



Implementing Pan-Canadian Carbon Pricing in the Northwest Territories

Discussion Paper

July 2017

Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

Note:

The information provided about the carbon tax structure in this document differ slightly from the structure that was approved by the 18th Legislative Assembly in the *Petroleum Products and Carbon Tax Act*.

Originally published in 2017, this discussion paper was used to inform the public of the Government of the Northwest Territories (GNWT) planned approach to implement a carbon tax. While this document provides important detail about the GNWT's rationale for how the tax is structured, it was published before legislation was enacted.

Please refer to the [Petroleum Products and Carbon Tax Act](#) and [Regulations](#) for more information on how the Northwest Territories' carbon tax is structured.

If you would like this information in another official language, call us.

English

Si vous voulez ces informations en français, contactez-nous.

French

Kīspin ki nitawih̄tīn ē nīh̄yawihk ōma ācimōwin, tipwāsīnān.

Cree

T̄h̄ch̄o yatī k'èè. Dī wegodi new̄o dè, gots'o gonede.

T̄h̄ch̄o

?erih̄t'īs Dēne S̄h̄né yatī t'a huts'elk̄er xa beyáyatī thez̄a zat'e, nuwe ts'ēn yółtī.

Chipewyan

Edī gondī dehgáh got'je zhatīé k'éé edat'éh enahddh̄e nīde naxets'é edah̄kī.

South Slavey

K'áhshó got'jne xədə k'é hederī zed̄h̄tl'é yerīnw̄e nídé dúle.

North Slavey

Jii gwandak izhii gin̄jik vat'atr'ijahch'uu zhīt yinohtan jì', diits'àt ginohkhiì.

Gwich'in

Uvanittuaq ilitchurisukupku Inuvialuktun, ququaqluta.

Inuvialuktun

Ċ'bdċ ႠႠႠႠႠႠႠ ႠႠႠႠႠႠႠႠ ႠႠႠႠႠႠႠႠ, ႠႠႠႠႠႠႠ ႠႠႠႠႠႠႠႠ.

Inuktitut

Hapkua titiqqat pijumagupkit Inuinnaqtun, uvaptinnut hivajarlutit.

Inuinnaqtun

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Executive Summary

As a signatory to the *Pan-Canadian Framework on Clean Growth and Climate Change*, the Government of the Northwest Territories (GNWT) agreed to the federal proposal for a national carbon price and the federal government has committed to work with the territories to find solutions that address their unique circumstances, including high costs of living and of energy, challenges with food security, and emerging economies. Starting at \$10 per tonne of greenhouse gas emissions in 2018, the price will increase by \$10 per tonne each year until it reaches \$50 per tonne in 2022.

The purpose of this discussion paper is to present the possible approaches for the GNWT to meet its carbon pricing commitment and generate discussion on the policy tools that may best address the over-riding objective to introduce the carbon tax in such a way that it provides a price incentive to reduce carbon-based fuel use while as much as possible not affecting the local cost of living for Northwest Territories residents or creating further barriers to economic development.

The most practical way for the GNWT to meet this carbon pricing commitment is to implement a carbon tax using the administrative structure already in place for the Northwest Territories fuel taxes.

At \$10 per tonne, the carbon tax will generate about \$12.6 million in revenue, of which \$2 million will be paid directly by governments and government agencies, and around \$5 million by the non-renewable resource industries. The average Northwest Territories household is estimated to pay between \$168 to \$185 annually in direct and indirect carbon tax (tax embedded in the prices of goods and services). When the carbon tax is increased to \$50 per tonne in 2022, the cost to the average household is estimated to reach \$923 per year.¹

There are different ways that the revenues generated by a carbon tax can be used to help reduce carbon-based fuel use while also minimizing the impact on cost of living and economic development. The questions that require discussion are:

- How much, if any, of the carbon tax revenue should be recycled to NWT households, businesses and industry through direct transfers?
- How much, if any, of the carbon tax revenue should be used for any direct GNWT spending for initiatives to reduce greenhouse gas emissions?
- Should carbon tax revenue recycling be tied to carbon consumption?
- Is it reasonable to mix carbon revenue recycling with broader policy objectives?
- What should be considered when proposing revenue recycling options for business and industry?
- How should increasing revenues be incorporated into the recycling program? Should the recycling approaches grow as revenues increase or should new approaches be introduced as revenues grow?

¹ Average costs per household are estimates that do not take into account the location or size of the household; whether private or publicly owned; and does not consider the effect of carbon tax from other jurisdictions that is embedded in price of goods imported into the territory.

Recycling carbon tax revenue back to Northwest Territories residents and industry could be accomplished through the following tools:

- **Reducing carbon tax coverage:** this could include exempting aviation fuel because other forms of transportation are not available for communities without all-weather roads; or exempting marine transportation and railway diesel because they provide bulk transport that should be encouraged.
- **Providing tax credits or rebates through the tax system:** this could mean adjusting the cost of living tax credit, NWT child benefit, or creating a new tax credit or rebate.
- **Revising income tax rates:** this runs the risk that carbon tax revenues may not cover reduced income tax revenue and that there would be resistance to increasing income tax rates again to cover the shortfall.
- **Providing carbon tax rebates at the source:** an example would be introducing a rebate for the tax paid on household heating fuel. s

Each of these tools could be used on its own, or in combination with others.

Revenue recycling does not preclude using some funds for government initiatives. The approach used to distribute the carbon tax revenue could also evolve as carbon tax rates increase.

Résumé

À titre de signataire du *Cadre pancanadien sur la croissance propre et les changements climatiques*, le gouvernement des Territoires du Nord-Ouest (GTNO) a accepté la proposition fédérale au sujet d'un prix national sur le carbone et le gouvernement fédéral s'est engagé à collaborer avec les territoires pour trouver des solutions qui tiennent compte de leurs situations uniques, notamment les coûts élevés de l'énergie et de la vie, les défis concernant la sécurité alimentaire et les économies émergentes. D'abord établi à 10 dollars la tonne d'émission de gaz à effet de serre en 2018, le prix augmentera de 10 \$ la tonne chaque année, jusqu'à ce qu'il atteigne 50 dollars la tonne en 2022.

Ce document de travail a pour but de présenter les approches possibles à la disposition du GTNO pour qu'il respecte son engagement à l'égard du prix sur le carbone et de susciter une discussion sur les outils politiques qui pourraient mieux servir à atteindre l'objectif primordial d'introduire la taxe sur les émissions carboniques de manière à fournir un incitatif financier sur la réduction de la consommation du carburant sans que cela ait une incidence négative sur le coût de la vie local des résidents des Territoires du Nord-Ouest ou crée d'autres obstacles au développement économique, dans la mesure du possible.

Pour le GTNO, la méthode la plus pratique pour respecter son engagement à l'égard du prix sur le carbone consiste à mettre sur pied une taxe sur les émissions carboniques qui utilise la structure administrative déjà en place concernant les autres taxes sur le carburant aux Territoires du Nord-Ouest.

À 10 dollars la tonne, la taxe sur les émissions carboniques générera environ 12,6 millions de dollars en recettes, dont deux millions de dollars seront versés directement par des gouvernements et des organismes gouvernementaux, et environ cinq millions de dollars par des industries du domaine des ressources non renouvelables. On estime qu'un ménage moyen aux Territoires du Nord-Ouest paiera entre 168 et 185 dollars annuellement en taxes directes et indirectes (incluses dans les prix des biens et des services) sur les émissions carboniques. Lorsque la taxe sur les émissions carboniques atteindra le coût de 50 dollars la tonne en 2022, on estime que le coût d'un ménage moyen atteindra 923 dollars par an².

On peut utiliser les recettes générées par une taxe sur les émissions carboniques de différentes façons pour contribuer à réduire la consommation de carburant à base de carbone tout en minimisant également l'incidence sur le coût de la vie et le développement économique. Voici les questions qui doivent faire l'objet d'une discussion :

- Quelle proportion de la taxe sur les émissions carboniques devrait être recyclée au moyen de transferts directs aux ménages, aux entreprises et à l'industrie des TNO, s'il y a lieu?
- Quelle proportion de la taxe sur les émissions carboniques le GTNO devrait-il consacrer à des dépenses directes sur des initiatives de réduction des émissions de gaz à effet de serre, s'il y a lieu?
- Le recyclage des recettes de la taxe sur les émissions carboniques devrait-il être associé à la consommation de carbone?
- Est-il raisonnable de combiner le recyclage des recettes de la taxe à des objectifs politiques plus généraux?
- Que faudrait-il considérer lorsque l'on proposera des options de recyclage des recettes à l'intention des entreprises et de l'industrie?
- Comment les recettes croissantes devraient-elles être intégrées au programme de recyclage? La proportion retenue dans les approches de recyclage devrait-elle croître si les recettes augmentent ou de nouvelles approches devraient-elles être adoptées lorsque les recettes augmentent?

² Les coûts moyens par ménage sont des estimations qui ne tiennent pas compte de l'emplacement ou de la taille du ménage; ni du fait qu'un ménage constitue une propriété privée ou publique; ils ne considèrent pas l'effet de la taxe sur les émissions carboniques des autres provinces et territoires qui est incluse dans le prix des biens importés au territoire.

