

# WHY PAY MORE FOR ENERGY?

## Pay more for energy? Why would anyone pay more for energy?

It's simple. While climate change and air pollution are very difficult challenges, the most powerful solution is relatively straightforward – we all pay a little more for energy.

When Canadians start to pay a little more for renewable energy, the renewable energy marketplace will respond by increasing supply. And renewable supply will increase even further when the price of conventional energy increases to include the hidden health and environmental and economic costs of fossil fuels. Finally, paying more for energy incents consumers to conserve and use energy more efficiently – which means the cost increases could be a lot less than first imagined.

Let's first examine the case for paying more for renewable energy, and then look at why we should also pay more for conventional energy.

Today, renewable energy costs a little more than conventional energy. Take renewable electricity which is currently the most practical type of renewable power you can buy (although increased supplies of renewable fuels such as green gas for heating your home or biofuels for transportation are coming). Currently, renewable electricity projects simply can't compete with conventional electricity unless the renewable generator receives a premium for being green. When consumers decide to pay the premium by buying renewable electricity for themselves, they not only reduce their own personal environmental footprint, they also increase the demand for renewable power, thereby encouraging the development of further supply.<sup>i</sup>

Increasing the supply of renewable electricity isn't easy, though. Our electricity systems have been built around large conventional generation facilities, not around smaller distributed renewable energy projects. Changing the infrastructure, the systems and processes, the rules and regulations, and the mindsets supporting our electricity system is a big job. When consumers willingly pay the extra premium for green electricity, they are also sending a clear message to government that they support a transition to a cleaner energy system. Public support for renewable power is critical if governments are going to make the required regulatory changes.

The most effective way to reduce greenhouse gas emissions that cause global warming is to put a price on carbon. In addition to helping us achieve GHG emissions reductions, paying more to reflect the cost of carbon to society can also lead to increased investment, innovation and job creation in Canada's growing green sector—resulting in a win-win situation. I'm pleased to see that Bullfrog Power's PAY MORE FOR ENERGY campaign is effectively raising awareness among Canadian households of the importance of pricing carbon in our economy.

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Over time, the premium required for renewable energy will fall as technology matures and the market grows. By supporting renewable energy now, not only do we help clean up our environment but we also build a clean energy industry in Canada that will allow us to become a global leader when that industry matures.

Turning to the cost of conventional energy, it needs to cost more because right now we aren't paying the real cost. Conventional electricity remains artificially cheap because of various forms of subsidies, ranging from price caps on generators to market rules to subsidies from the taxpayer.<sup>ii</sup> Perhaps even more importantly, there are a wide range of health and environmental costs that result from using conventional energy that are not reflected in the price of that energy. Burning fossil fuels – whether for electricity generation, heating, equipment or transportation – accounts for most of the air pollution in Canada. The emissions produced include carbon dioxide (the primary greenhouse gas responsible for climate change), NO<sub>x</sub> and SO<sub>2</sub> (precursors to smog), particulate matter (which gives rise to respiratory disease), heavy metals (mercury, lead, cadmium), and carcinogens.<sup>iii</sup>

As a result, fossil fuels impose significant costs on society that are often overlooked. Locally, air pollution imposes major health and quality of life costs. In Toronto for example, air pollution resulting principally from the combustion of fossil fuels results in 1,700 premature deaths and 6,000 admissions to hospitals each year.<sup>iv</sup> In addition, air pollution results in increased rates of chronic bronchitis, emergency room visits and asthma affecting tens of thousands of people in the city each year.<sup>v</sup>

Globally, climate change caused by the use of fossil fuels will impose ecological and economic costs. Given the uncertainty about how quickly climate change will manifest itself and the level of effects that will be felt, however, estimating these costs is extremely difficult. There have been many efforts to estimate these costs, which vary dramatically one from the other. Ultimately, these studies underscore the fact that we are conducting a massive uncontrolled experiment on our world, which could have devastating environmental and economic consequences.<sup>vi</sup>

If Canadians transitioned to paying the true cost of energy, including the environmental and health costs, a lot of good things would start to happen:

- Consumers would be incented to use energy more efficiently, starting with simple changes in their behaviour to use less energy and avoid this additional cost;<sup>vii</sup>
- Renewable electricity would grow to become a large part of our electricity mix, and with economies of scale reached, would become cheaper to produce;
- Manufacturers would pay increased attention to the energy efficiency of their products;
- Transportation would increasingly transition to renewable energy rather than fossil fuels.

