CLIMATE CHANGE: POLICIES TO REDUCE GREENHOUSE GAS EMISSIONS IN CANADA									
Issues	Options								
	Tax-Driven Market Incentives		Industry Regulatory Controls						Diminishing Fossil Fuel Supplies
	Fossil Fuel Tax on the Canadian Consumption of World-Wide Emissions	Fossil Fuel Tax on Emissions in Canada	Fossil Fuel Emission Controls				Process Controls	Product Controls	
			Prohibit Emissions	Cap but Allow Emissions					
				No Trade in Emission Savings Below the Cap	Carbon Trading				
					Trade in Emission Savings Below the Cap	Trade in Emission Savings Below the Cap Plus Offsets			
EFFECTIVENESS									
Emission Reduction Coverage	Covers all emissions consumed by Canadians from the combustion of fossil fuels from world wide sources, (The percentage of current emissions is not known, but probably in line with the next option i.e. about 82	Covers all emissions produced in Canada from the combustion of fossil fuels (81.7 percent of total). Does not cover approximately 18.3 percent of Canada's emissions from non-fossil fuels sources e.g. industrial processes,	Covers all emissions produced in Canada from the combustion of fossil fuels by industry for energy through the combustion fossil fuels from stationary sources (35.8 percent). Would probably not	Covers a portion of emissions produced in Canada from the combustion of fossil fuels by industry for energy through the combustion fossil fuels from stationary sources (35.8 percent). Current thinking limits the application of controls to	Covers a portion of emissions produced in Canada from the combustion of fossil fuels by industry for energy through the combustion fossil fuels from stationary sources (35.8 percent). Current thinking limits the application of controls to	Covers all emissions produced in Canada from the combustion of fossil fuels by industry for energy through the combustion fossil fuels from stationary sources (35.8 percent). Current thinking limits the application of controls to major emitters.	Covers emissions produced by processes n Canada i.e. the stationary combustion of fossil fuels in fossil fuel production, mining, oil and gas extraction and manufacturing (18.4 percent); fugitive emissions related to fossil	Covers products that would be controlled. Likely candidates would be major consumer products that involve substantial emissions for which viable alternatives exist e.g. light duty gasoline vehicles and trucks (11.4	Covers all emissions produced in Canada from the combustion of fossil fuels (81.7 percent of total). Does not cover approximately 18.3 percent of Canada's emissions from non-fossil fuels sources e.g. industrial processes,

	percent of total.) Does not cover Canada's emissions from non-fossil fuel sources (18.3 percent) e.g. industrial processes, agricultural, waste, land-use changes.	agriculture, waste, land-use changes.	include combustion of fossil fuels from stationary sources by construction, commercial, institutional, residential, agriculture and forestry (11.3 percent). Does not cover approximately 18.3 percent of Canada's emissions from non-fossil fuel sources e.g. industrial processes, agriculture, waste, land-use changes. Does not cover combustion for transportation (25.9 percent).	major emitters and reduces the percentage below 35.8 percent. Would probably not include combustion of fossil fuels from stationary sources by construction, commercial, institutional, residential, agriculture and forestry (11.3 percent). Does not cover approximately 18.3 percent of Canada's emissions from non-fossil fuel sources e.g. industrial processes, agriculture, waste, land-use changes. Does not cover combustion for transportation (25.9 percent).	major emitters and reduces the percentage below 35.8 percent. Would probably not include combustion of fossil fuels from stationary sources by construction, commercial, institutional, residential, agriculture and forestry (11.3 percent). Does not cover approximately 18.3 percent of Canada's emissions from non-fossil fuel sources e.g. industrial processes, agriculture, waste, land-use changes. Does not cover combustion for transportation (25.9 percent).	and reduces the percentage below 35.8 percent. Would probably not include combustion of fossil fuels from stationary sources by construction, commercial, institutional, residential, agriculture and forestry (11.3 percent). Does not cover approximately 18.3 percent of Canada's emissions from non-fossil fuel sources e.g. industrial processes, agriculture, waste, land-use changes. Does not cover combustion for transportation (25.9 percent).	fuel extraction (8.8 percent); industrial processes (7.2 percent), animal farming [enteric fermentation and manure management] (4.3 percent), and solid waste disposal (3.5 percent)	percent), residential furnaces and hot water heaters (5.8 percent).	agriculture, waste management, land- use changes.
Emission Reduction Efficiency within Emission Coverage	Efficiency depends on the amount of tax per emission. With	Efficiency depends on the amount of tax per emission, With	Totally efficient, subject to the ability to monitor and	Emission reduction efficiency would depend on the cap	Emission reduction efficiency would be identical to the	Emission reduction efficiency would be identical to the	Emission reduction efficiency would be severely restricted due to	Emission reduction efficiency could be relatively high	Emission reduction efficiency would be high in the long