Le recyclage des recettes de la taxe sur les émissions carboniques à l'intention des résidents et de l'industrie des Territoires du Nord-Ouest peut être effectué selon les outils suivants :

- **Réduire la portée de la taxe sur les émissions carboniques** : Cela peut comprendre une exonération sur le combustible consommé par les avions, parce que les collectivités privées de routes praticables toute l'année ne disposent pas d'autre forme de transport; ou une exonération sur le diesel consommé par le transport maritime ou ferroviaire, parce qu'ils fournissent du transport en vrac qui devrait être encouragé.
- **Fournir des crédits d'impôt ou des remboursements de taxe par l'entremise du système fiscal** : Cela peut signifier un ajustement au crédit d'impôt pour le coût de la vie ou à la prestation pour enfants des TNO, ou la création d'un nouveau crédit d'impôt ou remboursement de taxe.
- **Revoir les taux d'impôt sur le revenu** : On court alors le risque que les recettes de la taxe sur les émissions carboniques puissent ne pas compenser les recettes d'impôt sur le revenu réduites et qu'il y ait de la résistance envers une autre augmentation des taux d'impôt sur le revenu pour combler l'écart.
- **Fournir des remboursements de la taxe sur les émissions carboniques à la source** : L'introduction d'un remboursement sur la taxe versée pour le carburant servant au chauffage des ménages en constituerait un exemple.

Chacun de ces outils peut être utilisé individuellement, ou en combinaison avec d'autres.

Le recyclage des recettes n'exclut pas l'utilisation de certains fonds pour des initiatives gouvernementales. L'approche utilisée pour distribuer les recettes de la taxe sur les émissions carboniques peut aussi évoluer en fonction de l'augmentation des taux de taxe sur les émissions carboniques.

Why Implement Carbon Pricing in the NWT?

As a signatory to the *Pan-Canadian Framework on Clean Growth and Climate Change* (December 2016), the Government of the Northwest Territories (GNWT) has agreed to the federal government’s proposal for a pan-Canadian benchmark for carbon pricing. The goal is to ensure that carbon pricing applies in all provinces and territories in 2018.

While provinces and territories have the flexibility to choose between direct carbon pricing (taxes) or a cap-and-trade system, the federal government will introduce a carbon price backstop in jurisdictions that do not meet the federal carbon pricing benchmark. Although any revenue earned in a jurisdiction from the federal backstop will be returned to that province or territory, no decisions about how the revenue will be returned have been made (see Appendix A).

The federal government released a consultation paper in May 2017 containing the technical details for the proposed federal carbon price.³ The paper reinforces the federal government’s commitment to work with the territories to find solutions that address their unique circumstances, including high costs of living and of energy, challenges with food security, and emerging economies.

The implementation of a Northwest Territories carbon price is required to satisfy the terms of the *Pan-Canadian Framework* and will be included as a key action item in the *NWT Climate Change Strategic Framework*. Moving forward, the GNWT will have to make a choice between using the federal backstop or implementing its own carbon price.

This discussion paper describes potential approaches for the GNWT to meet its carbon pricing commitments. The paper is based on the assumption that the GNWT will choose to impose its own carbon price in the form of a tax to ensure that it has control of how the carbon tax revenues generated in the Northwest Territories are used.

The purpose of this paper is to generate discussion on the approaches that would best meet the GNWT objective to:

- reduce the use of carbon-based fuels;
- add as little as possible to the already very high cost of living in the Northwest Territories; and
- avoid creating additional barriers to economic development.

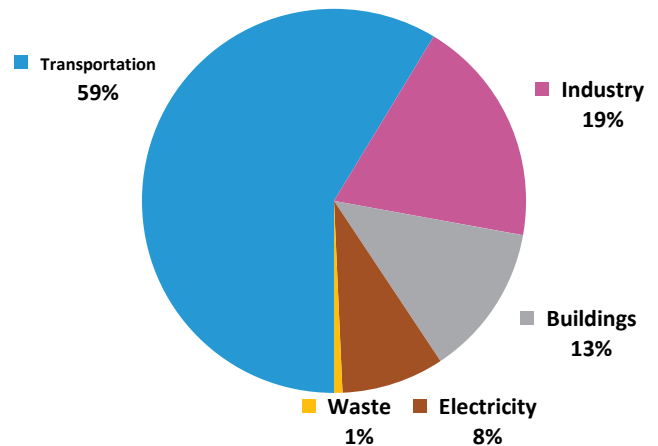
How is the NWT Contributing to Climate Change through Greenhouse Gas Emissions?

The Northwest Territories produces about 1,440 kilotonnes of greenhouse gas emissions each year. Most of these emissions are from transportation (59 per cent) and industry (19 per cent) and heating buildings (13 per cent).

The Northwest Territories’ long cold winters and a population dispersed over vast distances means that these emission levels will continue until affordable alternative solutions become available.

Climate change is having serious implications for the territory and the 18th Legislative Assembly has made the development of a *NWT Climate Change Strategic Framework* to reduce greenhouse gas emissions and adapt to the effects of climate change a key priority.

Figure 1: NWT Greenhouse Gas Emissions by Category (2015)



Source: Environment and Climate Change Canada (2017). *National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada, Part 3*

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<https://www.canada.ca/en/services/environment/weather/climatechange/technical-paper-federal-carbon-pricing-backstop.html>

What are the GNWT's Priorities under the Framework?

The GNWT is committed to reducing greenhouse gas emissions but it also recognizes that the national carbon pricing component of the *Pan-Canadian Framework* may have serious negative effects on the cost of living and the Northwest Territories' economy.

The federal government committed in the federal carbon pricing benchmark to "work with the territories to find solutions that address their unique circumstances, including the high costs of living, challenges with food security, and emerging economies." In addition, the Prime Minister committed the federal government to "work together to assess the implications of carbon pricing in the territory for its economies, communities and people, including energy costs, and to develop solutions together."

To meet these commitments, a working group of senior officials from Environment and Climate Change Canada, Finance Canada, and various GNWT departments has been established to assess the potential impacts of carbon pricing in the Northwest Territories. This includes estimating the effects of carbon pricing in other jurisdictions on the territorial economy. The working group will also identify, assess and propose possible solutions and opportunities to mitigate potential adverse economic effects in the Northwest Territories. While this is a bilateral study, there will be periodic meetings with the other territories to share information. A final report will be completed in September 2017.

The GNWT has proposed the following opportunities to the federal government to reduce greenhouse gas emissions:

- expand the Taltson hydro facility, which would reduce greenhouse gas emissions by 360,000 tonnes annually for over 50 years;
- explore opportunities for reducing reliance on diesel for off-grid communities; and
- construct all-weather roads to help decrease the high cost of living in communities and support the development of resources in the region, especially the construction of an all-weather Slave Geological Province Access Corridor that will reduce costs for industry exploration and development in the area.

What are the NWT's Carbon Pricing Options?

The main ways to put a market price on carbon are imposing carbon taxes and establishing a cap-and-trade system.

A carbon tax is applied on carbon-based fuels to raise the price of these fuels relative to other forms of energy. A carbon tax imposed by the GNWT would have to be applied at the point of sale because Canadian provinces and territories only have the authority to levy direct taxes.

A market-based cap-and-trade system sets limits on greenhouse gas (GHG) emissions linked to global warming. Over time, these limits become stricter, allowing less greenhouse gases to be emitted, until the ultimate reduction goal is achieved. The total emissions allowed under the cap are divided into credits, or allowances. The system identifies companies (emitters) that are required to comply with the overall emission target for each reporting period. Each emitter is then assigned a specific number of credits, either free or through auctioning. Firms whose emissions exceed their credits can avoid penalties for non-compliance by purchasing unused credits from other emitters. The lower polluting emitters can either sell their surplus credits in the marketplace or bank them for future use.

Under the *Pan-Canadian Framework on Clean Growth and Climate Change* benchmarks, provinces and territories with a cap-and-trade need:

- a 2030 emissions reduction target equal to or greater than Canada's 30 per cent reduction target; and
- declining (stricter) annual caps to at least 2022 that correspond, at a minimum, to the projected emissions reductions resulting from the carbon price that year in price-based systems. The caps cannot be adjusted upwards to accommodate new economic activities.

Why Carbon Tax Instead of Cap and Trade?

There is a great deal of discussion about whether a carbon tax or a cap-and-trade system is the best way to put a price on carbon emissions.

The pricing structure is the most important factor in determining the strength of the economic incentive to reduce emissions and switch to energy sources that are less harmful to the environment. The underlying assumption is that the higher the carbon price, the stronger the incentive to produce renewable energy and the greater the adoption of less polluting practices.

While a cap-and-trade has a key advantage over carbon taxes in providing more certainty about the amounts of emissions reductions that will result, there is little certainty about the price of emissions as prices are set in the emissions trading market.

On the other hand, a carbon tax provides certainty about the carbon price but little certainty about the amount of emission reductions. The tax rate has to be set at the “right” level to meet the emission reduction target and determining the right level is only a certainty after the fact. Despite this, the tax rate can be increased over time, making polluting activities more expensive and less polluting technologies more affordable as the price changes over time.

