sales and services	$17.97	27. Manufacturing labourers	$16.46
14. Retail sales	$15.89		

8.4   Calculating Total Present Value and Annualized Values

The following equations outline step-by-step how the Calculator takes the user inputs to calculate the Total Present Value for an addition/removal or change to an administrative burden cost requirement. Values reported for a regulatory proposal are the net aggregate of all the activity changes over all periods documented in the Calculator.

Periodic Discount Rate Explanation: This equation transfers the annual discount rate (7%) to an equivalent discount rate for a frequency other than annual. For instance a monthly discount rate could be derived by using 1.07^(1/12)-1=0.565%, a biannual discount rate by using 1.07^(1/0.5) = 1.07^2-1=14.5%.

Equation 3: Periodic Discount (PD) Rate

$$PD = (1 + r)^{1/Frequency} - 1$$

Where:

r = annual discount rate

Frequency = the number of times the event occurs in one year

Explanation: This equation transfers the annual growth rate for a stakeholder group to an equivalent growth rate for a frequency other than annual.

Periodic Growth Rate Explanation: This equation transfers an annual growth rate for a stakeholder group to an equivalent growth rate for a frequency other than annual.

Equation 4: Periodic Growth Rate (PG)

$$PG = (1 + grow)^{1/Frequency} - 1$$

Where:

grow = the annual growth rate for the businesses being impacted by the activity

Number of Periods Explanation: This equation calculates the number of periods that will occur over the 10 year assessment for the cost being assessed. For instance, an activity that occurs four times a year for 10 years would have 40 periods. An activity that occurs once every five years (0.2 frequency) over 10 years would have two periods.

Equation 5: Number of Periods (Periods)

$$Periods = Frequency * TimePeriod$$

Where:

TimePeriod = the number of years over which the activities' costs are estimated (typically 10).

Periodic Factor Explanation: This equation is equivalent to an annuity factor, which is an accounting principle to spread a one-time cost over annual payments for a specified period of time. In this case instead of annual payments the payments are determined by the frequency of the requirement.

Equation 6: Periodic Factor (PF)

$$PF = \frac{1 - (1 + PD)^{-Periods}}{PD}$$

Population Explanation: This formula creates a discount weighted average of the population of businesses impacted by an administrative burden activity.

Equation 7: Population

$$PopAdjust = \frac{\sum_{p=1}^{Periods} \frac{Pop_p}{(1 + PD)^p}}{PF}$$

$$Pop_p = Pop_0(1 + PG)^p \ or \ 0$$

Where:

p=the period for which the population is being calculated

Pop_p=the population of businesses impacted by the activity in period p. For periods that occur outside the range specified for custom timing this is counted as zero.

New Entrants Population Explanation: This formula creates a discount weighted average of the population of new entrant businesses impacted by an administrative burden activity

Equation 8: Population Entrants

$$PopAdjust_{Entrants} = \frac{\sum_{p=1}^{Periods} \frac{Pop_{p\ Entrants}}{(1+PD)^p}}{PF}$$

$$Pop_{p\ Entrants} = \frac{Pop_0 * PG}{1+PG}(1+PG)^p \ or \ 0$$

Where:

$Pop_{p\ Entrants}$=the population of new entrant businesses impacted by the activity in period p. For periods that occur outside the range specified for custom timing this is counted as zero.

Total Present Value Explanation: This is the equation used by the Calculator to estimate the total present value for an ongoing or custom timing requirement. The first equation is used when new entrants is not selected/set to False, and the second when new entrants is selected/set to True.

Equation 9: Total Present Value (TPV) – Ongoing/Custom Timing

$$TPV_{Ongoing/Custom} = Time * Wage * PopAdjust * PF$$

$$TPV_{Ongoing/custom\ Entrants} = Time * Wage * PopAdjust_{Entrants} * PF$$

Where:

Time =the hours required to complete the regulatory requirement

Wage = the cost per hour to perform activities related to the regulatory requirement

PopAdjust = the discount weighted average number of businesses that will perform the regulatory requirement over the period of assessment

$PopAdjust_{Entrants}$ = the discount weighted average number of new entrants businesses that will perform the regulatory requirement over the period of assessment

NOTES:
- These formulas apply both to custom and ongoing costs.
- As this method translates the frequency per period equal to one, there is no need to multiply costs by frequency (1*Cost=Cost)

Total Present Value – Upfront Costs Explanation: Upfront costs are considered to occur at time t=0 and thus are not subjected to any discounting and follow the basic SCM equation. Normally an upfront cost would have a frequency of one so could be excluded from this equation. When new entrants are to be considered (New Entrants = True), the total present value for new entrants of ongoing/custom costs is added to the upfront cost and calculated as described in Equation 9.

