



Woody Point Lighthouse and Gros Morne Mountain

Photo Credit: Sheldon Stone

Impacts of Hydraulic Fracturing on the West Coast of Newfoundland, Canada

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Fig. 1 –Map showing the East Coast of Canada, the Gulf of St. Lawrence and the West Coast of the Province of Newfoundland and Labrador – with identification of oil licenses (in green).
Image Credit: C-NLOPB

Executive Summary

The main purpose of this paper is to offer a short overview of how small communities in the oil-dependent Canadian province of Newfoundland and Labrador (NL) organized community resistance to hydraulic fracturing (fracking) in an attempt to protect their communities, their human rights, and the increased potential impacts on climate change. Oil exploitation is currently occurring on the east coast (Atlantic ocean) of the province (<http://www.cnlopb.ca/information/maps.php>) but not on the west coast (Gulf of St. Lawrence). With the collaboration of an advocacy network, some protection has been gained, but only minimally and there remains a considered threat by this type of industrial activity.

During a four-year campaign, this community-based movement led the provincial Minister of the Department of Natural Resources to declare, on November 4, 2013, a

“pause” on seeking and accepting applications for exploration/exploitation from the oil & gas industry that would involve hydraulic fracturing in the western Newfoundland license area. On October 10, 2014 the Minister then announced the formation of an independent review panel on fracking - known as the *Newfoundland Labrador Hydraulic Fracturing Review Panel* (www.nlhfrp.ca). The Review Panel received over 600 documents from community members and stakeholders (<http://nlhfrp.ca/wp-content/uploads/2016/05/Executive-Summary.pdf>).

At the time of writing this paper, the “pause” is still in place and the provincial government has not responded to the panel’s report. This is our story.

We owe to the next generations to think and act differently.

Introduction and Background

The Geology of Western Newfoundland

The geology of the west coast of the island of Newfoundland has been identified for the potential of oil exploration for quite some time. In actual fact, the *Green Point Shale* is recognized as the major point of interest for oil extraction on the coast. In recent past, there has been a history of unsuccessful oil exploration on the coast.

To cite Alana Hinchey “et al”, Geological Survey, Department of Natural Resources, 2014 report *The Green Point Shale of Western Newfoundland*:

“Along the coast of western Newfoundland, naturally occurring seeps and shows of hydrocarbons have been documented for over 150 years, leading to a long history of exploring for oil and gas in the region. This exploration targeted conventional oil and gas resources obtained in traditional ways. The current interest in unconventional hydrocarbon resources has focused attention on the Green Point shale (part of the Green Point Formation of the Cow Head Group) of western Newfoundland as a potential host to shale oil and shale gas. In conventional reservoirs, hydrocarbons are found in porous, permeable rock layers such as sandstone or limestone that allow the natural flow of oil or gas into wells. Producing oil and gas economically from shale is more difficult because the hydrocarbons are usually trapped in impermeable rock and cannot flow naturally. Very few shale wells can achieve commercial production without artificial enhancement (“stimulation”) of flow using techniques such as hydraulic fracturing. Recent advances in drilling techniques and in methods for stimulating flow in reservoirs have created new interest in the oil and gas resources in certain kinds of shale throughout North America (well known examples include the Marcellus, Bakken, and the Barnett shales.”

(http://www.nr.gov.nl.ca/nr/energy/pdf/green_point_shale_west_nl.pdf)



Memorial University Newfoundland Bonne Bay Marine Station

Photo Credit: Parks Canada

The Beginning

In November 2012, two junior oil companies came to the west coast of Newfoundland (see fig. 1 above) and gave presentations to the communities regarding their proposed oil exploration in the area. During the presentations it was stated that they intended to “drill one well per 10 kilometers on the coast” (from onshore to offshore - under the Gulf of St. Lawrence), including five (5) sites just outside the boundaries and region of Gros Morne National Park, a United Nations Educational Cultural Organization (UNESCO) World Heritage Site (WHS) and tourism icon for the province. In addition, the communities were told that the goal was to “*transform the west coast into an industrial landscape*” and that the “only way to extract oil on the west coast was through fracking...” This was the beginning of a relationship based on misinformation and unrealistic promises.

From the tone of the presentations, it was clear that regardless of what the communities wanted, needed or believed, the approach from the industry and government would be in the form of a *hostile take-over*.

The communities realized very early in this venture that our lifestyle and environment were at risk. The link to human rights and climate change came later in this evaluation process.

The communities reacted with amazement, horror and skepticism to this type of announcement and to this resource-based extractive project. The west coast of Newfoundland is a place of significant beauty and pristine environment wherein the small communities live from tourism, fishing and traditional woodcutting.