A carbon tax has several advantages over a cap-and-trade system:

- A carbon tax is relatively simple to implement and administer because it uses existing public and private tax administration. This is because a carbon tax is typically levied at the same time as existing fuel taxes, allowing for a relatively simple administrative process. Cap-and-trade systems are more complex due to the regulations and administrative requirements of an emissions trading market.
- A carbon tax achieves comprehensive coverage of emission sources more easily whereas cap-and-trade systems are more prone to lobbying by both industry and environmental groups for exemptions and special treatments.
- A carbon tax provides price certainty over time. This price signal is especially important for carbon pricing

given the importance of technological change in reducing greenhouse gas emissions. Cap-and-trade systems use market prices, which may result in industries adopting inferior technologies or temporary solutions in reaction to price fluctuations. Under a carbon tax system firms know that the carbon price (taxes) will be increasing over time and therefore they will have an increased incentive to invest in research and development of superior technologies to reduce their carbon consumption. There is also potential in a cap-and-trade system for price manipulation.

- A carbon tax is transparent to consumers and businesses as the tax rate is known.

The cap-and-trade system as outlined in the *Pan-Canadian Framework* is not appropriate for the small open resource extraction-dependent Northwest Territories economy. For the Northwest Territories, the cap-and-trade target would require an emission reduction target of about 20 per cent, from the current about 1,440 kilotonnes of greenhouse gas emissions to about 1,140 kilotonnes by 2030.

Given the complexity and cost of participating in a cap-and-trade program, it is likely that only the Northwest Territories’ largest emitters (mining and oil and gas companies) would have the ability to participate.

Furthermore, unless the federal benchmark rules are eased for the Northwest Territories, new economic activity would have to be accommodated in the existing overall Northwest Territories’ emission cap that is also required to decline over time. This means that the current reduction targets would apply even if industrial activity in the Northwest Territories greatly increases in the future.

Mining in the territory is a short-term activity in the context of the global climate change discussion. No existing Northwest Territories mine is expected to operate beyond 2034, which means that the value of their credits will be discounted by the market and become worthless after 2034.

As a result, the price of the credits would be worth less to Northwest Territories mines, which would increase the operating costs for these mines relative to operating costs for other industries in other jurisdictions.

For cap-and-trade to work properly, the economy must be diverse with heavy emitters that operate for a long period. For the GNWT, a cap-and-trade program would be expensive to deliver relative to a carbon tax, requiring

investments in the monitoring and auditing of carbon credits that must meet strict market standards because they would have a market value.

Based on these considerations, a carbon tax that uses the administrative structure already in place for the NWT fuel tax is the most practical way for the GNWT to meet the national carbon price commitment.

Taxing Carbon in the NWT

Taxing carbon is a matter of applying a tax on volumes of carbon-based fuels that create the most greenhouse gas emissions. Tax rates should be based on the carbon content of the fuels (Table 1) so that taxpayers are paying the carbon tax in proportion to the amount of greenhouse gas emissions each specific fuel creates. In other words, the higher amount of carbon, the higher the tax.

The carbon tax will not be applied to wood fuel, such as firewood, charcoal, and pellets, because the carbon released through the burning of these fuels is considered cancelled by the carbon taken out of the atmosphere by the re-growth of forest biomass.

The legislated authority for the carbon tax could be done by amending the existing *NWT Petroleum Products Tax Act* with separate fuel and carbon tax rates. Collection and reporting would continue in a similar manner to the existing fuel tax administration where fuel distributors collect the tax applied on the retail price on behalf of the GNWT. The only significant change would be the increased taxes on the fuels taxed under the current fuel tax system and the imposition of the carbon tax on fuels previously not taxed. However, since these fuels are currently reported under the current fuel tax legislation, very little will change for Northwest Territories fuel tax collectors (see Appendix B).

In most cases, consumers will see the tax shown on their receipts; however, in some cases the carbon tax will be included in the price due to limitations of cash registers. This administrative approach allows the GNWT to collect the tax directly from only a limited number of companies. However, since the carbon tax would be collected along with Northwest Territories fuel taxes, it is not possible to separately account for the administrative cost of the carbon tax.

Table 1: Fuel Carbon Contents

	CO ₂	CH ₄ (CO ₂ e)	N ₂ O (CO ₂ e)	Total (CO ₂ e)
Gasoline (kg/litre)	2.289	0.003	0.050	2.342
Motive diesel (kg/litre)	2.663	0.001	0.070	2.734
Non-motive diesel (kg/litre)	2.663	0.003	0.120	2.786
Aviation fuel (kg/litre)	2.342	0.046	0.070	2.458
Heating fuel (kg/litre)	2.663	0.003	0.120	2.786
Propane (kg/litre)	1.510	0.001	0.030	1.541
Natural gas (kg/m ³)	1.891	0.010	0.015	1.916

Source: Environment Canada

Table 2: Proposed NWT Fuel and Carbon Taxes

	Fuel tax	Carbon tax rate (\$/tonne of emissions) ¹				
		Current	\$10	\$20	\$30	\$40
		(cents/litre)				
Gasoline	10.7	2.3	4.7	7.0	9.4	11.7
Motive diesel	9.1	2.7	5.5	8.2	10.9	13.7
Non-motive diesel	3.1	2.8	5.6	8.4	11.2	14.0
Aviation	1.0	2.5	4.9	7.4	9.8	12.3
Jet	1.0	2.6	5.1	7.7	10.2	12.8
Railway	11.4	2.7	5.5	8.2	10.9	13.7
Heating fuel	0.0	2.8	5.6	8.4	11.2	14.0
Propane	0.0	1.5	3.1	4.6	6.2	7.7
Natural gas	0.0	1.9	3.8	5.8	7.7	9.6
Naphta	0.0	2.6	5.1	7.7	10.2	12.8

¹ Carbon tax based on \$ per tonne CO₂e for each fuel type.

What to do with the Carbon Tax Revenues?

The GNWT must decide what to do with the carbon tax revenues collected. The choices are:

- use the revenues to fund regular government programs and services; or
- recycle the revenue so that it is revenue neutral to the GNWT.

Recycling revenues can be a combination of returning the tax collected directly to residents, businesses and industry and dedicating revenue to funding initiatives that will reduce fossil fuel consumption and therefore reduce the amount of tax paid.

Unlike most other taxes imposed by the GNWT, which are used primarily to raise revenues to pay for general government programs and services, the purpose of the carbon tax is to put a higher price on carbon as a way of providing a price incentive to reduce the consumption of fuels that emit greenhouse gases. In general, the main policy goals for recycling carbon price revenues are to:

- address the equity and economic competitiveness consequences of increased carbon prices;
- help further reduce greenhouse gas emissions; and
- boost the economy.

The last two policy goals may not be achievable given that the Northwest Territories is a small, open, resource-based economy with significant non-market economic activity such as hunting, and will experience different consequences to those experienced in more diverse economies. For example:

- Higher carbon prices will increase costs for all NWT businesses and residents, with the lowest income individuals and those in small, remote communities feeling the most impact. While recycling carbon price revenues may eliminate some of this burden, it will be

impossible to design a compensation system that will perfectly match the burden the carbon tax imposes.

- Remote communities that rely on diesel for heating and to generate electricity will be disproportionately burdened by higher carbon prices. These communities, particularly those above the tree line, have limited opportunities to reduce their use of carbon-based fuels by using alternative fuels.
- By increasing the cost of fuels, a carbon price will increase the cost of participating in traditional activities like hunting, fishing and trapping. These activities are an important part of the Northwest Territories' heritage and remain culturally and commercially important to many residents and communities.
- The easiest and least costly changes that can be made to reduce consumption of carbon-based fuels will be pursued first. As time passes, it will become more difficult to achieve further reductions, unless there are considerable technological improvements that allow for low-cost reductions.
- Fuel-intensive industries, such as mineral, oil and gas exploration and extraction, represent the dominant part of the NWT economy, may be especially hard hit.

The potential consequences of the carbon tax on the territorial economy and residents have led to the GNWT's objectives to increase the price on carbon without, as much as possible, adding to the cost of living or creating additional barriers to economic development. To meet these objectives the GNWT will need to make the carbon tax revenue-neutral to the Government and recycle most of the carbon tax revenue.

A carbon tax on all fossil fuels consumed in the Northwest Territories could generate about \$12.6 million at a tax rate of \$10 per tonne of greenhouse gas emissions (Table 3). After five years, the tax rate is expected to increase to \$50 per tonne of greenhouse gas emissions, which would generate about \$63 million at present consumption levels. Table 3 provides estimated tax revenues at the different tax rates using current consumption levels.

