

A Feminist Perspective on Carbon Taxes

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ABSTRACT

Effective domestic policies are urgently needed to address climate change. A great deal of energy is devoted to selecting and designing the optimal policy instruments, with questions of environmental effectiveness and economic efficiency dominating the debate. However, it is equally important to consider how those policies will impact upon different segments of society and to ensure that they are designed in a way that is fair and does not further entrench systemic inequalities. This article approaches this social justice issue by examining carbon taxes from a feminist perspective, specifically considering how carbon taxes impact upon women. The article proposes the gender analysis of environmental taxes framework, which goes beyond the evaluation of distributional impacts to consider non-income impacts, implications of related mitigation, and revenue-use policies as well as the outcome of the measure. Applying the framework to British Columbia's carbon tax and Québec's redevance annuelle reveals that women may bear a disproportionate burden of the increased prices created by carbon taxes. The chapter also demonstrates that policies designed to mitigate the impact of carbon taxes on low-income households do not address income disparities between women and men, nor do they take into account the socio-economic status of women. The author concludes with recommendations for developing carbon pricing policies that avoid perpetuating existing systemic inequalities between women and men and that might even help to overcome these inequalities.

Introduction

Climate change is an overwhelmingly important and complicated challenge facing the world. Human activities are changing the climate far faster than scientists initially predicted, and the world has barely begun taking the steps necessary to slow it down, much less reverse it.¹ Even if

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¹ The United Nations Intergovernmental Panel on Climate Change (IPCC) predicted in 2007 that the earth's temperature is likely to rise by 1.1 to 6.4 degrees Celsius by 2100. However, recent data show that GHG emissions are increasing far more rapidly than expected, rendering the IPCC's estimate too conservative. See Stanford University, "Climate

the targets set in the Kyoto Protocol were fully met, the climate change problem would not be solved.² And most countries are far from reaching their Kyoto targets. Canada, for instance, committed under the protocol to reduce its greenhouse gas (GHG) emissions to 6 percent below 1990 levels by 2012.³ Despite a great deal of political rhetoric in favour of acting on climate change,⁴ Canada's GHG emissions in 2007 were 33.8 percent greater than our Kyoto commitment.⁵

There is no question that climate change will have grave consequences for people around the globe.⁶ While climate change will affect communities in various regions differently, it will,

Change Likely to Be More Devastating Than Experts Predicted, Warns Top IPCC Scientist," *Science Daily* (15 February 2009), online: Science Daily, <<http://www.sciencedaily.com/releases/2009/02/090214162648.htm>>.

² Kyoto Protocol to the United Nations Framework Convention on Climate Change, 16 March 1998, 37 I.L.M. 22 (entered into force 16 February 2005) [Kyoto Protocol].

³ Canada signed the Kyoto Protocol on 29 April 1998 and ratified four years later. The vote passed the House of Commons by a margin of 196 to 77. See Canada, *House of Commons Edited Hansard*, No. 042 (10 December 2002), online: <<http://www2.parl.gc.ca/HousePublications/Publication.aspx?Language=E&Mode=1&Parl=37&Ses=2&DocId=633669#SOB-379235>>.

⁴ The federal government has made countless statements before and after the ratification of the Kyoto Protocol about its commitments to reduce greenhouse gas (GHG) emissions. It has released numerous policies aimed at GHG emissions reductions over the last decade, from the 1990 Green Plan and the 1995 National Action Program on Climate Change, to the Action Plan 2000 on Climate Change, the Climate Change Plan for Canada in 2002, and the 2005 Project Green. These initiatives have relied mainly on voluntary approaches and spending and have been considered inadequate for reducing GHG emissions. See, for example, M. Jaccard et al., "Burning Our Money to Warm the Planet: Canada's Ineffective Efforts to Reduce Greenhouse Gas Emissions," *C.D. Howe Institute Commentary*, No. 234 (26 May 2006), online: C.D. Howe Institute <http://www.cdhow.org/pdf/Commentary_234.pdf> at 2–3 (which summarizes these various initiatives and their effectiveness). I discuss the most recent regulatory framework, *Turning the Corner*, in later in this article, *infra* note 18 and accompanying text.

⁵ Environment Canada, "Canada's 2007 Greenhouse Gas Inventory—A Summary of Trends," online: Environment Canada <http://www.ec.gc.ca/pdb/ghg/inventory_report/2007/som-sum_eng.cfm#s1>. See also Jaccard et al., *supra* note 4 at 3.

⁶ See generally IPCC, "Summary for Policymakers," in M.L. Parry et al., eds. *Climate Change 2007: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2007), 7. In addition, the well-known Stern

overall, have greater impacts on people in lower-income brackets and in marginalized circumstances.⁷ Climate change will also bear more heavily on women, in part because of the feminization of poverty and also because of women's socio-economic roles.⁸

Urgent policy action on climate change is clearly needed, and one of the domestic policies with real potential to slow climate change is carbon taxation. Carbon taxes are touted by economists as being efficient and effective policy mechanisms for addressing climate change because they change the price of carbon—essentially, these taxes send a market-wide signal to the economy to shift production and consumption away from carbon and towards more renewable and less polluting fuels. While carbon taxes are no panacea, they have the potential, when used in combination with regulations and other market mechanisms, such as emissions trading systems, to stimulate the fundamental restructuring of the economy, which is urgently needed to slow climate change.

The call for carbon taxes has been answered by some jurisdictions. They have been used for well over a decade, for instance, in Europe.⁹ In Canada, the provinces of Québec and British Columbia have implemented carbon taxes, and proposals for carbon taxes have been featured in other provincial jurisdictions (such as New Brunswick)¹⁰ and even at the federal level.¹¹ While

report documented catastrophic economic impacts from not addressing climate change. See Nicolas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge: Cambridge University Press, 2007).

⁷ The IPCC, for instance, predicts that poor communities around the world will be especially vulnerable due to their limited capacities to adapt to the impacts of climate change and their dependency on climate-sensitive resources, such as local water and food. The IPCC also predicts that climate change will lead to increases in malnutrition, diarrhoeal disease, cardio-respiratory diseases, and some infectious diseases, among other health impacts. See IPCC, *supra* note 6 at 12.

⁸ See the second section of this article for discussion of the links between gender and climate change.

⁹ Organisation for Economic Co-operation and Development (OECD), Environment Directorate, *Environmentally Related Taxes in OECD Countries* (Paris: OECD, 2001) at 3.

¹⁰ Kathleen A. Lahey, "What About Women? Gender Analysis of Discussion Paper on New Brunswick's Tax System" (31 July 2008), online: New Brunswick Advisory Council on the Status of Women <<http://www.acswccf.nb.ca/english/documents/What%20About%20Women.pdf>>.

¹¹ See, for example, Stephane Dion's Liberal Platform in 2008: "Carbon Tax Plan 'Good For The Wallet,' Dion Pledges" *CBC News* (19 June 2008), online: CBC News

advocates of a low-carbon economy have hailed the initiatives as a victory, no one has paused to ask how carbon taxes impact upon women. Are they designed in a way that is fair from a gender perspective? Do they further entrench systemic inequalities between women and men? Gender issues have been virtually absent from policy discussions surrounding the selection and design of carbon taxes. This article attempts to begin filling in this gap by analyzing carbon taxes from a feminist perspective.

Fairness and equity issues have certainly featured in the academic and policy literature relating to carbon taxes. However, this research focuses almost exclusively on the distributional impacts of carbon taxes.¹² There is undoubtedly an important link between distributional impacts and women, since more women than men live in poverty. However, the gender implications of carbon taxes go beyond the economic distributional impacts. In this article, I propose a framework of analysis for examining the impacts of environmental taxes, including carbon taxes, on women. Specifically, the framework analyzes (1) the gender impacts of the environmental tax measure itself (including distributional and other effects); and (2) the gender impacts of any mitigation and/or revenue use policies that are enacted with the environmental tax. I then apply this framework of analysis to carbon taxes using the BC and Québec carbon tax measures as examples. My analysis shows that carbon taxes and their related policies have important implications for women. Many of these impacts are simply exacerbating existing inequalities between men and women. However, I argue that policies to address climate change should not perpetuate discrimination but, rather, should help reduce inequalities or, at a minimum, be neutral in their application. By taking these impacts into consideration, I argue that it is possible

<<http://www.cbc.ca/canada/story/2008/06/19/dion-carbon.html>> as well as the Green Party's Climate Plan: "Green Party Climate Plan: A New Energy Revolution to Avert Climate Catastrophe (5 June 2007), online: Green Party <http://www.greenparty.ca/files/Climate_Plan.pdf>.

¹² There is abundant literature on the distributional impacts of environmental taxes. See, for example, William J. Baumol and Wallace E. Oates, *The Theory of Environmental Policy* (Cambridge: Cambridge University Press, 1988). See also Taylor H. Bingham et al., "Distribution of the Generation of Air Pollution" (1987) 14 *Journal of Environmental Economics and Management* 30; Richard J. Lazarus, "Pursuing 'Environmental Justice': The Distributional Effects of Environmental Protection" (1993) 87(3) *Northwestern University Law Review* 787 (listing further examples of research documenting distributional impacts of environmental policies at footnote 44).

for policy makers to design carbon tax policies that are at minimum neutral or, ideally, positive for women.

The chapter is organized as follows. The first section provides an introduction to carbon taxes, describes the links between climate change and gender, and discusses gender mainstreaming and gender budgeting as mechanisms for understanding the gender implications of policies. The second section proposes a general framework of analysis for discussing the gender implications of environmental taxes. It then applies this framework, using the BC and Québec carbon tax measures as examples. The next section offers some recommendations, and the final section provides some concluding remarks.

Preliminary Comments Relating to Theoretical Approach, Methodology, and Scope

Before proceeding, I have a number of comments relating to the limitations, scope, and application of this article. First, and probably the most important point to make, is that all policies have gender implications, whether those policies are carbon taxes, emissions trading programs, regulations, spending initiatives, or any other climate change policies or, indeed, *any* policy in any domain. This is due largely to the fact that systemic gender inequalities exist and policies that do not deliberately correct for these inequalities usually simply perpetuate or exacerbate them. This article is *not* arguing that because carbon taxes have gender implications, largely because they do not correct for existing systemic inequalities, they should be discounted as a valid policy option. To argue this point would be to argue against any climate change policies, since they all have gender implications, and in my view policy makers must act urgently to address climate change. This article is meant to encourage policy makers to take gender into account when selecting and designing climate change policies in order to ensure that they enact without delay the most effective—and equitable—policies to address climate change.

Second, policies can have different implications not only for women and men but also for different races and ethnicities, regions (for example, rural or urban), incomes (mainly captured within distributional impact analysis), religions, and more. While the scope of this article is limited to consideration of the gender impacts, I wish to underline the importance of policy makers who design policies in a way that takes into account the impact of the policies on

different groups, taking care not to increase burdens on already marginalized groups. Whether one considers gender or other factors of discrimination, the central underlying question is one of fairness. What is a fair policy? To what extent should we expect climate change policies, such as carbon taxes, to promote social justice? I argue in this paper that carbon taxes should be designed in a way that promotes gender equality, even if the taxes themselves are not the ultimate cause of the inequalities or if they, instead, exacerbate the existing problems. At a minimum, I argue that policies such as carbon taxes should be neutral from a gender perspective. While I do not address them in this article, I believe these arguments apply to other social issues, such as racial equality.¹³

Third, the availability of gender-disaggregated data significantly limits the analysis. The lack of data renders the analysis much more qualitative and highlights the importance of gender mainstreaming and budgeting policies, which are useful policy stimulants for the production of the necessary data.

Fourth, it is often difficult to tease out gender impacts in the context of shared male-female households, since the actions of one partner may be made on behalf of the family unit. For instance, a male income earner may be driving more kilometers to commute to and from work, but the income generated may be shared with other members of the family. Similarly, a mother who works in the home may incur more energy use during the day while at home, but that energy use is at least for the benefit of other members of the household. These realities render analyses of such things as contributions to GHG emissions by gender difficult, especially in the absence of sex-disaggregated data. I have attempted to raise these challenges at appropriate points in this paper, but I highlight them in advance because they touch on the methodologies used throughout the text.

¹³ For a more elaborate discussion of fairness of carbon-pricing policies, see Karen Bubna-Litic and Nathalie J. Chalifour, *Achieving Social Justice and Addressing Climate Change: A Comparison of Carbon Taxes and Emissions Trading in Canada and Australia* [in progress, on file with authors] (where the fairness of carbon taxes and emissions trading is compared, using gender and Aboriginal groups as subjects of analysis). See also Sonja Klinsky and H. Dowlatabadi, "Conceptualizations of Justice in Climate Policy," IOP Science Conference Series (2009) <vol. 6> Earth and Environmental Science 6.

Finally, I wish to comment on the important and difficult tension that is inherent in scholarship that advocates systemic versus incremental change.¹⁴ The tension arises from the mere fact of analyzing a policy instrument that is part of the economic system at the root of so many fundamental inequities for women.¹⁵ As feminists Ulrike Röhr, Meike Spitzner, Elisabeth Stiefel, and Uta Winterfeld so aptly describe, achieving gender justice in the climate change context does not involve identifying a “hole or gap in an otherwise intact, homogenous blanket of sustainable climate change policies.” Rather, it requires a dramatic reorientation of the prevailing hierarchy in gender relations and a fundamental restructuring of our current market economy.¹⁶ One might argue that analyzing the gender implications of carbon taxes implicitly condones the use of these instruments (as long as gender impacts are mitigated), thereby further entrenching sex/gender relations embedded in the existing economic system and potentially weakening momentum in favour of systemic change.

The counter argument is that urgent action is required to address climate change, which will impact more heavily upon women, and that carbon taxes are a mechanism that has the potential to fast track a major restructuring of the fossil fuel economy towards a low-carbon economy. True, the economic restructuring resulting from carbon taxation is not the only systemic change needed to address the many problems of our industrial economy, such as the

¹⁴ See, for example, Michael M’Gonigle and Paula Ramsey, “Greening Environmental Law: From Sectoral Reform to Systemic Re-Formation” (2004) 14 *Journal of Environmental Law and Practice* 333 (discussing this tension and the merits of pursuing systemic reform).

¹⁵ J. K. Gibson-Graham, *The End of Capitalism (As We Knew It): A Feminist Critique of Political Economy* (Minnesota: University of Minnesota Press, 2006).

¹⁶ Ulrike Röhr et al., *Gender Justice as the Basis for Sustainable Climate Policies: A Feminist Background Paper* (Bonn: German NGO Forum Environment and Development, 2008) at 22, online: <http://www.gendercc.net/fileadmin/inhalte/Dokumente/UNFCCC_conferences/COP14/Gender_Justice_CC_en-final.pdf>. For example, androcentrism, which is “the absolutist male perspective in the perception and definition of problems,” leads to substantive injustice, and we should be careful to not perpetuate androcentrism by further entrenching it into the use of market-based instruments. *Ibid* at 16.

incessant growth imperative.¹⁷ However, assuming carbon taxes can be implemented in a way that enhances or does not detract from women's equality, the question becomes whether it is best to advance such equality by utilizing a policy tool that is mired in the weaknesses of the current system or to focus research and writing on the systemic changes that are required and not compromise on the fundamental principles. I think it is possible to argue that one is a short-term step in the direction of the other, but I respect the point of view that any work that condones the current system simply acts to entrench its approaches.

