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COST ESTIMATE OF THE FIREARM BUY-BACK PROGRAM

OFFICE OF THE PARLIAMENTARY BUDGET OFFICER
BUREAU DU DIRECTEUR PARLEMENTAIRE DU BUDGET

The Parliamentary Budget Officer (PBO) supports Parliament by providing economic and financial analysis for the purposes of raising the quality of parliamentary debate and promoting greater budget transparency and accountability.

In response to a request by Member of Parliament Glen Motz (Medicine Hat—Cardston—Warner), this report estimates, under various scenarios, the cost of firearm compensation as part of the Government's firearm buy-back program.

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Executive Summary

During the 2019 election campaign, the Liberal Party of Canada announced its plan to ban all military-style assault rifles, including the AR-15, and to introduce a buy-back program to purchase the legally owned firearms at fair market value.[1] On May 1, 2020, an Order in Council (OIC) was issued by the Government of Canada (GoC) which prohibited certain firearms and devices. Subsequent to this, the Government tabled Bill C-21 (*An Act to amend certain Acts and to make certain consequential amendments [firearms])*, which provides a legislative framework for the control of firearms identified under the OIC.[2]

While the Government has prohibited these firearms and has reiterated its commitment to offer fair market compensation, the details regarding how the voluntary buy-back program will be implemented remain unclear. As such, PBO looked at other jurisdictions that implemented a firearms buy-back program to understand key cost drivers and potential compensation expenses. That said, in the absence of a plan, it is currently impossible to estimate the program administration costs arising from Bill C-21.

PBO obtained two datasets – one from the Government and one from industry (Canadian Sporting Arms and Ammunition Association; CSAAA) – estimating the potential number of impacted firearms. The Government dataset includes RCMP data on registered firearms in Canada, as well as an estimate of the eligible non-registered firearms, based on 2012 data and grossed-up to reflect additional imported firearms over the past 9 years. The CSAAA's dataset is based on a survey of current and historical import permits issued to their membership, which include price and quantity estimates.

The number of firearms differ substantially between the two data sets, with the Government estimating that there are roughly 150,000 affected firearms, and the CSAAA identifying approximately 518,000. The variance largely relates to the difference in estimated non-registered firearms in Canada. PBO was unable to fully reconcile the competing estimates, but does note that similar challenges exist in other jurisdictions regarding estimating the number of firearms in a given country.

To estimate the cost of firearm compensation, PBO applied a sensitivity analysis by varying take-up rates across two potential pricing structures – a tiered model where compensation is based on firearm condition, and a second where compensation is based on the market value of the firearm. Depending on the number of affected firearms in Canada, the take-up rate, and the pricing structure used, the estimated cost of firearm compensation under the buy-back program ranges from $47 million to $756 million (Tables

A-1 and A-2). This large variance can also be explained by the difference in the estimate of non-registered firearms in Canada between the two datasets.

Table A-1 Cost Scenarios of Firearm Compensation, RCMP Data

($ millions)	**Cost of buy-back compensation**				
Take-up Rate	**Three-tier Compensation**				**Market Value**
	Near New (58%)	Used (40%)	Poor (2%)	Total	
25%	31	16	0	47	56
50%	62	32	1	94	113
75%	93	47	1	141	169
100%	124	63	1	188	225

Sources: Number of eligible firearms taken from the RCMP data. Pricing data taken from industry data.

Note: Totals may not add due to rounding.

Table A-2 Cost Scenarios of Firearm Compensation, Industry Data

($ millions)	**Cost of buy-back compensation**				
Take-up Rate	**Three-tier Compensation**				**Market Value**
	Near New (58%)	Used (40%)	Poor (2%)	Total	
25%	104	53	1	158	189
50%	208	106	2	316	378
75%	312	159	3	474	567
100%	416	212	4	632	756

Source: Number of eligible firearms and pricing data taken from industry data.

1. Introduction

During the 2019 election campaign, the Liberal Party of Canada announced its plan to ban all military-style assault rifles, including the AR-15, and to introduce a buy-back program to purchase the legally owned firearms at fair market value.[3] The proposed ban and buy-back program was included in the Minster of Public Safety and Emergency Preparedness' 2019 mandate letter.[4] On May 1, 2020, an Order in Council (OIC) was issued by the Government of Canada (GoC) which prohibited certain firearms and devices, specifically[5]

Bore

The interior of the firearm barrel.

Joule

Unit used to measure the energy of a projectile as it is expelled from the muzzle of a firearm.

Upper Receiver

A firearm receiver houses the firearm components. For firearms that contain an upper and lower receiver, the upper receiver consists of the top portion of the receiver assembly and includes components such as the bolt carrier group.