The challenge for the communities was to explain, in dollar figures, the tourism values, the “sense of place”, the “wow feeling” and the “spiritual connection” of the place where we live. What surfaced as an issue was the way the communities valued the land and the complete environment as compared to the strict economic value tagged by government and the industry to a piece of real estate and what could be extracted from it.

In June 2013, the UNESCO World Heritage Committee met in Phnom Penh, Cambodia. Among the conservation issues presented were: “Threats from Extractive Industry to Gros Morne National Park.” The World Heritage Committee “Notes with serious concern the plans to drill and hydraulically fracture (frack) three onshore-to-offshore test wells in the immediate vicinity of the property which could impact the **Outstanding Universal Value (OUV)** and in particular the **integrity** of the property as a result of pollution, industrial infrastructure and shocks to geological formations;” (bold emphasis mine) (<http://whc.unesco.org/en/soc/1930>) (<http://whc.unesco.org/en/decisions/5037>) (<http://whc.unesco.org/archive/2013/whc13-37com-20-en.pdf>)

This was enough for the communities to get “organized”. We began researching the various aspects of unconventional oil extraction (hydraulic fracturing) and determined opportunities and challenges associated with fracking. Then, the communities from three regions along the west coast (Gros Morne / Bay St-George, Port-au-Port, Stephenville / Corner Brook) realized that the success of the resistance against fracking would have to be through an effective network of interested and committed stakeholders.

In 2014, the Newfoundland and Labrador Fracking Awareness Network (NL-FAN) was set up as a non-partisan network of 36 groups (see Appendix 1) including First Nations / Indigenous bands and various organizations, associations and NGOs with serious concerns about the potential risks of hydraulic fracturing (fracking) used in oil & gas exploration and the possible use of this in Newfoundland and Labrador. This advocacy movement engaged in an extensive campaign reaching regional, provincial, national and international levels.



The Gravels / Port au Port Coastline

Photo Credit: Aiden Mahoney

What the industry considers externalities, are what the communities live with.

Community concerns

Understanding the risks

It is interesting to note that for the oil & gas industry fracking is a process in which fractures in rocks below the earth's surface are opened and widened by injecting chemicals and liquids at high pressure. In other words, for the industry, it is the actual “explosion” underground that is important. From the communities’ perspective, fracking is considered an extractive industrial activity occurring and impacting them from the first interest in the site, the first truck going through the community, the drilling, the increased traffic... through to the wells left orphaned many years later.

Supported by resources, information, independent / peer-reviewed reports from the scientific, law, business, tourism, health and medical sectors, the initial analysis of fracking by community members identified the following risks, impacts and challenges.

30 Issues, Risks, Externalities, Unknown Factors Related to Fracking

1) Groundwater and surface water contamination

- 2) Spills from drilling sites, transportation
- 3) Increase of truck traffic on highways and through communities
- 4) Unknown nature of the chemicals used (mainly related to the safety for our children and community members)
- 5) Storage and transport of chemicals & hazardous / radioactive waste

6) Workers' safety

- 7) Infrastructure at municipal level

8) Environment (air, soil, noise, visual pollution, clean drinking water)

- 9) Absence of specific regulations / regulatory framework in NL / # of inspectors and reporting
- 10) Impact on tourism (#)
- 11) Impact on real estate
- 12) Social impacts (fabric of community) and increase in crime rate
- 13) Non-coverage by the insurance industry for property for fracking related damages
- 14) Reputation of the region as a pristine environment
- 15) Threats to fisheries (for jobs and species)
- 16) Impact on the cultural sector
- 17) Impact on the UNESCO World Heritage Site designation and site integrity
- 18) Jobs (limited numbers, low-level types, short duration)
- 19) Actual revenues (short and long-term)
- 20) Earthquake inducement

21) Effects on human health (including costs of subsequent health care)

22) Impacts on wildlife, ecosystems and biodiversity—all species (e.g. moose, caribou)

23) Integrity of wells over time

24) Effects on climate change – methane emissions = contribution to CO2

25) Safety of firefighters, first responders (chemicals spills, nature of chemicals, etc. many are local volunteers, other responders would come from outside the region)

26) Investments (federal & provincial government and individual) in tourism

28) Confidentiality agreements (nature of, effects on families)

29) Radioactive residues

30) Lack of independent information (communities do not trust government or industry)

Out of this list of issues, it became clear that some are directly related to human rights, even though they were not identified as such initially. To illustrate the relevancy to human rights, I will focus only on six (6):

