KAIROS Policy Briefing Paper

KAIROS Policy Briefing Papers are written to help inform public debate on key domestic and foreign policy issues

No. 38 April 2014

Movement for Divesting from Fossil Fuels Gaining Strength

By John Dillon
Ecological Economy Program Coordinator

Petroleum corporations are beginning to take seriously a movement by churches, pension funds and universities to withdraw investments from fossil fuels in light of the threat posed by climate change. While the moral argument for divestment, by itself, has only begun to undermine the corporations' social license, investors are warily reassessing their exposure to companies whose asset values are vulnerable to changes in government policies and consumer demand.

In February, the congregation at Trinity-St. Paul's United Church in Toronto voted unanimously to ensure that none of its funds are invested in any of the world's 200 largest fossil fuel corporations. With that step, Trinity-St. Paul's became the first Canadian church to join a global campaign initiated by the climate advocacy group 350.org that insists "It's wrong to profit from wrecking the climate."

Although Trinity-St. Paul's investment portfolio is quite small, and its decision to divest is unlikely to make much of a difference on its own, the initiative has sparked a wider debate about how the United Church of Canada should manage the $4 million invested by its Foundation and the $1.2 billion held by its Pension Plan.

The inspiration for fossil fuel divestment is the successful campaign that persuaded many investors to withdraw from South Africa during the apartheid era. While corporations and banks at first resisted calls to pull out, they later relented when they realized how profoundly their reputations were being tarnished.

According to Archbishop emeritus Desmond Tutu "The divestment movement played a key role in helping liberate South Africa. The corporations understood the logic of money even when they weren't swayed by the dictates of morality. Climate change is a deeply moral issue too. Here in Africa we see the dreadful suffering of people from worsening drought, from rising food prices, from floods even though they've done nothing to cause the situation. Once again, we can join together as a world and put pressure where it counts."

Climate Math

The case for divesting from fossil fuels is based on studies that show that between 60% and 80% of proven reserves must stay in the ground in order to keep the increase in global temperatures above their pre-industrial level to no more than two degrees Celsius. Although climate scientists warn that even an increase of two degrees will mean storms, floods, and droughts that are more frequent and devastating than those already occurring with just under one degree of global warming.

An analysis by the International Energy Agency (IEA) projects that unless current climate and energy policies are radically modified, the world will experience long-term average temperature increase of "between 3.6^{O}C and 5.3^{O}C, with most of the increase occurring this century."[1] The IEA has investigated what changes would be necessary to allow us to meet the internationally accepted target of keeping temperature increases below two degrees Celsius and concluded in its "450 scenario" that "No more than one-third of proven reserves of fossil fuels can be consumed prior to 2050 if the world is to achieve the 2^{O}C goal."[2]

Similarly, 350.org states that the maximum amount of additional carbon dioxide (CO_2) we can put into the atmosphere and stay below 2 degrees warming is 565 gigatonnes. (A gigatonne is one billion metric tonnes.) Meanwhile, all the proven fossil fuel reserves *held by energy companies* contain 2,695 gigatonnes of CO_2. In other words, 80% of these coal, oil and natural gas reserves must stay in the ground.[3]

The Moral Argument

The divestment movement is grounded in a moral case against engaging in activity that threatens life on planet Earth. As the Fossil Fuel Divestment Primer issued by Trinity-St. Paul's states

> "Changes in global temperature and precipitation patterns threaten water flow regimes, agricultural climates, weather patterns, sea levels, biodiversity, and ecological functions on which human and other life currently depends. ... Because the impact of all of the above climate stresses fall disproportionately on the poor and vulnerable, this becomes a clear matter of equitable sustainability and justice, with which persons of all faiths should be concerned. Droughts and floods push people to look for safety, security, and access to clean water and food security. Displaced persons spread well beyond their homes, often crossing national boundaries, which further threatens peace in the larger region. Limited resources often make loving one's neighbour more difficult, and wars may result from this desperation. In the light of the teachings and life of Jesus, Christians bear a particular responsibility to call for action to bring about climate justice."[4]

The Financial Argument

In addition to the moral case against investing in fossil fuels there is also a pragmatic, financial rationale based on the very real possibility that coal, oil and natural gas companies are in danger of being stuck with "stranded assets." These are assets that lose substantial economic value due to changes in legislation, regulation, market forces, innovations, societal norms or environmental shocks.