- nine (9) types of firearms, by make and model, and their variants[6]
- firearms with a bore of 20 mm or greater, and those firearms capable of discharging a projectile with a muzzle energy greater than 10,000 joules; and,
- the upper receivers of M16, AR-10, AR-15 and M4 pattern firearms.

As part of the May 2020 OIC, the Government implemented an amnesty period of two-years (ending April 30, 2022). This ensures that firearms owners, who were in legal possession of these firearms at the time they became prohibited, are not criminally liable and provides them with enough time to become compliant with the new law.

Subsequent to this, the Government tabled Bill C-21 (*An Act to amend certain Acts and to make certain consequential amendments [firearms]*, which provides a legislative framework for the control of firearms identified under the OIC. [7]

While the Government has prohibited these firearms, the details regarding how the voluntary buy-back program will be implemented remain unclear. PBO sent two information requests to the Minister of Public Safety and Emergency Preparedness (at the beginning of both 2020 and 2021) seeking additional details on the program.[8]

In the most recent response (sent March 2, 2021), the department indicated that work was underway with IBM Canada to obtain advice on options and approaches for firearms pricing and compensation models, as well as program design options. Therefore, at that point in time, they were "not in a position to share programmatic details, exact timelines, and costs against which such a program would run."

Given the lack of details regarding how the program will be implemented, PBO looked at other jurisdictions which implemented a firearms buy-back program to understand what key components there are to consider when developing a cost estimate. In particular, PBO reviewed New Zealand's firearms buy-back program, which was implemented in 2019.

1.1. New Zealand buy-back program

In April 2019, the Parliament of New Zealand passed the *Arms (Prohibited Firearms, Magazines, and Parts) Amendment Act 2019*, which prohibited certain types of firearms. In addition, the Government introduced its plan for a buy-back and amnesty program, allowing owners of the newly prohibited firearms to exchange them with the New Zealand Police for compensation.[9]

As part of the development of the buy-back program, the New Zealand Police hired an external consulting firm to independently develop a pricing list for the firearms included in the buy-back program. The report also included potential buy-back options, such as different pricing models based on the condition of the firearm, and potential overall costs depending on the option selected. To develop this report, the firm reviewed the buy-back program implemented in Australia in 1996, reviewed firearms pricing data as well as consulted with industry specialists.[10]

The initial buy-back program ran from June 2019 to December 2019 and used a three-tier model, which compensated owners based on the condition of the firearm:

- 95% of base price for new or near new condition;
- 70% of base price for used condition; and,
- 25% of base price for poor condition.

The base price of the firearm was set from a pricing list, which outlined the compensation available to the owners for each firearm and part.[11] It was developed in consultation with industry experts to determine the fair market value of a firearm before they became prohibited. There were also processes put in place should the owner dispute the assessment of their firearm, which could range from another assessment on-site to appealing the assessment to a District Court Judge.

Budget 2019 included $150 million in appropriations to the New Zealand Police, which was the estimated cost to compensate firearms owners for newly prohibited firearms, magazines, and parts. The Government also estimated an additional $18 million in program administration costs. As of February 2020, the Government estimated that the cost to compensate firearm owners would be approximately $120 million, with 61,332 firearms being handed in or amended, while program administration costs were expected to increase to around $35 million.[12]

A notable observation by the New Zealand Auditor-General was that it was difficult to know how effective the overall program was in removing these prohibited firearms from society, as there was uncertainty in the number of these firearms in the country. Therefore, they were unable to determine what the overall take-up rate was for the project.

2. Methodology

PBO consulted with Public Safety and Emergency Preparedness, the Royal Canadian Mounted Police (RCMP), and industry to obtain relevant data on the estimated number of impacted firearms and their corresponding market prices. PBO received two datasets – one from the RCMP and one from industry.

Public Safety estimated that approximately 150,000 firearms would be impacted by the ban. Of this, approximately 110,000 firearms were previously classified as prohibited and restricted (registered) and 40,000 as non-restricted (non-registered). As non-restricted firearms do not require registration, ownership data is not available and the number of affected firearms in Canada is unknown.

The estimate of non-registered firearms provided by Public Safety was based on open-source records from 2012 and adjusted up (by 25 per cent) to reflect market growth. The RCMP provided PBO with data on 108,047 registered firearms impacted by the ban. Data included the number of firearms by make and model. Corresponding market prices were not included.