Equation 10: Total Present Value – Upfront Timing

$$TPV_{Upfront} = Time * Wage * Pop_0 * Frequency + TPV_{Ongoing/custom\ Entrants}$$

Integrated Total Present Value Explanation: The Integrated Total Present Value is simply the sum of the TPV for upfront costs and ongoing/custom costs.

Equation 11: Integrated TPV

$$TPV = TPV_{Upfront} + TPV_{Ongoing/Custom}$$

Annualized Values Explanation: This is the equation that is used to calculate the annualized value. It is equal to dividing the TPV by the Annuity Factor, which for a 7% discount rate and 10 year time period, is approximately 7.024.

Equation 12: Annualized Values

$$Annualized = TPV * \frac{r * (1 + r)^t}{(1 + r)^t - 1} = TPV * 0.1424$$

Where:

r = the annual discount rate (7%)

t= the years in the period of assessment (10)

8.5 Discounting back to 2012

Adjusted Annualized Value Explanation: The Adjusted Annualized value is the annualized cost/savings for regulatory administrative burden costs discounted back to the year 2012 as required by the "One-for-One" Guidance document.

Equation 13: Adjusted Annualized Value (AAV)

$$AAV = \frac{Annualized}{(1 + r)^{StartYear - 2012}}$$

Where:

StartYear=the year the regulatory proposal is assumed to start.

8.6   What gets Exported/Imported?

Profile:

- Name of Regulatory Change + Assumptions / notes
- Change Type + Assumptions / notes
- Responsible Department + Assumptions / notes
- Brief Description + Assumptions / notes
- Year of coming into Force + Assumptions / notes
- Time Period+ Assumptions / notes
- Discount Rate + Assumptions / notes

Custom wage data:

- Wage Name (if any)
- Wage amount

Selected NAICS*:

- NAICS Code and Name
- Number of Small businesses
- Number of Medium and Large Businesses
- All Businesses

*While the NAICS codes entered in the "Profile" Tab of the Calculator is exported, the "1"s that are entered in the "Business Counts Canada" Tab are not exported. For this reason, if the user presses the "Update Industry List" button on the "Profile" Tab, this information will be cleared.

Custom Stakeholder Groups

- Name
- Number of small businesses (exported as a formula not number)
- Number of Medium/Large businesses (exported as a formula not number)
- All Businesses (exported as a formula not number)
- Growth Rate

Administrative Burden Impact Inputs

- Description
- Type
- Timing
- Start Year
- End Year
- Stakeholder Group

- Size
- % Impacted
- Internal/External
- Staff Level
- Hours
- Frequency
- Assumptions
- Include New Entrants

Compliance Costs

- All information elements common from Administrative Costs
- Number of Units
- Cost per Unit
- Frequency (for capital costs)

8.7 Specialized Reports

8.7.1 Consolidated Report

The following figure shows the report that results when two scenarios are combined. The first scenario (an initial scenario) has the costs from a flexible option subtracted from it. The resulting differences indicate the cost reductions that could be achieved by implementing the flexible scenario.

