

FCM Policy Paper

TOWARDS A PERMANENT FEDERAL GAS TAX TRANSFER

Escalator Options for the Federal Gas Tax Transfer

Prepared for the Federation of Canadian Municipalities by
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EXECUTIVE SUMMARY

Canada's cities and communities are facing a fiscal squeeze that is illustrated clearly by the municipal infrastructure deficit, estimated to be \$60 billion and growing by \$2 billion a year. The consequences of this deficit are evident in every community: potholes and rusting bridges, water treatment and transit systems that cannot keep up with demand, gridlock, poor air quality and a lack of affordable housing. The infrastructure deficit compromises Canada's competitiveness, lowers our communities' quality of life, and hampers the efforts of Canada's cities and communities to attract and retain educated and skilled professionals.

Addressing the municipal infrastructure deficit will be a long-term undertaking, an investment with a 30-, 50- or 70-year time horizon. While ad hoc contributions from the federal government have been useful, they have not provided the long-term structural solution needed to fix the municipal infrastructure deficit permanently.

The Federal Gas Tax Fund should be the centerpiece of the federal government's response and strategy to eliminate this deficit. The first step is to make the Federal Gas Tax Fund permanent, with an escalator that will protect the investment against inflation, and to enshrine this commitment in federal legislation.

Why an escalator?

Using an escalator to index the gas tax transfer will protect the present value of the funding commitment against future inflationary costs and economic growth. The right escalator should give communities revenues that grow consistently, alongside their escalating infrastructure costs, which are driven by inflation, population growth and economic expansion.

Principles for a Federal Gas Tax Fund escalator:

1. An escalator should protect the value of the Federal Gas Tax Fund against inflation.
2. An escalator should provide support for municipal infrastructure investments that match the added pressures for making these investments due to growth in population and the economy.
3. To provide some measure of predictability for municipal governments, any escalator should be calculated as a multi-year moving average to smooth out year-to-year variations.
4. To provide a measure of "affordability" to the Government of Canada, an escalator should not result in growth of the transfer that significantly, over a long period, outstrips growth in total federal revenues.

This paper describes and analyzes the following seven options for a gas tax escalator and measures their effectiveness against the above four principles:

1. the status quo (the existing Gas Tax Fund, with **no escalator**);
2. an escalator linked to the growth in **federal fuel excise taxes**, with projections starting at \$2 billion in 2010-11 (the year after the current Federal Gas Tax Fund expires) through to 2029-30;
3. an escalator linked to **population growth**;
4. an escalator linked to **Inflation** (the Consumer Price Index);
5. an escalator linked to **Inflation plus population**;
6. an escalator linked to growth in total **federal government revenue**; and
7. an escalator linked to nominal **GDP growth** (real GDP plus inflation).

The Federal Gas Tax Transfer under these 7 escalator options, in nominal terms (\$ Millions):

Fiscal year	Option #1: Status Quo	#2: Gas Tax Revenue	#3: Population	#4: CPI	#5: CPI Plus Population	#6: Federal Revenue Growth	#7: Nominal GDP
2010-11	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
2011-12	\$2,000	\$2,020	\$2,030	\$2,040	\$2,070	\$2,088	\$2,110
...							
2028-29	\$2,000	\$2,392	\$2,615	\$2,856	\$3,715	\$4,248	\$5,243
2029-30	\$2,000	\$2,416	\$2,654	\$2,914	\$3,845	\$4,424	\$5,531
Cumulative Total	\$40,000	\$44,038	\$46,247	\$48,595	\$56,559	\$61,470	\$69,737
Annual Avg. Growth Rate	0%	1%	1.50%	2%	3.50%	4.25%	5.50%

The analysis shows that options #1 through #4 fail to meet the established principles. Under these escalator options, growth in the gas tax transfer will not meet pressures from inflation or population growth.

Option #5, an escalator linked to inflation plus population growth, will protect the current value of the gas tax transfer against inflationary pressures and will allow it to grow with population. However, since this option does not respond to the added pressures on municipal infrastructure investments due to economic growth, it can be considered a *minimally acceptable option*, as evaluated against the established principles.

Options #5 and #7 come closest to meeting all four established principles and could both be considered *preferred options*.

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INTRODUCTION

Our cities and communities are central to Canada's prosperity and quality of life. They are where economic wealth is generated. They are the crucibles of our national identity and the places people call home. Cities and communities are also where many national, regional and local issues intersect. From public safety to immigrant settlement to efficient transportation, municipal governments are on the front lines of a multitude of issues and provide other governments with local delivery capacity and responsiveness.

However, municipal governments lack the resources and fiscal tools they need to meet these and other responsibilities. They largely depend on the property tax, which is a regressive and unresponsive revenue source, and on user fees. They are facing a fiscal squeeze, caught between a growing range of responsibilities and inadequate financial resources.

This squeeze has caused the deferral of much-needed investments in infrastructure, leading to a physical decay that harms the capacity of our cities and communities to compete in the global economy and contribute to prosperity.