It is evident from the publication of this article that I have opted to proceed with the carbon tax analysis. Action on climate change is urgently needed, and policy choices about how to respond to climate change continue to be made in Canada and elsewhere. While carbon taxes can be criticized as yet another market tool emerging from an androcentric society, my view is that it is in women's interests to address climate change as quickly as possible and that well-designed carbon taxes are a potentially effective tool for doing so.

Background and context

In April 2007, the federal government released an *Action Plan to Reduce Greenhouse Gases and Air Pollution* that proposed a regulatory framework aimed at reducing Canada's GHG emissions by 20 percent by 2020.¹⁸ No federal carbon tax is contemplated by the plan.¹⁹ However, several

¹⁷ See generally Herman E. Daly, "Economics in a Full World," *Scientific American* (September 2005) at 100 and 12 (discussing the need to reorient the industrial economy to achieve gender justice).

¹⁸ The regulatory framework will include flexible means for regulated entities to reach the targets, ranging from actual reductions to contributions to a technology fund, emissions trading, and a one-time recognition for early action between 1992 and 2006. Government of Canada, *Turning the Corner: An Action Plan to Reduce Greenhouse Gases and Air Pollution* (26 April 2007), online: Government of Canada, ecoACTION <<http://www.ecoaction.gc.ca/turning-virage/index-eng.cfm>>.

¹⁹ The reduction targets in the plan are intensity based, which means that reductions are measured as a proportion of growth. The result is that while emitters are required to produce less GHG emissions per unit of production, overall GHG emissions can continue to rise unabated. A report from the UK-based Tyndall Centre for Climate Research released in November 2007 shows that the federal government's intensity-based targets are so low that the Alberta oil sands industry could profit by up to \$700 million under the

provinces have implemented their own climate change plans,²⁰ and two of these—Québec and British Columbia—include carbon taxes.²¹ In this section, I provide a brief introduction to carbon taxes in an attempt to explain why they have garnered such attention as policy responses to climate change and to provide the baseline information needed to understand their gender implications. I then consider the links between climate change and gender, which is a source of research from which to consider the gender impacts of carbon taxes. Lastly, I show how gender mainstreaming and gender budgeting can be tools for better understanding the gender implications of carbon taxes.

An Introduction to Carbon Taxes

The Rationale for Carbon Taxes

Numerous economic, scientific, legal, and political studies have debated the various policy options for reducing GHG emissions in Canada.²² Given that climate change is caused by the emissions of a variety of GHGs, which are produced through a wide range of industrial and

plan simply by selling extra carbon credits from efficiency gains, while their absolute GHG emissions continue to rise. See Tyndall Centre for Climate Research, *Climate Change Policy and Canada's Oil Sand Resources: An Update and Appraisal of Canada's New Regulatory Framework for Air Emissions* (November 2007), online: <<http://wwf.ca/resources/pdf/TyndallFinalJointReport.pdf>>.

²⁰ For instance, Ontario released its climate change plan in August 2007. See Ontario, Ministry of the Environment, *Go Green: Ontario's Action Plan on Climate Change*, online: Government of Ontario <<http://www.gogreenontario.ca/docs/actionplanonclimatechange.pdf>>.

²¹ See the third section of this article for details.

²² See, for example, National Round Table on the Environment and the Economy (NRTEE), *Advice on a Long-Term Strategy on Energy and Climate Change* (June 2006), online: <<http://www.nrtee-trnee.ca/eng/publications/wedge-advisory-note/index-ecc-wedge-advisory-note-eng.htm>>; Jeffrey Simpson, Marc Jaccard, and Nic Rivers, *Hot Air: Meeting Canada's Climate Change Challenge* (Toronto: Douglas Gibson Books, 2007); Marc Jaccard and Nic Rivers, "Canadian Policies for Deep Greenhouse Gas Reductions" (draft chapter for IRPP Canadian Priorities Agenda Project, May 2007), online: Institute for Research on Public Policy <http://www.irpp.org/cpa/archive/jaccard_rivers.pdf>; National Round Table on the Environment and Economy, *Achieving 2050: A Carbon Pricing Policy for Canada* (Ottawa: Government of Canada, 2009), online <<http://www.nrtee-trnee.com/eng/publications/carbon-pricing/carbon-pricing-eng.php>>.

personal activities, climate change policies need to be multi-faceted and include a range of complimentary measures—from the regulation of emitting sources and economic instruments (such as taxes and trading systems) to land use changes, voluntary approaches, and more. Despite the range of policy measures required, one very consistent recommendation is to establish an economy-wide price on carbon emissions.²³

While there are many ways to change the price of carbon, two of the main carbon-pricing policy tools are carbon taxes and emissions trading. Carbon taxes are considered to be highly efficient from an economic perspective²⁴ and have been used extensively in Europe as part of climate change policy over the last decade.²⁵ Eleven European Union (EU) member states have implemented carbon taxes since Finland introduced the first one in 1990.²⁶ The use of carbon taxes is much less common outside of the EU. However, initiatives are cropping up. For instance, Colorado implemented what is credited as the first North American carbon tax in 2006.²⁷ The province of Québec is the first Canadian jurisdiction to implement a carbon tax. Described in greater detail in a later section of this article, the tax (called a *redevance annuelle* or

²³ See, for example, NRTEE, *Advice on a Long Term Strategy*, *supra* note 22.

²⁴ See, for example, William D. Nordhaus, “Life after Kyoto: Alternative Approaches to Global Warming Policies,” Working Paper 11889, National Bureau of Economic Research (December 2005), online: <<http://www.nber.org/papers/w11889>>.

²⁵ Environmentally motivated taxes are said to be effective in meeting environmental goals. For instance, taxes on leaded gasoline essentially eradicated the use of such fuel. See OECD, *The Political Economy of Environmentally Related Taxes* (Paris: OECD, 2006) at 31, online: <<http://www.oecd.org/dataoecd/26/39/38046899.pdf>>. Also, differential taxes on the sulphur content of fuel or diesel have been successful in eliminating the use of higher sulphur content fuels. Citing the experience in thirteen OECD member countries, the OECD notes: “The impact of such tax rate differentiation can be quite spectacular.” The United Kingdom introduced differential tax rates on diesel and petrol based on sulphur content in 1999 and 2001 respectively, with the result that the “higher sulphur varieties rapidly disappeared from the market” (*ibid.* at 34).

²⁶ See Hans Diefenbacher, Volker Teichert, and Stefan Wilhelmy, “How Have Ecotaxes Worked in Germany?” *Feasta Review*, no. 2, online: <<http://www.feasta.org/documents/review2/ecotaxes.pdf>> at 131. See also Pembina Institute, *infra* note 30; and A. Baranzini et al., “A Future for Carbon Taxes” (2000) 32(3) *Ecological Economics* 395 at 396.

²⁷ Pembina Institute, *infra* note 30. The rate is set based on what is needed to finance an annual climate change action plan, although rates vary with the residential sector paying less than the business sector.

annual charge) applies to fuel distributors, with the revenue being used to fund a climate change plan. British Columbia is the other province that has implemented a carbon tax, with the revenues being used to fund tax cuts and a low-income tax credit.²⁸ Again, I return to these measures in the fourth section of this article.

Carbon taxes are one example of what can be categorized as “environmentally motivated taxes,” “economic instruments,” “market-based mechanisms,” and/or “carbon pricing mechanisms.”²⁹ At their core, carbon taxes involve taxing or charging the carbon content of fuels or GHG emissions.³⁰ The basic theoretical premise is the need to correct for the externalization of the environmental costs associated with carbon emissions.³¹ There are, of course, numerous

²⁸ See Government of British Columbia, *Budget 2008, Backgrounder: BC’s Revenue Neutral Carbon Tax* (2008), online: <http://www.bcbudget.gov.bc.ca/2008/backgrounders/2008_Backgrounder_Carbon_Tax.pdf>.

²⁹ General references on environmental taxation and other economic instruments include, though are certainly not limited to, the following: OECD, *supra* note 9; OECD, *supra* note 25; Nathaniel O. Keohane and Sheila M. Olmstead, *Markets and the Environment* (Washington: Island Press, 2007); UN Environmental Programme (UNEP), *The Use of Economic Instruments in Environmental Policy: Opportunities and Challenges* (Geneva: UNEP, 2004); Lester R. Brown, *Eco-Economy: Building an Economy for the Earth* (New York: W.W. Norton and Company, 2001). There is also a series of books published regularly since 2000 under the title *Critical Issues in Environmental Taxation* (volumes I-V). Published by Oxford University Press, these books contain articles on environmental taxation from around the world. See, for example, Nathalie Chalifour et al., eds., *Critical Issues in Environmental Taxation, Volume V* (Oxford: Oxford University Press, 2008).

³⁰ Pembina Institute, “Carbon Pricing for a Sustainable Economy: Policy Brief—Comparing Tools” (October 2007) [on file with author].

³¹ A negative externality arises when an economic actor imposes a cost on others that is not taken into account in making production or consumption decisions. The result is that the price of the good or service is too low and more of that good or service is consumed than is optimal. It is also possible for economic actors to create a benefit that is not captured in the price of a good or service. This less common example is known as a positive externality. Since many environmental values, such as clean air, clean water, and a healthy atmosphere, are public goods, environmental externalities arise in almost all production and consumption decisions. Environmental taxes are one of the tools available to policy makers to help shift the price structure of goods and services to correct for this market failure. See generally OECD, *supra* note 9 at 21. Theories of market failure and cost internalization are generally explained in microeconomic texts, especially those specializing in environmental and natural resource economics. See, for example, Tom Tietenberg, *Environmental and Natural Resource Economics*, 7th edition (Boston:

ways to change price signals, from regulation that establishes baselines and standards of emissions (often called “command and control” regulation) to creating tradable emissions rights.³² One of the advantages of carbon taxes (along with other economic instruments) is that they are often considered more economically efficient than traditional forms of regulation.³³ As the chief economist for TD Canada Trust explains, “[e]nvironmental taxes ... promote both economic efficiency and greater fairness, because they help ensure that polluters bear the costs of their actions.”³⁴ In the context of carbon, “[a] carbon-based tax could capture the externality costs of those pollution emissions and embed them in the market price of fuel.”³⁵ If “every emitter covered by the tax faces a uniform fee per tonne of [carbon dioxide], a tax system theoretically results in the lowest cost to the economy for a given level of emissions reduction.”³⁶

Addison Wesley, 2005). Corrective taxes are often called Pigouvian taxes for Arthur Pigou, the classical welfare economist who is credited with the first articulation of corrective taxes in 1920. Arthur C. Pigou, *The Economics of Welfare* (London: Macmillan, 1920).

³² There is no single satisfactory way to classify the policy toolkit. For one attempt to rationalize the above categories, see Nathalie J. Chalifour, “Ecological Economics, Sustainable Land Use, and Policy Choices,” in Nathalie J. Chalifour et al., eds, *Land Use Law for Sustainable Development* (Cambridge: Cambridge University Press, 2006) 526.

³³ Of course, it is difficult to draw sweeping conclusions about particular instruments, since they can vary enormously in their design and application. However, it is fair to say that economists consistently note the efficiency characteristics of economic instruments. The OECD notes that “experience over the last decades has proven that environmentally related taxes can be effective and efficient instruments for environmental policy.” OECD, *supra* note 25 at 16. See also Jacob Klok et al., “Ecological Tax Reform in Denmark: History and Social Acceptability” (2006) 34 *Energy Policy* 905 at 906.

³⁴ Don Drummond, “Market-based Solutions to Protect the Environment,” *Special Report* (7 March 2007), online: TD Economics <http://www.td.com/economics/special/bc0307_env.pdf> at 6.

³⁵ Robert J. Shapiro, “Addressing the Risks of Climate Change: The Environmental Effectiveness and Economic Efficiency of Carbon Taxes, Compared to Emissions Caps and Tradable Permits” (February 2007), online: The American Consumer Institute <<http://www.theamericanconsumer.org/Shapiro.pdf>> at 22. Shapiro notes that carbon taxes “raise the cost and price of products and activities that result in CO₂ emissions by taxing the fossil fuels that produce them” (*ibid.*).

³⁶ Marc Jaccard and Nic Rivers, “Canadian Policies for Deep Greenhouse Gas Reductions,” prepared for the Canadian Priorities Agenda Project (May 2007), online: Institute for Research on Public Policy <http://www.irpp.org/cpa/archive/jaccard_rivers.pdf> at 7.

Instrument Choice Debate

One of the recurring questions among decision makers who are considering various climate change policies is how to select among the different instruments. There is a vast literature on instrument selection that is too large to canvass here.³⁷ However, it is worth noting that there is a vibrant debate globally, as well as in Canada, about the relative merits of the various policies, including both a cap-and-trade system for emissions³⁸ and a carbon tax for addressing climate change.³⁹ While distributional impacts have often been factored into the instrument choice debate, issues relating to gender have largely been absent.

Of course, a policy maker is not forced to choose between one of the many climate change policy options. Policies can be combined in various ways, such as using regulations to set an allowable level of emissions (a “cap”), allocating permits for some economic actors to trade their allowances with the cap, and imposing carbon taxes on other actors or even throughout the entire economy.⁴⁰ Recent research from the National Round Table on the Environment and the Economy concluded that an economy-wide carbon tax, an upstream cap-and-trade system, or a downstream cap-and-trade system combined with a tax, would all yield similar GHG emissions

³⁷ See, for example, OECD, *Instrument Mixes for Environmental Policy* (Paris: OECD Publishing, 2007); “Part IV, Choice of Instrument,” in Alberto Cavaliere et al., eds., *Critical Issues in Environmental Taxation—Volume III* (Oxford: Oxford University Press, 2006) (containing several articles on instrument choice). Comparing carbon taxes to regulatory standards, one advantage of a tax is that it provides an ongoing incentive to reduce the charge and, thus, in the case of a carbon tax, encourages behaviour that reduces GHG emissions. Drummond, *supra* note 34 at 6.

³⁸ In a cap-and-trade system, a maximum level of emissions is agreed upon through a political process, allowances to release the emissions are allocated to emitters whether by distribution or auction, and emitters are allowed to buy and sell credits to address their particular needs. The emissions price results from the exchanges among the participants in the market. See David Duff, “Combating Climate Change through Emissions Trading and Taxation,” *University of Toronto Alumni Magazine* (2007).

³⁹ See, for example, a published dialogue between economists Jack Mintz and Marc Jaccard highlighting a number of the pros and cons of carbon taxes. Jack Mintz and Marc Jaccard, “Point-Counter Point: The Carbon Tax Tango” (2006) 32 *Alternatives Journal* 3. See also Duff, “Combating Climate Change,” *supra* note 38. See also Nathalie J. Chalifour, “Making Federalism Work for Climate Change: Canada’s Division of Powers over Carbon Taxes” (2008) 22 *Nordic Journal of Commercial Law* 119 at 133–6.