The possibility that much of the financial value of shares in fossil fuel companies might be lost is being taken very seriously by sectors of the business community. Investment bank HSBC assessed how the market value of shares in a number of European petroleum companies would be affected if some of their oil and gas reserves became stranded assets and prices fell. It concluded that, if oil demand was reduced through better transport efficiency and oil prices fell to US$50 per barrel, then between 40% and 60% of their market value would be at risk.[5]

Similarly, Bloomberg business services is developing a Carbon Risk Valuation Tool to help investors evaluate whether they are at risk of holding stranded or "unburnable" carbon reserves in their portfolios.

Analysts predict that investments in the Canadian tar sands are particularly vulnerable. Storebrand, a major Norwegian pension fund, has divested from 19 fossil fuel companies, including six firms that are heavily exposed to tar sands. Dutch bank Rabobank recently enforced a blanket ban on loans to firms involved with tar sands.

In a move full of irony, Norway's sovereign wealth fund, the world's largest with a US$840 billion portfolio built through the taxation of Norwegian oil and gas extraction, has announced a yearlong review of its investments. It is considering withdrawing all its investments from oil, gas and

coal companies. Currently three of its largest holdings are in Royal Dutch Shell, the BG Group and British Petroleum.[6]

Shareholders Prompt Exxon Mobil to Report on Carbon Asset Risks

In a victory for shareholder activism, two U.S. groups, As You Sow and Arjuna Capital, persuaded Exxon Mobil, the largest U.S. energy company, to publish a Carbon Asset Risk report in return for withdrawal of a resolution calling on the company to disclose data on its stranded carbon reserves. The company's first report, *Energy and Carbon – Managing the Risks*, released on March 31, 2014,[7] flatly states "we are confident that none of our hydrocarbon reserves are now or will become 'stranded.' We believe producing these assets is essential to meeting growing energy demand worldwide."[8]

This statement is based on a projection that world population will increase by two billion people by 2040 and demand for energy will grow by 35% over the same period. While Exxon Mobil assumes that energy demand will not rise as fast as economic growth due to efficiency gains, it still expects that market demand, particularly in non-industrialized countries, will be sufficient to absorb all the oil and gas held in its reserves.

Among the risks faced by fossil fuel corporations is the possibility that movements for climate justice will elect governments sufficiently committed to fighting climate change that they will require 60% to 80% of fossil fuels to remain underground or put a meaningful price on carbon emissions. While Exxon Mobil accepts that "there is always the possibility that government action may impact the company, the scenario where governments restrict hydrocarbon production in a way to reduce GHG emissions 80 percent [during the years 2014 to 2040] is highly unlikely."[9]

In other words, while Exxon Mobil accepts that governments will take some actions to limit climate change, it does not expect those actions to require petroleum companies to curtail their production.

The oil and gas giant acknowledges that governments are likely to put a price on carbon emissions. Its *Energy and Carbon – Managing the Risk* report says that governments in some jurisdictions may price carbon dioxide emissions at as much as US$80 per tonne before adding that this "is not a suggestion that governments should apply specific taxes."[10] But such a low price is unlikely to significantly deter greenhouse gas emissions. A study by M.K. Jaccard and Associates calculates that a $100 per tonne price on CO_2 emissions would be needed for Canada to meet its official Copenhagen target of reducing emissions to 17% below their 2005 level by 2020.[11] But meeting this modest target would not be enough to keep temperature increases below 2^0C. Moreover Canada is currently on track to meet only two-thirds of its reduction target by 2020.

The Jaccard study indicates a carbon price of $200 a tonne would be needed to keep increases below 2^0C.[12] Intriguingly Exxon Mobil agrees. It states that meeting the IEA's low carbon target for keeping temperature increases below 2^0 C "would require CO2 prices significantly above current price levels, rising to over $200 per ton by 2050."[13] As evidence that Exxon Mobil does not expect carbon prices to rise that high it observes how the European Union's Emissions Trading System currently prices CO2 at only $8 to $10 per tonne.

Coal Investments Questionable

Thermal coal producers face the prospect that more governments will follow the lead of Ontario and call for an end to burning coal in power plants. China, which currently accounts for half the world's coal consumption, has "declared war" on pollution as smog levels across its north have become unbearable. Chinese Premier Li Keqiang announced the closing of some coal-fired power plants in March while declaring that pollution is "nature's red-light warning against the model of inefficient and blind development."[14]

In February, China established a US$1.65 billion fund to cut fossil-fuel consumption in its cities. Last year, China spent US$61 billion on renewable energy while the U.S. and Canada together spent US$56 billion,[15] while installing more renewable electrical generating capacity than nuclear and fossil fuel plants combined. China also produces half of the world's solar panels and plans to generate 17% of its electricity from wind by 2050. Due in large part to Chinese investments, the costs of wind and solar power have fallen dramatically. For example, over the last 20 years the cost of producing solar photovoltaic electricity has fallen from $75 per watt to just 72 *cents*![16]