How much more do fossil fuels have to cost? In Canada, the two most thorough analyses put the price at between \$100 - \$200 per tonne of carbon dioxide emitted when the fuel is burned. In 2009, the Pembina Institute and the David Suzuki Foundation released a study<sup>viii</sup> funded by TD Financial Group which examined the carbon cost required for Canada to meet two targets: the current Canadian government's commitment to a reduction of a 20% reduction in GHG emissions from 2006 levels by 2020; and a more aggressive target of a 25% reduction in GHG emissions below 1990 levels by 2020. The study finds that a price on the carbon content in our energy starting at \$40 per tonne of CO<sub>2</sub>e in 2011 and rising to \$100 in 2020 (when combined with supporting regulation and access to an international carbon market) would achieve the government commitment. A price of \$50 per tonne in 2010 rising to \$200 per tonne in 2020 would achieve the more aggressive target. A study released by the National

Round Table on Energy and the Environment, using similar models and assumptions, puts the carbon price at \$100 per tonne in 2020 rising to upward of \$300 per tonne by 2050.<sup>ix</sup>

If fossil fuels were to cost more, how would it affect our lives? The short answer is that the economy would continue to grow and we would avoid the risk of environmental disaster. The Pembina-Suzuki-TD Bank study estimates that, even with energy costing more, the Canadian economy would continue to grow by 23-25% over the next decade, and GDP per capita would grow at 20-22%.<sup>x</sup> If we took no action, that is maintained our artificially cheap energy costs, the economy would only be 2% larger in 2020. The National Round Table study<sup>xi</sup> arrives at similar conclusions. It predicts growth, even with higher energy prices, of 40% by 2020 and 150% by 2050. If we were to take no action, the study predicts that the economy would be only 1-3% larger in 2020 and 3-5% in 2050.

In other words, while preserving economic growth and for a relatively small cost, Canada can meet its climate change goals and dramatically reduce the risk of ecological disaster. Ken Caldeira, an atmospheric scientist at the Carnegie Institution, puts the point succinctly:

“...[If] I told you that you could be 2% richer, but all you had to do was acidify the oceans and risk killing off coral reefs and other marine ecosystems, risk melting the ice caps with rapid sea-level rise, shifting weather patterns so that food-growing regions might not be able to produce adequate amounts of food, and so on, would you take all of that environmental risk, just to be 2% richer?”<sup>xii</sup>

Rightfully, there is concern about how the increased cost for energy would affect lower income households and a new energy model that reflects the true cost of energy must take this into account. Most studies recommend that the proceeds from a higher cost of energy be reinvested back into the economy, including mitigating the impacts on low-income families. The Pembina-Suzuki-TD report for instance assumes payments to all households across Canada to reimburse their carbon costs associated with heating fuels, as well as the non-carbon related increases in electricity and heating fuel costs.<sup>xiii</sup> It also assumes indirect assistance such as spending to improve public transit.<sup>xiv</sup> Similarly, the National Round Table study advocates direct income support measures or tax measures to ease the burden on lower income households.<sup>xv</sup> Proposed legislation takes these suggestions to heart. In British Columbia, for instance, the carbon tax discourages fossil fuel consumption, and proceeds from the tax are refunded to taxpayers so that lower income families actually come out slightly ahead.<sup>xvi</sup>

It is important to stress that there is also a huge economic opportunity in addressing climate change.<sup>xvii</sup> The International Energy Agency, for instance, estimates that it will require \$10.5 trillion in additional energy infrastructure and energy-related capital stock globally between now and 2030 to address climate change.<sup>xviii</sup> On an annual basis, additional investment needs to reach \$430 billion (0.5% of GDP) in 2020 and \$1.2 trillion (1.1% of GDP) in 2030.<sup>xix</sup> McKinsey & Company estimates that additional investments in the order of €530 billion annually by 2020 and €810 billion annually by 2030 will be required to reduce GHG emissions by 35% compared with 1990 levels.<sup>xx</sup> In short, moving to a low-carbon economy represents a very large business opportunity, and the race is already on for which countries will capture that economic opportunity.

Governments around the world are recognizing the economic opportunities in the transition to a low-carbon economy, and accepting the need to reflect the true cost of energy. Most industrialized nations have either begun or are considering putting a cost on the carbon in our fuels. These costs will ultimately have to be incorporated into the prices of the goods being produced. As such, the more GHG-intensive a product's production is, the more costly it will be, and the more expensive that end product is likely to be when it hits the shelf. As less GHG-intensive products therefore become relatively cheaper to produce, these cleaner choices will thrive.

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Government efforts, however, still fall far short of what is necessary. Most recently in Copenhagen, the international community was unable to come to an agreement regarding international greenhouse gas emission targets post-2012. Here at home, while Canada committed to a reduction in greenhouse gases of 6% below its 1990 emissions level by the period 2008-2012, GHG emissions have actually grown by approximately 26%.<sup>xxi</sup>

As a result, now more than ever it is important for individuals to lead the way. Choosing to pay a little more for renewable energy reduces personal footprints and helps to grow the renewable energy market in Canada. Just as importantly, though, it champions an idea whose time has come – that it is time to pay the true cost of energy – paving the way for faster regulatory change and positioning Canada to prosper from the transition to a low-carbon economy.

If you share a vision of a clean energy future, there is a lot you can do to help make it a reality. Think about how energy is used in your life. Take steps to reduce your energy use and become more energy efficient. Switch to buying clean energy where you can and support organizations that are doing the same. Get involved with organizations that are promoting more sustainable energy policy and add your voice to those calling for change. Just imagine if everyone did it.