The fiscal squeeze is illustrated clearly by the municipal infrastructure deficit, estimated to be \$60 billion and growing by \$2 billion a year. The consequences of this deficit are evident in every community: potholes and rusting bridges, water treatment and transit systems that cannot keep up with demand, gridlock, poor air quality and a lack of affordable housing.

The infrastructure deficit compromises Canada's competitiveness, lowers our communities' quality of life, and hampers the efforts of Canada's cities and communities to attract and retain educated and skilled professionals.

The Federal Gas Tax Fund introduced in Budget 2005 will provide \$5 billion over five years to provinces, territories, municipalities and on-reserve First Nations communities. It is helping to build communities by providing reliable, predictable funding for environmentally sustainable municipal infrastructure projects, and by providing funding to increase the capacity of communities to undertake long-term planning. While the gas tax fund was not specifically named, in the Fall 2006 Economic and Fiscal Update the government noted that the fiscal framework included a further \$2 billion commitment for each of the fiscal years 2010-11 and 2011-12 for cities and communities.

Addressing the municipal infrastructure deficit will be a long-term undertaking, an investment with a 30-, 50- or 70-year time horizon. While ad hoc contributions from the federal government have been useful, these contributions have not provided the long-term structural solution needed to fix the municipal infrastructure deficit permanently. The Federal Gas Tax Fund should be the centerpiece of the federal government's response and strategy to eliminate this deficit. The first step is to make the Federal Gas Tax Fund permanent, with an escalator that will protect the investment against inflation.

PUTTING THE FEDERAL GAS TAX FUND ON A LONG-TERM FOOTING

Making a long-term, multi-year commitment to the Federal Gas Tax Fund can be handled in several ways. Funds can be appropriated through enabling legislation or through the Main Estimates.

- If enabling legislation is chosen then the funds can be granted in three ways: as a fixed amount and expended over a number of fiscal years; based on a formula and covering a number of fiscal years; or as a fixed amount and expended over one fiscal year.
- If the funds are appropriated through the Main Estimates process the funding normally expires at the end of the fiscal year in question but additional funds can be granted annually.

Using the *Main Estimates*

As previously noted the Federal Gas Tax Fund was created in Budget 2005 (under Bill C-43). Although Budget 2005 stated that the fund was to last for five years, the formal authority granted in Bill C-43 was for fiscal year 2005-06 only, with the aggregate payments not to exceed \$600 million. The bill set out the purposes for which these funds were to be used. Actual expenditures in 2005-06 amounted to \$582 million.

Since Parliament allowed funds from the Consolidated Revenue Fund to be used for only one year, the authority to expend funds in 2006-07 was provided through the Main Estimates. The actual provision was for a maximum of \$592.5 million. Similarly, the authority to expend funds in succeeding years will have to be provided through the Main Estimates.

It is important to note that the multi-year commitment made in Bill C-43 is not binding on Parliament. There is a moral, but not a legal, commitment on the part of the current government to honour the multi-year agreements made by the previous government.

An alternate option: enabling legislation

The *enabling legislation* route would represent a new approach in federal–municipal fiscal relations—a move from short-term and ad hoc funding toward long-term, predictable funding. Such an approach would also provide an opportunity to re-brand the gas tax transfer as an ongoing program. The federal government may not wish to move in this direction for fear that it could set a precedent that would make it difficult to reject similar arrangements for a host of other funding programs. It might also be objected that the funding in question is for infrastructure, which traditionally has been managed through the Main Estimates.

However, in the case of many of the transfer programs to individuals—Old Age Security, the Canada Pension Plan, Employment Insurance and public service pensions—and in the case of transfers to other levels of government—equalization and the Canada Health and Social Transfer—the government has opted for enabling legislation. The

logic of this route is that it provides a level of certainty to the recipients. Municipalities will make the case that the scope and significance of the infrastructure issue requires a new approach by the Government of Canada, such as the use of enabling legislation.

It should be noted that no Parliament can bind a future Parliament; as such enabling legislation passed into law by one Parliament can be changed by a subsequent Parliament. The only exceptions to this rule are a very limited number of programs that were imbedded in the Constitution, such as the federal obligation to provide ferry services to PEI.

The use of escalators by the Government of Canada

Over the years the government has adopted different practices for indexing government programs, depending on the nature of the programs. In the case of many of the transfer programs to individuals—such as Old Age Security, the Canada Pension Plan, Employment Insurance and public service pensions—the CPI has normally been the escalator of choice. In the case of transfers to other levels of government—equalization and the Canada Health and Social Transfer—the indexing has taken into account both the CPI and population growth. For the most part, programs financed through the Main Estimates are not explicitly indexed.

BUILDING THE CASE FOR AN ESCALATOR

One of the objectives of indexing the gas tax transfer is to protect the present value of the funding commitment against future inflationary costs and economic growth. The right escalator should give communities revenues that grow consistently alongside their escalating costs.

