

CAMSR CONSULTATION OVERVIEW

INTRODUCTION:

As part of the follow-up to the CAMSR Report to the Board of Governors, we have been asked to make public the consultation that CAMSR undertook with members of the community.

As part of its consideration of the Divest McGill submission, CAMSR expressed an interest in hearing from members of the University community with expertise related to the issues of climate change and the effects of fossil fuels, as well as actions needed to promote environmental sustainability. We asked the Vice-Principal (Research and International Relations) for suggestions of scholars with highly recognized research programs in these areas. From the list provided by the Vice-Principal, we identified a mix of individuals with a range of expertise. This resulted in a list of six individuals.

We developed a common set of questions to guide the conversation. We invited each individual to a CAMSR meeting, as well as to provide documents if they thought they would be helpful. Documents and other information provided are listed below.

Each individual was allocated 20-30 minutes to speak with the Committee. A summary of the points covered by each individual is provided in the attached excerpt of the minutes of the relevant CAMSR meetings.

Five out of the six individuals gave consent to make their names public along with the summary of their presentations and conversations with CAMSR. These individuals are:

- Professor Jaye Dana Ellis, Faculty of Law and McGill School of Environment
Acting Director, McGill School of Environment
- Professor Nigel Roulet, Faculty of Science
James McGill Professor, Former Director, McGill School of Environment
- Professor Robin Rogers, Faculty of Science
Canada Excellence Research Chair in Green Chemistry and Green Chemicals
- Professor Catherine Potvin, Faculty of Science
Tier 1 Canada Research Chair, Climate Change Mitigation and Tropical Forests
Trottier Fellow, Trottier Institute for Science and Public Policy
- Professor Christopher Ragan, Faculty of Arts
Department of Economics
Chair, Canada's EcoFiscal Commission

Questions Considered by Individuals Consulted

1. What are the sources of GHG emissions globally and in Canada and what approximate percentage can be attributed to fossil fuel companies?
2. What do past energy systems transformations tell us about the forces that are effective in changing energy systems?
3. What are the key barriers to current efforts to transform energy systems to ones with a significantly lower GHG footprint?
4. What would be a methodology/reasonable test for addressing the question of whether the activities of a fossil fuel company have a grave injurious impact on persons or on the natural environment?
5. What policies, strategies and actions could be employed to reduce the effects/impact of fossil fuel use on climate change?
6. What is the efficacy of divestment as a means of influencing the behaviour of a fossil fuel company? (What are the implications of divestment in the economic context of the energy sector?)
7. What other strategies are likely to be effective in bringing about energy systems transformation?
8. What suite of opportunities do Canadian universities have for speeding the energy systems transformation in this country? How do they compare in their likely costs, possible risks and potential benefits?

Documents and Other Information Submitted by Individuals Consulted

PowerPoint Presentation (see attached)

Organisation for Economic Co-operation and Development (OECD): <http://www.oecd.org/>

<http://www.oecd.org/environment/support-to-fossil-fuels-remains-high-and-the-time-is-ripe-for-change.htm>

Acting on Climate Change: Extending the Dialogue Among Canadians:

http://www.sustainablecanadadialogues.ca/pdf_2015/extending_dialogue/Franc%CC%A7oisMeloche.pdf

EXCERPTS OF THE MINUTES OF CAMSR MEETINGS HELD IN OCTOBER AND NOVEMBER 2015

Professor Jaye Ellis, Faculty of Law and McGill School of Environment

Professor Jaye Ellis' research focuses on the intersections among law, politics, economics, ethics, and science as they relate to problems of environmental degradation. Her research addresses the increased importance of transnational law, paying particular attention to the role of non-state actors in transnational space. Professor Ellis also investigates how environmental rules come into being and influence actors, and how environmental issues affect public international law.