⁴⁰ See Duff, *supra* note 38; Pembina Institute, *supra* note 30 at 7.

reductions.⁴¹ Ultimately, a large number of factors will determine which instrument or combination of instruments is applied in a given jurisdiction. This article argues that fairness and equity considerations—including the perspective of women—must be part of the instrument selection and design process.⁴²

The BC and Québec Carbon Taxes

BC Carbon Tax

British Columbia implemented a carbon tax as part of a broader climate action plan that aims to reduce the provinces GHG emissions by 33 percent below 2007 levels by 2020.⁴³ The carbon tax, which became law in May 2008, is a tax on the purchase of fuels, including gasoline, diesel, natural gas, and coal.⁴⁴ The rate of the tax has been established for five years, starting at 2.4 cents per litre for gasoline on 1 July 2008 and achieving 7.23 cents per litre by 1 July 2012.⁴⁵ The carbon tax is a downstream or consumption tax that is applicable to purchasers (and importers) of the affected fuels and combustibles.

⁴¹ See NRTEE, *supra* note 22 at 26. The NRTEE reminds readers that the design of these instruments would be critical to ensuring their effectiveness (*ibid.* at 27).

⁴² There are other important factors that should be considered as well, such as how policies impact different racial groups. The scope of this article is limited to considering gender implications of carbon taxes, but it is not meant to suggest that other fairness or social justice questions are less important.

⁴³ See British Columbia, *Climate Action Plan* (2008) online: <http://www.livesmartbc.ca/attachments/climateaction_plan_web.pdf>. The plan includes a variety of initiatives, including participating in the Western Climate Initiative, a regional cap-and-trade program, and investments in such things as public transit (see *ibid.*).

⁴⁴ *Carbon Tax Act*, S.B.C. 2008, c. 40.

⁴⁵ *Ibid.* at Schedule II. The act creates an administrative system for the collection of the taxes that mirrors that of the province's existing fuel taxes (*ibid.* at ss. 3, 17, 13(2)). Gasoline prices in British Columbia have varied by roughly 70 cents over the last three years. The distributional impacts of these price changes are, of course, greater than those for the much smaller changes attributable to the carbon tax. I raise this point not to undermine the importance of doing a gender analysis of carbon taxes but, rather, to highlight the need for gender sensitivity in all areas. For instance, the fluctuating gas prices due to the market create hardships for women such that governments should ensure a strong policy base to protect women against the impacts of these market conditions.

One of the more novel features of the *Carbon Tax Act* is a series of requirements that dictate that the revenue generated by the taxes must be used to reduce other taxes—in other words, to make the carbon tax “revenue-neutral.”⁴⁶ The act requires the minister of finance to prepare a carbon tax plan that estimates how much revenue will be raised by the tax and identifies how the revenues will be used to reduce other taxes.⁴⁷ The act enforces this commitment by providing that should the minister fail to introduce the legislation required to implement the tax reductions, the act reduces the minister’s salary by 15 percent.⁴⁸

The revenue generated by the tax is to be used to reduce other tax rates and to fund a tax credit system. The revenue is to be used first to reduce the small business corporate income tax rate from 4.5 percent to 3.5 percent, the general corporate income tax rate from 12 percent to 11 percent, and the two lowest provincial personal income tax rates by 2 percent in 2008 and 5 percent in 2009. Further revenue is to be used to fund a low-income “climate action tax credit” and then a one-time climate action dividend payment of \$100 for every resident of the province.⁴⁹ The low-income climate action tax credit is to make a payment of \$100 per adult and \$30 per child (\$100 for the first child in single-parent families) from July 2008 onward. The credit will be phased-out for incomes over \$30,000 for individuals and \$35,000 for families. However, when the carbon tax increases by 50 percent in 2009–10, the credit will only increase by 5 percent, bringing it to \$105 per adult and \$31.50 per child.⁵⁰

Québec Carbon Tax

The province of Québec was the first Canadian jurisdiction to implement a form of carbon tax. The *redevance annuelle* (annual duty) applies to fuels that emit GHG emissions (including gasoline, natural gas, diesel, and heating oil) and is payable by natural gas distributors, fuel distributors, and any person or partnership bringing fuel to Québec for the production of

⁴⁶ *Ibid.*

⁴⁷ *Ibid.* at s. 3–4.

⁴⁸ *Ibid.* at s. 5.

⁴⁹ This was paid in June 2008.

⁵⁰ For a detailed consideration of the BC carbon tax, see David G. Duff, “Carbon Taxation in British Columbia” (Fall 2008) 10(1) *Vermont Journal of Environmental Law* 87.

electricity.⁵¹ This makes it a mid-stream tax, compared to BC's downstream version. The rate that came into force on 1 October 2007 works out to a 0.8 cent-a-litre charge on gasoline and 0.9 cent-a-litre charge on diesel.⁵² The duties are paid into a provincial Green Fund, which is used in part to finance climate change mitigation and adaptation projects, such as funding new energy technologies.⁵³

Gender and Climate Change Links

There is a growing body of literature from various fields, and from around the world, about the links between gender and the environment,⁵⁴ gender and energy,⁵⁵ and more. The scholarship on

⁵¹ See Bill 52, *An Act Respecting the Implementation of the Québec Energy Strategy and Amending Various Legislative Provisions*, 2nd Sess., 37th Leg., Québec, 2006 (assented to 13 December 2006) [*Québec Energy Strategy Act*]. This enabling legislation grants the province's Régie de l'énergie (Energy Authority) the authority to introduce this tax.

⁵² The rate and method of calculation for the duty is established by the Régie de l'énergie in regulations based on the carbon dioxide emissions generated by the combustion of natural gas and fuel. *Québec Energy Strategy Act*, *supra* note 51, s. 85.36. The first rate was established by regulation in November 2007. The carbon charge has been set to raise \$100 million dollars in the 2007–8 fiscal year, and \$200 million in the 2008–9 fiscal year. See *Règlement relative à la redevance annuelle au Fonds vert*, r. 0.2.3.1 (annual duty payable to the Green Fund).

⁵³ The Green Fund is established in the *Act Respecting the Ministère du Développement durable, de l'environnement et des Parcs*. Québec's Green Fund is created under Bill 118, the *Sustainable Development Act*, S.Q. 2006, c. 23 (assented to 19 April 2006).

⁵⁴ For a synthesis of eco-feminist literature, see Mary Mellor, *Feminism and Ecology* (Washington: New York University Press, 1997); and Karen J. Warren, "The Power and the Promise of Ecological Feminism" (1990) 12 *Environmental Ethics* 125. For applications of eco-feminist theory in law, see Elaine Hughes, "Fishwives and Other Tails: Ecofeminism and Environmental Law" (1995) 8(2) *Canadian Journal of Women and the Law* 502; Annie Rochette, "Transcending the Conquest of Nature and Women: A Feminist Perspective on International Environmental Law," in Doris Buss and Ambreena Manji, eds., *International Law: Modern Feminist Approaches* (Oxford: Hart Publishing, 2005) 203; Heather McLeod-Kilmurray "An Ecofeminist Legal Critique of Canadian Environmental Law: The Case Study of Genetically Modified Foods" (2009) 26 *Windsor Review of Legal and Social Issues* [in press].

⁵⁵ See, for example, Beatrice Khamati-Njenga and Joy Clancy, for Energia, *Concepts and Issues in Gender and Energy* (2006), online: <http://www.energia.org/pubs/papers/khamati_clancy_concepts_in_gender_energy.pdf>;

gender perspectives of climate change, however, is very nascent and still scarce. Experts have begun to question whether climate change and gender is a “forgotten issue,” noting that “gender issues have not played a major role in climate change protection discussions” despite the fact that “equity in general, especially as between South and North, is regularly on the agenda and is a key issue in the climate change negotiations.”⁵⁶ More recently, gender issues have started to surface in the context of international climate change negotiations and climate change research and policy discussions more generally.⁵⁷ They were strongly present in the Bali negotiations. Most of the discussion has focused on the gender and climate change relationship in developing countries, but it is clear that the issue is relevant in northern countries as well.⁵⁸ A global network of gender activists and experts have worked together to ensure that women’s issues were

and Joy Clancy and Ulrike Röhr, “Gender and Energy: Is There a Northern Perspective?” (2003) 7(3) *Energy for Sustainable Development* 16.

⁵⁶ Ulrike Röhr, “Gender and Climate Change: A Forgotten Issue?” *Tiempo Climate Newswatch* (July 2005), online: *Tiempo* <<http://www.tiempocyberclimate.org/newswatch/comment050711.htm>>.

⁵⁷ For instance, gender impacts of climate change started surfacing in international discussions in 2002 and 2003 and surfaced clearly at the Bali conference in December 2007. See Jimena Eyzaguirre, “Climate Change and Canada: An Untapped Opportunity to Advance Gender Equality?” (Fall/Winter 2008–9) 11(1) *Canadian Women’s Health Network* 7 at 8, online: *Canadian Women’s Health Network* <<http://www.cwhn.ca/node/39364>>. There are many examples of national or regional initiatives, such as the “Women’s Manifesto on Climate Change,” out of the United Kingdom, dated 15 May 2007. See online <<http://www.wen.org.uk/climatechange/resources/manifesto.pdf>>. See also Canadian International Development Agency, *Gender Equality and Climate Change: Why Consider Gender Equality When Taking Action on Climate Change?* (Ottawa, 2004) online: <[http://www.cida.gc.ca/INET/IMAGES.NSF/vLUIImages/Climate%20change3/\\$file/Gender-2.pdf](http://www.cida.gc.ca/INET/IMAGES.NSF/vLUIImages/Climate%20change3/$file/Gender-2.pdf)>.

⁵⁸ See Eyzaguirre, *supra* note 57; Minu Hemmati, *Gender and Climate Change in the North: Issues, Entry Points and Strategies for the Post 2012 Process and Beyond* (Berlin: Genanet—Focal Point Gender Justice and Sustainability, March 2005) online: <http://www.gendercc.net/fileadmin/inhalte/Dokumente/UNFCCC_conferences/Gender_Post-Kyoto.pdf>.

part of the negotiating agenda at the Conference of the Parties to the United Nations Framework Convention on Climate Change, which was held in Bali, Indonesia, in December 2007.⁵⁹

While it is beyond the scope of this article to provide an in-depth analysis of the various interactions between gender and climate change or to summarize how gender issues are being brought into international climate change policy discussions, it is important to understand the general links in order to contextualize the gender analysis of carbon taxes.⁶⁰ In this section, therefore, I will describe three ways in which climate change and gender interact, highlighting how these interactions apply in a Canadian context to the extent possible given the paucity of gender-disaggregated data available to substantiate the discussion. The three areas of interaction are the causes of climate change, the policy responses to climate change, and living with climate change (often referred to as “adaptation”). These categories do not represent all of the links between climate and gender,⁶¹ but they do provide the primary ones, and there are also additional interactions and feedback loops among the various categories.

Causes of Climate Change

Measuring the contribution of people to climate change is a complex task. Carbon footprint exercises attempt to provide a measurement of direct and indirect emissions.⁶² While these

⁵⁹ The “gender cc” network presented a series of gender-related position papers for the Bali conference. See Gender cc Network, *COP13 in Bali: A New Era of Integrating Gender into Climate Change Debates*, online: <<http://www.gendercc.net/policy/conferences/cop13.html>>. Framework Convention on Climate Change, 37 I.L.M. 32 (1998).

⁶⁰ For an overview of the links between gender and climate change, see Alyson Brody, Justina Demetriades, and Emily Esplen, *Gender and Climate Change: Mapping the Linkages—A Scoping Study on Knowledge and Gaps*, United Kingdom, Department for International Development (Brighton: Institute of Development Studies, 2008), online: <http://siteresources.worldbank.org/EXTSOCIALDEVELOPMENT/Resources/DFID_Gender_Climate_Change.pdf>.

⁶¹ Ulrike Röhr, for instance, notes the following additional links: gender differences in the perception of climate change, gender differences in negotiations on climate change policy, and questions about how climate protection programs impact gender relations. See Röhr, *supra* note 56 at 1.

⁶² See, for example, Carbon Footprint—Home of Carbon Management (an organization whose aim is to measure carbon footprints), online: <<http://www.carbonfootprint.com/>>.

measurements can only estimate human contributions to climate change, they are an important tool in identifying those who contribute most to the climate change problem and those who bear the costs of it. Policies should be designed to account for the location of carbon dioxide emissions to meet household domestic demand.⁶³

At the time of writing, there are no comprehensive studies of the analysis of the carbon footprint by gender. This is probably due to the lack of gender-disaggregated data that could substantiate such an analysis. This data would be very helpful to understand the different contributions of women and men to climate change and help inform the appropriate policy responses.⁶⁴ Despite the lack of comprehensive studies, anecdotal evidence suggests that women have a smaller carbon footprint than men.⁶⁵ One Swedish study finds that “men account for the bulk of energy use, carbon-dioxide emissions, air pollution and climate change—both among the rich and the poor.”⁶⁶ Some of the reasons for this finding include “the fact that women travel less than men—measured in person kilometers per car, plane, boat and motorcycle,” which means that women emit less carbon dioxide than men and thus “contribute less [to] climate change.”⁶⁷ Despite the lack of publicly available gender-disaggregated data on GHG emissions in Canada,

Indirect impacts measure the indirect GHG emissions from the lifecycle of products that we buy and use (*ibid.*)

⁶³ See, for example, Christopher L. Weber and H. Scott Matthews, “Quantifying the Global and Distributional Aspects of American Household Carbon Footprint” (2008) 66(2–3) *Ecological Economics* 379 (showing that 30 percent of the total US household carbon dioxide footprint occurs outside the country).

⁶⁴ There are a number of projects that allow people to measure their own carbon footprint. See, for example, the UK Carbon Footprint Project, online: <<http://www.google.co.uk/carbonfootprint/>>. It would be fairly easy to collect this data by gender. This would be one source of private information on contributions to climate change by gender.

⁶⁵ One report argues that there is a gender dimension to energy conservation, namely that “it is the women who implement energy-saving policies” even though they “have not influenced the production of goods, including their energy efficiency, within the household.” Clancy and Röhr, *supra* note 55 at 20.

⁶⁶ Johnsson-Latham, *infra* note 78, cited in Brody, Demetriades, and Esplen, *supra* note 60 at 20.

⁶⁷ See Johnsson-Latham, *infra* note 78 at 50.

this statistic is likely also true in Canada as well.⁶⁸ For instance, Canadian statistics demonstrate that “gasoline-powered vehicles of all categories driven by men travelled twice as many vehicle-kilometres and passenger-kilometres as those driven by women” and that women have a slightly higher fuel efficiency than men (due, for instance, to the fact that women drive more fuel-efficient vehicles).⁶⁹ Given the contribution of road transportation to GHG emissions in Canada, this difference reflects a greater contribution by men than women to GHG emissions by road transport.⁷⁰ Additionally, more women than men use public transit to travel to work, again suggesting that women’s transportation carbon footprint is lower than men’s.⁷¹

A recent study further demonstrates that the size of Canadian households’ ecological footprint grows systematically with their income.⁷² This trend was particularly strong in housing and transportation, where the ecological footprint of the richest 10 percent of the population was several times the size of the footprint of lower and middle income Canadians.⁷³ Since women in Canada have lower average incomes than men,⁷⁴ women, on average, have a smaller ecological

⁶⁸ The lack of publicly available gender-disaggregated data in Canada certainly hampers our ability to know what the special interests and impacts of climate change are on women. See generally Eyzaguirre, *supra* note 57 at 9.