	a prohibitively high tax rate, the option will be almost totally efficient. Given the revenue neutrality requirement, the initial rate would be around $0.52 per kilogram of CO2 equivalent in emissions, or $1.25 per litre of gasoline, or $1.01 per cubic metre of natural gas.(See calculations). As emissions fall, tax rates and emission reduction efficiency would rise.	prohibitively high taxes, the option will be almost totally efficient. Given the revenue neutrality requirement, the initial rate would be around $0.52 per kilogram of CO2 equivalent in emissions, or $1.25 per litre of gasoline, or $1.01 per cubic metre of natural gas.(See calculations). As emissions fall, tax rates and emission reduction efficiency would rise.	enforce the regulatory controls.	level over time, and particularly the ability of successive governments to set progressively lower caps until the cap is zero against the continual industry and special interest pressure to fight the progressively lower caps. Given the industrial pressure, elections, government changes, etc., efficiency is likely to be low, particularly given the inherently unfair coverage with some facilities covered and others not. In addition, the ability to monitor and enforce controls is also an issue.	previous option, except for the "trade" effect. The trade effect would make this option inferior to the previous option, to the extent that some facilities would go below their caps. With the "no trade" approach, emissions would always be below the cap. With the "trade" approach, emissions would total those allowed by the cap. For many facilities, one would anticipate modest emissions reductions through efficiency, and then big drops in emissions as the facility changes technologies	previous option, except for the "offset" effect. Defining what is an eligible offset, and monitoring and enforcing the offset to ensure the offset actually delivers the expected reductions is likely to be a bureaucratic nightmare, and ultimately a disaster. As a consequence, this option is likely to be highly inefficient.	the challenges of developing process standards across a wide range of lines of business and company situations within the line of business against inevitable opposition from affected industries and the risk of job losses, and the challenges of monitoring and enforcing the process standards. Some potential may exist related to animal farming and solid waste disposal.	provided consumers were given ample time to adapt to new product controls.	term if the option simply blocked investments in new fossil fuel production and import controls were in place. In the short term, the combination of reduced supply, price controls, allocated supplies and the inevitable emergence of black markets would make the option unsustainable.

					(i.e. replacing stationary combustion to electricity for heating purposes)				
Implementation Timing	Implementable in the short term following the passage of legislative.	Implementable in the short term following the passage of legislation,	If confined to frivolous emissions, implementable in the short term.	Implementable in the medium to long term because of the necessity to coordinate implementation with the United States, for which the necessary political consensus may take years.	Implementable in the medium to long term because of the necessity to coordinate implementation with the United States, for which the necessary political consensus may take years.	Implementable in the medium to long term because of the necessity to coordinate implementation with the United States, for which the necessary political consensus may take years.	Partially implementable in the short term, where process control standards either exist or could be established. Otherwise, implementable in the medium to long term because of the complexity of developing necessary standards.	Implementable in the short term, although the effects of implementation may not appear for some time if controls are implemented slowly.	Implementable in the short term with regard to both supply controls and related policies, and with restrictions on new investments combined with import controls.
ECONOMY									
Competitiveness in International Markets	Canadian export related emissions would not be subject to a fossil fuel tax. The primary disadvantage for Canadian exports may be slightly higher energy costs related to low	Canadian export related emissions would be subject to a Canadian fossil fuel tax. If markets for Canadian exports did not tax fossil fuel emissions in a similar way, Canadian	Prohibitions against certain exporters or export lines who have no alternative to emissions, or who have alternatives that are prohibitively costly, would cause emitters to go bankrupt	No advantage or disadvantage to Canada, since other jurisdictions would establish regimes similar to Canada's.	No advantage or disadvantage to Canada, since other jurisdictions would establish regimes similar to Canada's.	No advantage or disadvantage to Canada, since other jurisdictions would establish regimes similar to Canada's.	Could be disadvantageous to Canadian manufacturers if actual process controls put Canadian exporters at a disadvantage relative to their foreign competitors.	No advantage or disadvantage to Canadian manufacturers if actual product controls are introduced with long lead times.	No advantage or disadvantage to Canadian exporters if the policy simply blocks future investments in fossil fuel industries. Short term supply restrictions