During her consultation with CAMSR, Professor Ellis described the emergence of private actors (non-state entities which include corporations, citizens and not-for profit organizations) and other umbrella organizations, which work to promote change at the public policy or social level with regard climate change. She described the role of these groups in seeking a voice within governments in hopes of having their messages heard at the national and international levels. She also spoke about the role of consumer and public interest groups which work to obtain certification in order to develop standards of sustainability that aim to be recognized by the public, and that could deny certain corporations access to the market. She then spoke about the growing sense of frustration with the lack of movement among states in relation to climate change, and mentioned that as a result of slow progress, members of civil society are exploring other avenues. Overall, she noted that divestment could be a way to send a message or to signal and ethical position and expressed the belief that it is well within the University's authority to decide where and how to invest. In response to a question about research denying the impact of the fossil fuel industry on climate change, Professor Ellis expressed concern by the attention and support that climate change deniers have received, particularly in the US.

Professor Nigel Roulet, James McGill Professor, Faculty of Science

Professor Roulet's research focuses on the interface among hydrological, climatological, biogeochemical, and ecological systems. He studies how biogeochemical transformations and ecosystem dynamics respond to changes in hydrological and climatological settings and forcings. His work broadly fits under the umbrella of earth system science, biogeochemistry and ecohydrology.

During his consultation with CAMSR, Professor Roulet noted that evidence for climate change is irrefutable and then spoke about research which showed the impact fossil fuels had on climate change. He then described strategies that could be effective in bringing about energy systems transformation, such as the creation of geological traps that could be used to remove carbon dioxide from emissions. In reference to the efficacy of divestment, he suggested that divestment would have more of a symbolic rather than direct impact. He also spoke about the importance of subsidizing other alternative energy companies and educating the consumer market on the need to change energy practices and habits. With regard to the role universities could play in advancing sustainable development, Professor Roulet mentioned that universities could work to develop sustainability objectives, and noted that a considerable amount of work has already been done in this area at McGill.

Professor Robin Rogers, Canada Excellence Research Chair in Green Chemistry and Green Chemicals

Professor Rogers is leading efforts to produce and support innovative and evolutionary, environmentally-aware research and development efforts. His research includes the design and development of next-generation sustainable biomaterials for use in polymeric materials, fuels and commodity chemicals.

During his consultation with CAMSR, Professor Rogers spoke about the possibility of working with the research community, industry, government, and society-at-large to develop ways of transitioning to a cleaner energy environment. In light of society's dependence on the fossil fuel industry, Professor Rogers cautioned that the transition to a new energy system would need to take place gradually. He spoke in favour of investing in new alternative energy sources as well as seeking out "angel investors" who would assist in developing new, environmentally-friendlier technologies.

Professor Catherine Potvin, Tier 1 Canada Research Chair in Climate Change Mitigation and Tropical Forests

Dr Catherine Potvin is a forest ecologist specializing in global environmental change, including climate change and biodiversity loss. Her research is interdisciplinary and includes socio-economic and policy aspects of land use changes and climate change mitigation.

During her consultation with CAMSR, Professor Potvin emphasized the scientific consensus around the urgent need to reduce greenhouse gas emissions. She spoke about the need to accelerate the transition to renewable energies. She noted that with the right social environment, society could transition to a more sustainable future. For this to happen, it would be essential to convince society that a low carbon society is possible and necessary to ensure a healthier future. Professor Potvin encouraged the development of a plan that would aim to accelerate the clean energy transition. In describing opportunities available to universities, Professor Potvin noted that universities are well-positioned to find potential solutions to climate change. She suggested that, from an ethical perspective, universities have a greater responsibility to act than almost any other sector of society because scholars acutely understand the potentially devastating effect of climate change. For this reason, she encouraged McGill to develop a climate mitigation strategy and engage in the "divest-invest" movement, which aims to speed the global energy transition away from carbon intensive fossil fuel and mobilize private and public capital towards clean and sustainable forms of energy.

Professor Christopher Ragan, Faculty of Arts

Professor Ragan described his background in macroeconomics and his involvement in Canada's Ecofiscal Commission mandated to promote fiscal changes intended to benefit both the economy and the environment.