⁶⁹ Government of Canada, *Canadian Vehicle Survey 2007—Summary Report*, online: <<http://oee.nrcan.gc.ca/Publications/statistics/cvs07/chapter5.cfm?attr=0>>.

⁷⁰ The transportation sector was the second largest source of GHG emissions in Canada, accounting for approximately 25 percent of Canada’s total GHG emissions in 2004, while road transportation accounts for 79 percent of the emissions from the transportation sector. Environment Canada, *Environmental Scan of Canada’s Energy Sector: Chapter 1—Greenhouse Gas Emissions*, online: Government of Canada <<http://www.tdds-sst.gc.ca/default.asp?lang=En&n=4C800B38-1&offset=4&toc=show>> at 25–26.

⁷¹ In total, 13.3 percent of women versus 8 percent of men in 2001 used public transportation to travel to work. See Statistics Canada, *Taking Public Transportation*, online: Government of Canada <<http://www12.statcan.ca/english/census01/products/analytic/companion/pow/publictrans.cfm>>.

⁷² Hugh Mackenzie, Hans Messinger, and Rick Smith, *Size Matters: Canada’s Ecological Footprint, By Income* (Toronto: Canadian Centre For Policy Alternatives, 2008) at 3–4, online: <http://www.policyalternatives.ca/documents/National_Office_Pubs/2008/Size_Matters_Canadas_Ecological_Footprint_By_Income.pdf>.

⁷³ *Ibid.* at 4.

⁷⁴ In Canada in 2003, the average annual pre-tax income of women aged sixteen and over from all sources was 62 percent of the figure for men (\$24,400 for women and \$39,300 for

footprint.⁷⁵ While carbon emissions are only part of the ecological footprint measurement, it is likely that the correlation between income and ecological footprint would be similar in the case of carbon footprints.

Despite these anecdotes and the additional evidence available beyond what is surveyed in this section, it is currently impossible to know what the carbon footprints are of women versus men. Nevertheless, even in the absence of quantifiable data, it is probably fair to say that—overall—men have contributed more to the creation of GHG emissions that cause climate change than women in Canada and elsewhere. Identifying gender differences in contributions to climate change is not meant to be a blaming exercise. Indeed, it is important to recognize the inherent difficulty in assigning responsibility for GHG emissions with any certainty to particular societal agents. As Njeri Wamukonya and Margaret Skutsch aptly ask, who is ultimately responsible for GHG emissions—the factories that emit them, the shareholders of the companies that own the factories, or the customers or users of the products?⁷⁶ Following this line of thought, while it would be fair to point out that men may be driving more kilometers than women, if they are the principle income earners for the family, some component of this benefit is allocable to other members of the household. While these differences reflect gender differences, they are also relevant to the design of equitable climate change policies.

The question of differential contributions to climate change is not new—it has been a dominant theme in international climate change negotiations. The international principle of common but differentiated responsibilities is evident in the inclusion of the richer, more economically “developed” countries in Annex I of the Kyoto Protocol. Countries included in Annex I have binding commitments relating to GHG emissions reductions in recognition of the

men). See Statistics Canada, *Women in Canada: A Gender-based Statistical Report*, 5th edition (Ottawa: Social and Aboriginal Statistics Division, 2006) at 133, online: <<http://www.statcan.gc.ca/pub/89-503-x/89-503-x2005001-eng.pdf>>.

⁷⁵ Transportation mode choice for women has been found to vary depending on location, income, marital status, and whether or not she has children. See especially S. Sarmiento, *Household, Gender and Travel*, online: <<http://www.fhwa.dot.gov/ohim/womens/chap3.pdf>> at 43, cited in Clancy and Röhr, *supra* note 55 at 18.

⁷⁶ Njeri Wamukonya and Margaret Skutsch, “Gender Angle to the Climate Change Negotiations” (2002) 13(1) *Energy and Environment* 115 at 119.

fact that they were largely responsible for the emissions that have caused climate change in the twentieth century.⁷⁷ It would be inequitable to expect countries that contributed in a very minor way to climate change to bear the same responsibility for reducing GHG emissions today.

By making this analogy, I am not arguing that women should be excused from reducing GHG emissions. I believe that women and men share a common responsibility for addressing climate change. I am, however, suggesting that policy responses to climate change can and should be differentiated, if necessary, in order to ensure that women and men are treated fairly and equitably under these policies. We cannot use a gender-indifferent approach to developing climate change policies—such as carbon taxes (or any other policy). Rather, we need to be informed about how the decisions of women and men differ with respect to their contribution to GHG emissions, and we need to design policies that promote gender equality. Just as it would be inequitable to expect the same level of emissions reductions from countries that have contributed little to creating the climate change problem, it would be inequitable to design policy responses to climate change that place a greater burden on women than on men. Although it pertains to the question of influence, Fatma Denton's comment is also food for thought in the context of dealing with unequal contributions to climate change:

<Q>[C]limate negotiations could be seen as a parody of an unequal world economy, in which men, and the bigger nations, get to define the basis upon which they participate and contribute to the reduction of growing environmental problems, while women, and smaller and poorer countries, look in from the outside, with virtually no power to change or influence the scope of the discussions.⁷⁸<Q>

⁷⁷ For example, Canada and the United States represent roughly 5 percent of the global population yet account for 27 percent of the world's oil consumption. See Gerd Johnsson-Latham, Environment Advisory Council, *A Study of Gender Equality as a Prerequisite for Sustainable Development: What We Know about the Extent to Which Women Globally Live in a More Sustainable Way Than Men, Leave a Smaller Ecological Footprint and Cause Less Climate Change* (Stockholm: Ministry of the Environment, 2007) at 12, online: <http://www.sou.gov.se/mvb/pdf/rapport_engelska.pdf>.

⁷⁸ Fatma Denton, "Climate Change Vulnerability, Impacts and Adaptability: Why Does Gender Matter?" (2002) 10(2) *Gender and Development* 10 at 10.

Policy Responses to Climate Change

Research suggests that women and men have different perspectives on, and are impacted differently by, the various policy responses available for addressing climate change—whether at the international, national, or local level. For instance, one study suggests that women favour regulatory approaches and education/awareness efforts, whereas men tend to favour technological fixes.⁷⁹ Röhr states: “Women and men perceive and assess risks differently.” She notes that more than 50 percent of women, but only 41 percent of men, classify climate change as extremely or very dangerous.⁸⁰ Röhr also argues that women are more willing than men to alter their behaviour in order to reduce environmental harm.⁸¹

Women and men also have different influences on decisions relating to climate change policies. These decisions include not only the selection and design of policy instruments, such as carbon taxes, trading systems, or regulatory approaches, but also more broad policy choices relating to energy, the economy, natural resource management, the environment and pollution. Women are underrepresented at many levels in decision-making relating to climate change.⁸² In Canada, for instance, only one in five members of parliament are women, and the federal government departments responsible for climate change (such as Natural Resources Canada and Environment Canada) have lower female employment than other departments.⁸³ The dominance of men in decision-making roles within the private sector is also evident within the fossil fuel industry and the energy sector more broadly.

The participation of women in decision making relating to climate change would likely result in decisions that better reflect women’s values and perspectives.⁸⁴ It is impossible to know what the impact would have been had there been more women participating in the process of

⁷⁹ Ulrike Röhr, “Gender and Energy in the North” (paper prepared for the “Gender Perspectives for Earth Summit” Workshop, Berlin, Germany, 10 January 2001) at 2.

⁸⁰ Röhr, *supra* note 56 at 3.

⁸¹ *Ibid.*

⁸² Clancy and Röhr point to the under-representation of women as professionals in the energy sector. Clancy and Röhr, *supra* note 55 at 20.

⁸³ Eyzaguirre, *supra* note 57 at 8.

⁸⁴ *Ibid.*

selecting and designing Canada's policy response to climate change. However, one wonders what the policy response to climate change would have looked like had women been more equally represented in the decision-making process.

Living with Climate Change (Adaptation)

Numerous papers describe women's vulnerability to climate change.⁸⁵ Many of the gendered effects can be explained by the "feminization" of poverty. Women are, on average, poorer than men, making it difficult for them to absorb the costs of climate change or expend the funds necessary to adapt to its effects.⁸⁶ However, the gendered impacts of climate change go beyond the effects of income disparities. Women's health is more at risk because women often have fewer economic and social rights and options and are more vulnerable to nutritional problems.⁸⁷ In addition, a recent report has shown that women and children tend to be much more vulnerable to the effects of natural disasters, the incidence of which is rising due to climate change.⁸⁸ Further, climate change often impacts areas for which women are primarily responsible, such as

⁸⁵ See, for example, Denton, *supra* note 79; Brody et al., *supra* note 60; Clancy and Röhr, *supra* note 55; Hanna Jamting, "Gender and Climate Change" (2008) [unpublished, archived at the Swedish University of Agricultural Science, Society, Nature and Change]; *Gender and Climate Change: Women as Agents of Change*, Climate Change Briefing, 2007, online: World Conservation Union <http://cmsdata.iucn.org/downloads/climate_change_gender.pdf>.

⁸⁶ Of the world's poor, 70 percent are women. Jamting, *supra* note 86.

⁸⁷ Epidemics may impact women more greatly because they are more vulnerable to chronic nutritional deficiencies and anaemia and have less access to medical services due to economic, cultural, and mobility factors. South Asia Region Sustainable Development Department, *South Asia: Shared Views on Development and Climate Change* (Washington: World Bank, 2009) online: <http://siteresources.worldbank.org/SOUTHASIAEXT/Resources/Publications/448813-1231439344179/5726136-1259944769176/SAR_Climate_Change_Full_Report_November_2009.pdf> at 134; Brody et al., *supra* note 60 at 3.

⁸⁸ The findings were startling, showing that women and children are fourteen times more likely to die than men during natural disasters. Ariana Araujo et al., *Gender Equality and Adaptation* (2007), online: World Conservation Union and Women's Environment and Development Organization <<http://www.wedo.org/wp-content/uploads/genderequaladaptation.pdf>>.

nutrition, water, and energy supplies,⁸⁹ while the social roles played by women across societies—as caregivers to children and the elderly—translate into a greater burden on them when climate change impacts these vulnerable populations.⁹⁰

Summarizing the work of Y. Lambrou and G. Piana, Alyson Brody et al. note that, at the household level, “the ability to adapt to changes in the climate depends on control over land, money, credit and tools; low dependency ratios; good health and personal mobility; household entitlements and food security; secure housing in safe locations; and freedom from violence.”⁹¹ Since women on average have lower incomes, less education, and are often denied rights to property and land (which makes it difficult to access credit and agricultural extension services), adapting to climate change is more difficult.⁹²

While there are regional differences, these international trends in the vulnerabilities of women to climate change, and the gendered challenges in adapting to the impacts, are also relevant in Canada. As Jimena Eyzaguirre states, “[i]n Canada, as in most countries, social-economic trends still place women at a disadvantage in absorbing any additional costs associated with recovering from or preparing for the effects of climate change.”⁹³ Some populations, such as Aboriginal women, are particularly vulnerable to climate change due to especially high rates

⁸⁹ < See Jamting > *supra* note 86 at 2 (women are more likely to be occupied in the sectors most impacted by climate change—agriculture and energy source collection); see also Röhr, *supra* note 56 at 2 (when climate change exacerbates water and fuel wood shortages, women—who bear the primary responsibility for collecting water and wood—are disproportionately impacted. The extra time taken in fetching increasingly scarce resources contributes to keeping women from pursuing work outside of traditional roles).

⁹⁰ Eyzaguirre, *supra* note 57 at 9.

⁹¹ See Brody et al., *supra* note 60 at 11. Y. Lambrou and G. Piana, *Gender: The Missing Component of the Response to Climate Change*, Food and Agriculture Organization, Gender and Population Division, 2006, online:
<http://www.fao.org/sd/dim_pe1/docs/pe1_051001d1_en.pdf>.

⁹² *Ibid.*

⁹³ Eyzaguirre, *supra* note 57 at 9; see also Clancy and Röhr, *supra* note 55 at 17 (while women in the North remain in the workforce longer than in the South, they still carry the main responsibility for household tasks and childcare.)

of poverty, pronounced health impacts, and the general vulnerability of the Arctic to climate change.⁹⁴

Gender Mainstreaming and Budgeting

The idea of evaluating a policy for its gender implications is not new. In fact, gender mainstreaming and gender budgeting describe two processes that aim to ensure that policy makers understand the implications of policies and programs, including spending and taxing decisions, on women and men. The government of Canada defines gender mainstreaming as “a strategy to assess the implications for both men and women, of any planned actions, policies or programmes in all areas and at all levels.”⁹⁵ As Claire Sjolander describes it, gender mainstreaming ensures that “women’s as well as men’s concerns and experiences are an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated.”⁹⁶

The government of Canada has committed itself numerous times, both domestically and internationally, to promoting gender equality through the use of gender mainstreaming.⁹⁷

⁹⁴ Over 40 percent of Aboriginal women live in poverty. See Erin Wolski, “Culturally Relevant Gender-Based Analysis: A Tool to Promote Equity” (Fall/Winter 2008–9) 11(1) Canadian Women’s Health Network 26 at 26.

⁹⁵ Foreign Affairs and International Trade Canada, *Mainstreaming of a Gender Perspective*, online: Government of Canada <<http://www.international.gc.ca/rights-droits/mainstream-integration.aspx?lang=eng#whatis3>>.

⁹⁶ Carolyn Hannan, “Gender Mainstreaming: Some Experience from the United Nations” (paper presented at the conference “Gender Mainstreaming: A Way towards Equality,” Berne, 20 June), online: <http://www.un.org/womenwatch/daw/news/speech2003/SwissGM_20Jun2003.pdf> and cited in Clair Turenne Sjolander, “Canadian Foreign Policy: Does Gender Matter?” (2005) 12(1) Canadian Foreign Policy 19 at 19. The idea is for gender issues to become central features of decision making and not be relegated to peripheral specialist institutions. Hilary Charlesworth, “Not Waving But Drowning: Gender Mainstreaming and Human Rights in the United Nations” (2005) 18(1) Harvard Human Rights Journal 1 at 1, online: <<http://www.law.harvard.edu/students/orgs/hrj/iss18/charlesworth.pdf>>.