An Oxford University study predicts that new investments in Australian coal mines are likely to

become stranded and "mothballed or abandoned" due to Chinese initiatives in environmental regulation, carbon pricing, renewable energy and energy efficiency measures.[17] Tim Flannery, scientist and author of *The Weather Makers*, notes how some Australian coal mines became unprofitable after China cut its coal imports by 5%. "You don't have to cut demand by much to force prices below the cost of production," Flannery observed.[18]

Divestment from coal mining is not the only option being pursued by Australians. On March 12, 2014 members of the Australian Religious Response to Climate Change held a prayer vigil at a mine construction site owned by Whitehaven Coal. Afterwards, several religious leaders were arrested for blocking the entrance to the mine site. In addition to fighting against climate change, the religious group is standing with the Gomeroi Indigenous people whose land is being taken over without their free, prior and informed consent as is required by the UN *Declaration on the Rights of Indigenous Peoples.*[19]

Markets for Transportation Fuels May Shrink

Gasoline and diesel producers risk diminishing markets due to stronger vehicle fuel efficiency regulations, expansion of public transit, urban densification and revival of rail transportation. Just when the widespread electrification of transportation will occur is unknown. However, Jeremy Grantham, chief investment strategist at the Boston-based global asset manager GMO has declared "Solar is getting cheaper by the minute, whereas petroleum is getting more expensive. It is only a matter of time before their expenses cross."[20]

It is widely assumed that China will provide a growing market for Canadian oil and gas if pipelines can be built to the Pacific coast. However, energy policy in China is moving rapidly away from dependence on imported fuels. China already has 25,000 kilometres of electrified railways that carry half of its passengers and cargo. China is investing approximately US$100 billion yearly in railways, mostly in high-speed rail, and has the world's most ambitious subway construction program. [21]

Although the prevailing assumption is that oil prices will continue to rise as supplies peak and shortages occur, some credible voices are challenging this conventional belief. The former CEO at British Petroleum, John Browne, says "Oil prices will be limited by peak demand, not peak supply." Similarly, an analyst for Citigroup predicts that 2014 will mark a tipping point after which oil prices will decline by at least 10% and perhaps as much as 20%.[22] HSBC Global Research reminds us how a global decline in demand of just 3 million barrels a day in 2009 caused the price of Brent crude to fall to just US$40 a barrel.[23]

Tar Sands Investments Particularly Risky

Investments in the Canadian tar sands are especially risky since they are among the most carbon intensive and the most costly. Currently investors in new steam-assisted tar sands extraction projects need to be able to sell oil for between $80 and $100 per barrel in order to break even.[24] During the first quarter of 2014, the West Texas Intermediate (WTI) price for oil, the North American benchmark, ranged between US$96 and US$100 a barrel.

But Western Canadian Select heavy oil sells at a discount below the price for WTI. During 2013 this discount varied from $12 to $40 a barrel as US markets absorbed more light oil from the Bakken field in North Dakota and the Eagle Ford and Permian fields in Texas. If these sizable discounts continue, new steam-assisted tar sands projects will be barely profitable or will operate at a loss.

Jeff Rubin, former chief economist at the CIBC World Markets, says the tar sands are becoming "a graveyard for investors. The sector has lost more than half its market capitalization since the last recession." Rubin warns "Investors shouldn't expect it to get better. ... Unless Western Canadian Select can materially close that huge price gap with the U.S. and global benchmark prices, revenues will be severely challenged to cover rising costs."[25]

Due to production of light oil from the Bakken, Permian and Eagle Ford fields, U.S. oil imports are expected to fall from 10 million barrels a day (mb/d) in 2013 to 4.5 mb/d by 2030 when Canada will have to compete with Saudi Arabia, Venezuela, Nigeria and Mexico to supply a buyers' market. [26]

Hence proponents of new tar sands projects are desperate to have access to overseas markets where prices are higher than in North America. The pipeline projects for carrying bitumen to Pacific, Atlantic and Gulf of Mexico ports are intended to supply overseas as well as North American markets. But every one of these projects faces strong opposition from coalitions of Indigenous peoples, landowners, environmentalists and climate justice advocates. In

other words, for investors in either tar sands production, or in the pipelines themselves, there is a risk that these conduits will never be built.

Indigenous Peoples Resist Tar Sands Expansion

Indigenous peoples asserting their rights to give or withhold free, prior and informed consent to resource extraction or transportation projects across their territories have assumed leadership roles in the climate justice movement. Recently, several First Nations have gone to court to block tar sands expansion projects.