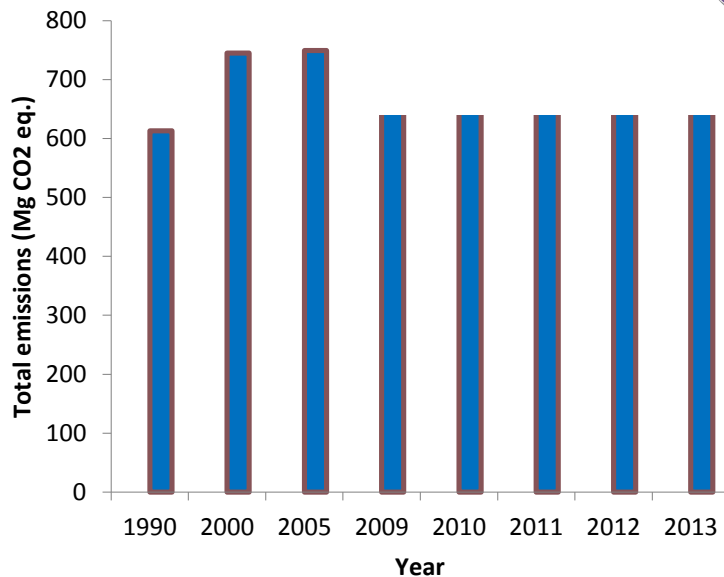
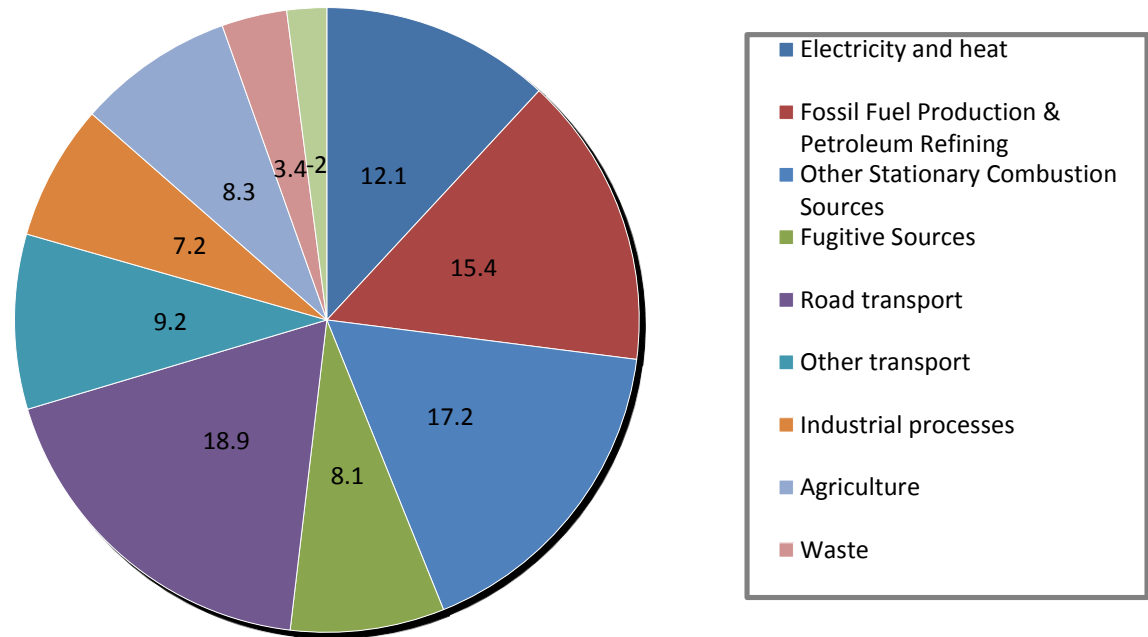
In summary, Professor Ragan noted that climate change was a serious problem that required action. He spoke against divestment as an option for universities, noting that it would have an insignificant economic impact on oil companies while unduly restricting McGill's investment approach, with possible negative effect on McGill's already strained financial situation.

Professor Ragan indicated that the rising level of greenhouse gas emissions is a global problem that needs to be considered not only in the context of production, but combustion and consumption, which account for a significant portion of carbon emissions. He cautioned against making divestment decisions based purely on moral grounds or on the assumed economic impact of divestment, and stated that universities considering this option should take into account their financial investment objectives. Professor Ragan spoke in favour of recommending alternative actions that are aligned with the University's mission. These include enhancing McGill's sustainability efforts through research, teaching and technology development.