⁹⁷ See Status of Women Canada, *Canadian Experience in Gender Mainstreaming* (Ottawa: Status of Women Canada, Gender-Based Analysis Directorate, 2001) at 1, online:

Unfortunately, the Standing Committee on the Status of Women has reported that there are significant challenges preventing the effective application of gender-based analysis at the federal level.⁹⁸ Further, a recent report shows that Canada has failed to live up to its gender equality obligations.⁹⁹ Rather than correcting the problem, the Conservative government has removed any reference to gender equality from the mandate of the Status of Women in Canada, declaring that “the goal of gender equity [has] been achieved.”¹⁰⁰ Further, funding in support of Status of Women Canada—the primary overseer of the gender-based analysis measures—has been severely decreased.¹⁰¹

Gender budgeting is essentially gender mainstreaming applied to government decisions that pertain to taxation and spending, notably as they are presented in government budgets and

<http://www.un.org/womenwatch/daw/news/speech2003/SwissGM_20Jun2003.pdf>. For instance, Canada signed the Beijing Platform for Action at the fourth World Conference on Women, which included a commitment to pursuing equality for women. See Foreign Affairs and International Trade Canada > *supra* note 96. Canada has made other commitments to gender equality since then, such as its ratification of the Universal Declaration of Human Rights, online: <http://www.un.org/en/documents/udhr/> and the Convention on the Elimination of Discrimination against Women, online: <http://www.un.org/womenwatch/daw/cedaw/text/econvention.htm>. Following this conference, the government made its first major domestic commitment to the implementation of gender-based analysis (as the government tends to refer to the process of gender mainstreaming). The federal commitment to gender mainstreaming is currently reflected in the *Agenda for Gender Equality*. Canada, Standing Committee on the Status of Women, *Gender-Based Analysis: Building Blocks for Success* (Ottawa: Communication Group, 2005) at 2, online: <<http://cmte.parl.gc.ca/Content/HOC/committee/381/fewo/reports/rp1778246/feworp02/feworp02-e.pdf>>.

⁹⁸ Standing Committee on the Status of Women, *supra* note 98 at 31. For instance, many departments do not have gender units, and when they do, they have “few staff and resources, are located in the lower ranks of the bureaucracy, and have minimal or no mechanisms for ensuring that GBA is actually achieved” (*ibid.* at 33).

⁹⁹ Canadian Feminist Alliance for International Action (FAFIA), *Women’s Inequality in Canada*, online: FAFIA <http://www.fafia-afai.org/files/FAFIA_Canada_CEDAW_2008.pdf>.

¹⁰⁰ Sara Hawryluk and Tricia Bakken, *Balancing The Scales of Pay Equity: The Need for Gender Analysis and Budgeting* (Regina: Canadian Centre for Policy Alternatives, 2009) at 6, online: <http://www.policyalternatives.ca/~ASSETS/DOCUMENT/Saskatchewan_Pubs/2009/Balancing_The_Scales_of_Pay_Equity.pdf>.

¹⁰¹ *Ibid.*

related policy documents. The practice is critical because the different socio-economic roles and responsibilities of women and men mean that the policies reflected in these budgets often have a gendered, unequal impact when implemented.¹⁰² A commitment to conducting gender mainstreaming should include doing a gender budget analysis since the latter is really a subset of the former. Unfortunately, there is no systematic process for conducting gender budget analyses in the government. In 2006, then Minister of Finance Ralph Goodale made a public commitment to gender budgeting.¹⁰³ Unfortunately, following a change in government shortly after this statement, the Conservative government declared that the goal of gender equity had been achieved, and, since that time, few resources have been allocated to gender expertise within the government. Not surprisingly, the capacity of government departments to undertake gender-based analyses of spending and taxation measures is thus very low.¹⁰⁴

Gender budgets have been few and far between, and, when they have been done, they have not always been very comprehensive. For example, in 2007, the budget proposed eliminating an excise tax exemption that was in place for ethanol and bio-diesel renewable fuels.¹⁰⁵ The Department of Finance concluded that this was a gender-neutral decision since both

¹⁰² Debbie Budlender and Rhonda Sharp, *How to Do a Gender-Sensitive Budget Analysis: Contemporary Research and Practice* (London: Commonwealth Secretariat, 1998), cited in Canada, Parliamentary Information and Research Service, *Gender Budgets: An Overview*, no. PRB 07–25E (Ottawa: Political and Social Affairs Division, 2007) at 1, online: <<http://www.parl.gc.ca/information/library/PRBpubs/prb0725-e.htm#csuccessful>> [Parliamentary Information and Research Service]. Balmori Hofbauer, *Gender and Budgets: Overview Report* (Brighton: Institute of Development Studies, 2003), cited in Isabella Bakker, *Gender Budget Initiatives: Why They Matter in Canada* (Regina: Canadian Centre for Policy Alternatives, 2006) at 1, online: <http://www.policyalternatives.ca/documents/National_Office_Pubs/2005/afb2006_techpaper1_gender_budget_initiatives.pdf>. Further, such analysis opens the door to evaluating work beyond the paid sector of the economy, to include the unpaid provision of care undertaken—most often by women—in communities and households. Parliamentary Information and Research Service, *supra* note 103 at 2.

¹⁰³ Janine Brodie and Isabella Bakker, *Where Are The Women? Gender Equality, Budgets and Canadian Public Policy* (Ottawa: Canadian Centre for Policy Alternatives, 2008) at 93 and 101.

¹⁰⁴ Hawryluk and Bakken, *supra* note 101; and Brodie and Bakker, *supra* note 104 at 93.

¹⁰⁵ Canada, House of Commons, *The Budget Plan 2007* (19 March 2007) at 71 (Hon. James M. Flaherty).

men and women drive vehicles.¹⁰⁶ However, as this article demonstrates, policies that impact upon the price of fuel are not necessarily gender neutral.¹⁰⁷

In conclusion, gender mainstreaming—and, specifically, gender budgeting—is a process that should be applied consistently to all policies and plans, including spending and tax measures. This action will ensure that the gender implications of decisions are understood and that, as a result, gender equality is promoted by these policies. Unfortunately, fifteen years after signing the Beijing Platform for Action, neither approach has been effectively implemented in Canada.¹⁰⁸ Thus, this article is an attempt to provide the missing gender-based analysis of carbon taxation in Canada.

Carbon Taxes and Gender

In this section, I propose a framework of analysis for studying the gender implications of environmental taxes. Following from the discussion in the previous section, the goal of such a gender analysis is to assess the implications for both women and men of environmental tax policies. To be effective, the scope of analysis must be broad. Notably, analysis of an environmental tax policy must include an examination of not only the tax but also of any complementary policies (that is, income tax deductions) and decisions pertaining to the use of the revenue generated by the tax.¹⁰⁹ The ultimate goal of the exercise is to identify how the

¹⁰⁶ House of Commons, Standing Committee on the Status of Women, *Evidence*, 39th Parl. 2nd Sess., No. 028 (15 April 2008) at 1055, online: <<http://www2.parl.gc.ca/HousePublications/Publication.aspx?DocId=3373164&Language=E&Mode=1&Parl=40&Ses=2>>.

¹⁰⁷ Professor Kathleen Lahey aptly pointed out at the 39th Parliament, 2nd session meeting for the Standing Committee on the Status of Women that “[e]ven two minutes of research will disclose that women drive completely differently [from men]” and suggested that everything from the type of car women drive and whether it is new or used to whether or not women will be able to pay more for their ethanol once the exemption has been repealed, needed to be considered. *Ibid.*

¹⁰⁸ Beijing Platform for Action, 15 September 1995, <<http://www.uneca.org/daweca/Documents/Beijing%20Declaration%20&%20Platform%20for%20Action.pdf>>.

¹⁰⁹ Although gender mainstreaming and budgeting aim to identify the implications of policies on women and men, I will focus on women in this article.

design, implementation, monitoring, and evaluation of carbon taxes will impact women. And the purpose of this goal is to ensure, at a minimum, that inequality between women and men is not perpetuated by the policy and, ideally, to seek out carbon tax policies that are capable of promoting gender equality.¹¹⁰

A number of frameworks of analysis and/or methodologies have been proposed for how to conduct gender analysis of policies (including tax and spending) in various contexts.¹¹¹ Not surprisingly, none are tailored specifically to an environmental tax measure. In this section, I propose a framework of analysis for evaluating the gender implications of environmental taxes, including carbon taxes, and discuss its application to carbon taxes in general. In the following section, I apply the framework to British Columbia's and Québec's carbon tax policies.

Both in developing and applying a gender analysis of environmental taxes (GAET) framework, I relied upon two Canadian reports: *Gender Budgets: An Overview* and *Gender-Based Analysis: A Guide for Policy-Making*.¹¹² I also drew on Armine Yalnizyan and Kathleen Lahey's pioneering works applying these methodologies¹¹³ as well as other sources.¹¹⁴ As a first attempt at mapping out interactions between gender and environmental taxes, the GAET framework will certainly require modification and change as experience with gender budgeting

¹¹⁰ Analysis of the implementation of the measure entails evaluating both direct and indirect impacts of the policy.

¹¹¹ Status of Women Canada, for instance, developed the Guide to Gender-Based Analysis in 1996. See Status of Women Canada, *Gender-Based Analysis: A Guide for Policy-Making* (Ottawa: Status of Women Canada, 1996), online: <<http://ir.lib.sfu.ca/retrieve/2500/chodarr0106.pdf>>. See also Parliamentary Information and Research Service, *supra* note 103.

¹¹² Parliamentary Information and Research Service, *supra* note 103; and Status of Women Canada, *supra* note 112.

¹¹³ See Armine Yalnizyan, *Canada's Commitment to Equality: A Gender Analysis of the Last Ten Federal Budgets (1995–2004)* (Ottawa: Canadian Feminist Alliance for International Action, 2005) at 44, online: <<http://www.fafia-afai.org/files/CanadaCommitmentToEquality.pdf>> at 21; and Kathleen A. Lahey, "Submission to the Standing Committee on the Status of Women—Critique of the Department of Finance Gender Analysis of Tax Measures in Budgets 2006 and 2007" (2008) [on file with author].

¹¹⁴ See, for example, Brodie and Bakker, *supra* note 104; Yalnizyan, *supra* note 114; and Hawryluk and Bakken, *supra* note 101.

grows. In the meantime, I hope it will provide a starting point for policy makers to ensure environmental taxes are designed in a way that promotes gender equality.

I encountered a number of challenges while developing and applying the framework. A key challenge is the lack of gender-disaggregated data.¹¹⁵ There are a wide range of tools described in *Gender Budgets: An Overview* that would be extremely helpful, but the data needed to apply them is often missing.¹¹⁶ Another challenge is the lack of analysis assessing the incidence of benefits conferred by program spending (instead, evaluations of who benefits from spending tends to reflect dollars spent rather than the actual benefits received).¹¹⁷ As Yalnizyan aptly characterizes it, with all of the limitations, “at this stage of developing a methodology, the gender-based part of [a budget] analysis is more art than science.”¹¹⁸

I also wish to make a few comments about the scope of the GAET framework. First, the framework analyzes substantive impacts rather than procedural fairness. In other words, I have not considered questions relating to process, such as who should conduct the analysis or when and how the public should participate in the process.¹¹⁹ I have also not considered how the findings of a gender analysis should be reported or considered evaluation and monitoring of policies for gender impact.¹²⁰ These procedural issues are all important and very relevant to identifying gender implications, but I have chosen to limit my discussion to the substantive elements of the analysis for the purposes of this article.

GAET Framework

¹¹⁵ For example, measures of distributional impacts of a tax policy are conducted at the household level (thus gender blind) rather than by individuals.

¹¹⁶ One example is gender-disaggregated analysis of the impact of the budget on time use. This tool would evaluate the relationship between a given policy and how women allocate their time.

¹¹⁷ See Yalnizyan, *supra* note 114 at 21.

¹¹⁸ *Ibid.* at 20.

¹¹⁹ See Parliamentary Information and Research Service, *supra* note 103 at 4 (raising these and related questions).

¹²⁰ See Parliamentary Information and Research Service, *supra* note 103 at 4, which again raises these questions, which are critical to the success of gender mainstreaming.

As economist Armine Yalnizyan states, the key question when evaluating a tax measure is simply whether women benefit or are hurt by the measure.¹²¹ This rather simple question gets right at the heart of the matter. However, to answer the question of whether women benefit or are hurt by the tax measure, I propose an analysis of the following sub-questions in this framework.

1. What are the gender implications of the tax measure itself?

Income Impacts:

- What are the distributional impacts of the tax?
- Are these distributional impacts shared equally by women and men?

Non Income Impacts:

- Does the tax impact differently upon women because of their socio-economic roles and status, and, if so, do these differences perpetuate systemic inequalities between women and men?¹²²

2. What are the gender implications of the tax policy package (including any mitigation policies and/or policies pertaining to the use of revenue generated from the tax)?

- Do the mitigation policies tied to the tax measure (if any) address the negative impacts identified earlier or raise any new concerns for women?
- How does the choice about revenue use impact women?
- If the revenue will be used for tax and/or direct expenditures, how are the expenditures allocated between women and men (gender-disaggregated public expenditure incidence analysis)?¹²³

¹²¹ This question was formulated by Armine Yalnizyan, *supra* note 114 at 22.

¹²² This might involve conducting a gender-disaggregated analysis of the impact of the tax measure on time use by women versus men. For instance, how does the tax impact upon the time spent by women in unpaid work? See Parliamentary Information and Research Service, *supra* note 103 at 7.

¹²³ See Parliamentary Information and Research Service, *supra* note 103 at 7.

- Do the plans for spending carbon tax revenue match women’s needs and priorities (gender-disaggregated beneficiary assessments)?¹²⁴

3. What are the gender implications of the outcome of the tax?

- Will the tax measure be effective in helping to address an environmental harm?
- If so, how will this impact upon women and men?
- Are there gender differences in how women and men respond to the tax?

Applying the GAET Framework to the BC and Québec Carbon Taxes

It is important to keep in mind throughout this section that prices of carbon-intensive goods would rise under all carbon-pricing policies, such as regulation or emissions trading. Thus, many of the findings in this section would likely be relevant to other climate change pricing policies and would not be unique to carbon taxes. The key is to conduct a thorough gender analysis of all policies, with a comparison of the gender implications, in order to select and design the policy instrument with the most progressive outcome for women.

1. What are the gender implications of the tax measure itself?

Income Impacts:

- What are the distributional impacts of the tax?

Simply stated, carbon taxes are regressive.¹²⁵ While a carbon tax policy can be designed to mitigate regressivity, the whole *raison d’être* of carbon taxes is to raise the costs of goods and services based on their carbon content. The price increases that inevitably result from the tax will be harder on people with lower incomes than on those with higher incomes. Carbon is relevant in a wide array of products and services, but the most direct and notable products are fuels. This

¹²⁴ *Ibid.*

¹²⁵ This means that low-income individuals pay a greater share of their income to the tax than higher income individuals.

means that heating and transportation costs will certainly rise. Carbon taxes will also affect the price of goods that involve energy-intensive production and transportation. Some foods, for instance, will be more expensive.