	emission energy. If markets for exports adopted an emission taxation system similar to this option, Canadian exports would have a considerable long-term advantage, since Canada stands to have better access to large amounts per capita of low emission energy than any other country in the world.	exporters would be at a price disadvantage because of the emission tax. If export markets relied on fossil fuels without any form of taxation, Canadian exports might face higher energy costs.	and block investment in those business lines.						could push up energy costs to exporters in Canada in the absence of price controls.
Competitiveness in Canadian Markets	Canadian domestic markets would be protected against products containing high emission levels in their manufacture and transportation (e.g. China).	Canadian manufacturers selling in Canada would be at a price disadvantage, since their products would carry an emission tax on their products while products of	Prohibitions against certain emitters or business lines who have no alternative to emissions, or who have alternatives that are prohibitively costly, would cause emitters	No advantage or disadvantage to Canada, since other jurisdictions would establish regimes similar to Canada's.	No advantage or disadvantage to Canada, since other jurisdictions would establish regimes similar to Canada's.	No advantage or disadvantage to Canada, since other jurisdictions would establish regimes similar to Canada's.	Could be disadvantageous to Canadian manufacturers if actual process controls put Canadian manufacturers at a disadvantage relative to their foreign competitors.	No advantage or disadvantage to Canadian manufacturers if actual product controls are introduced with long lead times.	No advantage or disadvantage to Canadian manufacturers if the policy simply blocks future investments in fossil fuel industries. Short term supply

		their competitors would not.	to go bankrupt and block future investment in those business lines.						restrictions could push up energy costs to manufacturers in Canada in the absence of price controls.
Energy Industry	The fossil fuel tax would significantly curtail fossil fuel production for domestic markets. Export markets would be unaffected, as emissions related to fossil fuel production in Canada would not be taxed. The decline of the fossil fuel industry from the loss of domestic markets would be offset by the development of alternative energy businesses	The fossil fuel tax would significantly curtail fossil fuel production for domestic markets. Emissions related to fossil fuel exports would also be subject to tax. It is unclear whether the higher taxes would affect exports. The decline of the fossil fuel industry from the loss of domestic markets would be offset by the development of alternative energy	No impact, unless fossil fuel industries were subject to the prohibition of emissions. To the extent that fossil fuel industries would be affected negatively, other energy businesses would emerge to fill the gap.	The fossil fuel industries would presumably be subject to the cap, and would be forced to cut emissions in line with their cap. This would likely make them more emission-efficient in producing, refining and transporting fossil fuels. The caps in other lines of business would likely reduce demand for fossil fuels. This would lead to a decline in markets for	The fossil fuel industries would presumably be subject to the cap, and would be forced to cut emissions in line with their cap. This would likely make them more emission-efficient in producing, refining and transporting fossil fuels. The caps in other lines of business would likely reduce demand for fossil fuels. This would lead to a decline in markets for	The fossil fuel industries would presumably be subject to the cap, and would be forced to cut emissions in line with their cap. This would likely make them more emission-efficient in producing, refining and transporting fossil fuels. The caps in other lines of business would likely reduce demand for fossil fuels. This would lead to a decline in markets for	Process controls applied to the fossil fuel industry (e.g. strengthened controls over flaring and venting and the release of volatile organic compounds in refineries)could limit the ability of the industry to produce or make production more expensive relative to alternative energy businesses. Process controls applied to other business lines could reduce the demand for fossil fuels, and create opportunities for alternative	Product controls applied for fossil fuel products could limit markets for these products and cause a decline in the industry. Alternative energy businesses would emerge to fill the gap.	Fossil fuel supply restrictions would hurt fossil fuel industries, but create opportunities for alternative energy businesses.