The Athabasca Chipewayan First Nation has initiated legal challenges to expansion of Shell's Jackpine mine and Teck's Frontier mine. The Beaver Lake Cree, on whose land an *in situ* well blew out killing many animals last July, has also gone to court over the erosion of their ability to hunt, fish and trap.

First Nations belonging to the Yinka Dene Alliance are contemplating legal challenges in light of the National Energy Board's recommendation that Enbridge's Northern Gateway bitumen export pipeline through British Columbia to the Pacific be allowed to proceed. [27]

The outcome of these court challenges has yet to be determined. While Canadian courts have not always respected Indigenous peoples rights to free, prior and informed consent before allowing resource projects to proceed, some important legal precedents have been set. In the case of *Delgamuukw* v. *British Columbia* the Supreme Court of Canada ruled:

> "...aboriginal title encompasses within it a right to choose to what ends a piece of land can be put. ... There is always a duty of consultation. ... The nature and scope of the duty of consultation will vary with the circumstances. ... In most cases, it will be significantly deeper than mere consultation. Some cases may even require the full consent of an aboriginal nation." [28]

It remains to be seen whether the courts will rule in favour of First Nations who oppose further development of the tar sands or the dangers posed by pipelines crossing their lands. What is clear is that lengthy legal challenges pose a further risk for investors.

Falling Energy Return on Energy Invested

Another little recognized risk for investors in the tar sands stems from the need to expend more and more energy to extract each barrel of bitumen. Energy return on energy invested (EROEI) measures the amount of energy used to obtain another form of useful energy. For example, a lot of natural gas and diesel fuel is used to extract synthetic oil from the tar sands. In the words of geoscientist David Hughes, "It costs energy to get energy, and the whole point is to get back more than you put in." [29]

As the shallower, mineable bitumen reserves are reaching their limits, probes must now go deeper underground to reach bitumen deposits. The EROEI for conventional oil extraction is 19 to one, meaning that for each unit of energy expended a driller gets 19 units of useful product. This compares with an EROEI of 5.7 to one for tar sands mining. Current steam-assisted gravity drainage tar sands operations have an EROEI of 3.8 to one.

However, as more steam is needed to extract bitumen from deeper underground, more natural gas must be burned. Journalist Andrew Nikiforuk reports that "A detailed energy balance analysis sponsored by the Alberta government suggests that the EROEI for *in situ* extraction is close to 1:1. That makes bitumen as a source of energy as pathetic and tragic as corn ethanol [which has a very low and by some calculations negative EROEI]. A few projects have even recorded EROEI in negative numbers."[30]

Tar sands operations with very low EROEI are economically viable only as long as governments continue to heavily subsidize the natural gas they burn. Tar sands companies are allowed to deduct part of the cost of the natural gas they use from the royalties they owe to the Alberta government and from their provincial and federal corporate taxes. In 2010 these deductions reduced *by half* their costs for natural gas. Given natural gas' smaller environmental footprint, former Alberta Treasurer Jim Dinning termed its use to extract and upgrade bitumen to be like "using gold to produce lead."

Conclusion

The divestment movement by itself will not be sufficient to put an end to the over-exploitation of fossil fuels and dangerous climate change. But by questioning the morality of fossil fuel extraction, the divestment movement undermines the assump-

tion that oil, gas and coal companies enjoy a social license for their activities.

While state-owned petroleum companies that control 90% of global oil reserves are not susceptible to divestment pressures, they are vulnerable to falling demand or prices. In the 1980s Saudi Arabia actively resisted pressures from the price hawks within the Organization of Petroleum Exporting Countries on the grounds that too high an oil price might accelerate the production of alternative energy sources. At the time Sheik Yamani, the Saudi petroleum minister, famously said "The stone age did not end because we ran out of stones."

In addition to the moral argument this paper has shown there are also grounds for questioning the financial viability of investments in such risky areas as the Alberta tar sands. In 2011 an advisory panel, chaired by former federal cabinet minister David Emerson and appointed by then Alberta Premier Ed Stelmach, summed up the precariousness of tar sands investment succinctly:

> "The production costs of heavy oil from oil sands are among the highest in the world ... We must plan for the eventuality that oil sands production will almost certainly be displaced at some point in the future by lower cost and/or lower-emission alternatives. We may have heavy oil to sell but few or no profitable markets willing to buy." [31]

[1] International Energy Agency. *Redrawing the Energy-Climate Map*. Executive Summary. Paris: International Energy Agency. June 2013. P.9.

[2] International Energy Agency. *World Energy Outlook 2012*. Executive Summary. Paris: International Energy Agency. November 2012 P.3.