Table 3: Carbon Tax Revenue Estimate by Type

	(Millions of Dollars)				
	Carbon Tax Rate				
	\$10/t	\$20/t	\$30/t	\$40/t	\$50/t
Gasoline	1.1	2.3	3.4	4.6	5.7
Aviation	0.1	0.3	0.4	0.5	0.7
Aviation Turbo	1.2	2.5	3.7	4.9	6.2
Diesel, Motive (Transportation)	3.3	6.7	10.0	13.3	16.7
Diesel, Non-motive ¹	4.0	8.0	12.0	16.0	20.0
Heating fuel, propane	0.3	0.7	1.0	1.3	1.6
Heating fuel, diesel	2.5	4.9	7.4	9.9	12.3
Total Carbon Tax Revenue	12.6	25.3	37.9	50.5	63.1
Revenue Unavailable for Carbon Tax Recycling:					
GNWT Fuel ²	0.8	1.5	2.1	2.7	3.4
Municipal governments, hospitals, schools	0.4	0.8	1.2	1.6	2.0
Electricity generation (non-motive diesel) ³	0.7	1.4	2.1	2.8	3.6
Revenue Available for Recycling:	10.7	21.6	32.4	43.3	54.2
<i>Separated into:</i>					
<i>Industrial Users</i>	<i>4.7</i>	<i>9.4</i>	<i>14.1</i>	<i>18.7</i>	<i>23.4</i>
<i>Households and Business⁴</i>	<i>6.0</i>	<i>12.2</i>	<i>18.4</i>	<i>24.6</i>	<i>30.8</i>

¹ Non-motive is fuel used to generate electricity and in stationary engines and includes marine fuel.

² Includes a factor for administration costs

³ NTPC and Northland Utilities

⁴ Household and Business is the remainder after other sectors are subtracted from the total and may contain carbon tax paid by the other sectors.

Not all of the carbon tax revenue will be available for recycling and spending. The direct tax paid by the GNWT, municipal governments, hospitals and schools and on diesel used for electrical generation (assuming higher electricity costs would be subsidized) have no net effect on the government budget and would not be available for recycling. The remaining revenue will be available for re-distribution within the economy or for government programs and services that reduce carbon emissions.

The cost of a carbon tax will affect the economy and revenue recycling is a mechanism to return money to offset those impacts while preserving the tax incentive to reduce consumption and find substitutes. By designing a system to recycle the carbon tax revenue back into the economy, the GNWT creates a price incentive to reduce carbon consumption while ensuring the revenue collected is returned to support economic activity at pre-tax levels of real income.

The revenue recycling system is expected to change over time as the carbon tax rate increases. Even if the carbon tax is successful in reducing fossil fuel consumption, over the medium term carbon revenues will continue to increase as the tax rates increase. Recycling options that are appropriate when revenues are relatively small may be less so as the tax burden increases.

Who Would Pay the Carbon Tax?

Who pays the carbon tax is not as straightforward as it might seem. A taxpayer who is able to pass the tax paid to another consumer through higher prices is not paying the tax; but rather the final consumer is indirectly paying this tax (for example, a business that increases its product prices to cover its tax-related higher fuel costs for heating and transportation has passed the tax onto consumers).

Tables 4 and 5 provide estimates of the amount of carbon tax paid directly by the GNWT, community governments, hospitals and schools, utilities, and industrial (mainly mines and some oil extraction) users. The remainder is the amount of the tax paid by households and businesses other than the mines. Not enough information is available to further refine the households and business category. However, it is known that the household and business category includes some indirect tax that would be paid by other users. For example, indirect tax embedded in airline tickets paid by the GNWT for employee flights and medical travel would be included in this catch-all category.

Table 4: Carbon Tax Revenue Estimate by Type and User at \$10 per tonne (millions of dollars)

	GNWT Fuel	Municipal, hospitals, schools	Diesel for Electricity	Industrial Users	Households & Business ²	Total
Gasoline	0.1	0.0	0.0	0.0	1.1	1.1
Aviation	0.0	0.0	0.0	0.0	0.1	0.1
Aviation Turbo	0.0	0.0	0.0	0.0	1.2	1.2
Diesel, Motive (Transportation)	0.4	0.2	0.0	1.3	1.4	3.3
Diesel, Non-motive ¹	0.0	0.0	0.7	2.7	0.6	4.0
Heating fuel, propane	0.0	0.0	0.0	0.0	0.3	0.3
Heating fuel, diesel	0.1	0.1	0.0	0.7	1.6	2.5
Total	0.6	0.4	0.7	4.7	6.2	12.6

¹ Includes marine fuel

² Household and Business is the remainder after other sectors are subtracted from the total and may contain carbon tax paid by the other sectors.

Table 5: Carbon Tax Revenue Estimate by Type and User at \$50 per tonne (millions of dollars)

	GNWT Fuel	Municipal, hospitals, schools	Diesel for Electricity	Industrial Users	Households & Business ²	Total
Gasoline	0.3	0.1	0.0	0.1	5.3	5.7
Aviation	0.0	0.0	0.0	0.0	0.6	0.7
Aviation Turbo	0.1	0.0	0.0	0.0	6.0	6.2
Diesel, Motive (Transportation)	2.0	1.2	0.0	6.5	7.0	16.7
Diesel, Non-motive ¹	0.0	0.0	3.6	13.5	2.8	20.0
Heating fuel, propane	0.2	0.0	0.0	0.0	1.5	1.6
Heating fuel, diesel	0.6	0.5	0.0	3.4	7.9	12.3
Total	3.2	1.9	3.6	23.4	31.1	63.1

¹ Includes marine fuel

² Household and Business is the remainder after other sectors are subtracted from the total and may contain carbon tax paid by the other sectors.

Households

Individuals will pay the tax both directly through higher fuel costs and indirectly through taxes passed forward because of related increases in transportation and other business operating and manufacturing costs that increase prices for goods and services.

A package of measures would need to be used to ensure individuals are compensated for both direct and indirect costs. In order to effectively design an offset mechanism for individuals, the estimated impact by community, income and family size must be considered. To design a system that completely offsets the carbon tax paid by residents requires data that is currently unavailable, such as the impact of indirect taxes from other jurisdictions. In determining the package's composition, the impact of other government programs such as the power subsidy programs, public housing, and social assistance will need to be considered.

Unless the GNWT is prepared to rebate the carbon tax directly based on the carbon tax paid, there will always be individuals who are over or under compensated for the amount of carbon tax they pay.

What are the estimated direct costs for households?

A household's direct carbon tax costs will depend on the amount of carbon-based fuel that it consumes. Using household expenditure data from Statistics Canada, an average Northwest Territories household is estimated to spend \$133 directly on carbon tax at \$10 per tonne tax rate. The majority of this is on heating oil (\$83) and gasoline (\$45), with the remainder split between propane, diesel and natural gas (\$5 for all three). The direct costs in the first year of carbon tax would increase costs by 2.2 per cent on average.

By year five, when the tax is \$50 per tonne, the average Northwest Territories household is estimated to pay \$665 annually in direct carbon tax (based on current consumption levels). These averages do not reflect the fact that fuel consumption in households will vary based on many variables including location, fuel options, number and age of individuals in the household, size of dwelling, and whether the dwelling is privately-owned or public housing.

Direct costs were also estimated from Arctic Energy Alliance household energy audit data for a sample set of

houses across the Northwest Territories. Using this information, direct costs ranged from \$115 to \$143 per year at \$10 per tonne tax rate for the average household across a sample of communities. A household with relatively low carbon consumption would face a range of direct costs from \$78 to \$102. A household with high carbon fuel use is estimated to pay \$176 to \$203 in direct carbon taxes.

With no change to consumption as a result of the carbon tax, these direct costs would increase to an average of \$575 to \$715 per year at a \$50 per tonne carbon tax. Low carbon fuel use households would pay between \$390 and \$510 per year and high use households would pay between \$880 and \$1,015 per year.

What is known about indirect costs for households?

The indirect costs of a carbon tax are hidden in the price of goods and services and are difficult to estimate in advance or measure after the tax is imposed because prices change for many reasons. The NWT Bureau of Statistics modelled indirect costs of a territorial \$10 per tonne carbon tax for Northwest Territories households.⁴ Using Statistics Canada data, the indirect impact of the tax on households was modelled by fuel type. Each fuel type, including gasoline, heating fuel, and jet fuel, had the carbon tax applied and the tax impact on household expenditures was generated for each expenditure category. The sum of all categories results in the total indirect impact on a household's spending.

Table 6 provides the model results under a range of assumptions.⁵ The model estimates the indirect impact of the territorial \$10 per tonne carbon tax on households in a range of \$35 to \$51 annually. The largest indirect carbon tax cost is on transportation (\$11 to \$14), of which \$7 to \$8 is indirect tax embedded in aviation (higher ticket prices to account for the higher cost of aviation fuel). The indirect cost on housing, water, electricity, gas and other fuels is \$7 to \$9. Food categories have a range of indirect

⁴ The NWT Bureau of Statistics used supply-use tables from Statistics Canada to model the indirect impact of the carbon tax on households by fuel type for each household expenditure category. The sum of all expenditure categories provides the estimated results in the total indirect impact on an NWT household's spending. The analysis uses 2013 dollars, the latest available for supply-use tables.

⁵ The low range assumes that the NWT does not import goods and the high range assumes that goods are imported; however, the analysis does not include any estimates of the indirect carbon tax from other jurisdictions.

cost estimates from \$3 to \$8 for food and non-alcoholic beverages and \$4 to \$6 for food, beverage and accommodation services.

A key concern and open question is the indirect tax on interprovincial transportation. Other Canadian jurisdictions that are using carbon taxes, such as British Columbia and Alberta, only apply carbon taxes directly to fuel consumed within their borders. However, this tax will be embedded in prices when goods are exported to other jurisdictions. Since the Northwest Territories imports the vast majority of its goods, the implications of this indirect tax are of concern and are still being investigated.