#1 Groundwater and surface water contamination - associated with the right of access to safe water

#6 Workers' safety – associated with the right to work in a safe environment, where the risks and safety are clearly identified

#8 Environment (air, soil, noise, visual pollution, clean drinking water) – associated with the right to live in a healthy environment

#21 Effects on human health –associated with the right to live and work in a safe and clean environment

#22 Impacts on wildlife, ecosystems and biodiversity – associated with the rights of nature including all species (e.g. moose, caribou)

#24 Effects on climate change –methane emissions = contribution to CO2

It is interesting to note that at the beginning of the campaign against fracking in western Newfoundland, individuals associated fracking negatively to issues that were “closer to home” and their immediate needs. The more information they gathered / received, the more their views changed and expanded to incorporate “larger” issues / impacts. The more education and awareness to conservation the individuals had, the more adamant individuals were against fracking.



Port au Port Bay

Photo Credit: Aiden Mahoney

Many governments will make the narrowest interpretation possible of their obligations.

Blue Water (Maude Barlow)

Human Rights Related Issues

Clearly, living in a petrostate (province) offers some unique challenges related to democracy and rights – including the Rights of Nature; Human Rights to health & well being, to a clean environment and to a safe community.

Considering living within the context of a UNESCO World Heritage Site, the National Park, the proximity to a National Historic Site (Port au Choix) and the protection, co-management and stewardship they require from the communities, it is easy to understand why people feel a *duty to care*. This caring is expressed by respecting the environment and taking action when necessary especially when it relates to Human Rights.

The federal Department of Natural Resources (Natural Resources Canada) estimates that in Canada, 60% of the conventional energy sources are located in small rural regions. Therefore, the pressure from the industry and government to access these energies will always be present, and thereby challenge and place at risk Human Rights and democracy.

Based on what we experienced and the current precarious situation, we consider the threat to be present while clearly putting at risk the various Rights (Human, Indigenous, Nature, Health, Environment), Gros Morne National Park and its UNESCO WHS status as well as the communities where we live.

The purpose of this paper is not to bring more evidence on climate change. The UN *Intergovernmental Panel on Climate Change* and the scientific community at large have offered enough evidence to illustrate the impact of fossil fuels on this modern day challenge. Methane emissions from oil and gas exploration using fracking have been well documented and associated with climate change.

To quote a recent *Lancet (medical journal)* publication of October 2017, titled *The 2017 report of the Lancet Countdown: from 25 years of inaction to a global transformation for public health*, the review “tracks progress on health and climate change and provides an independent assessment of the health effects of the climate change, the implementation of the Paris Agreement and the health implications of these actions.” It also stressed the “delayed response of the climate change over the past 25 years has jeopardized human life and livelihoods.” (<http://www.lancetcountdown.org/the-report/>)

The government of Canada has officially recognized the significant impacts of climate change on the Human Rights of its citizens (women, children, Indigenous groups and persons with disabilities). More specifically, our rights to safe drinking water, basic sanitation and access to food. (http://international.gc.ca/world-monde/issues_development-enjeux_developpement/human_rights-

[droits_homme/climate_rights-droits_climat.aspx?lang=eng](https://droits.homme/climate-rights-droits.climat.aspx?lang=eng))

In an interesting book *Oil's Deep State: How the petroleum industry undermines democracy and stops action on global warming –in Alberta, and in Ottawa*, author Kevin Taft, former member of the Legislative Assembly of Alberta with the Alberta Liberal Party (2001-2012) states that “The most profound offence to democracy by the fossil fuel industry may be the way it uses misinformation to debate public dialogue and decision making on global warming.”

Social license is generally considered to exist when the perceptions, opinions, and beliefs held by a local population regarding a development allow for the ongoing public approval of the related activity.

Pembina Institute

Social License

A concept that has become a significant part of the popular discourse in most new energy projects is the notion of “social license / social acceptability”. Whether it is fracking in Newfoundland & Labrador, mining or pipelines in Quebec or the Maritimes, or LNG terminals and pipelines in northern British Columbia, industry and governments are being asked to obtain some level of permission from communities.

Perceived as a form of approval and resistance from the communities or, at the very least, a direct involvement in the decision making process, it is often viewed as a problem and another obstacle to go through by the project proponents. Therefore, in addition to obtaining the necessary government permits, industry / corporation has to negotiate “social permission”.