The options

In the following section, the status quo and six new indexing options will be presented, compared and analyzed:

1. the status quo (the existing Federal Gas Tax Fund, with **no escalator**);
2. the Federal Gas Tax Fund, linked to the growth in **federal energy taxes**;
3. a rebranded fund, which uses an escalator linked to **population growth**, starting at \$2 billion in 2010-11 (the year after the current gas tax fund expires);
4. a rebranded fund that uses an escalator linked to **inflation** (the Consumer Price Index);
5. a rebranded fund that uses an escalator linked to **inflation plus population**;
6. a rebranded fund that uses an escalator linked to **federal government revenue**; and
7. a rebranded fund that uses an escalator linked to **nominal GDP growth** (real GDP plus inflation).

THE WORKING ASSUMPTIONS

- The energy tax will grow at roughly 1% per annum (the average experienced over the last two decades).
- Population will grow at 1.5% per annum (the average rate of growth over the past decade).
- The Consumer Price Index (CPI) will grow at 2% per annum (the Bank of Canada's inflation target).
- CPI plus population growth will grow at 3.5% (population plus inflation).
- Federal revenues will grow at 4.25% (this being lower than GDP as experienced since 2000).
- Nominal GDP will grow at 5.5% per annum (assuming real growth of 3.5% plus inflation of 2%).

Evaluating the options

These four principles should guide plans for a gas tax fund escalator.

1. An escalator should protect the value of the Federal Gas Tax Fund against inflation.
2. An escalator should support municipal infrastructure investments that match the added pressures for making these investments due to growth in population and the economy.
3. To provide some measure of predictability for municipal governments, any escalator should be calculated as a multi-year moving average to smooth out year-to-year variations.
4. To provide a measure of "affordability" to the Government of Canada, an escalator should not result in growth of the transfer that significantly, over a long period, outstrips growth in total federal revenues.

Is the Federal Gas Tax Fund related to federal gas taxes?

While one could conceive of any number of options for indexing the gas tax transfer, on practical grounds the more conventional options should adjust for inflation and for population growth. This, one could argue, would be a minimal requirement to provide purchasing power parity. Under normal circumstances "inflation plus population" would then be the most likely option to find favour with federal officials, notwithstanding that the nominal economic growth option would yield the highest dividends and be the option favoured by the communities. However, another consideration is the nominal link between the current Federal Gas Tax Fund and federal gas tax. If this nominal link is assumed to be real, then the behaviour of the gas tax ought to be considered.

The federal gas tax is assessed per unit volume, and not as a percent of the sale price. Thus, while the price of gas has increased considerably over the past three decades, the volume of gas consumed over this same period has grown by, on rough average, only 1% per annum, which means that growth in the gas tax revenues has averaged only 1% per annum as well. This being the case, one could assume that the government would be reluctant to see a proposed escalator that expands the transfer program faster than the anticipated growth in the source of the tax, since it would imply that municipalities would receive an ever-growing proportion of the tax.

However, and importantly, two key observations can be made in relation to the assumption that the existing Federal Gas Tax Fund or the proposed Municipal Infrastructure Sustainability Transfer should be linked to future revenues in the federal gasoline excise tax:

- The current Federal Gas Tax Fund, as created in Bill C-43, is funded out of Consolidated General Revenues, and is not linked in any way with the federal energy taxes. The link is a notional one only. The average annual rate of growth of increase in the federal gas tax over the last 25 years has been roughly 1%. Linking a future, long-term infrastructure transfer program to growth of this excise tax would not protect municipalities against inflation, let alone population or economic growth.

Isn't interest earned on gas tax funds an escalator?

From time-to-time municipal governments may have surplus funds from the gas tax transfer on which they can earn interest. This is permitted under the federal agreements governing the gas tax transfer. The question is whether this interest earning potential could be considered as a possible escalator option. There are a number of reasons why this would not be a viable alternative.

In the first place, surplus funds are likely going to be the exception rather than the rule. Furthermore, when surpluses do occur, they will amount to just a fraction of the gas tax transfer, and will tend to be expended over a relatively short period of time. Once the funds have been expended the interest earning potential no longer exists. Importantly, unless the funds are held for a long period, the benefits of compound interest will not be realized, as is provided with all of the escalator options described below. Thus, the interest earnings are both minimal and extends only over a short period of time. In fact, in many cases municipalities will borrow funds in advance to undertake capital projects, in anticipation of the federal transfer, thus incurring interest expenses rather than generating interest income.

It should also be noted that municipalities are very restricted in how they can invest surplus funds, and so the return on investment tend to be at the bottom end of the scale. In most cases, the earnings on invested funds would barely offset the loss of purchasing power due to inflation.

In the table in Annex 1, the interest earning capacity of surplus gas transfers is

illustrated using five interest rate assumptions – ranging from 2% to 5% – and two scenarios, for a sample municipality receiving a \$20 million gas tax transfer annually. In the first scenario the assumption is that 50% of the transfer (\$10 million) is held for 6 months, 12 months, 18 months or 2 years. In the second assumption it is assumed that only 5% of the transfer (\$1 million) is held.