What does this mean for total costs on the average Northwest Territories household?

The estimated annual total impact of the \$10 per tonne carbon tax on the average Northwest Territories household is \$168 to \$185, consisting of \$133 in direct costs and \$35 to \$51 in indirect costs. By 2022, when the carbon tax is scheduled to increase to \$50 per tonne, the total average impact would be about \$840 to \$923 per household. Recycling revenue to households at these levels would generally offset carbon taxes paid for the average household, reward those with relatively light carbon use and not be a sufficient offset for heavy carbon consumers. This leaves all groups with the incentive to reduce their carbon taxes paid by reducing their carbon emissions.

Table 6: Estimated Direct and Indirect Effect of NWT Carbon Tax on Households, 2015 dollars

Direct Tax By Spending Category	\$10/tonne		\$50/tonne	
Natural gas	\$2.28		\$11.40	
LNGs (Propane)	\$2.35		\$11.73	
Gasoline	\$44.71		\$223.55	
Diesel and biodiesel fuels	\$1.15		\$5.77	
Light fuel oils (Heating Oil)	\$82.56		\$412.82	
Total Direct	\$133.05		\$665.27	

Indirect Tax By Spending Category	Low		High	
Transportation	\$10.81	\$14.33	\$54.02	\$71.66
Housing, water, electricity, gas and other fuels	\$6.59	\$8.71	\$32.95	\$43.56
Food, beverage and accommodation services	\$4.30	\$5.83	\$21.49	\$29.13
Food and non-alcoholic beverages	\$3.75	\$8.33	\$18.77	\$41.64
Recreation and culture	\$2.34	\$3.61	\$11.66	\$18.05
Other goods and services	\$7.17	\$10.65	\$35.88	\$53.28
Total Indirect	\$34.96	\$51.47	\$174.77	\$257.33

Total NWT Carbon Tax	Low	High	Low	High
	\$168.01	\$184.52	\$840.04	\$922.60

Industrial Users

Resource exploration and extraction industries in the Northwest Territories cannot pass on the carbon tax to end consumers because prices for their products are set globally. Added costs to such businesses include both direct costs of higher fuel prices and indirect costs through higher prices of goods and services.

Tables 4 and 6 estimate that nearly 60 per cent of the carbon taxes paid by industrial users would be paid on diesel fuel used for electrical generation and in stationary machinery, almost 30 per cent from motive diesel, and the remaining 14 per cent from diesel heating fuel.

The importance of the non-renewable resource industry to the Northwest Territories economy, particularly mine development, must be considered. Mines with short productive economic lives between 10 and 20 years usually do not reinvest in new capital and equipment to renew the plant. Existing mines could lower ore production by raising the cut-off grade that is considered economically feasible for extraction, which means a shorter mine life overall. This makes the economic effects of pricing carbon very different in the territory from large, diverse provincial economies. It also suggests that the GNWT will need to proceed with greater care in implementing the carbon tax and recycling the carbon tax revenues from the resource industry.

Reducing corporate income tax rates would likely be ineffective in offsetting the carbon tax paid by business and industrial users that do not have the ability to pass on the carbon tax. Reducing the general tax rate would benefit companies with larger profits more than others. Reducing the small business tax rate would provide no support to the 50 per cent of small businesses who do not make enough profits to pay corporate income taxes. Offsetting carbon tax paid by businesses through the corporate income tax system would introduce fiscal risk to the GNWT and would require constant monitoring of the carbon tax revenue and adjustments to the corporate income tax rate annually to ensure that businesses are not over-compensated for the carbon tax.

Providing financial support for projects, equipment or new technology to businesses that must absorb the carbon tax would help these operations lower their carbon fuel consumption. This type of support may be a more effective method than lowering other tax rates for businesses.

Small and Medium Business

Businesses with the ability to pass the tax on include any business that does not face significant competition from other businesses that do not pay the tax. Businesses with the ability to pass on the tax through higher prices would likely include retail, service, transportation, and hospitality industries. Lack of competition in many Northwest Territories communities increases the ability of businesses to pass the tax to the final consumer. This includes businesses that serve other businesses rather than the final consumer. Costs to this sector would be assumed to be recoverable from their customers, and would be allocated to consumers.

There should be no specific need to compensate businesses with the ability to pass the carbon tax forward to their customers, especially at the lower carbon tax rates. At \$10 per tonne carbon tax rate, the assumptions concerning the amount of pass-through to business may not be a significant concern in the analysis. As well, approaches used to recycle carbon tax revenues to individuals and households will benefit business owners because as individuals they will also receive these recycled amounts.

A significant portion of territorial businesses sell to each other and may or may not be able to pass the carbon tax to their buyers because of competitiveness issues. For example, local professional firms, such as those offering accounting, legal or engineering services, may find that they have to absorb their carbon tax costs to remain competitive with southern firms, especially as new information technology increases the ability of these types of businesses to be located elsewhere and still offer services in the territory. As a consequence, the GNWT will need to invest in monitoring the effects of the carbon tax on price and consumption at the community level over time to generate evidence for the relative carbon tax burden between consumers and local businesses. Analysis of these data will help better refine the revenue recycling policy tools as the carbon tax rates increase.

Considerations for Carbon Tax Revenue Recycling in the NWT

The GNWT's main carbon pricing objective is to provide a price incentive to reduce greenhouse gas emissions, while at the same time, minimizing the effects on the Northwest Territories economy and households.

The carbon tax will provide a price incentive for residents and businesses to reduce the amount of carbon-based fuel they use. Revenue recycling will help reduce the negative effects of the tax on the economy.

The first changes that individuals and businesses will make to reduce carbon fuel consumption will likely be the easiest and least costly. In fact, a large majority of these changes may have already occurred because of the high energy prices in the Northwest Territories.

After the first easy changes, further reductions will be difficult to achieve without technological improvements such as investing in equipment that uses alternative fuels.

The following questions were considered before presenting the possible approaches for carbon tax recycling.

How much of the carbon tax revenue should be recycled into the economy through transfers to households, business and industry and how much should be invested in projects to reduce carbon-based fuel consumption?

One of the assumptions involved in discussing the introduction of carbon pricing in the Northwest Territories is that the resulting carbon tax revenue will be revenue-neutral for the GNWT. This means that the net carbon tax revenue will be recycled back to Northwest Territories residents and economy through redistributive mechanisms such as tax reductions, rebates, and subsidies. The GNWT would not gain any new revenue from the carbon tax. Other possible methods for revenue recycling include initiatives such as installing alternative energy systems to reduce the reliance on diesel to generate electricity in non-hydro communities. Deciding how much of the revenue is recycled through the various redistributive mechanisms depends on the priorities.

The overriding priority for the GNWT is to mitigate the impact of the carbon tax on the cost of living for Northwest

Territories residents and barriers to economic development as much as possible. However, the approaches chosen to address this priority can also address other priorities such as equity between households, business competitiveness, or economic development.

There will be a need to balance priorities. Different approaches will support different priorities and will require different funding levels. Priorities may also change over time as revenues increase through tax rate increases. For example, investing in projects such as infrastructure or clean technology to reduce carbon-based fuel consumption will require large investments. This means that less revenue will be available for other priorities, such as addressing the higher household tax burden.

Is it reasonable to mix carbon revenue recycling with broader policy objectives?

Carbon tax recycling could be designed to preserve a strong link with the amount of carbon tax that individuals pay (or are likely to pay). For example, there would be a strong link if a direct rebate were made based on carbon taxes actually paid. This link would make the recycling an almost pure offset: the individuals who pay the most carbon taxes would also derive most of the benefits from revenue recycling.

Carbon tax recycling also could be designed to address other issues such as increasing the progressivity of the tax system, improving equity among regions in the Northwest Territories or encouraging diversification in the economy. This approach would attempt to address broader social or economic policy objectives that may have nothing to do with carbon tax; therefore, it would not be accurate to call it recycling or an offset.

Any measures that are designed to benefit some groups in excess of their actual costs will cost other groups and may reduce support for a carbon tax. The looser the link between the carbon tax and the recycling measures, the greater the concerns that could be raised.

The GNWT already has a number of strategies and approaches in place for re-distributing income and social support. Households and businesses in remote communities receive a price subsidy for a portion of their electrical consumption. The NWT child benefit program provides payments to lower-income families. Fully 16 per cent of Northwest Territories households live in

subsidized public housing. The carbon tax revenue generated from fuel consumed in public housing is paid by the GNWT to itself and will not be available for revenue recycling.

Should carbon tax revenue recycling be tied to carbon consumption?

At first glance, taxing carbon and then returning the revenue through an offset to taxpayers seems ineffective because it neutralizes the price signal. The price signal provides an incentive for saving money through reducing carbon consumption. The offset dulls the signal by returning the tax paid.

The timing of the offset delivery can preserve the incentive to reduce carbon consumption, even if the tax paid is fully offset. By delivering the offset at a later time than when the tax is paid, the consumer still has the full price signal at the moment of consumption.