PBO also received data on the impacted firearms from the Canadian Sporting Arms and Ammunition Association (CSAAA), a not-for-profit, non-partisan industry association which represents Canadian small businesses in the sporting-arms industry. Based on the list of firearms included in the public Firearms Reference Table as of March 29, 2021, CSAAA estimated there to be approximately 518,000 impacted firearms in Canada. This figure includes both prohibited and restricted (registered) and non-restricted (non-registered) firearms, with the variance largely related to the difference in estimated non-registered firearms in Canada.

CSAAA's dataset was obtained through a survey of Canadian firearm importers. It represents an estimate of firearms under the ban that have been imported to Canada.[13] Data included the number of firearms by make and model and corresponding average retail value. Average value was based on a standard model and did not include upgrades or custom modifications to the firearm.

PBO used both datasets in its analysis. As the RCMP dataset did not include firearm prices, PBO applied prices from the industry dataset. Using the average retail values, PBO assigned individual market values to the 108,047 registered firearms provided by the RCMP by matching firearm makes and models between datasets. Where average retail price for a specific registered firearm was not available, PBO applied the average retail value of all firearms from the CSAAA's dataset. The average retail value of all firearms was also

applied to the estimated 40,000 non-registered firearms for which no data was provided by the RCMP.

At the time of PBO's analysis, details regarding program design and administration had not yet been disclosed. A breakdown of potential program administration costs can be found in Section 3.1. Program design factors that could impact the cost of the buy-back program include, but are not limited to:

- The compensation structure;
- Whether compensation will be provided for firearm ammunition and parts;
- How dealers will be compensated for their stock; and,
- Whether dealers will be compensated for businesses losses.

Given the current lack of details regarding program design and administration, PBO was only able to estimate potential costs of compensation to firearm owners under the buy-back program.[14] This analysis did not include program administration costs, potential compensation for firearm ammunition, parts, or business losses.

To estimate the cost of firearm compensation, PBO applied a sensitivity analysis to show the impact of a change in take-up rates (ranging from 25 per cent to 100 per cent) across two potential pricing structures. Pricing structures included in this analysis do not represent suggested options, but rather, in the absence of program design details, represent options considered by New Zealand in the development of their buy-back program.

Three-tier pricing structure

Under this pricing structure, firearm compensation is based on condition of the equipment. PBO used the compensation levels from the New Zealand program, as outlined above in the report:

- 95% of base price for new or near new condition;
- 70% of base price for used condition; and,
- 25% of base price for poor condition.

PBO also applied the proportion of firearms in each condition based on results of New Zealand's program: 58 per cent of firearms in near new condition, 40 per cent in used condition, and 2 per cent in poor condition.[15]

Market value pricing structure

Under this pricing structure, buy-back compensation is based on the market value of each firearm. PBO used firearm market values provided by industry.

3. Results

Depending on the number of eligible firearms in Canada, the take-up rate, and the pricing structure used, the estimated cost of firearm compensation under the buy-back program ranges from $47 million to $756 million.

Using the number of estimated firearms and data from the Government, the estimated cost ranges from $47 million to $225 million. With the industry's estimate and data, that range becomes $158 million to $756 million, owing largely to the variance in estimated non-registered firearms in Canada.

3.1. RCMP Data

The Government estimates that approximately 150,000 firearms in Canada would be eligible under the buy-back program. Table 3-1 shows the estimated cost of firearm compensation using data from the RCMP. Depending on take-up rate and pricing structure, the estimate ranges from $47 million to $225 million.

Under a three-tier pricing structure, the estimated cost ranges from $47 million to $188 million. For example, with a take-up rate of 50 per cent, firearm compensation is an estimated $94 million.

Using a market value pricing structure, the estimated range is instead between $56 million to $225 million. A take-up rate of 50 per cent under this model would result in an estimated $113 million in firearm compensation.

Table 3-1 Cost Scenarios of Firearm Compensation, RCMP Data

($ millions)	**Cost of buy-back compensation**				
Take-up Rate	**Three-tier Compensation**				**Market Value**
	Near New (58%)	Used (40%)	Poor (2%)	Total	
25%	31	16	0	47	56
50%	62	32	1	94	113
75%	93	47	1	141	169
100%	124	63	1	188	225

Sources: Number of eligible firearms taken from the RCMP data. Pricing data taken from an industry survey.

Note: Totals may not add due to rounding.

3.2. Industry Data

Industry estimates of the number of eligible firearms under the buy-back program total close to 518,000. As shown in Table 3-2, which outlines the cost estimates using CSAAA data, buy-back compensation ranges from an estimated $158 million to $756 million, based on variations in take-up rate and pricing structure.