In the 2% interest rate assumption, the interest earned is completely offset by inflation (assuming that inflation is running at the Bank of Canada's target rate of 2%). Under this assumption the municipality would simply be breaking even.

In the other assumptions they would be marginally ahead of the game. But even in the most generous working assumption –the municipality holds 50% of the transfer over a two years period and earns 5% per year – the net return, after discounting for inflation, would only amount to 3% over two years, which is only half of the growth of the preferred escalator options over the same period. Furthermore, once the funds were finally expended it would provide no further return, and no opportunity to benefit from compounding interest (as would a true escalator) in the out years. This means that, unlike with an escalator, interest earned on transfers in future years would be based on the original principal amount (\$20 million), rather than on a growing sum based on the principal plus all earned interest. This is the power of compounding, not available with earned interest, but key to any escalator option.

Thus one must conclude that while, under some working assumptions, it would on the surface appear that municipalities would be net beneficiaries from investing surplus gas transfer funds, the fact is that the net returns in most cases would be negative.

For an escalator to be beneficial to municipalities, in order for them to be in a position to address their basic infrastructure needs, it must grow and compound over time at a rate that, as a minimum, keeps up with population growth and inflation.

ASSESSING THE OPTIONS

The seven escalator options presented above are projected over the next 20 years and analyzed below using different analytical perspectives. This analysis will allow some conclusions to be drawn on how successfully each option meets or exceeds the principles established for a fair, efficient gas tax fund escalator.

a. Nominal dollar values

Table 1 sets out the 20-year growth of the gas tax transfer under both the status quo and under six different indexing options: the growth in the gas tax revenue; population growth; inflation measured by CPI; inflation plus population growth; federal revenue growth; and nominal economic growth.

The first four options would not be attractive to the municipal and regional governments as the transfer would not cover inflation and population growth. The CPI plus population option would provide the minimum protection that municipal and local governments require. Escalating the transfer based on the projected growth in federal revenues could be viewed as an “affordable” option on the part of the federal government. Increasing the transfer based on nominal GDP would be the most attractive option on the part of the municipal and local governments, as it would provide some scope for enhancing the current level of activity.

TABLE 1: Gas tax transfer under the 7 escalator options, in nominal terms (\$ Millions)

Fiscal year	1. Status Quo	2. Gas Tax Revenue	3. Population	4. CPI	5. CPI Plus Population	6. Federal Revenue Growth	7. Nominal GDP
2010-11	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
2011-12	\$2,000	\$2,020	\$2,030	\$2,040	\$2,070	\$2,088	\$2,110
2012-13	\$2,000	\$2,040	\$2,060	\$2,081	\$2,142	\$2,179	\$2,226
2013-14	\$2,000	\$2,061	\$2,091	\$2,122	\$2,217	\$2,274	\$2,348
2014-15	\$2,000	\$2,081	\$2,123	\$2,165	\$2,295	\$2,373	\$2,478
2015-16	\$2,000	\$2,102	\$2,155	\$2,208	\$2,375	\$2,476	\$2,614
2016-17	\$2,000	\$2,123	\$2,187	\$2,252	\$2,459	\$2,583	\$2,758
2017-18	\$2,000	\$2,144	\$2,220	\$2,297	\$2,545	\$2,695	\$2,909
2018-19	\$2,000	\$2,166	\$2,253	\$2,343	\$2,634	\$2,811	\$3,069
2019-20	\$2,000	\$2,187	\$2,287	\$2,390	\$2,726	\$2,931	\$3,238
2020-21	\$2,000	\$2,209	\$2,321	\$2,438	\$2,821	\$3,056	\$3,416
2021-22	\$2,000	\$2,231	\$2,356	\$2,487	\$2,920	\$3,186	\$3,604
2022-23	\$2,000	\$2,254	\$2,391	\$2,536	\$3,022	\$3,321	\$3,802
2023-24	\$2,000	\$2,276	\$2,427	\$2,587	\$3,128	\$3,462	\$4,012
2024-25	\$2,000	\$2,299	\$2,464	\$2,639	\$3,237	\$3,608	\$4,232
2025-26	\$2,000	\$2,322	\$2,500	\$2,692	\$3,351	\$3,759	\$4,465
2026-27	\$2,000	\$2,345	\$2,538	\$2,746	\$3,468	\$3,916	\$4,711
2027-28	\$2,000	\$2,369	\$2,576	\$2,800	\$3,589	\$4,079	\$4,970
2028-29	\$2,000	\$2,392	\$2,615	\$2,856	\$3,715	\$4,248	\$5,243
2029-30	\$2,000	\$2,416	\$2,654	\$2,914	\$3,845	\$4,424	\$5,531
Annual Avg. Rate of Growth	0%	1%	1.50%	2%	3.50%	4.25%	5.50%

b. As a percentage of federal fuel taxes

Table 2 sets out the gas tax transfer as a percent of the energy tax. In all options, except for the first scenario, the transfer would grow over time from 37% in 2010-11 to anywhere from 41% to 86% in 2029-30.