Wealthier people will barely notice the changes in prices caused by carbon taxes, especially at the levels that carbon taxes have been implemented to date around the world. As Kathleen Lahey notes, the wealthy can simply “spend their way through any price increases.”¹²⁶ In contrast, those individuals and families on the economic margins will feel the price increases.¹²⁷ Lower-income individuals and families have no alternative but to incur the tax, which will take a fixed proportion of their income.¹²⁸

There is an abundance of literature discussing the distributional impacts of carbon pricing policies, including carbon taxes.¹²⁹ These studies examine the degree of regressivity of various carbon-pricing policies and often discuss options for mitigating these impacts. The most

¹²⁶ Lahey, *supra* note 10 at 30.

¹²⁷ *Ibid.*

¹²⁸ *Ibid.*

¹²⁹ This literature spans many disciplines, including economics, law, and political sciences. See, for example, Don Fullerton, “Distributional Effects of Environmental and Energy Policy: An Introduction,” Working Paper no. 14241, National Bureau of Economic Research (August 2008), online: <<http://www.nber.org/papers/w14241>>; David Anthoff and Richard S.J. Tol, “On International Equity Weights and National Decision-Making on Climate Change,” Working Paper no. FNU-127, Research unit Sustainability and Global Change, Hamburg University (2007), online: <<http://www.fnu.zmaw.de/fileadmin/fnu-files/publication/working-papers/nationalequityweightswp.pdf>>; Amy C. Christian, “Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)” (1991–2) 10(2) *UCLA Journal of Environmental Law and Policy* 221. There is also literature examining the distributional impacts and fairness considerations of environmental policy. See, for example, Nancy S. Dorfman and Arthur Snow, “Who Will Pay for Pollution Control? The Distribution by Income of the Burden of the National Environmental Protection Program 1972–80” (1975) 28 *National Tax Journal* 101 at 101–15; Ysé Serret and Nick Johnstone, Environment Directorate, *The Distributional Effects of Environmental Policy* (Northampton, MN: Edward Elgar, 2006); Richard L. Lazarus, “Pursuing ‘Environmental Justice’: The Distributional Effects of Environmental Protection” (1993) 87(3) *Northwest University Law Review* 787; Richard L. Lazarus, “Fairness in Environmental Law” (1997) 27 *Environmental Law* 705; Gilbert E. Metcalf, “A Distributional Analysis of an Environmental Tax Shift,” Working Paper no. 6546, National Bureau of Economic Research (1998) online: <http://www.nber.org/papers/w6546.pdf?new_window=1>.

comprehensive analysis of the distributional impacts of carbon taxes in Canada is the analysis of the BC carbon tax policy by the Canadian Centre for Policy Alternatives (CCPA), which is discussed later in this article.¹³⁰

While carbon taxes are clearly regressive, one early paper cautions about drawing sweeping conclusions about their use. Against the backdrop of fierce opposition to carbon taxes by the fossil fuel industry, Amy Christian notes that “political opposition [to carbon taxes], rather than good-faith concerns about the vertical inequities of the tax system, appears to be the motivating force behind arguments that carbon taxes are regressive.”¹³¹ Christian argues that a carbon tax may be less regressive if it incentivises behaviour change and encourages a greater shift away from carbon consumption among lower-income taxpayers, although she acknowledges that this may involve an added burden on the poor.¹³² She also notes that in the case of an upstream tax, “corporate producers of goods and fuel producers will bear a substantial portion of the tax burden,” and their inability to pass on the entire cost of the tax thus could reduce the degree of regressivity to some extent.¹³³

BC Carbon Tax

The CCPA evaluated the distributional effects of the BC carbon tax in 2008.¹³⁴ This analysis considered the impact of the tax on the direct consumption of fossil fuels as well as on indirect consumption (that is, on the use of fossil fuels to produce the goods and services purchased) across different income groups.¹³⁵ The study found, not surprisingly, that the carbon tax measure on its own is regressive. At the rate of \$10 per tonne of carbon dioxide, the tax was projected to increase direct and indirect fuel costs by \$253 per household annually. When the carbon tax rate

¹³⁰ Marc Lee and Toby Sanger, *Is BC's Carbon Tax Fair? An Impact Analysis for Different Income Levels* (CCPA, October 2008) at 11, online: <http://www.policyalternatives.ca/documents/BC_Office_Pubs/bc_2008/ccpa_bc_carbon_taxfairness.pdf>.

¹³¹ Christian, *supra* note 132 at 252.

¹³² *Ibid.* at 251.

¹³³ *Ibid.*

¹³⁴ Lee and Sanger, *supra* note 133.

¹³⁵ *Ibid.* at 5.

rises to \$30 per tonne of carbon dioxide in 2012, fuel costs were projected to rise by \$760 per household annually.¹³⁶ These increased costs absorb 0.7 percent of average household income for the lowest 20 percent of household incomes versus only 0.3 percent for the highest 20 percent.¹³⁷

Québec Carbon Tax

Québec's carbon tax measure is "midstream," meaning that it applies to distributors rather than to consumers. However, it is very likely that the costs of the tax will be passed on to consumers, at least in part.¹³⁸ To the extent that the cost is passed on, the measure is regressive since the increased costs will apply to everyone regardless of income. The price impact of the Québec measure will be much smaller than that of the BC measure. Gas prices are estimated to rise less than 1 cent (per litre) in Québec. When set in the context of gas prices that have fluctuated more than 70 cents (per litre) in Québec over the last three years, it is clear that this carbon tax will have a very modest impact on fuel prices.¹³⁹ However, it is nonetheless important to consider gender implications. First, it is dangerous to discount impacts because they may be small for many—a very modest increase might be meaningful to those with little income. It is also important to consider gender implications as a matter of course rather than only when there are perceived problems, because the implications may only become apparent following an analysis.

2. Are the distributional impacts shared equally by women and men?

The answer to this question is no. The distributional impacts of carbon taxes will be borne more heavily by women than men. The reason for this is simply that women make up a disproportionate share of the population in Canada with low incomes.¹⁴⁰ In 2003, the average

¹³⁶ *Ibid.* at 6.

¹³⁷ *Ibid.*

¹³⁸ "The Carbon Tax: The Pros and Cons of a Tax on Fossil Fuels," *CBC News* (16 June 2006), online: CBC News <<http://www.cbc.ca/news/background/kyoto/carbon-tax.html>>.

¹³⁹ For a chart detailing gas prices in the province of Québec over the last three years, see <http://www.gasbuddy.com/gb_retail_price_chart.aspx?time=24>.

¹⁴⁰ In total, 31 percent of unattached women aged sixteen and over fall below the after-tax low-income cut-off. Statistics Canada, *supra* note 75 at 14.

annual pre-tax income of women in Canada was \$24,400, which is just 62 percent the figure for men.¹⁴¹ As such, women on average have less income with which to pay the additional costs created by the tax, thus facing a disproportionate burden of the policy tool in the absence of appropriate mitigation policies. Therefore, poor women and men are more heavily impacted by carbon taxes, but, since there are more poor women than men, women overall are disproportionately impacted.

BC Carbon Tax

Like the Canadian average, women in British Columbia have a lower income, on average, than men, which means that these distributional impacts will be borne in greater proportion by women than men.¹⁴² With women earning only 61 percent of what men earn in the province, on average, it is clear that the increased costs due to carbon taxes will impact women more than men.

Québec Carbon Tax

Women in Québec, like elsewhere, also have lower incomes on average than men. In 2006, the average income of women in Québec was \$26,659 compared to \$37,970 for men.¹⁴³ Thus, once again, the distributional impacts of the carbon tax will be felt more strongly by women in Québec than men.

3. Does the tax impact differently upon women because of their socio-economic roles and status, and, if so, do these differences perpetuate systemic inequalities between women and men?

¹⁴¹ This is for women aged sixteen and over, and includes income from all sources (*ibid.*).

¹⁴² In 2003, the average employment income of women in British Columbia was \$23,500, compared to \$37,400 for men. Statistics Canada, *supra* note 75 at 148.

¹⁴³ Institut de la Statistique Québec, *Revenu moyen des homes et des femmes beneficiaries d'un revenu, selon le type de revenu, Québec, 1996 a 2006* (Québec: Gouvernement du Québec, 2009), online: <http://www.stat.gouv.qc.ca/donstat/societe/famls_mengs_niv_vie/revenus_depense/revenus/revpart96_2006.htm>.

The socio-economic roles of women create conditions that may make it more difficult for them to cope with the additional costs created by carbon taxes.¹⁴⁴ For example, Gerold Mikula points out that “research has consistently shown that women contribute a much larger share to the household labor than do men.”¹⁴⁵ While the disparity in contribution to household labour is less pronounced in families with dual wage earners, it still exists.¹⁴⁶ Studies also show that women do more of the work relating to caregiving, whether of children or elderly relatives.¹⁴⁷ The inequalities relating to housework are exacerbated with the onset of parenthood. According to Roy F. Baumeister et al., who reference a study by Barbara Reichle and Leo Montada, “[a]fter the birth of the first child, women experience marked restrictions in personal and career development relative to their husbands.”¹⁴⁸

What are the implications of these disproportionate household and caregiving burdens on women in the context of carbon taxes? These burdens translate into reduced non-working time and flexibility for women, so they may be less able to alter their behaviour in ways that reduce

¹⁴⁴ Although women in northern societies remain in the workforce longer, they still carry the main responsibility for household tasks and childcare. See Clancy and Röhr, *supra* note 55 at 17. The caregiving role of women is evident not only in unpaid work but also in paid (or perhaps better characterized as underpaid) work. One author sadly but succinctly summarizes the drain on women of ongoing caregiving responsibilities in the workforce when she states: “A clear gender pattern is evident among people who retire at the age of 60: *men retire because they are in good shape both financially and physically, while women retire because they are ill and worn out, having occupied poorly paid jobs in the public care sector—despite knowing that their poor financial situation will worsen as a result of premature retirement.*” See Johnsson-Latham, *supra* note 78 at 48 [emphasis added].

¹⁴⁵ Gerold Mikula, “Division of Household Labor and Perceived Justice: A Growing Field of Research” (1998) 11(3) *Social Justice Research* 215 at 216. See also Barbara Reichle and Martina Gefke, “Justice of Conjugal Division of Labor: You Can’t Always Get What You Want” (1998) 11(3) *Social Justice Research* 271, for findings on a survey done with 190 recently married couples on justice and intra-marital distributions of labour, childcare, and breadwinning.

¹⁴⁶ Mikula, *supra* note 148 at 217.

¹⁴⁷ Statistics Canada, *supra* note 75 at 109; Statistics Canada, *Canadian Social Trends* (Ottawa: Minister of Industry, 2008) at 50. See Roy F. Baumeister et al., “Inequity and Iniquity in Marriage” (1996) 9(2) *Social Justice Research* 199.

¹⁴⁸ Baumeister et al., *supra* note 150 at 202.

the carbon tax burden, such as by switching to less energy-intensive transportation. For instance, women are often responsible for picking up and dropping off children to and from daycare, schools, activities, and medical appointments and may not be able to take the extra time needed to coordinate rides, walk, or take the bus.¹⁴⁹ The reduced flexibility of women to adapt to increased costs due to their socio-economic roles is particularly relevant in the case of women in the workforce who attempt to balance family responsibilities with paid employment. One writer comments on the time constraints faced by women juggling family responsibilities with paid work: “The breadth of their tasks also causes, in addition, a shortage of time that can be described quantitatively at least, as a ‘twofold burden.’”¹⁵⁰

Various studies have shown that decision-making power over such things as expenditures varies according to gender.¹⁵¹ Within higher income families, decision making in households is often joint or shared, although Hsiao-Li Sun points out that the term “joint decision making” is “deceiving because the phrase does not reveal who compromises in the process.”¹⁵² Sun’s study also shows that within the context of shared decision making relating to economics, women tend to be responsible for daily household expenditure decisions, while men tend to be responsible for real estate purchases and high-end purchasing decisions.¹⁵³

Women may have less opportunity to make household decisions relating to energy in an effort to reduce fossil fuel dependence. There are many things that a homeowner or occupier can do to reduce energy use, from replacing appliances with energy-efficient models and retrofitting homes to make them more efficient to air drying clothes and extinguishing lights and other consumers of electricity. In addition to the obvious financial burden of purchasing new appliances or conducting renovations, making choices relating to energy use to reduce

¹⁴⁹ As Röhr et al., *supra* note 16 at 10, state, “[w]omen are, on average, less mobile than men, they have less money and they bear greater responsibility for their families.”

¹⁵⁰ Röhr et al., *supra* note 16 at 10.

¹⁵¹ See, for example, Hsiao-Li (Shirley) Sun, “Gendered Patterns, Perceptions, and Processes in Household Economic Decisionmaking in Taiwan” (paper presented to the American Sociological Association Annual Meeting, Sheraton Boston and the Boston Marriott Copley Place, Boston, MA, 31 July 2008) online: <http://www.allacademic.com/meta/p240467_index.html> at 2.

¹⁵² *Ibid.* at 3.

¹⁵³ *Ibid.* at 2.

consumption requires having the power to make those decisions. Research has shown that decision making in two-spouse male-female households may still be unequally divided—women continue to bear domestic responsibilities to a larger extent and men still control financial and other decisions.¹⁵⁴ To the extent that men have greater control over high-end purchasing decisions or decisions relating to real estate, the relative power of women to make decisions that help adapt to increased fuel costs may be constrained. On the other hand, women who are not employed but who work at home looking after a household and/or children likely have higher energy needs in the home during the day. The burden of these higher energy needs may be shared by a partner, but, in the case of female single-parent families, these energy costs are difficult to avoid and are not shared.¹⁵⁵

The homes in which women and men with low incomes live are often poorly insulated and may use old and inefficient heating and cooling equipment.¹⁵⁶ Household appliances, such as the stove, fridge, washing machine, dryer, and dishwasher, are often older models with high-energy consumption relative to the newer models. Those individuals with low incomes do not have the luxury of updating their appliances to benefit from energy-efficiency gains. Tenants have little autonomy to make decisions relating to their rental unit, which could otherwise be retrofitted with energy-efficient appliance or renovations to reduce energy use. Renters may be required to pay heating and electricity bills for a home that has poor insulation, windows that are poorly sealed, and appliances that are inefficient. While this is an issue for all low-income

¹⁵⁴ See Veronica Tichenor, “Maintaining Men’s Dominance: Negotiating Identity and Power When She Earns More” (2005) 53(3/4) *Sex Roles* 191 at 192. See also Frances R. Wooley and Judith Marshall, “Measuring Inequality within the Household” (December 1994) 40(4) *Review of Income and Wealth* 415

¹⁵⁵ All increased costs due to increased prices will be especially difficult for single mothers to manage, as they cannot share the burden with a partner. In 2001, one-fifth of all families with children were headed by a female lone parent. 38 percent of single-mother families have incomes below the after-tax low-income cut-offs. In comparison, only 13 percent of male lone-parent families were under the cut-off. It follows that families headed by single mothers continue to be home to a disproportionate share of children living in low-income situations. Statistics Canada, *supra* note 75 at 11 and 15.

¹⁵⁶ Clancy and Röhr, *supra* note 55 at 17.