Revenue redistribution may eliminate some of the burden of a new carbon tax but it is not possible to create a revenue recycling system that perfectly matches the tax burden. Remote communities that rely heavily on carbon-based fuels will be disproportionately burdened by a carbon tax and have limited opportunities to reduce their carbon-based fuels consumption. Depending on their carbon-based fuel consumption, lower income households may pay more carbon tax as a portion of their household income than higher income households; however, these households may be already compensated for the higher costs through other support programs.

A carbon tax will also increase business costs and make industries such as minerals and oil and gas exploration and extraction less competitive in the global market. Since the non-renewable resource industries are currently the backbone of the Northwest Territories economy, the carbon tax paid by these industries could be directly recycled back to these industries. This is why Table 3 separates the estimated amount of carbon tax paid by industry and residents.

On average, households will experience the carbon tax burden most through the carbon tax paid on heating fuel. Tables 4 and 5 show how significant the carbon tax on heating fuel will be for households and businesses. At current Yellowknife heating fuel prices, the carbon tax will increase heating fuel costs by almost 3 per cent annually at \$10 per tonne of greenhouse gas emissions and 13 per

cent at a \$50 per tonne tax rate in five years. Providing offsets for the carbon tax paid on heating fuel would directly mitigate a significant amount of the direct carbon tax paid by households.

Could the recycling approaches change over time?

The carbon tax revenue recycling scheme can be modified at any time. Any changes would come with administration costs, as well as the need to promote public awareness of any changes to ensure that initiatives to reduce carbon-based fuel use remain in place.

The announced intent is to introduce the carbon tax at \$10 per tonne and increase this annually by \$10 per tonne until it reaches \$50 per tonne by the fifth year. The revenue recycling tools will become more important as the carbon tax rates increase from the initial tax to the full amount by 2022.

A design that encompasses monitoring and responding to dynamic circumstances in the various sectors would be good policy. All of the recycling tools used must provide the ability to be adjusted annually based on carbon tax revenues received.

Proposed Revenue Recycling Assumptions

The following are the key assumptions that are used to derive the approaches to revenue recycling:

- the revenues available for recycling will be limited to net carbon tax revenues generated (net revenues are those available after the amounts paid by the GNWT and its agencies and municipal governments are removed – see Table 3);
- carbon tax offsets for large industrial taxpayers may be treated separately from other sectors;
- all the increased costs to businesses, excluding the mines, from the carbon tax will be passed to consumers; and
- carbon tax revenue could also be associated with programs and services that reduce emissions, recognizing that this would reduce revenues available for offsets to residents and business.

Revenue Recycling Evaluation Criteria

The potential revenue recycling approaches presented in Table 7 are evaluated based on the following criteria:

- minimizes the cost of living increase from carbon taxation for residents;
- minimizes impacts on the economy and cost of doing business;
- transparent and easy to administer; and
- attempts to maximize energy and environment related benefits.

Revenue Recycling Approaches

Table 7 provides the considerations of the following revenue recycling options based on the stated assumptions and the evaluation criteria:

- reduce carbon tax coverage by exempting certain fuels from the tax;

- provide income tax credits or rebates through the tax system⁶;
- revise other existing tax rates;
- provide direct rebates for tax paid on fuel used for specific purposes (for example: fuel used for household heating);
- provide direct support for emissions reduction (for example: Arctic Energy Alliance programs) to households and business/industrial users; and
- use for infrastructure projects to reduce fossil fuel use (for examples: alternative energy electrical generation facilities, expansion of hydro facilities).

Any of these tools could be used in combination with each other. A policy package of several options is possible with exemptions, rebates, credits, and support for industries to address the various ways that NWT residents and businesses consume carbon. Table 7 includes an example of a combination by packaging an increase in the Cost of Living Tax Credit with an increase to the NWT Child Benefit. Such a combination would support all NWT personal income tax filers and provide additional support for those with children.

These approaches do not eliminate the possibility of using a portion of carbon tax revenues for government initiatives. However, revenues used for government initiatives will not be available for recycling to individuals, businesses, and industry. Any proposed government initiatives should be evaluated on the established criteria keeping in mind that the key objective is to, as much as possible, not add to the high cost of living or create additional barriers to economic development. The recycling tools or combinations of approaches can be revised as carbon tax revenues increase; they do not have to match increases in carbon taxes.

⁶ An income tax credit is used to reduce a taxpayer's taxes and is claimed on the tax return. Tax credits can be refundable (credits greater than the tax paid are refunded) or non-refundable (can only reduce taxes to zero and amounts greater than the tax refund are lost). A rebate is a government payment to soften the impact of a particular tax burden on individuals and has no implications for the income tax paid but typically a recipient is required to file an income return so that his/her income is used to determine eligibility.

Table 7: Carbon Tax Revenue Recycling Approaches

Approach	Cost of Living Implications	Implications for NWT Economy	Transparency and Administration Considerations	Implications for Reducing Greenhouse Gas Emissions
Exempt aviation fuel	<p>Aviation is necessary for communities without all-weather road access.</p> <p>Aviation fuel costs would not increase because of the carbon tax, so there would be no increased cost from the carbon tax to pass on to consumers.</p>	<p>Alternatives to aviation are structural (roads, and railroads) and they are beyond the fiscal ability of northern governments and communities to build.</p> <p>Pursuing structural alternatives requires long-term planning and the fiscal support of the federal government.</p>	<p>Avoids the administrative complexity created by the necessity of removing the carbon tax on fuel used in flights leaving the NWT.</p> <p>Reduces the coverage of the carbon tax.</p>	<p>Does not provide incentive to reduce aviation travel and transport.</p> <p>Reduces revenue available for other revenue recycling initiatives.</p>
Exempt railway and marine diesel	<p>Would keep fuel costs for bulk transport of goods the same and improve costs relative to competitors in truck transportation.</p>	<p>Would not raise the cost of bulk transportation provided by railway and marine diesel.</p>	<p>Reduces the coverage of the carbon tax.</p>	<p>May encourage more efficient bulk transportation as increases the relative cost of truck transportation.</p> <p>Minimal reduction in revenue available for other offsets.</p>
Provide a direct rebate at the source for heating fuel, through a credit displayed on the heating fuel invoice.	<p>Having a rebate on the same bill as heating fuel charges immediately neutralizes the cost of living impact for the consumer.</p>	<p>No implications from neutralized carbon tax.</p>	<p>Heating fuel distributors would charge price net of rebate to consumers based on actual usage and collect aggregate rebate from GNWT. GNWT would need to report aggregate rebate as an expenditure item in budget and Public Accounts.</p>	<p>A neutralized price signal would provide no incentive for users to conserve or substitute carbon consumption.</p>
Provide an equal refundable tax credit to every individual tax filer.	<p>Light carbon users could receive more than pay in carbon taxes and heavy users will receive less than what they pay in carbon taxes.</p>	<p>Credit goes to NWT consumers and may be spent in the territory.</p> <p>Depends on whether households spend the credit in or outside the NWT.</p>	<p>Credit would provide a transparent allocation of the carbon tax revenue that is recycled.</p> <p>Can be administered by the Canada Revenue Agency through the NWT personal income tax system.</p> <p>Credit amount simple to adjust as carbon tax revenue amounts change.</p>	<p>Preserves the incentive to conserve.</p> <p>Not linked to carbon consumption.</p>

Approach	Cost of Living Implications	Implications for NWT Economy	Transparency and Administration Considerations	Implications for Reducing Greenhouse Gas Emissions
Increase the Cost of Living Tax Credit rates and adjusted net income thresholds.	Light carbon users could receive more than pay in carbon taxes and heavy users will receive less than what they pay in carbon taxes. The Cost of Living Tax Credit is determined based on adjusted net income that excludes social assistance payments, workers' compensation payments and foreign income.	<p>Rebate goes to NWT consumers as a reduction in income tax paid or an income tax refund and may be spent in the territory.</p> <p>The Cost of Living Tax Credit provides a proportionately higher benefit for low-income taxpayers. On the theory that lower income taxpayers spend more of their disposable income in the NWT (travel less); this credit would put more carbon tax revenue directly into the economy.</p>	<p>Will continue to be administered by the Canada Revenue Agency through the NWT personal income tax system.</p> <p>Credit amount simple to adjust as carbon tax revenue amounts change, provided credit amounts are moved from the <i>Income Tax Act</i> to the <i>Regulations</i>.</p> <p>Cost of Living Tax Credit is reported in the budget and Public Accounts as an expenditure item.</p>	Preserves the incentive to conserve. Not linked to carbon consumption.
Increase the NWT Child Benefit rates and adjusted thresholds.	Households with children will benefit from increased support. Households with children will still have different carbon consumption, light users will be rewarded and heavy users will pay more carbon tax, maintaining the incentive to reduce carbon consumption for all recipients.	<p>The NWT Child Benefit goes to lower income households with children.</p> <p>On the theory that lower income taxpayers spend more of their disposable income in the NWT (travel less); this credit would put more carbon tax revenue directly into the economy.</p>	<p>The Canada Revenue Agency administers the NWT Child Benefit distribution monthly with the Canada Child Benefit payments.</p> <p>Future adjustments would be carried out through the NWT <i>Income Tax Act</i> and <i>Regulations</i>.</p> <p>The NWT Child Benefit costs are reported in the budget and Public Accounts as an expenditure item.</p>	Preserves the incentive to conserve. Not linked to carbon consumption. The price signal will remain in place while giving further support to households with children.