From the standpoint of the municipal and regional governments the most attractive indexing options, in order of preference, would be nominal economic growth; federal revenue growth; inflation plus population growth; inflation; and population growth.

TABLE 2: Gas tax transfer under the 7 escalator options (expressed as a percentage of federal energy taxes)

Fiscal year	Status Quo	Gas Tax Revenue	Population	CPI	CPI Plus Population	Revenue Growth	Nominal GDP
2010-11	0.37	0.37	0.37	0.37	0.37	0.37	0.37
2011-12	0.37	0.37	0.38	0.38	0.38	0.39	0.39
2012-13	0.37	0.37	0.38	0.38	0.39	0.40	0.41
2013-14	0.36	0.37	0.38	0.39	0.40	0.41	0.43
2014-15	0.36	0.37	0.38	0.39	0.41	0.43	0.45
2015-16	0.36	0.37	0.38	0.39	0.42	0.44	0.47
2016-17	0.35	0.37	0.39	0.40	0.43	0.46	0.49
2017-18	0.35	0.37	0.39	0.40	0.44	0.47	0.51
2018-19	0.35	0.37	0.39	0.41	0.46	0.49	0.53
2019-20	0.34	0.37	0.39	0.41	0.47	0.50	0.55
2020-21	0.34	0.37	0.39	0.41	0.48	0.52	0.58
2021-22	0.34	0.37	0.40	0.42	0.49	0.54	0.61
2022-23	0.33	0.37	0.40	0.42	0.50	0.55	0.63
2023-24	0.33	0.37	0.40	0.43	0.52	0.57	0.66
2024-25	0.33	0.37	0.40	0.43	0.53	0.59	0.69
2025-26	0.32	0.37	0.40	0.43	0.54	0.61	0.72
2026-27	0.32	0.37	0.41	0.44	0.55	0.63	0.75
2027-28	0.32	0.37	0.41	0.44	0.57	0.65	0.79
2028-29	0.31	0.37	0.41	0.45	0.58	0.67	0.82
2029-30	0.31	0.37	0.41	0.45	0.60	0.69	0.86

c. In per capita terms

Table 3 looks at the value of the transfer in per capita terms. Under the first two options the municipal and regional governments would experience reductions over time in the value of the transfer. As such this would not be viewed as attractive options for them. In the remaining four options they would experience some growth, albeit modest growth in the case of the CPI escalator.

TABLE 3: Gas tax transfer under the 7 escalator options (expressed on a per capita basis)

Fiscal year	Status Quo	Gas Tax Revenue	Population	CPI	CPI Plus Population	Revenue Growth	Nominal GDP
2010-11	\$60.61	\$60.61	\$60.61	\$60.61	\$60.61	\$60.61	\$60.61
2011-12	\$59.71	\$60.31	\$60.61	\$60.90	\$61.80	\$62.33	\$62.99
2012-13	\$58.83	\$60.01	\$60.61	\$61.20	\$63.02	\$64.10	\$65.48
2013-14	\$57.96	\$59.71	\$60.61	\$61.51	\$64.26	\$65.91	\$68.06
2014-15	\$57.10	\$59.42	\$60.61	\$61.81	\$65.53	\$67.76	\$70.74
2015-16	\$56.26	\$59.13	\$60.61	\$62.11	\$66.82	\$69.65	\$73.53
2016-17	\$55.43	\$58.84	\$60.61	\$62.42	\$68.13	\$71.59	\$76.42
2017-18	\$54.61	\$58.55	\$60.61	\$62.73	\$69.48	\$73.58	\$79.44
2018-19	\$53.80	\$58.26	\$60.61	\$63.04	\$70.85	\$75.60	\$82.57
2019-20	\$53.01	\$57.97	\$60.61	\$63.35	\$72.24	\$77.68	\$85.82
2020-21	\$52.22	\$57.69	\$60.61	\$63.66	\$73.66	\$79.80	\$89.20
2021-22	\$51.45	\$57.40	\$60.61	\$63.97	\$75.12	\$81.97	\$92.72
2022-23	\$50.69	\$57.12	\$60.61	\$64.29	\$76.60	\$84.18	\$96.37
2023-24	\$49.94	\$56.84	\$60.61	\$64.60	\$78.11	\$86.44	\$100.17
2024-25	\$49.20	\$56.56	\$60.61	\$64.92	\$79.64	\$88.75	\$104.12
2025-26	\$48.48	\$56.28	\$60.61	\$65.24	\$81.21	\$91.11	\$108.22
2026-27	\$47.76	\$56.00	\$60.61	\$65.56	\$82.81	\$93.52	\$112.49
2027-28	\$47.05	\$55.73	\$60.61	\$65.89	\$84.45	\$95.97	\$116.92
2028-29	\$46.36	\$55.45	\$60.61	\$66.21	\$86.11	\$98.47	\$121.53
2029-30	\$45.67	\$55.18	\$60.61	\$66.54	\$87.81	\$101.02	\$126.32

d. In per capita terms, discounting for inflation

Table 4 assesses the value of the transfer in per capita terms after discounting for the loss of purchasing power due to inflation. Under the first two options the municipal and regional governments would experience reductions over time in the value of the transfer. As such these would not be viewed as attractive options. In the remaining two options they would experience some growth, albeit modest growth in the case of using federal revenue growth as the escalator.