Members asked about the effectiveness of carbon pricing as a strategy to deal with climate change. Professor Ragan stated that this option could be developed through government action. He proposed that universities focus on developing practices that would decrease McGill's carbon footprint and focus on plans that are aligned with their mission. It was noted that the University's pension investment framework includes options for plan members to choose socially responsible investment options, and that further work could be done to advance such sustainable initiatives at McGill.

Professor Catherine Potvin's
Presentation to CAMSR
Delivered October 22, 2015

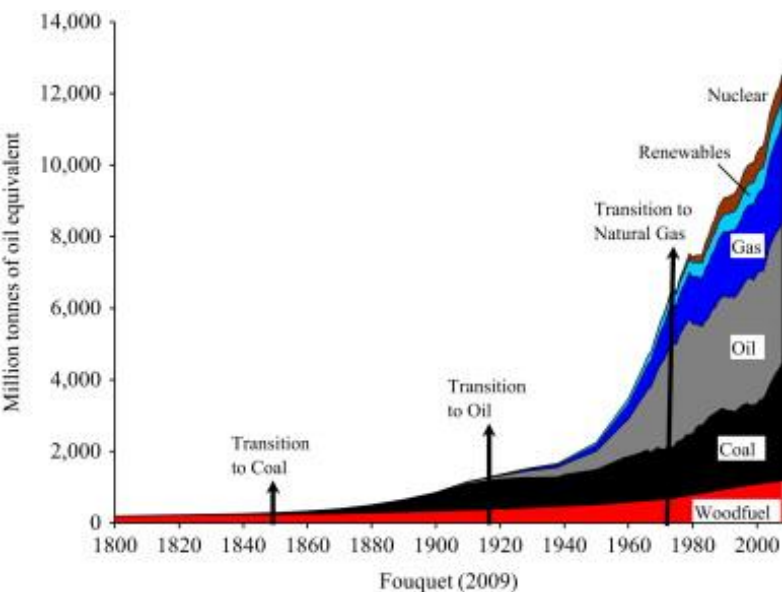
What are the sources of GHG emissions globally and in Canada and what approximate percentage can be attributed to fossil fuel companies?



Emissions by Facility

Province	Company	Industry	Tonnes CO₂ eq.
Alberta	TransAlta Generation Partnership	Fossil-Fuel Electric Power Generation	12,095,356.52
Alberta	Synchrude Canada Ltd.	Non- Conventional Oil Extraction	10,991,091.11
Alberta	Capital Power Generation Services Inc.	Fossil-Fuel Electric Power Generation	8,946,995.00
Newfoundland and Labrador	North Atlantic Refining LP	Petroleum Refineries	1,285,356.00
Newfoundland and Labrador	Iron Ore Mining	Iron Ore Company of Canada	1,140,788.92

What do past energy systems transformations tell us about the forces that are effective in changing energy systems?