Estimated firearm compensation under the three-tier model ranges from $158 million to $632 million. With a take up of 50 per cent, for example, the estimated cost is $316 million. However, the same take-up rate under the market value pricing structure (which ranges from an estimated $189 million to $756 million) would instead cost an estimated $378 million.

Table 3-2 Cost Scenarios of Firearm Compensation, Industry Data

($ millions)	**Cost of buy-back compensation**				
Take-up Rate	**Three-tier Compensation**				**Market Value**
	Near New (58%)	Used (40%)	Poor (2%)	Total	
25%	104	53	1	158	189
50%	208	106	2	316	378
75%	312	159	3	474	567
100%	416	212	4	632	756

Source: Number of eligible firearms and pricing data taken from industry data.

3.3. Program Administration Costs

As program details on the buy-back program have not yet been disclosed, program administration costs are not included in the PBO's analysis. However, based on New Zealand's buy-back program, there are certain cost categories that would increase the final cost of the program, such as:

- **Consulting services:** The Government of Canada awarded a contract to IBM Canada ($1.2 million for Phase 1) to develop compensation model and program design options for the buy-back program.[16]
- **Technology:** Software system for tracking returned firearms and computer equipment at collection points.
- **Personnel:** The wages and salaries for RCMP and security and support staff.

- **Firearm collection:** If public collection points are used, costs could include venue and collection equipment. Costs could extend to courier services or alternative collection from remote properties or properties with significant quantities of firearms. In New Zealand, firearms could be collected through select dealers. Firearm dealers received a $50 administration fee for each buy-back application completed.[17]
- **Firearm assessment:** If a tiered pricing structure is used, firearms would be assessed to determine the condition and corresponding buy-back price. Assessment may be used under a market value pricing structure if a set price list for each firearm is not used. Firearm assessors may be hired and trained, or private appraisals may be used.
- **Firearm modification:** Modifying a prohibited firearm to comply with the new regulations. In New Zealand, the Police "subsidised modification work from Police-approved gunsmiths up to $300."[18]
- **Firearm transportation:** Transport and tracking costs from point of collection to location of storage or destruction.
- **Firearm storage and destruction:** Secure storage of collected firearms prior to destruction and cost of destruction.

As previously mentioned, the New Zealand Government originally estimated that program administration costs would be approximately $18 million. However, as of February 2020, that estimate almost doubled to $35 million.[19]

3.4. Location of Eligible Firearms

One of the key factors which will influence the overall cost of the program is the location of eligible firearms across the country. Depending on the dispersion of the location of these firearms, it will impact the total cost.

As discussed earlier in the report, the New Zealand Police set up numerous public collection points for legal firearms owners to return their firearms. Depending on where these eligible firearms are located, significantly more collection points may be needed in Canada than in New Zealand to ensure eligible firearms owners are able to return their firearms (Canada is roughly 37 times larger than New Zealand).

It is also not clear if the Government of Canada will cover transportation or shipping costs for firearms owners who live in remote areas. If the Government covers the costs for the safe transportation or shipment of these firearms, this will increase the overall cost of the program. If the Government does not cover these costs, it may reduce the willingness of owners to exchange their firearm.

The data that the RCMP provided includes the first three digits of a postal code of all eligible registered firearms. According to the Government's definition[20]:

- The first character is a letter that identifies the province or territory (certain provinces have multiple letters which identifies specific areas in the province);
- The second character is a number that identifies whether an area is urban or rural (zero indicates a wide-area rural region, while all other digits indicate urban areas); and,
- The third character is a letter that, in combination with the first two characters, identifies a more precise geographic district—a specific rural region, an entire medium-sized city or a section of a major metropolitan area.

PBO used this definition to determine certain information on the location of these firearms, including the province or territory and whether they are located in urban or rural areas (Tables 3-3 and 3-4).

Table 3-3 Registered Firearms by Province/Territory

Province/Territory	Percentage
Ontario	41%
Alberta	20%
British Columbia	18%
Quebec	8%
Saskatchewan	4%
Manitoba	3%
Nova Scotia	2%
New Brunswick	2%
Other	1%
Total	**100%**

Source: Registered Firearms data provided by the RCMP.

Note: Totals may not add due to rounding.

Table 3-4 Registered Firearms by Urban/Rural Area

Province/Territory	Percentage
Urban	78%
Rural	22%
Total	**100%**

Source: Registered Firearms data provided by the RCMP.

Note: The data provided by the RCMP did not classify whether these firearms were located in urban or rural areas. PBO used the definition explained above to determine whether is it classified as urban or rural.

As shown in these tables, roughly 80 per cent of all registered firearms are located in three provinces (Ontario, Alberta, and British Columbia), while almost 80 per cent are in areas classified as urban, based on their postal code. However, this only represents the eligible registered firearms, as the Government does not have this information for the eligible non-registered firearms.