TABLE 4: Gas tax transfer under the 7 escalator options (expressed on a per capita basis, discounted for inflation)

Fiscal year	Status Quo	Gas Tax Revenue	CPI Plus Population	Revenue Growth	Nominal GDP
2010-11	\$60.61	\$60.61	\$60.61	\$60.61	\$60.61
2011-12	\$58.52	\$59.10	\$60.61	\$61.08	\$61.73
2012-13	\$56.50	\$57.63	\$60.61	\$61.56	\$62.88
2013-14	\$54.55	\$56.20	\$60.61	\$62.03	\$64.06
2014-15	\$52.67	\$54.81	\$60.61	\$62.50	\$65.25
2015-16	\$50.85	\$53.45	\$60.61	\$62.96	\$66.46
2016-17	\$49.10	\$52.12	\$60.61	\$63.42	\$67.70
2017-18	\$47.41	\$50.83	\$60.61	\$63.87	\$68.96
2018-19	\$45.77	\$49.56	\$60.61	\$64.32	\$70.25
2019-20	\$44.19	\$48.33	\$60.61	\$64.77	\$71.55
2020-21	\$42.67	\$47.13	\$60.61	\$65.20	\$72.89
2021-22	\$41.20	\$45.96	\$60.61	\$65.63	\$74.24
2022-23	\$39.78	\$44.82	\$60.61	\$66.06	\$75.63
2023-24	\$38.41	\$43.71	\$60.61	\$66.48	\$77.03
2024-25	\$37.08	\$42.62	\$60.61	\$66.89	\$78.47
2025-26	\$35.80	\$41.57	\$60.61	\$67.29	\$79.93
2026-27	\$34.57	\$40.53	\$60.61	\$67.69	\$81.42
2027-28	\$33.38	\$39.53	\$60.61	\$68.07	\$82.93
2028-29	\$32.23	\$38.55	\$60.61	\$68.45	\$84.48
2029-30	\$31.11	\$37.59	\$60.61	\$68.82	\$86.05

e. In constant dollars, discounting for inflation

Table 5 sets out the implied value of the energy tax transfer after discounting for loss of purchasing power due to inflation. Under the first three scenarios the purchasing power would diminish over time given that inflation is projected to increase at a faster rate than both the estimated growth in the federal gas tax and population growth. These would not be viewed as viable options for the municipal and regional governments. The only three options that would yield an increase in purchasing power are the inflation plus population scenario, the growth in federal revenue scenario and the nominal growth scenario.

TABLE 5: Gas tax transfer under the 7 escalator options, in constant dollars
(discounting for inflation)

Fiscal year	Status Quo	Gas Tax Revenue	Population	CPI	CPI Plus Population	Revenue Growth	Nominal GDP
2010-11	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
2011-12	\$1,960	\$1,980	\$1,989	\$2,000	\$2,029	\$2,046	\$2,068
2012-13	\$1,921	\$1,959	\$1,979	\$2,000	\$2,058	\$2,093	\$2,138
2013-14	\$1,882	\$1,939	\$1,968	\$2,000	\$2,087	\$2,140	\$2,210
2014-15	\$1,845	\$1,920	\$1,958	\$2,000	\$2,117	\$2,189	\$2,285
2015-16	\$1,808	\$1,900	\$1,948	\$2,000	\$2,147	\$2,238	\$2,363
2016-17	\$1,772	\$1,881	\$1,937	\$2,000	\$2,178	\$2,288	\$2,443
2017-18	\$1,736	\$1,861	\$1,927	\$2,000	\$2,209	\$2,339	\$2,526
2018-19	\$1,702	\$1,843	\$1,917	\$2,000	\$2,241	\$2,391	\$2,611
2019-20	\$1,667	\$1,824	\$1,907	\$2,000	\$2,273	\$2,444	\$2,700
2020-21	\$1,634	\$1,805	\$1,896	\$2,000	\$2,305	\$2,497	\$2,791
2021-22	\$1,601	\$1,787	\$1,886	\$2,000	\$2,338	\$2,551	\$2,886
2022-23	\$1,569	\$1,768	\$1,876	\$2,000	\$2,372	\$2,606	\$2,984
2023-24	\$1,538	\$1,750	\$1,866	\$2,000	\$2,405	\$2,662	\$3,085
2024-25	\$1,507	\$1,733	\$1,857	\$2,000	\$2,440	\$2,719	\$3,190
2025-26	\$1,477	\$1,715	\$1,847	\$2,000	\$2,475	\$2,776	\$3,298
2026-27	\$1,448	\$1,697	\$1,837	\$2,000	\$2,510	\$2,834	\$3,409
2027-28	\$1,419	\$1,680	\$1,827	\$2,000	\$2,546	\$2,893	\$3,525
2028-29	\$1,390	\$1,663	\$1,818	\$2,000	\$2,582	\$2,953	\$3,645
2029-30	\$1,362	\$1,646	\$1,808	\$2,000	\$2,619	\$3,013	\$3,768