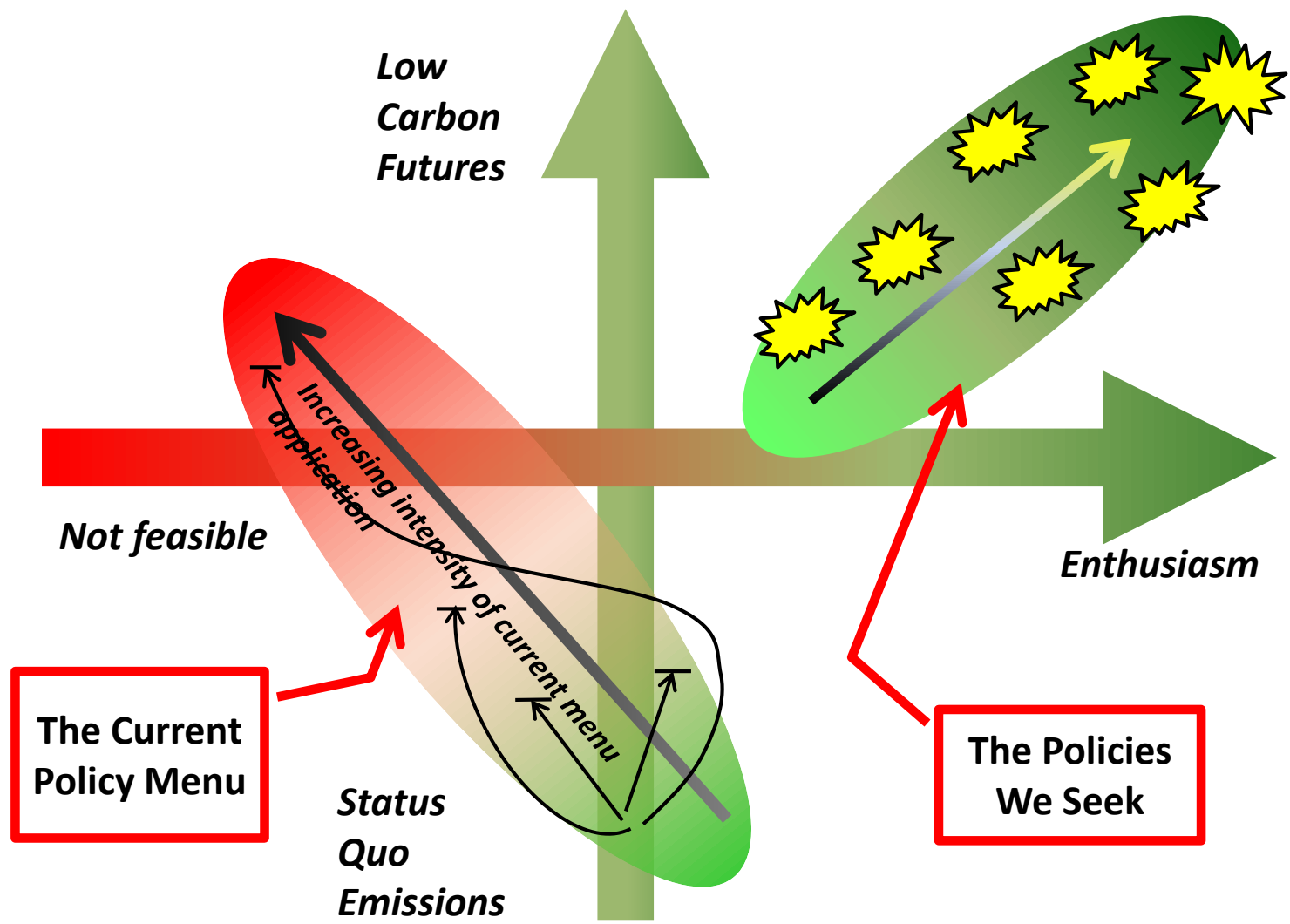
- new energy source cheaper than the incumbent energy source
- new energy source offered enhanced characteristics (including ease of use, flexibility and cleanness, or exclusivity, novelty and status) that consumers were willing to pay for
- the process from technological innovation to niche market to dominance took a minimum of 40 years

Fouquet, R & Pearson, PJC. Past and prospective energy transitions: Insights from history

Energy Policy 20 (2012) 1-7

http://ac.els-cdn.com/S0301421512006805/1-s2.0-S0301421512006805-main.pdf?_tid=6b2397bc-769c-11e5-bb3a-00000aabb0f27&acdnat=1445285169_c6a92fb1ad7c958845e7725e9842fd29

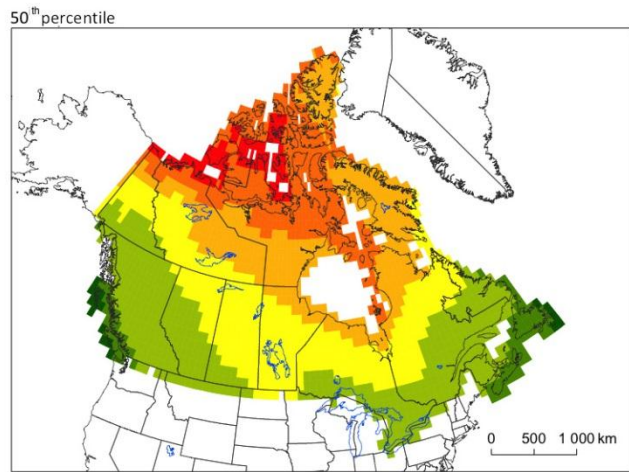
What are the key barriers to current efforts to transform energy systems to ones with a significantly lower GHG footprint?