Given the discrepancy in the estimates for eligible non-registered firearms by the Government and industry, as well as the lack of data on the specific location of these firearms, it is difficult to determine how dispersed these firearms are across the country. Thus, it is not possible to estimate the impact on the overall cost. However, it can be assumed that there is a correlation between dispersion of firearms and overall cost.

4. Future Considerations

As noted in the report, there remains too many outstanding questions on how this program will be implemented to currently develop a complete picture of the true potential cost of the program. Many of these details, such as the compensation structure and program administration costs, will have a significant impact on the overall cost of the program. PBO could therefore only provide estimates of potential scenarios, solely for the cost compensating firearms owners, rather than the full cost of the program. Based on the experience of previous firearms programs, administration costs are highly affected by program design and can represent a high proportion of overall costs.

PBO will continue to monitor the file as more details are announced, as well as reviewing any additional data as it becomes available. Once the full details of the program have been decided and released publicly, PBO will work towards updating its cost estimate of the program.

Notes

1. https://www2.liberal.ca/wp-content/uploads/sites/292/2019/09/Forward-A-real-plan-for-the-middle-class.pdf. Page 38
2. https://parl.ca/Content/Bills/432/Government/C-21/C-21_1/C-21_1.PDF.
3. https://www2.liberal.ca/wp-content/uploads/sites/292/2019/09/Forward-A-real-plan-for-the-middle-class.pdf. Page 38
4. https://pm.gc.ca/en/mandate-letters/2019/12/13/minister-public-safety-and-emergency-preparedness-mandate-letter
5. https://www.rcmp-grc.gc.ca/en/firearms/need-know-the-government-canadas-new-prohibition-certain-firearms-and-devices - prohibition
6. This includes the M16, AR-10, AR-15 rifles and M4 carbine; Ruger Mini-14 rifle; M14 rifle; Vz58 rifle; Robinson Armament XCR rifle; CZ Scorpion EVO 3 carbine and pistol; Beretta CX4 Storm carbine; SIG Sauer SIG MCX and SIG Sauer SIG MPX carbine and pistol; Swiss Arms Classic Green and Four Seasons series (as specified in former Bill C-71).
7. https://parl.ca/Content/Bills/432/Government/C-21/C-21_1/C-21_1.PDF.
8. https://www.pbo-dpb.gc.ca/web/default/files/Documents/Info%20Requests/2019/IR0443_Public%20Safety_AR%20Buy%20Back%20Program_e.pdf

   https://www.pbo-dpb.gc.ca/web/default/files/Documents/Info%20Requests/2021/IR0587_PS_ARBuyBack2021_request_e.pdf
9. Implementing the firearms buy-back and amnesty scheme — Office of the Auditor-General New Zealand (oag.parliament.nz)
10. kpmg-report-firearms-buy-back-pricing-june-2019.pdf (police.govt.nz)
11. https://www.police.govt.nz/sites/default/files/publications/prohibited-firearms-and-parts-buy-back-price-list.pdf
12. As outlined in the New Zealand Auditor-General's (AG) report, one of the reasons for the increase in the program administration costs was a result of the need for an initial estimate to be completed quickly, which was done before the extent of the true costs for technological support were known. The estimate incorporated data from the Australian buy-back program, adjusting for currency and inflation. Part 4: Costs and funding of the firearms buy-back and amnesty scheme — Office of the Auditor-General New Zealand (oag.parliament.nz)
13. CSAAA surveyed more than 50 importers with a response rate of 80 per cent. For non-response importers, CSAAA industry experts provided estimates based on the size and known market share of that importer. The survey was conducted over a period of one month and includes all available historical import records from current importers.

14. As it is not yet known how dealers will be compensated, PBO assumed the same compensation as privately owned firearms.
15. https://www.police.govt.nz/sites/default/files/publications/firearms-amnesty-buy-back-national-overview.pdf
16. https://buyandsell.gc.ca/procurement-data/award-notice/PW-20-00930144-001
17. Implementing the firearms buy-back and amnesty scheme — Office of the Auditor-General New Zealand (oag.parliament.nz)
18. Ibid note 17.
19. Based on the latest public estimates (February 2020), the administrative cost per firearm was approximately 571 New Zealand Dollars. This was based on 61,332 firearms being handed in or amended with administration costs of $35 million. This does not incorporate the proportion of costs associated with ammunition and parts, as PBO was unable to determine the breakdown of costs.
20. https://www.ic.gc.ca/eic/site/bsf-osb.nsf/eng/br03396.html