Canadians faced with higher energy costs, the majority of single mothers, for instance, are renters.¹⁵⁷

BC Carbon Tax

Generally speaking, women in British Columbia share a similar socio-economic profile as women in other Canadian jurisdictions and, indeed, with many women around the world.¹⁵⁸ As such, the factors identified earlier with respect to caregiving responsibilities, household decision making, and tenancy apply in British Columbia. It can be said that the carbon tax has non-income related impacts due to the socio-economic roles of women. These factors create greater hardship for women than men, as they mean that women often have less flexibility and capacity to adapt to the costs of carbon taxes.

Québec Carbon Tax

Women in Québec will be affected in similar ways. Women's roles as caregivers and their decision-making power over energy-related matters within a home will hamper their ability to adapt to increased carbon prices, as compared to men in similar financial circumstances. The main difference is that the negative effect of the Québec measure on women will be smaller than it is in British Columbia because the level of carbon taxation in Québec is lower than it is in British Columbia.

<2>*Evaluating the Gender Implications of Any Mitigation and Revenue Use Policies Linked to the Tax Measure*

Before discussing the gender implications of the mitigation and/or revenue use policies linked to the BC and Québec tax measures, I want to note that it is possible, of course, for gender impacts

¹⁵⁷ In single-family homes with two spouses, 80 percent of the homes are owned versus rented. In lone-parent families with mothers, 55 percent of homes are rented versus 34 percent for lone-parent families with fathers. See Statistics Canada, *supra* note 75 at 158.

¹⁵⁸ For instance, 21 percent of all families with children in British Columbia were lone-parent families headed by women in 2001. *Ibid.* at 38.

to be mitigated through measures outside of the tax policy package. For example, British Columbia's carbon tax is part of a broader climate action plan that includes a wide range of investments and policy measures, such as investments in public transit. It is possible that gender impacts from the carbon tax could be mitigated through targeted measures outside of the tax policy package. I have limited my analysis in this article to the mitigation and revenue use policies associated with carbon taxes themselves, but if substantive measures to mitigate negative impacts on women were to be implemented in other policy spheres, they would be relevant to the analysis.

1. Do the mitigation policies tied to the tax measure (if any) address the negative impacts identified earlier?

As a result of the importance of carbon taxes as a policy tool for addressing climate change, governments have often opted to implement complementary policies along with carbon taxes to mitigate the distributional impacts. As Gilbert Metcalfe characterizes it, carbon taxes may be regressive, but they need not be.¹⁵⁹ For instance, the BC carbon tax policy includes a low-income tax credit to offset distributional impacts. In Europe, a common approach has been to reduce income and/or payroll taxes, thus providing what some describe as a “double dividend.”¹⁶⁰

¹⁵⁹ Gilbert E. Metcalf, “Protecting the Poor with a Carbon Tax” (presented to the Financing for Development Office, UN Department of Economic and Social Affairs, 17 June 2008), online: <<http://www.un.org/esa/ffd/events/carbontaxes/MetcalfPresentation.ppt>>.

¹⁶⁰ The double dividend hypothesis is based on the premise that income taxes tend to “distort” economic behaviour (for example, taxes on labour discourage work effort; taxes on savings reduce capital). See Richard D. Morgenstern, “Environmental Taxes: Is There a Double Dividend?” (1996) 38(3) *Environment* 16 at 16. The double dividend is said to arise when environmental taxes are used to address an environmental problem (producing an environmental benefit—the first dividend) and the revenue is used to reduce “distortionary” taxes (producing the benefit of reducing distortions on work effort and efficiency—the second dividend). There are various critiques of the hypothesis. The ‘weak’ double dividend theory posits that: “revenue recycling through cuts in distortionary taxes improves welfare relative to recycling through lump-sum payments.” This hypothesis is widely accepted by economists. OECD, *The Political Economy Of Environmentally Related Taxes* (Paris, OECD, 2006) at 12. See also Kathleen Lahey’s critique of reductions in income tax for women since these reduce an important tax base

One of the most common mitigation policies that has been enacted as part of a carbon tax policy package is a tax credit for lower-income families in order to mitigate the distributional impacts.¹⁶¹ Indeed, policy makers should ensure that a carbon tax does not place an unfair burden on low-income individuals, especially since these individuals have contributed the least to the problem.¹⁶² As aptly stated by Marc Lee and Toby Sanger, “the carbon tax regime should ensure that low-income families are no worse off, and that families with the largest GHG emissions pay positive net taxes.”¹⁶³

While tax credits for low-income families can be a positive step in mitigating impacts on poorer families, they raise a number of concerns from a gender perspective. Kathleen Lahey notes that designing a refundable tax credit can reduce a regressive impact but that offering the credit to households as the economic unit erases women from the income analysis.¹⁶⁴ The focus on households is problematic because it assumes that household members pool their income and expenses equally.¹⁶⁵ To avoid the invisibility or erasure of women, low-income credits should be payable to individuals rather than households.¹⁶⁶ Tax credits must be refundable, since non-refundable tax credits do not reach low- or no income families.¹⁶⁷ To the extent that women do not file income tax reports, they are excluded from tax credits, even those that are refundable.

Carbon tax policies can go beyond using low-income tax credits to become “distributionally neutral” and can even be designed to further reduce inequality. I argue that this option is appropriate given that low-income individuals have less disposable income and capital to reduce their GHG emissions and energy costs. Providing low-income people with net benefits through a carbon tax policy would provide them with choices they may not otherwise have, such as purchasing compact fluorescent light bulbs—an inexpensive change that has a high payback

for social programs of benefit to women. See Lahey, “What about Women,” *supra* note 10.

¹⁶¹ This was done in the BC carbon tax policy package.

¹⁶² Lee and Sanger, *supra* 133 at 16.

¹⁶³ *Ibid.* at 17.

¹⁶⁴ Lahey, *supra* note 10 at 30.

¹⁶⁵ Lisa Philipps, “Gender Budgets and Tax Policy-Making: Contrasting Canadian and Australian Experiences,” in Miranda Stewart, ed., *Tax Law and Political Institutions* (Annandale: Federation Press, 2006) 143 at 156.

¹⁶⁶ Lahey, *supra* note 10 at 30.

¹⁶⁷ *Ibid.*

rate.¹⁶⁸ Similarly, ensuring that carbon tax policies provide net benefits for women—at least, those in lower-income brackets—would be very appropriate.

Another type of mitigation policy sometimes enacted along with a carbon tax is a policy aimed at reducing competitive impacts for certain economic actors. For instance, in Europe, there are often exemptions for entities whose competitiveness might be impacted by carbon taxes.¹⁶⁹ It is difficult to tease out the gender implications of such policies, as they are very indirect. It is unlikely that such policies would be helpful to women, as they target industries dominated by men, although to the extent that they help maintain employment this might have positive impacts for women—whether the jobs maintained are held by men or women. To the extent that these policies reduce the effectiveness of dealing with climate change, they are undesirable for all, but they are especially adverse for women since women are the most vulnerable on average. While I raise these policies as an example of how broad the scope of analysis should be to take into account all of the gender implications, I will not attempt to address them comprehensively.

BC Carbon Tax

British Columbia's carbon tax policy includes an important measure intended to mitigate the distributional impacts of the tax, namely the low-income climate action tax credit.¹⁷⁰ The tax credit is targeted at individuals (rather than households) and it is refundable, both of which are positive features for women. Directing credits at individuals rather than households avoids the potential problem wherein households are controlled by men since they are more often

¹⁶⁸ This is an argument advanced by Lee and Sanger in the CCPA report. See Lee and Sanger, *supra* note 133 at 19.

¹⁶⁹ OECD member countries have regularly totally or partially exempted energy-intensive industries from energy taxes out of fear of damaging their international competitiveness. Whether justified or not, this concern about competitive advantage has placed severe restraints on the ability of governments to set energy taxes at the most appropriate level to meet environmental goals. OECD, *supra* note 25 at 10–11.

¹⁷⁰ At the same time as it implemented the carbon tax, the BC government gave a one-time payment of \$100 (the “climate action dividend”) to every resident of the province. Aimed at generating political support for the carbon tax, this measure did little to promote fairness. While a payment of \$100 is undoubtedly helpful for low-income families, it is unnecessary for top earners. The funds could have been more wisely used to mitigate regressivity after the first year of the tax and/or fund measures to reduce climate change.

responsible for financial matters. The refundable nature of the credit is important since over 40 percent of women do not earn enough income to pay taxes.¹⁷¹ There is also an additional credit for single-parent families, which is important for women who are more often single parents than men. The CCPA study shows that the credit creates a net positive benefit for low-income families in its first year, meaning that these families receive more in credits than they pay in the tax.¹⁷² However, this progressivity is lost after the first year since the credit is not scheduled to rise in line with the carbon tax rate.

Although the mitigation policies render the carbon tax policy progressive in the first year, they also lead to a net benefit for the highest income group, which is larger than it is for the low-income group. As the CCPA report states, this is “problematic, since top earners have the largest footprints because of greater levels of consumption.”¹⁷³ To be fair, a carbon tax policy package should ensure that those with higher incomes pay taxes that are net of any offsetting policies.

What is missing from the mitigation policy package are policies to promote gender equality in the context of increased prices due to the carbon tax. For instance, the government could design policies that provide resources to women to help them lower their energy costs. The programs could provide free compact fluorescent bulbs to women renters in low-income brackets, for instance, or rebates on the purchase of energy-efficient appliances. Government investments in childcare and programs that ease the caregiving burden that is carried disproportionately by women would help promote gender equality in the context of increased energy costs. These additional mitigation policies would need to be carefully considered and evaluated to ensure that they were fair and promoted women’s equality—these examples are only meant to provide some examples to start thinking about the possibilities. Efforts to design fair policies from a gender perspective should include analyzing the gender implications of the broader climate action plan that has given rise to the carbon tax in the first place. For instance, the plan targets \$14 billion for a provincial transit plan, which could have positive implications

¹⁷¹ See Lahey, *supra* note 10.

¹⁷² Lee and Sanger, *supra* note 133 at 9.

¹⁷³ *Ibid.* at 14.

for women.¹⁷⁴ Measures to mitigate gender impacts of a carbon tax do not necessarily need to be part of the carbon tax plan if they are implemented elsewhere.

Québec Carbon Tax

Québec's *redevance annuelle* was not enacted with any concomitant mitigation policies, perhaps because the amount of the charge is negligible or perhaps because revenue is directed towards climate change action rather than tax reductions.

2. How does the choice about revenue use impact women?

Governments have a range of options for how to allocate revenue from environmental taxes. As seen with the BC low-income tax credit, one option is to fund mitigation policies designed to offset distributional impacts. Another option is to allocate the funds from environmental taxes to reduce other taxes, a process that is often referred to as a “tax shift.” Since taxes are generally seen as politically unpopular, governments enacting environmental taxes have often promised to make these taxes “revenue-neutral” in order to counter the criticism of environmental taxes as “just another revenue grab” by governments. This was BC’s approach, and it is also used widely in Europe.

Whether it is revenue neutral or not, the idea of shifting taxes away from socially desirable activities, such as income and employment, onto socially undesirable activities, such as pollution and unsustainable resource consumption, has intuitive as well as political appeal. This appeal, along with the claim that such tax shifts can produce a “double dividend” in the form of environmental and economic gains,¹⁷⁵ has led to the mantra “tax bads not goods” in the environmental tax movement.¹⁷⁶ However, tax shifting has its critiques. For instance, Kathleen

¹⁷⁴ See Climate Action Plan, *supra* note 43.

¹⁷⁵ See note 163 for a discussion of the double dividend hypothesis.

¹⁷⁶ The excitement of linking an efficiency argument (double dividend) with an environmental objective produced nothing short of “double dividend mania.” Carbon taxes have been part of the swell, with many carbon tax policies being proposed and enacted with concomitant tax reductions to make them revenue neutral.

Lahey argues that the “tax bads not goods” refrain “misstates the true purposes of progressive income taxation” since environmental taxes on their own are regressive.¹⁷⁷ She also critiques the shifting of taxes away from income and employment for risking the destruction of a vital part of the tax base.¹⁷⁸ A stable, sustainable tax base is essential for women because “they are already uniquely dependent on government to redress social and market-based barriers to their economic equality and to help create access to reliable childcare, other care, and transportation resources.”¹⁷⁹ I will return to these concerns in the context of the BC and Québec measures. Interestingly, studies have shown that revenue-recycling options do not vary widely in economic impact,¹⁸⁰ suggesting that revenue neutrality need not be a precondition of carbon taxation for garnering political support.¹⁸¹

Rather than the European-style tax shift, another option is to dedicate carbon tax revenues (or a portion of them) to fund climate change initiatives. As seen in the following discussion, this option has been taken up by the Québec government. However, using the revenue to address climate change still requires consideration of the gender impact of such spending decisions. For instance, who will benefit from government investments to address climate change?¹⁸² As Eyzaguirre asks, “[a]re both women and men able to access and prosper from investments in

¹⁷⁷ Lahey, *supra* note 10 at 31.

¹⁷⁸ *Ibid.* Lahey remarks that she relied upon a personal communication from Marc Lee in forming this critique.

¹⁷⁹ *Ibid.*

¹⁸⁰ Nik Rivers and Dave Sawyer, *Pricing Carbon, Saving Green: A Carbon Price to Lower Emissions, Taxes and Barriers to New Technology* (Vancouver: David Suzuki Foundation, 2008).

¹⁸¹ The Policies for Ecological Tax Reform: Assessment of Social Responses or “PETRAS” project consists of a series of reports in various European countries that evaluated public attitudes towards environmental taxes. The research showed that the public was skeptical of the double dividend theory and would prefer revenues from environmental taxes to be invested in projects such as developing renewable energy and improving energy efficiency. See PETRAS, *Environmental Tax Reform: What Does Europe Think?* (March 2002), online: <<http://www.soc.surrey.ac.uk/petras/reports/european%20policy%20brief.pdf>> at 4.

¹⁸² Eyzaguirre, *supra* note 57 at 10.

R&D for clean technologies and climate impacts research?”¹⁸³ Do women benefit equally from programs such as tax credits for retrofitting homes or purchasing automobiles?

Revenue from carbon taxes could also be targeted at job creation, with the goal of creating jobs in energy efficiency or other “green” spheres in recognition that employment in GHG intensive sectors, such as oil and gas, is likely to decrease over time as the economy shifts to a low-carbon model. Research has shown that environmental taxes can create employment when they stimulate a shift from energy to labour.¹⁸⁴ The impact on women of investing carbon tax revenues in job creation could be important because men are more highly represented in the GHG intensive sectors whereas women are more represented in public sector employment and the services sector, where jobs would be more likely to be created. These are questions that would need to be evaluated in the context of an actual policy proposal.