What would be a methodology/reasonable test for addressing the question of whether the activities of a fossil fuel company have a grave injurious impact on persons or on the natural environment?

Climate change scenarios over the next 100 years according to 2 IPCC scenarios

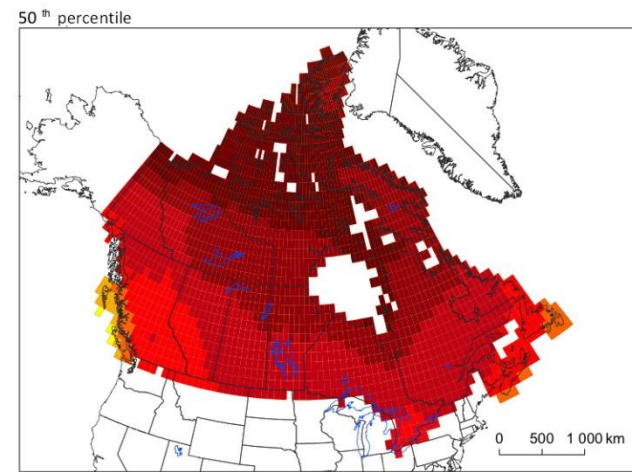
2071-2100 : RCP 4.5



Δ2m Temperature (°C) : ANN



2071-2100 : RCP 8.5



Δ 2m Temperature (°C) : ANN



What policies, strategies and actions could be employed to reduce the effects/impact of fossil fuel use on climate change?

Towards a low carbon sustainable Canada

A POSSIBLE TRANSITION PATHWAY

Long-term target of 80% emissions reduction by 2050.
Medium-term target 26-28% below 2005 levels by 2025.

SHORT TERM

MIDDLE TERM

LONG TERM

POLICY ORIENTATION 1

Put a price on carbon.

Adopt either a national carbon tax or a national cap and trade program.

POLICY ORIENTATION 2

Include aggressive goals for low-carbon electricity production in federal and provincial climate action plans.

Adopt ambitious sectorial targets for low-carbon electricity production.

Support interprovincial electricity transportation infrastructure.

POLICY ORIENTATION 3

Integrate the oil and gas production sector in climate policies.

Eliminate all direct and indirect subsidies to the fossil fuel industry.

Develop a clear regulatory framework coherent with the transition to a low-carbon economy.

POLICY ORIENTATION 4

Adopt a multi-level energy policy with energy efficiency and cooperation in electrification at its core.

Develop a national energy policy with long-term plans for transitioning to low-carbon energy.

Ensure government efficiency standards and

Implement efficiency targets for energy use in the extractive industry.

What policies, strategies and actions could be employed to reduce the effects/impact of fossil fuel use on climate change?

- Put a **price on carbon**
- **Reduce flaring and venting**
 - Johnson & Coderre 2012: <http://www.sciencedirect.com/science/article/pii/S1750583612000357>
 - Buzcu-Guven & Harris 2012: <http://www.tandfonline.com/doi/abs/10.4155/cmt.11.81>
 - Other sources: <http://jwelb.oxfordjournals.org/content/early/2014/08/12/jwelb.jwu021.short>
<http://pubs.acs.org/doi/full/10.1021/es504600q>
<http://www.sciencedirect.com/science/article/pii/S1875510013000164>
- **Alternative extraction technology**
 - Life Cycle Analysis of Charpentier, Bergerson & MacLean 2009: http://www.researchgate.net/profile/Heather_Maclean/publication/231154757_Understanding_the_Canadian_oil_sands_industry's_greenhouse_gas_emissions/links/02e7e5329fdc19e5af000000.pdf
- **Switch to low-carbon sources of energy (electricity)**
 - Norway –Section 1.6: https://www.regjeringen.no/contentassets/aa70cfe177d2433192570893d72b117a/en-gb/pdfs/stm201120120021000en_pdfs.pdf
- **Reduce fugitive sources**
 - IPCC 2006: http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_4_Ch4_Fugitive_Emissions.pdf
 - Ecofys 2009: http://www.ecofys.com/files/files/serpec_fugitiveemissions_report.pdf
- **Carbon capture and storage**
- **Offsetting**
 - Norway and REDD: http://www.fao.org/forestry/vrd/#fsf_report >846Million \$US