Scenario Name	Admin Total Present Value (TPV)	Admin Annuity	Admin TPV (From 2012)	Admin Annuity (From 2012)	Compliance TPV	Compliance Annuity	Comp + Admin TPV	Comp + Admin Annuity
The Initial Scenario	$1,592,602	$226,751	$1,214,988	$172,987	$0	$0	$1,592,602	$226,751
A Flexible Scenario	-$1,039,406	-$147,988	-$792,955	-$112,899	$0	$0	-$1,039,406	-$147,988
TOTAL	$553,196	$78,763	$422,033	$60,088	$0	$0	$553,196	$78,763

Figure 18: A consolidated report

8.7.2   Period Report

The following figures show the type and format of information that will be produced by the Period Report for Administrative Burden by the Regulatory Costing Calculator. The first figure shows the summary sheet which combines all the cost information for the three different activities that have been costed for an imaginary regulation that has been proposed to ensure safe operation of self-driving vehicles (SDV). There are 100 retailers of SDVs and 400 companies that use SDVs for commercial purposes to transport goods interprovincially. Both groups are expected to grow at a rate of 10% per year.

	Activity	Total Present Value	Annualized
1	Register Company	$19,484	$2,774
2	Licence Application	$74,597	$10,621
3	Reporting Activities	$266,902	$38,001
	TOTAL - A	$360,982	$51,396
	Discounted to 2012 (B = 2016)	$275,392	$39,210

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Figure 19: Summary sheet for period report

The first action costed for the regulation is the need to register each SDV car dealership. This activity has been entered in the Calculator as an upfront cost that impacts all SDV dealerships and includes new entrants. The cost of labour has been set at $32/hour, and registration takes three hours to complete.

Register Company

Assumptions/Suppositions: Each business must register immediately when the regulation becomes law. Registration takes 3 hours to complete, is done at wage equal to the Canadian average by 100 businesses and occurs once for existing businesses and then every year for new entrants.

Year	Period (F)	Cost of Labour (C)	Hours to Complete (D)	Businesses Impacted (E)	Cost - C x D x E	Discounted Cost - C x D x E ÷ 1.07^(F ÷ G)
2016	0	$32	3	100	$9,450	$9,450
2016	1	$32	3	10	$945	$883
2017	2	$32	3	11	$1,040	$908
2018	3	$32	3	12	$1,143	$933
2019	4	$32	3	13	$1,258	$960
2020	5	$32	3	15	$1,384	$986
2021	6	$32	3	16	$1,522	$1,014
2022	7	$32	3	18	$1,674	$1,043
2023	8	$32	3	19	$1,842	$1,072
2024	9	$32	3	21	$2,026	$1,102
2025	10	$32	3	24	$2,228	$1,133
Total						$19,484
Discounted to 2012						$14,864

Figure 20: A Period Report #1

The second action costed for the regulation is the requirement for transport companies that use SDV to ship products interprovincially to renewal licences to operate. Licence renewals are an ongoing activity that occur once every two years, takes an hour to complete, and is performed at a labour cost of $32/hour.

Licence Application

Assumptions/Suppositions: Each company must apply for a licence to operate SDV to transport goods between provinces. Licenses need to be applied for every two years. Internal testing has determined the licencing procedure takes an hour to complete and it is assumed an average worker can complete the task.

Year	Period (F)	Cost of Labour (C)	Hours to Complete (D)	Businesses Impacted (E)	Cost - C x D x E	Discounted Cost - C × D × E ÷ 1.07^(F ÷ G)
2018	1	$32	1	484	$15,246	$13,316
2020	2	$32	1	586	$18,448	$14,074
2022	3	$32	1	709	$22,322	$14,874
2024	4	$32	1	857	$27,009	$15,720
2026	5	$32	1	1037	$32,681	$16,613
Total						$74,597
Discounted to 2012						$56,910

Figure 21: A Second Activity, Licence Renewal for Self-driving Vehicle Use

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Assumptions/Suppositions: Transport companies must report quarterly a summary of all accidents resulting in property damage or injury where a SDV was involved. Surveyed companies have responded that they expect it will take about 4 hours to complete the report and will be done by administrative staff.