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- <sup>i</sup> Right now, the premium to switch the average home from conventional electricity to 100% renewable power is less than \$1 a day. See [www.bullfrogpower.com](http://www.bullfrogpower.com) for more information.
- <sup>ii</sup> [http://www.toronto.ca/health/hphe/pdf/air\\_and\\_health\\_backunder\\_burden.pdf](http://www.toronto.ca/health/hphe/pdf/air_and_health_backunder_burden.pdf);  
[http://www.cleanairalliance.org/tax\\_shift](http://www.cleanairalliance.org/tax_shift)
- <sup>iii</sup> [http://www.ec.gc.ca/pdb/ghg/inventory\\_report/2007/tab\\_eng.cfm](http://www.ec.gc.ca/pdb/ghg/inventory_report/2007/tab_eng.cfm)  
[http://www.ec.gc.ca/cleanair-airpur/Clean\\_Air\\_and\\_Energy-WSEF1FB49E-1\\_En.htm](http://www.ec.gc.ca/cleanair-airpur/Clean_Air_and_Energy-WSEF1FB49E-1_En.htm);  
[http://www.ec.gc.ca/pdb/websol/querysite/query\\_e.cfm](http://www.ec.gc.ca/pdb/websol/querysite/query_e.cfm) - under Air Pollutant Emissions tab, search all substances in all of Canada in 2007.
- <sup>iv</sup> [http://www.toronto.ca/health/hphe/pdf/air\\_and\\_health\\_burden\\_technical.pdf](http://www.toronto.ca/health/hphe/pdf/air_and_health_burden_technical.pdf), p. 16-17
- <sup>v</sup> [http://www.toronto.ca/health/hphe/pdf/air\\_and\\_health\\_backunder\\_burden.pdf](http://www.toronto.ca/health/hphe/pdf/air_and_health_backunder_burden.pdf), p. 1
- <sup>vi</sup> See for example <http://www.economics.harvard.edu/faculty/weitzman/files/ReactionsCritique.pdf>, p. 8
- <sup>vii</sup> [http://www.cdhowe.org/pdf/backunder\\_124.pdf](http://www.cdhowe.org/pdf/backunder_124.pdf)
- <sup>viii</sup> <http://climate.pembina.org/pub/1909>
- <sup>ix</sup> <http://nrtee-trnee.ca/eng/publications/carbon-pricing/carbon-pricing-advisory-note/carbon-pricing-advisory-note-eng.pdf>
- <sup>x</sup> <http://pubs.pembina.org/reports/mk-jaccard-gov-and-engo-climate-targets-report-oct.pdf>, p. 11
- <sup>xi</sup> <http://nrtee-trnee.ca/eng/publications/carbon-pricing/carbon-pricing-advisory-note/carbon-pricing-advisory-note-eng.pdf>, p. 73
- <sup>xii</sup> *The Economist*. (2009, December 9). The economists' view of climate change. Retrieved from:  
[http://www.economist.com/specialreports/displaystory.cfm?story\\_id=14994731](http://www.economist.com/specialreports/displaystory.cfm?story_id=14994731)
- <sup>xiii</sup> <http://pubs.pembina.org/reports/mk-jaccard-gov-and-engo-climate-targets-report-oct.pdf>, p. 26
- <sup>xiv</sup> <http://pubs.pembina.org/reports/mk-jaccard-gov-and-engo-climate-targets-report-oct.pdf>, p. 23
- <sup>xv</sup> <http://nrtee-trnee.ca/eng/publications/carbon-pricing/carbon-pricing-advisory-note/carbon-pricing-advisory-note-eng.pdf>, p. 79
- <sup>xvi</sup> <http://www.fin.gov.bc.ca/tbs/tp/climate/A3.htm>
- <sup>xvii</sup> [http://assets.wwf.ca/downloads/building\\_the\\_green\\_economy.pdf](http://assets.wwf.ca/downloads/building_the_green_economy.pdf);  
[http://www.americanprogress.org/issues/2009/06/pdf/peri\\_report.pdf](http://www.americanprogress.org/issues/2009/06/pdf/peri_report.pdf)
- <sup>xviii</sup> <http://www.iea.org/Textbase/npsum/weo2009sum.pdf>, 450 Scenario at p. 9
- <sup>xix</sup> <http://www.iea.org/Textbase/npsum/weo2009sum.pdf>, 450 Scenario at p. 9
- <sup>xx</sup> [http://www.mckinsey.com/client-service/ccsi/pathways\\_low\\_carbon\\_economy.asp](http://www.mckinsey.com/client-service/ccsi/pathways_low_carbon_economy.asp), p. 6
- <sup>xxi</sup> [http://www.ec.gc.ca/pdb/ghg/inventory\\_report/2007/som-sum\\_eng.cfm](http://www.ec.gc.ca/pdb/ghg/inventory_report/2007/som-sum_eng.cfm)