Approach	Cost of Living Implications	Implications for NWT Economy	Transparency and Administration Considerations	Implications for Reducing Greenhouse Gas Emissions
<p>Provide an income-tested rebate specifically for the carbon tax offset, similar to the federal Goods and Services Tax Credit, which is paid quarterly.</p>	<p>Light carbon users could receive more than pay in carbon taxes and heavy users will receive less than what they pay in carbon taxes.</p>	<p>Rebate goes to NWT consumers and may be spent in the territory.</p> <p>More effectively targets low-income households. On the theory that lower income taxpayers spend more of their disposable income in the NWT (travel less); this rebate would put more carbon tax revenue directly into the local economy.</p>	<p>Rebate would provide a transparent allocation of carbon tax revenue that is recycled.</p> <p>Can be administered by the Canada Revenue Agency through the NWT personal income tax system.</p> <p>Rebate amount is simple to adjust as carbon tax revenue amounts change.</p> <p>Amount would be reported in the budget and Public Accounts as an expenditure item.</p>	<p>Preserves the incentive to conserve.</p> <p>Not linked to carbon consumption.</p>
<p>Provide a rebate based on where individual or household is located to take into account the various energy demands (for example communities that rely on diesel for electricity generation) across the territory and higher cost of living in remote areas.</p>	<p>Addresses high cost of living concerns by community. However, there are other transfers and subsidies to individuals and households in remote communities, such as public housing and income assistance, that could mean the rebate compensates individuals in remote communities who pay very little carbon tax.</p>	<p>Rebate goes to NWT consumers and may be spent in the territory.</p> <p>On the theory that lower income taxpayers spend more of their disposable income in the NWT (travel less); this rebate would put more carbon tax revenue directly into the local economy.</p>	<p>Can be administered by the Canada Revenue Agency through the NWT personal income tax system; based on postal code; but is administratively more complex than other credits/rebates and therefore would likely cost the GNWT more (the Canada Revenue Agency charges to administer credits based on the administrative complexity).</p> <p>To make transparent, detailed carbon consumption by community and by final consumer would be necessary.</p>	<p>Energy infrastructure is fixed in the short term and individuals in smaller, distant, and/or remote areas will not be able to reduce their carbon consumption without long-term capital investments. However, if carbon tax paid by all NWT residents is recycled to remote communities then they may have enough resources to make some behavioural changes to reduce carbon consumption.</p> <p>The link between the carbon tax and the offset is weak when remote communities have more public housing that does not provide a price incentive to reduce carbon consumption.</p>

Approach	Cost of Living Implications	Implications for NWT Economy	Transparency and Administration Considerations	Implications for Reducing Greenhouse Gas Emissions
Reduce personal income tax rates.	Light carbon users could receive more than pay in carbon taxes and heavy users will receive less than what they pay in carbon taxes.	Depends on whether households spend the increase in net income after taxes inside or outside the NWT.	Not transparent to individuals, changes the amount of income tax paid. Administratively difficult because tax rates have to be changed through legislation and have to match anticipated carbon tax revenue with anticipated income tax revenue losses. If only approach is to recycle the carbon tax through personal income taxes, the GNWT is at risk if carbon tax revenues are less than the income tax revenue lost through the income tax rate changes.	Preserves the incentive to conserve. Not linked to carbon consumption.
Establish a program to finance projects to reduce carbon emissions at an industrial level using carbon tax generated from industrial users. The program design must be discussed with industry stakeholders to ensure an efficient and equitable program.	If the technology used provides experience and expertise that can be applied to rest of economy, then the program would provide the potential to reduce the cost of living for NWT residents and businesses.	May counter economic incentives to investigate low-carbon alternatives. Increases economic activity if program is tied to making expenditures in the NWT.	Provides transparency for the amounts that are returned to industry. Careful attention must be paid in program design to ensure compliance costs are not high.	If program is successful in meeting its objective then greenhouse gas emissions will be reduced. Program may provide experience and expertise that can be applied to the rest of economy, creating the potential to reduce greenhouse gas emissions for the rest of the NWT.
Provide direct support to households for emissions reduction such as subsidies for low energy use appliances, insulation, and solar panels.	Would help households that have yet to adopt the latest conservation measures to reduce energy use, thereby lowering their cost of living.	Increases economic activity for renovation construction.	Would have to design reports to show where the funds are being spent.	If program is successful in meeting its objective then greenhouse gas emissions will be reduced.

Approach	Cost of Living Implications	Implications for NWT Economy	Transparency and Administration Considerations	Implications for Reducing Greenhouse Gas Emissions
Use for infrastructure projects to reduce fossil fuel use (such as alternative energy electrical generation facilities, expand hydro facilities)	No difference to remote communities as diesel electrical generation subsidized. Expansion of hydro could encourage more resource development.	Infrastructure projects generate short term construction jobs and activity. May reduce the cost of resource extraction.	Infrastructure projects are clearly accounted for in public accounts.	Reducing diesel electrical generation will reduce greenhouse gas emissions.
Combination of Options: Cost of Living Tax Credit and NWT Child Benefit Tax Credit increases	Increasing both credits would support both individuals and households with children. Households with children that have higher carbon consumption than those without would get more support to help offset the carbon tax paid.	If all revenue is recycled, then credits would offset the tax at the economy-wide level. If income testing redistributes revenue to lower and middle income groups, revenue could have higher probability of being spent within NWT economy.	Both credits are currently administered through the Canada Revenue Agency. Both credits are governed by and can be adjusted through the NWT <i>Income Tax Act</i> and <i>Regulations</i> . Both credits are reported annually in budget and Public Accounts as expenditure items.	Individuals and households with children will both pay the tax according to their consumption however; the combination of options does not provide support based on carbon usage. This leaves the incentive in place for light users to be rewarded, average users to be offset, and heavy users to pay a net carbon tax. All users will have an incentive to reduce carbon consumption to pay less carbon tax.

Summary

To meet the GNWT carbon pricing commitments under the *Pan-Canadian Framework on Clean Growth and Climate Change*, the GNWT is searching for an approach to carbon pricing that will add as little as possible to the already very high cost of living for NWT residents, and will not create additional barriers to economic development.

Implementing a Northwest Territories carbon tax can be accomplished by amending the *NWT Petroleum Products Tax Act* to have separate fuel and carbon tax rates. This will allow the GNWT to use the existing fuel tax collection administration; the only significant change being the rates on different fuels and the imposition of the carbon tax on fuels previously not taxed. These fuels already have to be reported under the current fuel tax legislation. Therefore, administrative changes for Northwest Territories fuel tax collectors will be minimal.

Carbon taxes will increase costs for households, businesses, and industry directly through increased prices for carbon-based fuels. Costs will increase indirectly through purchases of goods and services that have carbon taxes embedded in the price and are passed on to the purchaser. The main effect of the carbon tax on the Northwest Territories economy will be through this increase in costs. Therefore, what is done with the carbon tax revenues will be crucial in meeting the objective to minimize the negative impact on the territorial economy.

The GNWT can recycle all or some portion of the carbon tax revenue back into the economy through recycling or direct spending. Revenue recycling addresses the cost of living increases caused by the tax on households, businesses and industry. Direct spending can be associated with greenhouse gas emission reduction initiatives, but does not directly reduce the increase in the cost of living caused by the tax.

There are a number of policy tools that can be used to recycle the revenue from a carbon tax while still preserving the price incentive to encourage carbon conservation and substitution to reduce greenhouse gas emissions. These tools provide different levels of effectiveness in mitigating the effects of the increased costs due to the imposition of a carbon tax on households and the economy. The policy tools chosen will depend on the priorities placed on the following considerations:

- Should carbon tax revenue recycling be tied to carbon consumption?
- Is it reasonable to mix carbon revenue recycling with broader policy objectives?
- Should revenue recycling tools be different for business and industry?
- How should the increasing revenues be incorporated into the recycling program? Do the levels under the chosen policy tools rise as revenues increase or are new tools introduced as revenues grow?

In the first few years following the introduction of the carbon tax, while the tax rates are low, the GNWT will need to monitor the effect on the Northwest Territories' cost of living of the chosen revenue recycling approaches. As the carbon tax rates increase, the use of the revenues may have to change. For example, if the approach recycles carbon tax revenue to households only on the assumption that businesses can pass all their carbon tax costs to the consumer, early monitoring will be necessary to test this assumption and to determine if businesses require some form of assistance to offset the effect of the carbon tax as well.

Next Steps

This discussion paper serves as the basis for consultation with the public, business and industry stakeholders on the approaches for carbon tax revenue recycling. This discussion will be conducted from June to August 2017.

As was committed to in the *Pan-Canadian Framework on Clean Growth and Climate Change*, GNWT and federal officials will continue to work to find solutions that address the Northwest Territories' unique circumstances, including high cost of living challenges with food security, and emerging economies. This work is expected to be finalized in September 2017.