	and related employment.	businesses and related employment.		fossil fuels, and the industry itself. Alternative energy businesses would emerge to fill the gap.	fossil fuels, and the industry itself. Alternative energy businesses would emerge to fill the gap.	fossil fuels, and the industry itself. Alternative energy businesses would emerge to fill the gap.	energy businesses.		
FAIRNESS	This option is inherently fair. The burden of the taxation would fall on those consumers of emissions, specifically individuals who either emit themselves, or who purchase goods and services that incorporate emissions.	This option is unfair to Canadian manufacturers trying to sell into foreign markets, or facing competition from foreign producers, since the products of Canadian manufacturers would face a fossil fuel tax.	This option is unfair to businesses subject to the prohibition, unless there is ample warning to allow a reasonable period to recoup investments.	This option is unfair to businesses subject to the cap who have Canadian or foreign competitors not subject to the cap. Normally, businesses subject to the cap would be large businesses, so small businesses would get an unfair advantage. It could also be unfair to businesses that have problems getting under the cap.	This option is unfair to businesses subject to the cap who have Canadian or foreign competitors not subject to the cap. Normally, businesses subject to the cap would be large businesses, so small businesses would get an unfair advantage. It could also be unfair to businesses that have problems getting under the cap.	This option is unfair to businesses subject to the cap who have Canadian or foreign competitors not subject to the cap. Normally, businesses subject to the cap would be large businesses, so small businesses would get an unfair advantage. It could also be unfair to businesses that have problems getting under the cap.	This option is unfair to businesses subject to process controls. The unfairness could be mitigated by long lead times from the initial warning of process controls to the implementation of the controls.	This option is unfair to businesses whose products are subject to product controls. The unfairness could be mitigated by long lead times from the initial warning of product controls to the implementation of the controls.	This option might be perceived as unfair to the fossil fuel industry, although this industry has benefited from lack of emissions controls and has a long lead to adjust.
ADMINISTRATIVE COSTS	There would be no additional	There would be no additional	Administrative costs would involve the	Administrative costs would involve costs	Administrative costs would be similar to	Administrative costs would be similar to	Administrative costs would include	Administrative costs would include	Administrative costs are likely to be very

	annual administrative costs, since the fossil fuel tax would essentially replace the Goods and Services Tax or the Harmonized Sales Tax. Start up costs would be relatively minor.	annual administrative costs, since the fossil fuel tax would essentially replace the Goods and Services Tax or the Harmonized Sales Tax. Start up costs would be relatively minor.	compliance monitoring and enforcement related to the prohibition. Costs would depend on the nature and extent of the prohibition, and the incentives and disincentives related to compliance. Where the extent of the prohibition and incentives for non-compliance are both high, administrative costs would also be high.	related to setting the cap, addressing appeals related to the cap, compliance monitoring and enforcement related to the cap. Costs would depend on the way the cap is set (i.e. a broad general rule such as a few percent less per year versus negotiated caps on a line-of-business basis), extent of the cap (all businesses versus selected larger businesses), and the incentives and disincentives related to compliance. Generally, monitoring a cap is more difficult than monitoring a prohibition.	administrative costs in the previous option, but higher because of the need to monitor and enforce the trade in emission caps.	administrative costs in the previous option, but higher because of the need to approve offset projects, monitor the projects to ensure they generate the required offsets, enforce situations where there is non-compliance with offset rules, and manage offset trading.	establishing process controls and standards (including related negotiations), dealing with appeals, monitoring processes, and enforcing non-compliance with controls and standards. Generally process management is technical, and requires skilled employees and site visits, both of which would add to administrative costs. Administrative costs would also depend on the extent of process controls; the more widespread process controls, the higher the administrative costs.	establishing product controls and standards, monitoring products, and enforcing non-compliance with controls and standards. Administrative costs would also depend on the extent of product controls; the more widespread the controls, the higher the administrative costs.	high, since supply management implies working against basic market forces across the Canadian economy. Attempts to restrict production and limit imports will put prices up, and create windfall profits. Administrative costs will arise as governments attempt to capture some of the windfall.

				Where incentives for non-compliance are both high, administrative costs would also be high.					