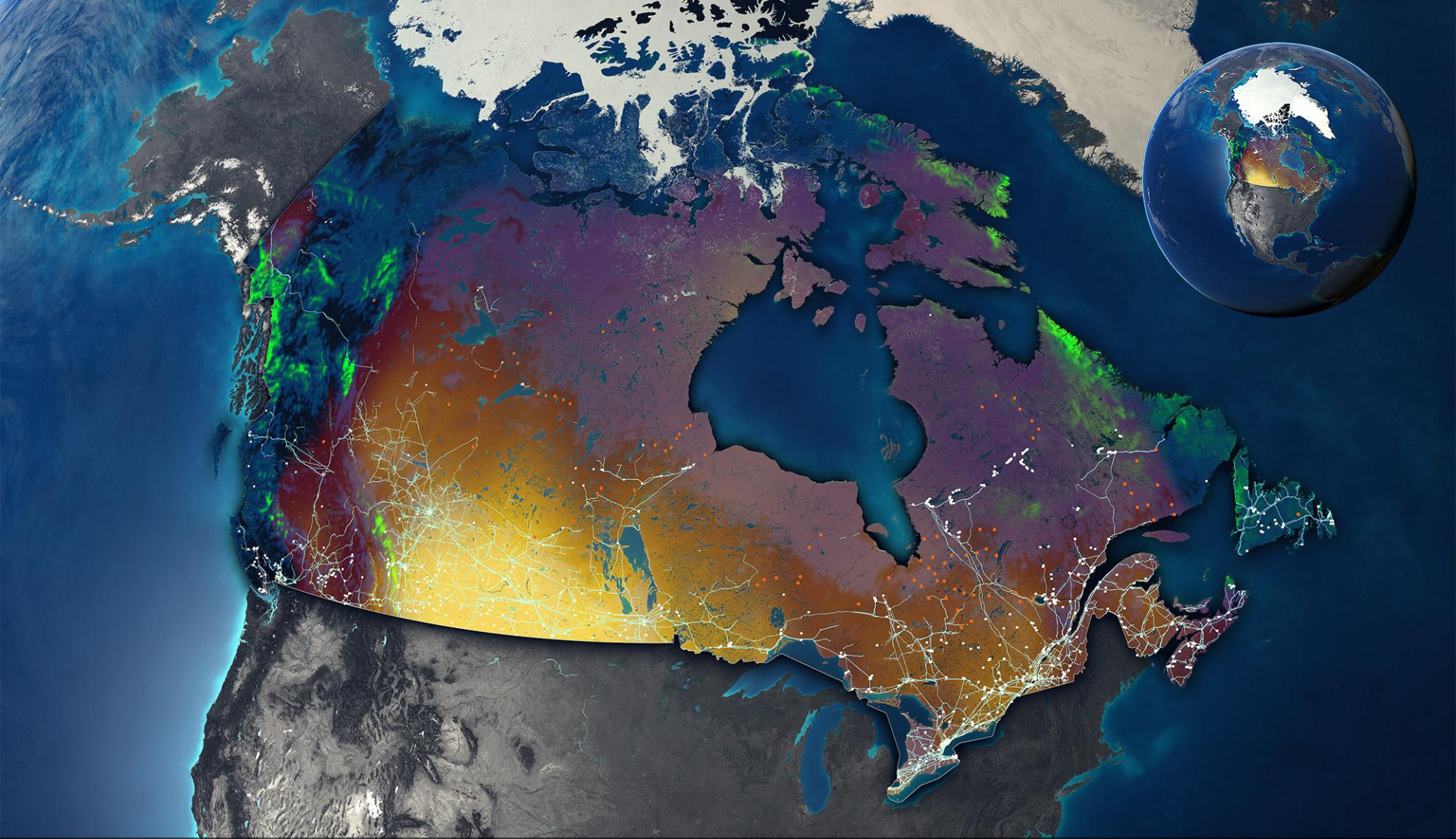
What is the efficacy of divestment as a means of influencing the behaviour of a fossil fuel company? (What are the implications of divestment in the economic context of the energy sector?)