The GNWT expects to use the feedback provided from the public and stakeholder engagement and the work with the federal government to develop a proposal in the fall of 2017 to address the GNWT's carbon pricing commitments under the *Pan-Canadian Framework*. Discussions on the proposal will take place during the fall.

Legislation to implement the carbon tax and authorize the proposed carbon tax revenue recycling tools will need to be introduced in February 2018 in order for the legislation to be passed and the carbon tax implemented during 2018.

Appendix A: Federal Government's Pan-Canadian Carbon Pricing Proposal

Under the December 2016 *Pan-Canadian Framework on Clean Growth and Climate Change*, the federal government has proposed a pan-Canadian benchmark for carbon pricing with the goal to ensure that carbon pricing applies to a broad set of emission sources throughout Canada with increasing stringency over time to reduce GHG emissions at lowest cost to business and consumers and to support innovation and clean growth.

The benchmark includes the following elements:

- All jurisdictions will have carbon pricing by 2018.
- Common scope: pricing will be based on GHG emissions and applied to a common and broad set of sources to ensure effectiveness and minimize interprovincial competitiveness impacts. At a minimum, carbon pricing should apply to substantively the same sources as British Columbia's carbon tax.
- Jurisdictions can implement:
 - i. an explicit price-based system (a carbon tax like British Columbia's or a carbon levy and performance-based emissions system like in Alberta); or
 - ii. a cap-and-trade system (e.g. Ontario and Quebec).
- Legislated increases in stringency, based on modelling, to contribute to the national target and provide market certainty.
- For jurisdictions with an explicit price-based system, the carbon price should start at a minimum of \$10 per tonne in 2018, and rise by \$10 per year to \$50 per tonne in 2022.
- Provinces with cap-and-trade need:
 - i. a 2030 emissions reduction target equal to or greater than Canada's 30 percent reduction target; and
 - ii. declining (more stringent) annual caps to at least 2022 that correspond, at a minimum, to the projected emissions reductions resulting from the carbon price that year in price-based systems.
- Revenues remain in the jurisdiction of origin and each jurisdiction can use carbon pricing revenues according to their needs, including to address impacts on vulnerable populations and sectors and to support climate change and clean growth goals.
- Federal backstop: the federal government will introduce an explicit price-based carbon pricing system that will apply in jurisdictions that do not meet the benchmark. The federal system will be consistent with the principles and will return revenues to the jurisdiction of origin.
- Five-year review. The overall approach will be reviewed by early 2022 to confirm the path forward, including continued increases in stringency. The review will account for progress and for the actions of other countries in response to carbon pricing, as well as recognition of permits or credits imported from other countries.
- Reporting: jurisdictions should provide regular, transparent and verifiable reports on the outcomes and impacts of carbon pricing policies.

Appendix B: Carbon Tax Administration

A Northwest Territories carbon tax could be implemented similar to the existing Northwest Territories fuel tax and can be incorporated into the existing fuel tax legislation (*Petroleum Products Tax Act* and *Regulations*) to simplify administration for the GNWT and compliance for businesses. Fuel tax collectors would also be carbon tax collectors, and their reporting of sales and remittance of the carbon tax would follow the same structure as for the fuel tax.

The carbon tax would apply to most carbon-based fuels consumed in the Northwest Territories. Therefore the carbon tax base would include fuels taxed under the current fuel tax base and heating fuel, propane, natural gas and naphtha.

Exemptions

Some fuels would be exempt from the carbon tax depending on how they are used or sold. Examples include:

- Fuel contained in sealed, pre-packaged containers holding up to four litres as these would be administratively difficult to collect;
- Fuel sold in Northwest Territories and exported by the seller for use outside the territory because the GNWT only has the authority for direct taxation;
- Fuel brought into the territory in the tank of a non-commercial aircraft or ship and used in the operation of the aircraft or ship for ease of administration;
- Up to 182 litres of fuel brought into the territory in the tank of a motor vehicle other than a commercial vehicle or locomotive and used in the operation of that vehicle for ease of administration;
- Fuel used by visiting armed forces as defined in section 2 of the federal *Visiting Forces Act*. This legislation exempts military personnel from fuel tax while they are visiting another country, serving with the armed forces of another country or attached to another country. This is a standard exemption that is also included in the NWT *Petroleum Products Tax Act*; and,
- Wood and biomass would be exempt from the carbon tax because they are considered renewable energy sources.

Beyond the share of a common administration and compliance mechanism, the carbon tax is different from the Northwest Territories fuel tax because:

- The carbon tax is applied to most carbon-based fuels while the fuel tax applies to fuel used in motors (can be mobile or stationary) and therefore does not apply on heating fuel.
- The carbon tax rate is based on the carbon content of the fuel while the fuel tax is based on how the fuel is used and the fuel tax rates are ad valorem based on the taxable price per litre of gasoline.

Proposed changes to legislation

The following provides the key changes required to incorporate the proposed carbon tax in the *Petroleum Products Tax Act*:

1. Add the proposed carbon tax as a separate division of the legislation but that is subject to the same common administration and enforcement as the existing fuel tax;
2. Add provisions to define fossil fuel types subject to the carbon tax. These definitions would likely be similar to the definitions in British Columbia's *Carbon Tax Act* or Alberta's *Climate Leadership Act*;
3. Add provisions to specify carbon tax rates in the first and subsequent years;
4. Add provisions to exempt certain fossil fuel types from the carbon tax, if any;
5. Add provisions to exempt certain entities from the carbon tax, if any;
6. Include transitional provisions with respect to fuel held in inventory by retailers on the coming in force date of the carbon tax.

In addition, consequential amendments to the *Income Tax Act* would also be required to implement tax measures to alleviate the impact of the carbon tax on NWT residents and businesses.

Implications for fuel tax collectors:

Fuel tax collectors would be required to collect the carbon tax on their sales and remit the carbon tax, together with the fuel tax, to Tax Administration Division, Department of Finance. Details substantiating how the carbon tax amounts are remitted would be required on the collector's monthly fuel tax returns.

Implications for GNWT Tax Administration:

The GNWT financial information system would be required a system change to accommodate the recording of the carbon tax revenue collected from the fuel tax collectors.

Tax Administration would work with fuel tax collectors to make compliance with the reporting requirements and as simple as possible.

Appendix C: Other Jurisdiction Revenue Offsets

British Columbia and Alberta have already imposed carbon taxes and use the following revenue recycling approaches.

British Columbia Carbon Pricing Offsets

The carbon tax is revenue neutral; that is, the tax does not raise new revenues for the province because every dollar generated by the tax is returned to taxpayers and businesses through reductions in other taxes. **BC's Minister of Finance is required by law to annually prepare a three year plan for recycling carbon tax revenues through tax reductions.** The plan is presented to the Legislative Assembly at the same time as the provincial budget.

Each year the government estimates its carbon tax revenues for the following three years and enacts an equal or greater package of tax cuts. Some tax cuts have been broad, such as reductions in income tax rates and small and large business tax rates, while others, like training tax credits for individuals and tax credits for the province's film sector, have been more targeted.

Equity and fairness were key considerations for political acceptance of BC's carbon tax. Northern and remote BC communities were initially worried that they could be unfairly burdened by the carbon tax because of their travel requirements, lack of public transportation options, and higher home heating costs. **The BC government responded to these concerns by introducing the Northern and Rural Homeowner Benefit of up to \$200 for homeowners in areas outside major metropolitan centres.**

Impact mitigation for low-income individuals and families is provided through the Low Income Climate Action Tax Credit (LICATC). The non-taxable credit is paid quarterly along with the federal goods and services tax credit. The credit amount depends upon family size and adjusted family net income. The maximum annual payment amount for the period July 2016 to June 2017 is \$115.50 for an individual, \$115.50 for a spouse or common-law partner, and \$34.50 for each child (\$115.50 for the first child in a single parent family). The credit is reduced by 2 per cent of net incomes over \$32,737 for singles and \$38,193 for married couples or single parents. Only one person can apply for the credit on behalf of a family.

Alberta Carbon Tax Offsets

Household rebates

Rebates are provided to lower- and middle-income Albertans: \$200 for an adult, \$100 for a spouse and \$30 for each child under 18 up to four children. Single parents can claim the spouse amount for one child, and the child amount for up to four more children. Full rebates will be provided to single Albertans who earn \$47,500 or less, and to couples, single parents and families who earn \$95,000 or less. Additional households will receive a partial rebate.

Rebates are calculated using family adjusted net income from annual personal income tax returns and household information and administered by the Canada Revenue Agency.

Support for small business – Small business tax cut

Alberta's small business corporate income tax rate was reduced from 3 per cent to 2 per cent effective Jan 1, 2017.

Support for farmers – Energy efficiency programs for farms

Agriculture is the only economic sector with a carbon tax exemption as the marked farm fuels used in farming operations are exempt from the carbon tax. Through the Climate Leadership Plan, \$10 million will be invested to help farm operations reduce their emissions through efficiency upgrades.

Large industrial emitters

Large Industrial Emitters will continue to be subject to the Specified Gas Emitters Regulation (SGER) framework until the end of 2017, when the province will transition to an output-based allocation approach. Facilities that contribute to the Fund pay \$30 for every tonne over their reduction target as of January 1, 2017.