BC Carbon Tax

British Columbia opted for revenue neutrality in its carbon tax policy package, promising that all revenue raised by the tax will be returned to taxpayers in the form of tax reductions and credits. The CCPA study concluded that the aggregate impact of all of the corporate and personal income tax rate cuts would be regressive. For instance, in 2010–11, the personal income tax cuts will be worth \$562 for the top 20 percent of earners, but only \$5 for the bottom 20 percent.¹⁸⁵ Even when the low-income tax credit is taken into consideration, the total package will still be regressive, with the 20 percent of households that have the highest incomes receiving net benefits of \$311 in 2010–11, while the 20 percent with the lowest incomes will actually have \$47 less net income.¹⁸⁶ In addition to their general regressivity, these tax cuts are not equally available to women and men, largely due to the fact that personal income tax cuts do not reach 40.4 percent of women since these women do not earn enough income to pay income tax in the

¹⁸³ *Ibid.*

¹⁸⁴ See Anil Markandya and Ramon Ortiz, *Review of Competitiveness, Trade and Employment Effects of Environmental Taxes* (May 2008), online: <<http://www.czp.cuni.cz/wp/08/02.pdf>> at 39.

¹⁸⁵ Lee and Sanger, *supra* note 133 at 13. The corporate tax cuts have a similarly regressive outcome, producing \$603 for the top quintile and \$28 for the bottom quintile. *Ibid.*

¹⁸⁶ *Ibid.*

first place and also because women's incomes are consistently lower than men's.¹⁸⁷ In Lahey's analysis of New Brunswick's proposed tax reforms, corporate tax cuts are also found to disproportionately benefit men.¹⁸⁸

How does the province's choice with respect to the use of revenue impact women? Currently, the corporate and income tax cuts disproportionately benefit men. Instead of using revenues to fund these tax cuts, the province could have used the revenue in ways that helped address climate change *and* promoted gender equality. Investing the funds in climate change projects such as public transit and promoting energy efficiency in public buildings and residences would yield environmental benefits. To the extent that women bear environmental harms more than men, these investments would promote gender equality. The province could promote gender equality even more by directing funds into climate change projects that are in line with women's priorities. There is no shortage of ideas for such investments. One fascinating example comes from Québec, where an architect proposed a community design that places residences within walking proximity of a school and a home for the aged—thereby providing women with the option of living within walking distance to the young and old people within her care.¹⁸⁹ Public investments into programs such as these could have positive effects for the climate along with important social benefits.

Québec Carbon Tax

The Québec carbon tax was estimated to raise \$100 million in 2007–8 and \$200 million in 2008–9. These revenues are paid into a provincial Green Fund that is used to finance the provincial

¹⁸⁷ Kathleen Lahey, *What We Know about the Gender Impact of Income, Consumption, Payroll and Corporate Taxes* (Conference presentation, Kingston, Ontario, 7 March 2009).

¹⁸⁸ Lahey, *supra* note 10 at 28. There are three primary reasons for this. First, women are underrepresented in the corporate world, notably at the higher level; second, women receive fewer corporate dividends than men; third, women are less able (due to a variety of circumstances) to incorporate businesses. *Ibid.*

¹⁸⁹ This anecdote by a female Québec court judge referenced an architect named Pierre Thibeault whose project meant adding medical and community facilities into the community design, alleviating some of the burden on caregivers. National Judicial Institute's Annual Conference, Ottawa, 23 April 2009.

climate change action plan.¹⁹⁰ The province's action plan includes twenty-six measures aimed at reducing GHG emissions and adapting to climate change. The twenty-six measures that form part of the action plan are divided into seventeen reduction or avoidance measures (such as promoting energy efficiency by individuals, businesses, and within manufacturing and investments in public transport), two awareness measures, one research and development measure, and six adaptation measures. A number of these measures could affect one gender more than the other. For instance, government assistance programs for public transit could help make transit more affordable for lower-income people, which would have positive benefits for women since more women than men use public transportation to travel to work.¹⁹¹

The Green Fund has been used to fund a subsidy program to retrofit taxis and buses for wheelchair users, which could benefit women with disabilities and women with caregiving responsibilities relating to children and/or elderly people with disabilities.¹⁹² On the other hand, some of the spending initiatives may be less accessible for women than men, such as those investments in energy efficiency within the business sector. However, without gender-disaggregated data, it is very difficult to assess the gender implications of the spending initiatives. Like British Columbia's carbon tax policy package, Québec's approach has a variety of implications for women that have to be taken into consideration at the outset when choosing and designing the measure and particularly when developing mitigation strategies and determining how to use the revenue generated by the tax or charge.

¹⁹⁰ See Government of Québec, *2006–2012 Climate Change Action Plan: Québec and the Climate—A Challenge for the Future*. The majority of the financing for the plan comes from the estimated \$200 million that will be raised by the carbon tax each year. An additional \$350 million from the federal government completes the \$1.2 billion budget for the Action Plan. *Ibid.*

¹⁹¹ According to Statistic Canada, in 2001, 13.3 percent of females versus 8 percent of males used public transportation to travel to work. Statistics Canada, *Taking Public Transportation* (Ottawa: Census Canada, 2001), online: <<http://www12.statcan.ca/english/census01/products/analytic/companion/pow/publictrans.cfm#womenyoung>>.

¹⁹² More women than men in Canada have disabilities. In 2001, 13.3 percent of Canadian women had a disability compared to 11.5 percent of men. See Statistics Canada, *supra* note 75 at 291.

Gender Implications from the Tax

1. Will the tax measure be effective in addressing environmental harms?

It is too early to tell whether the carbon taxes in British Columbia and Québec will be effective in helping to reduce GHG emissions and therefore slow climate change. Carbon taxes are advocated by many as an effective tool for generating systemic change in the economy, and, indeed, empirical research is beginning to emerge in support of the many modelling exercises that have suggested that appropriately designed environmental taxes can be effective in meeting environmental goals.¹⁹³ It is also worth noting that while carbon taxes are an important part of the climate change policy mix, the rate at which a carbon tax would need to be set in order to effect the kind of behavioural change required to address climate change is likely far higher than any jurisdiction is likely to enact, at least in the near future.¹⁹⁴ However, to the extent that this price signal succeeds in redirecting energy development and production towards more efficient and less carbon-intensive methods, the measure could help reduce GHG emissions.

2. If the tax is effective, how will this impact upon women and men?

¹⁹³ For research outlining the theoretical strengths of environmental taxes, see William D. Nordhaus, “To Tax or Not to Tax: Alternative Approaches to Slowing Global Warming” (2007) 1(1) *Review of Environmental Economics and Policy* 26; Gilbert E. Metcalf, “Tax Policies for Low-Carbon Technologies” (2009) 62(3) *National Tax Journal* 519; and Andrew Hoerner and Benoît Bosquet, “Environmental Tax Reform—The European Experience” (Washington, DC: Centre for a Sustainable Economy, 2001), online <http://www.rprogress.org/publications/2001/eurosurvey_2001.pdf>. For an analysis of the positive and negative impacts of carbon dioxide taxes on Scandinavian countries, see Dalia Streimikiene and Ruta Bubniene, “The Impact of Carbon Tax on Greenhouse Gases Emission Reduction and Economy” (2005) 1(41) *Economics of Engineering Decisions* 23. For an empirical study of the effectiveness of environmental taxes, see B. Morley, *Empirical Evidence on the Effectiveness of Environmental Taxes*, working paper (Bath, UK: Department of Economics, University of Bath, 2010), online: <<http://opus.bath.ac.uk/18105/1/0210.pdf>>.

¹⁹⁴ Statistics Canada, *Canadian Social Trends* (Ottawa: Minister of Industry, 2008) at 50.

In an earlier section of this article, I discussed the links between gender and climate change, noting that women stand to be particularly impacted by climate change. Policy tools that tackle climate change may therefore have a greater beneficial impact for women than men. Without more data or further analysis, it is very difficult to offer anything other than general statements on the potential benefits to women from carbon tax policies. Carbon taxes will only generate benefits for women in this context if the tax is effective in changing behaviour and slowing climate change. It is too early to tell if the BC and Québec measures will have an impact on GHG emissions, but, to the extent that they do, these measures will have benefits for women and men. It is important to consider the *net* benefits to women, taking into account not only these benefits but also the costs of carbon tax (and other climate change) policies.

3. Are there gender differences in how women and men respond to the tax?

Women and men may respond differently to a carbon tax. For instance, if women are in general more risk averse, they may be more willing to change their behaviour to reduce GHG emissions. That said, if they are more constrained by lower average incomes and reduced flexibility due to socio-economic roles, they may be less able to change their behaviour accordingly. There is insufficient data upon which to analyze this question, but it would be interesting to examine behavioural responses to carbon taxes along gender lines to learn about how women and men respond and perhaps tailor policies to ensure gender equality and the effectiveness of the measure.

Conclusions

Applying the GAET framework to BC and Québec carbon taxes has shown that these measures will have income and non-income related impacts that are particular to women, rendering them disproportionately impacted by the measures as compared to men. The low-income tax credit mitigation policy in British Columbia addresses income impacts in the first year of the tax but, with the exception of the additional credit for single low-income mothers, does not address non-income impacts. In addition, it does not address income impacts after the first year of the tax

since the amount of the credit does not rise along with the tax. While the Québec tax causes a much smaller increase in costs, and thus a smaller actual impact on women, the income and non-income impacts are being felt disproportionately by women. The revenue-use policies in Québec likely have some positive impacts for women by helping to address climate change, but, in the absence of more analysis, it is impossible to determine the net impacts of the tax with its revenue policies.

This analysis shows that targeted measures to mitigate the income and non-income impacts on women are needed to ensure that the tax policies do not perpetuate existing systemic inequalities between women and men. For example, the carbon tax policies could earmark revenue for spending on climate change policies that are in line with women's priorities, from measures that render local childcare accessible and affordable to those that provide energy-efficient and affordable transportation and food options for low-income women.

Recommendations

Canada has committed on numerous occasions to promoting gender equality, which means ensuring that policies—including environmental taxes—promote gender equality or, at a minimum, do not increase women's existing inequalities. The analysis in this article has shown that there are a number of ways in which carbon taxes may have a disproportionate impact upon women, including income and non-income impacts. This is inequitable, especially taking into account the fact that women most likely have a lower-carbon footprint than men. And, of course, it also goes against Canada's commitment to gender equality.

Thankfully, the problem is not insurmountable. Carbon taxes are an important policy tool for addressing climate change, and they do not need to be abandoned because of their gender impacts. All carbon-pricing policies (indeed, all policies) have gender impacts. There are a number of things that policy makers can do to design and implement carbon taxes (and other environmental policies) in a way that promotes gender equality. Doing so requires undertaking a range of commitments, from the very broad to the very specific, and requires both procedural and substantive changes. Here are a handful of what I believe to be the key recommendations—but this is by no means an exhaustive list.

Relating to the BC and Québec Carbon Taxes

Evaluation. The government should conduct an evaluation of how the BC and Québec measures have impacted upon women since their implementation. Such an evaluation would help test some of the assertions made in various articles (including this one) and guide the modification of these measures to address gender inequality and help guide the design of future carbon pricing policies.

Mitigation Policies. Both provinces should adopt and/or revise mitigating policies to offset negative impacts on women. These policies should be directed at individuals, rather than at households, as has been done in British Columbia, and should be refundable if provided via the tax system. These policies need to be offered throughout the life of the carbon tax. Thus, the BC government needs to increase the low-income climate change tax credit in line with the carbon tax, ensuring that the size of the credit increases concomitant with the tax rate after the first year, in order to offset distributional impacts throughout the life of the tax.

Revenue. The BC government should abandon its revenue-neutrality criteria and use carbon tax revenue to fund climate change mitigation policies that have been analyzed for gender implications and designed to be positive for women.¹⁹⁵ The Québec government should analyze its spending policies with respect to the climate change action plan to be sure the benefits are equally accessible to women in the province.

Capacity. Both governments should create a position within the appropriate provincial government department(s) to track gender issues throughout the implementation, review, and modification of carbon tax and related policies to ensure women's concerns and priorities are addressed at all stages of the policy process.

Relating to the Development of Further Carbon Pricing Policies in Canada

¹⁹⁵ See Lee and Sanger, *supra* note 133.

Gender Mainstreaming/Budgeting. Both the federal and provincial/territorial governments are likely to enact further climate change policies, including regulations and carbon-pricing policies—such as emissions trading and carbon taxes—in the next few years. It is imperative that these jurisdictions apply gender mainstreaming analysis at all levels of the policy-making process, from the instrument selection and design stage all the way through to monitoring and evaluation. It is only by taking these steps that decision makers will be able to ensure that their policies are promoting gender equality. Effective gender mainstreaming requires having capacity on women’s issues in the appropriate departments.

Gender-Disaggregated Data. Effective gender analysis depends upon the availability of relevant gender-disaggregated data. As such, jurisdictions should begin collecting and disseminating this information in order to be in a position to conduct gender analyses when needed.

Direct revenues to climate change action. Rather than promising to return revenue from taxes or other carbon pricing policies (such as auction revenue from a cap and trade system) to taxpayers in the form of revenue-neutral carbon-pricing policies, policy makers should direct carbon-pricing policy revenues towards climate change action. Funds to combat climate change are desperately needed, and public support for carbon pricing policies does not depend upon “revenue-neutrality”—in fact, the public may be more supportive of funding being used to address climate change.¹⁹⁶

Relating to Climate Change Policy

Reframe the Climate Change Issue. The climate change issue in Canada should be reframed not just as an environmental issue but also as an economic, environmental and social justice

¹⁹⁶ Pembina Institute, Media Release, “Poll: Canadians Want Action on Global Warming Despite Economic Downturn” (2 December 2008), online: <<http://climate.pembina.org/media-release/1736>>.

issue, with fairness for all Canadians—including women and men—being overtly integrated into all aspects of policy discussions and decision making.

Capacity. Women should be encouraged and facilitated to participate in all aspects of climate change policy, from research and analysis to policy making and implementation.

Conclusion

Effective policy responses to climate change are urgently needed to minimize the catastrophic impacts of climate change, and carbon taxes are one of the key tools. Carbon taxes tackle head-on a major underlying cause of climate change, which is the underpricing (and thus over-utilization) of the fossil fuels that lead to climate change. However, progress on climate change must not come at the cost of gender equality. Fortunately, there is no reason why it should have to.

Carbon pricing policies including carbon taxes can and should be designed to avoid perpetuating existing systemic inequalities between women and men and could even be used to help overcome these inequalities by giving women who bear disproportionate income and non-income impacts additional help for dealing with the price increases caused by carbon taxes. Designing fair climate change policies, including carbon taxes, requires taking a number of actions. First and foremost, it requires taking a gender mainstreaming approach, which brings gender analyses to all stages of policy making, from conception to implementation and evaluation. Such a step is critical since research has shown that gender-indifferent actions often do not translate into equitable policies for women, due to the systemic inequities that pervade our policies and economic structures. Second, being able to fully assess the gender implications of proposed policies requires generating and having access to relevant gender-disaggregated data. Third, and perhaps most importantly, it requires a political commitment to gender equality from all levels of government.

Climate change is likely the most complex, challenging, and dangerous issue facing this generation of policy makers. It will have innumerable consequences for all of humanity, but the

impacts are likely to be borne more heavily by women. It is the responsibility of our political leaders to urgently implement effective climate change policies that are also fair. This means ensuring these policies promote gender equality as well as advancing other aspects of social justice. Addressing climate change with policies that further entrench gender inequality is akin to giving with one hand while taking away with the other—it is not difficult to see that such action is not only unfair but that it is ultimately counter-productive.