Year	Period (F)	Cost of Labour (C)	Hours to Complete (D)	Businesses Impacted (E)	Cost – C x D x E	Discounted Cost – C × D × E ÷ 1.07^(F ÷
2016	1	$29	0.5	410	$5,912	$5,813
2016	2	$29	0.5	420	$6,054	$5,853
2016	3	$29	0.5	430	$6,200	$5,893
2016	4	$29	0.5	440	$6,350	$5,934
2017	5	$29	0.5	451	$6,503	$5,976
2017	6	$29	0.5	461	$6,660	$6,017
2017	7	$29	0.5	473	$6,820	$6,059
2017	8	$29	0.5	484	$6,985	$6,101
2018	9	$29	0.5	496	$7,153	$6,143
2018	10	$29	0.5	508	$7,326	$6,186
2018	11	$29	0.5	520	$7,502	$6,229
2018	12	$29	0.5	532	$7,683	$6,272
2019	13	$29	0.5	545	$7,868	$6,315
2019	14	$29	0.5	558	$8,058	$6,359
2019	15	$29	0.5	572	$8,253	$6,403
2019	16	$29	0.5	586	$8,452	$6,448
2020	17	$29	0.5	600	$8,655	$6,492
2020	18	$29	0.5	614	$8,864	$6,537
2020	19	$29	0.5	629	$9,078	$6,583
2020	20	$29	0.5	644	$9,297	$6,628
2021	21	$29	0.5	660	$9,521	$6,674
2021	22	$29	0.5	676	$9,750	$6,721
2021	23	$29	0.5	692	$9,986	$6,767
2021	24	$29	0.5	709	$10,226	$6,814
2022	25	$29	0.5	726	$10,473	$6,862
2022	26	$29	0.5	743	$10,725	$6,909
2022	27	$29	0.5	761	$10,984	$6,957
2022	28	$29	0.5	779	$11,249	$7,005
2023	29	$29	0.5	798	$11,520	$7,054
2023	30	$29	0.5	818	$11,798	$7,103
2023	31	$29	0.5	837	$12,083	$7,152
2023	32	$29	0.5	857	$12,374	$7,202
2024	33	$29	0.5	878	$12,672	$7,252
2024	34	$29	0.5	899	$12,978	$7,302
2024	35	$29	0.5	921	$13,291	$7,353
2024	36	$29	0.5	943	$13,611	$7,404

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Figure 22: Third Activity, Quarterly Reporting

The last activity costed is for a requirement to report on incidents involving SDVs that result in propery damage or injury. This is an ongoing activity with summary reports required once every three months (four times a year), these reports are estimated to take 30 minutes to complete, and is performed at a labour cost of $29/hour.

2025	37	$29	0.5	966	$13,939	$7,455
2025	38	$29	0.5	989	$14,276	$7,507
2025	39	$29	0.5	1013	$14,620	$7,559
2025	40	$29	0.5	1037	$14,972	$7,611
Total						$266,902
Discounted to 2012						$203,618

8.7.3 Administrative Burden Summary Report

The following figures show the type and format of information that will be produced by the Administrative Burden Summary Report of the Regulatory Costing Calculator. The figure shows the summary sheet, which combines the cost information for three different activities that have been costed for a fictional regulation to support safe operation of self-driving vehicles (SDV).

Activity	Timing	Start Year	End Year	Total Population - E	Total Population (Growth Adjusted)	Frequency - G	Period Factor	Hours - D	Cost of Labour - C	Total Present Value	Annualized	Adjusted Hours	Assumptions	Notes on Consultations
Register Company	1. Upfront	2016	2016	100	15	1	7	3	$31.50	$19,484	$2,774	88	Each business must register immediately when the regulation becomes law. Registration takes 3 hours to complete, is done at wage equal to the Canadian average by 100 businesses and occurs once for existing businesses and then every year for new entrants.	
Licence Application	2. Ongoing	2016	2026	400	698	0.5	3	1	$31.50	$74,597	$10,621	337	Each company must apply for a licence to operate SDV to transport goods between provinces. Licenses need to be applied for every two years. Internal testing has determined the licencing procedure takes an hour to complete and it is assumed an average worker can complete the task.	
Reporting Activities	2. Ongoing	2016	2026	400	642	4	29	0.5	$28.86	$266,902	$38,001	1,317	Transport companies must report quarterly a summary of all accidents resulting in property damage or injury where a SDV was involved. Surveyed companies have responded that they expect it will take about 4 hours to complete the report and will be done by	
									TOTAL - A	$360,982	$51,396	1,742		
									Discounted to 2012 (B = 2016)	$275,392	$39,210			

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Figure 23: An Admin Burden Summary Report