Divest-Invest

Subsidies on energy are estimated for 2015 to be US\$5.3 trillion by IMF.

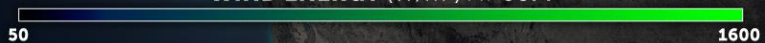
Canada has the third highest nominal subsidies to petroleum of advanced country after Japan and USA in 2015.

<http://www.imf.org/external/pubs/ft/survey/so/2015/new070215a.htm>

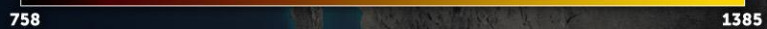


Canada's vast renewable energy potential

WIND ENERGY (W/m^2) AT 50M



SOLAR ENERGY (kWh/kW)



**Existing
Dams**



**Potential
Dams**



**Transmission
Lines**



GLOBAIA

Canada's place in global cleantech markets

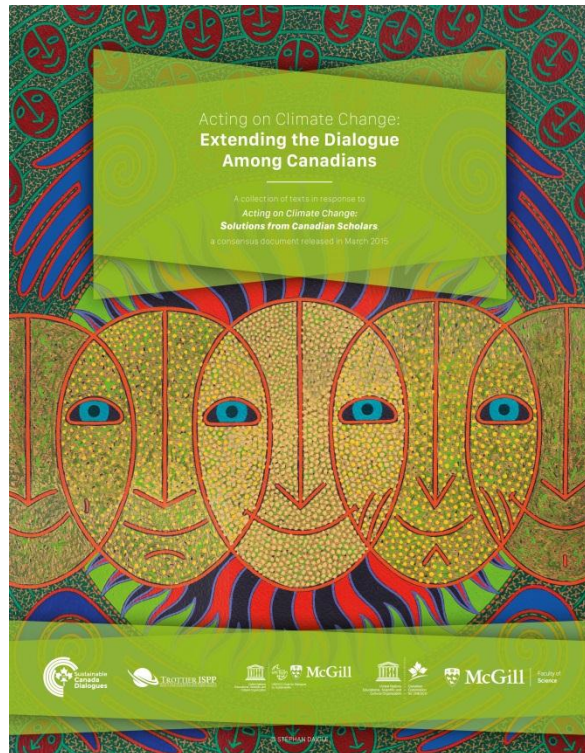
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What is the efficacy of divestment as a means of influencing the behaviour of a fossil fuel company? (What are the implications of divestment in the economic context of the energy sector?)

“Energy subsidy reform can also contribute to carbon emissions reduction and help countries make pledges ahead of the Paris 2015 UN climate conference.”

<http://www.imf.org/external/pubs/ft/survey/so/2015/new070215a.htm>



Divest-Invest

Francois Meloche Bâtirente

What suite of opportunities do Canadian universities have for speeding the energy systems transformation in this country? How do they compare in their likely costs, possible risks and potential benefits?

- Universities as living laboratories (e.g. Yale, UBC)
<https://sustain.ubc.ca/our-commitment/campus-living-lab>
- Integrate the divest-invest actions in a long term Climate Action Plan for McGill with its reported emissions of 31,280 t CO₂ in 2013-2014
- Principal for Responsible Investments
<http://www.unpri.org/signatories/signatories/?country=Canada>
(Simon Fraser; U of Ottawa)
- Montreal Pledge:
<http://montrealpledge.org/>
(University of California)