f. As a percentage of federal government revenues

Table 6 sets out the gas tax transfer as a percent of federal government revenue. In all options, except for the nominal growth scenario, the transfer would decline overtime. Thus, from the standpoint of the municipal and regional governments the most attractive indexing options would be nominal growth.

TABLE 6: Gas tax transfer under the 7 escalator options (expressed as a percentage of federal government revenue)

Fiscal year	Status Quo	Gas Tax Revenue	Population	CPI	CPI Plus Population	Revenue Growth	Nominal GDP
2010-11	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2011-12	0.008	0.008	0.008	0.008	0.008	0.008	0.008
2012-13	0.007	0.007	0.007	0.008	0.008	0.008	0.008
2013-14	0.007	0.007	0.007	0.007	0.008	0.008	0.008
2014-15	0.007	0.007	0.007	0.007	0.008	0.008	0.008
2015-16	0.006	0.007	0.007	0.007	0.008	0.008	0.008
2016-17	0.006	0.006	0.007	0.007	0.008	0.008	0.008
2017-18	0.006	0.006	0.006	0.007	0.007	0.008	0.009
2018-19	0.006	0.006	0.006	0.007	0.007	0.008	0.009
2019-20	0.005	0.006	0.006	0.006	0.007	0.008	0.009
2020-21	0.005	0.006	0.006	0.006	0.007	0.008	0.009
2021-22	0.005	0.006	0.006	0.006	0.007	0.008	0.009
2022-23	0.005	0.005	0.006	0.006	0.007	0.008	0.009
2023-24	0.005	0.005	0.006	0.006	0.007	0.008	0.009
2024-25	0.004	0.005	0.005	0.006	0.007	0.008	0.009
2025-26	0.004	0.005	0.005	0.006	0.007	0.008	0.009
2026-27	0.004	0.005	0.005	0.006	0.007	0.008	0.009
2027-28	0.004	0.005	0.005	0.005	0.007	0.008	0.010
2028-29	0.004	0.004	0.005	0.005	0.007	0.008	0.010
2029-30	0.004	0.004	0.005	0.005	0.007	0.008	0.010

SUMMARY EVALUATION OF ESCALATOR OPTIONS

1. **The Status Quo:** This option would not provide the scope for municipal and regional governments to protect themselves against either inflation or population growth.
2. **Linked to Federal Gas Tax Revenue Growth:** Given the slow growth in this tax, this option would only give partial protection—less than 30%—against inflation and population.
3. **Population Growth:** This option would protect the value of the transfer in per capita terms but would provide no protection against inflation.
4. **Inflation (CPI):** This option would protect the value of the transfer in real terms but the transfer would decline in per capita terms
5. **CPI Plus Population Growth:** This option would protect the value of the transfer in real terms, as well as in per capita terms. Municipal governments would likely consider this option as a minimalist option that would meet their needs.
6. **Total Federal Revenue Growth:** Given that the federal government revenues tend to grow faster than inflation and population growth, this option would be a preferred over the CPI plus population growth option. However, it would be subject to any discretionary action on the part of the government to reduce taxes at some point in the future. Therefore, in order to protect municipal and regional governments' interests, if this option were to be considered there would be a need to be a clause to the effect that the escalator in any given year would be the higher of federal revenue growth or CPI plus population growth. To smooth out year-to-year fluctuations it would be in order to use a multi-year moving average. This option would be seen as an “affordable option” for the federal government, in that it would not consume a higher proportion of its revenues in each successive year.
7. **GDP Growth:** Given that the projected growth in GDP is greater than the projected growth in federal revenue this would be the preferred option from the standpoint of municipal and regional governments. If this option were to be considered there would need to be a clause to the effect that the escalator in any given year would be the higher of GDP or federal revenue growth or CPI plus population growth. To smooth out year-to-year fluctuations it would also be in order to use a multi-year moving average. This option could also be seen as “affordable” on the part of the federal government as the elasticity federal revenue, in a steady state environment, is greater than unity.