[3] The 350.org numbers are cited from founder Bill Mckibben's widely cited article "Global Warming's New Math" *Rolling Stone*, August 2012. The methodology used by 350.org is based on different assumptions that those used by the IEA regarding such factors as non-fossil fuel GHG emissions from agriculture and deforestation for instance. Similarly the carbon budget suggested by the Intergovernmental Panel on Climate Change contains different numbers but comes to the same conclusion about the imperative of keeping fossil fuels in the ground. See "IPCC confirms we must act now on climate change." KAIROS *Briefing Paper No. 37*, October 2013. P. 4 and end note 23. at http://www.kairoscanada.org/sustainability/climate-justice/keeping-fossil-fuels-in-the-ground-essential-to-curb-climate-change-briefing-paper-37/

[4] See Trinity-St. Paul's *Fossil Fuel Divestment Primer* at http://www.trinitystpauls.ca/sites/default/files/TSP%20Climate%20Justice%20Divestment%20Primer%20vA.pdf

[5] Paul Spedding et al. "Oil and carbon revisited: Value at risk from 'unburnable' reserves." *HSBC Global Research*. January 25, 2013. P.14. At http://gofossilfree.org/files/2013/02/HSBCOilJan13.pdf

[6] Richard Milne. "Norway's oil fund to debate ending fossil fuel investments." Financial Times. February 28, 2014.

[7] The Exxon Mobile report is available at http://cdn.exxonmobil.com/~/media/Files/Other/2014/Report%20-%20Energy%20and%20Carbon%20-%20Managing%20the%20Risks.pdf

[8] Ibid. Page 1.

[9] Ibid. Page 12.

[10] Ibid. Page 18.

[11] M.K. Jaccard & Associates Inc. *Climate Leadership, Economic Prosperity* a study commissioned by the Pembina Institute and the David Suzuki Foundation, 2009.

[12] Ibid.

[13] Exxon Mobil op. cit. Page 8.

[14] Cited in Kevin Hamlin, Sarah Chen and Feifei Shen. "Li Says China Will Declare War on Pollution as Smog Spreads." Bloomberg News. March 5, 2014.

[15] Derrick Penner. "Greening China's power brings down cost of renewable energy for all." *Vancouver Sun*. March 4, 2014.

[16] Data cited by Mike Brigham, president of SolarShare Co-operative, at forum on "Divestment or What? Economic Tools for Creation Advocacy in a Time of Crisis." Sponsored by the Green Awakening Network and Greening Sacred Spaces. Toronto, March 1, 2014.

[17] Oliver Milman. "Coal's grim forecast: projects may be 'stranded' by falling Chinese demand." *The Guardian*. December 16, 2014.

[18] Cited in Andrew Nikiforuk. "Tim Flannery: 'Innovation Is the Enemy of Oil and Gas." *The Tyee*. October 29, 2013.

[19] E-mail from Aaron Packard 350.org Australia. March 12, 2014.

[20] Cited in David Berman. "Neil Young vs. Oil sands: This is no solo act." *The Globe and Mail*. January 21, 2014 B11.

[21] Keith Bradsher. "Speedy Trains Transform China." *New York Times.* September 23, 2013.

[22] Shawn McCarthy. "Oil firms brace for crude 'tipping point'." *The Globe and Mail*. January 31, 2014 B4.

[23] Paul Spedding et al. Op. cit. p.4.

[24] Data from investment advisors at Goldman Sachs, Wood Mackenzie and IHS CERA cited in Jeff Rubin. "A Crude Reality Check: What was once seen as a notion's most important economic asset looks today more like a liability." *Corporate Knights*. Winter. 2014. P.25.

[25] Ibid. p.25-26.

[26] Shawn McCarthy and Nathan Vanderklippe. "Canada sees risk in U.S. oil boom." *The Globe and Mail*. November 13, 2013. P. A1-A9.

[27] Bob Weber. "First Nations ramp up challenges to oilsands development." *The Vancouver Sun*. January 3, 2014.

[28] Cited in Maria Mortellato. *The Crown's Constitutional Duty to Consult and Accommodate Aboriginal and Treaty Rights* a research paper written for the National Centre for First Nations Governance. February, 2008. Page 19.

[29] J. David Hughes. "The Energy Issue: A More Urgent Problem than Climate Change?" in *Carbon Shift*. Toronto: Random House Canada. p. 67.

[30] See Andrew Nikiforuk. "Two More Ethical Challenges to Canada's Oil Sands." *The Tyee*. October 26, 2011.

[31] David Emerson et al. Premier's Council for Economic Strategy. *Shaping Alberta's Future*. Edmonton: Office of the Premier. 2011.P.6.