ANNEX 1: Interest earned on a \$20 million gas tax transfer

	<i>Scenario #1: 50% of total transfer</i>			
<i>Interest rate assumptions:</i>	Held For 6 Months	Held For 12 Months	Held For 18 Months	Held For 24 Months
Interest earned				
with 2% interest rate	\$100,000	\$200,000	\$306,000	\$408,000
with 3% interest rate	\$150,000	\$300,000	\$463,500	\$618,000
with 4% interest rate	\$200,000	\$400,000	\$624,000	\$832,000
with 5% interest rate	\$250,000	\$500,000	\$787,500	\$1,050,000
Interest earned, discounted for Inflation				
with 2% interest rate	\$99,000	\$196,000	\$296,820	\$391,680
with 3% interest rate	\$148,500	\$294,000	\$449,595	\$593,280
with 4% interest rate	\$198,000	\$392,000	\$605,280	\$798,720
with 5% interest rate	\$247,500	\$490,000	\$763,875	\$1,008,000
Purchasing power of \$10M held				
with 2% interest rate	\$9,999,000	\$9,996,000	\$9,996,820	\$9,991,680
with 3% interest rate	\$10,048,500	\$10,094,000	\$10,149,595	\$10,193,280
with 4% interest rate	\$10,098,000	\$10,192,000	\$10,305,280	\$10,398,720
with 5% interest rate	\$10,147,500	\$10,290,000	\$10,463,875	\$10,608,000
Annualized real rate of return on full \$20 million gas tax transfer				
with 2% interest rate	0.50%	1.00%	0.77%	1.02%
with 3% interest rate	0.75%	1.50%	1.16%	1.55%
with 4% interest rate	1.00%	2.00%	1.56%	2.08%
with 5% interest rate	1.25%	2.50%	1.97%	2.63%
	<i>Scenario #2: 5% of total transfer</i>			
<i>Interest rate assumptions:</i>	Held For 6 Months	Held For 12 Months	Held For 18 Months	Held For 24 Months
Interest Rate				
with 2% interest rate	\$10,000	\$20,000	\$30,600	\$40,800
with 3% interest rate	\$15,000	\$30,000	\$46,350	\$61,800
with 4% interest rate	\$20,000	\$40,000	\$62,400	\$83,200
with 5% interest rate	\$25,000	\$50,000	\$78,750	\$105,000
Discounted for Inflation				
with 2% interest rate	\$9,900	\$19,600	\$29,682	\$39,168
with 3% interest rate	\$14,850	\$29,400	\$44,960	\$59,328
with 4% interest rate	\$19,800	\$39,200	\$60,528	\$79,872

with 5% interest rate	\$24,750	\$49,000	\$76,388	\$100,800
Purchasing power of \$1M held				
with 2% interest rate	\$999,900	\$999,600	\$999,682	\$999,168
with 3% interest rate	\$1,004,850	\$1,009,400	\$1,014,960	\$1,019,328
with 4% interest rate	\$1,009,800	\$1,019,200	\$1,030,528	\$1,039,872
with 5% interest rate	\$1,014,750	\$1,029,000	\$1,046,388	\$1,060,800
Annualized real rate of return on full \$20 million gas tax transfer				
with 2% interest rate	0.050%	0.100%	0.077%	0.102%
with 3% interest rate	0.075%	0.150%	0.116%	0.155%
with 4% interest rate	0.100%	0.200%	0.156%	0.208%
with 5% interest rate	0.125%	0.250%	0.197%	0.263%

CURRICULUM VITAE OF LOUIS A. LANGLOIS

Ottawa, Ontario, Canada

Relevant Work Experience (partial listing)

- Joined the Government of Canada in the Department of Finance in 1967 as senior economist involved in:
 - investing surplus funds of the Canada Pension Plan;
 - developing a methodology for forecasting the government's revenues and expenditures
 - developing financial reporting policies for the government's financial statements;
 - providing advice to senior management on a number of macro policies; and,
 - developing policy and expenditure management systems for the federal government.

- In 1985 was appointed to the position of Director of the Fiscal Policy Division in the Department of Finance, responsible for:
 - providing advice to the Minister and Deputy Minister on all fiscal policy matters;
 - developing policy frameworks on multi-year financial forecasting and control;
 - developing the design of a multi-year fiscal framework for the federal government;
 - providing liaison with the Receiver General, the Comptroller General and the Auditor General on all issues related to financial control and reporting;
 - providing liaison with provincial treasury departments on all issues related to fiscal policy; and,
 - interfacing with Treasury Board Secretariat on expenditure management issues.

- Joined the Federal Treasury Board Secretariat in 1990 as the Director of the Expenditure Analysis Division, responsible for:
 - providing advice to the President of the Treasury Board and the Secretary on matters related to expenditure management and control;
 - developing policies on expenditure restraint and control;
 - preparing the initial blueprint for a multi-year expenditure management system;
 - interfacing with Department of Finance and Privy Council Office on fiscal policy and expenditure management issues; and,
 - providing liaison with provincial treasury departments on all issues related to expenditure management.

Involved in a number of specific assignments including:

- serving on a special task force responsible for restructuring the financial reporting practice of the Canadian government;
- acting as advisor to the Canadian Institute of Chartered Accountants in the development of a policy on accrual accounting for the government sector;
- serving on a panel reviewing the appropriate accounting principles for the government sector; and,
- conducting numerous seminars on fiscal policy and expenditure management for senior Canadian as well a non-Canadian public servants.