Of course, social license can be a way of gaining credibility, trust and establishing good relationship, through transparency and meaningful dialogue with the communities concerned. However, could it be an exercise in public relations to offset opposing views, or a technique to engage in a “charm campaign” by the industry and government in order to achieve the desired outcome? In this context, public consultation is not to be considered equal to social license. The two are not the same!

The degree of social license obtained is often based on three elements: the project may be acceptable, unacceptable, or acceptable with certain conditions.

For social license to fully take place, the communities must:

- a) Have clear and adequate knowledge, based on independent, peer-reviewed scientific research, of the potential risks, the advantages and the impacts of a project. In other words, be able to make an informed decision based on all of the possible implications of the project that will affect their community.

- b) Have an opportunity to engage in a meaningful discussion as to the values of the project and its development to the society at large.
- c) Have the possibility to say 'NO' to a project.

In a sense, social license is more than a moral obligation, it is a social contract to be obtained and, respected throughout the project. Without it, consent is not received for the governments and/or oil & gas companies to proceed.

As Canadian Primer Minister Justin Trudeau said, "Governments grant permits, but communities grant permissions". This position was supported by the provincial Premier Dwight Ball in a pre-elections interview (The Independent June 23, 2015) in saying that "oil extraction won't happen without the approval of local residents and communities." In order words, legitimacy, credibility and trust must be in place, and respected between the governments, the industry and communities.

That comforting rhetoric has to be understood within the political realm and for its theatrical value. The reality on the ground is that there is a deep feeling that the governments' position on fracking undermined the validity of the local democratic process, human rights and subsequently tips the balance of power in favour of the corporations. Fracking leaves people stressed and disillusioned with politics as we understand more and more that government itself had become a facilitator and an instrument of the oil & gas industry.

As the February 2016 New Brunswick Commission on Hydraulic Fracturing reported "New Brunswickers, and Canadians for that matter, no longer tolerate backroom deals and government officials working non-transparently with the corporate sector on issues of immense public importance." adding "New Brunswick has often operated with a paternalistic closed-door mentality in which public discussion is not taken into account and where corporate and government behave in unaccountable ways."
(<http://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Publications/NBCHF-Vol1-Eng-Feb2016.pdf>)

Consequently, the communities feel it cannot accept that government alone should decide on important issues such as fracking and its consequences on human rights.



Green Gardens, Gros Morne National Park

Photo Credit: Aiden Mahoney

The time for energy democracy has come: we believe not just in changes to our energy sources, but that wherever possible communities should collectively control these new energy systems.

Leap Manifesto (Naomi Klein)

The Collision of Two Visions

It appears that two visions of economic development are colliding for the west coast of Newfoundland.

On the government / industry side:

a) In 2009, the NL Tourism Industry and the Department of Tourism, Culture, Industry and Innovation launched with great enthusiasm its Vision for Tourism called *Uncommon Potential –A Vision for Newfoundland and Labrador Tourism*.

“The Newfoundland and Labrador Tourism Vision 2020 provides a blueprint for extraordinary growth. It addresses the real and perceptual barriers facing our industry with innovative strategies and actions. And it challenges us to come together as entrepreneurs, industry partners, and Government to grow our industry to new heights: to double the annual tourism revenue in Newfoundland and

Labrador by 2020. To achieve this vision, the Tourism Branch works with entrepreneurs and industry partners to market Newfoundland and Labrador as a top-of-mind travel destination and works with the tourism industry to develop high-quality, competitive products, facilities and services and a professional tourism industry.” (<http://www.tcii.gov.nl.ca/tourism/pdf/uncommonpotential-2016.pdf>)

In practical terms, the province was / is aiming at increased revenues with a target of \$1.6 billion by 2020. Not only have we met the expectations so far but, we surpassed the target last year (2017), with a record number of tourists and in revenues.

b) On June 23, 2017 the provincial Office of the Auditor General tabled its report *Performance Audits of the Departments and Crown Agencies* to the House of Assembly and pointed out that the “Government adopted greenhouse gas emissions reduction targets for the Province. However, it is not on track to meet the 2020 greenhouse gas emissions reduction target.”... (<http://www.ag.gov.nl.ca/ag/annualReports/2017AnnualReport/Annual%20Report%202017.pdf>)

c) Despite this, on February 19, 2018 NL Premier Dwight Ball and Siobhan Coady, Minister of Natural Resources,

“were joined by members of the Oil and Gas Industry Development Council today to release Advance 2030. As part of The Way Forward, the Provincial Government committed to work with industry to position the province globally as a preferred location for oil and gas development. As part of that commitment, an Oil and Gas Industry Development Council was established to create a long-term vision for the province's oil and gas industry, with a focus on promoting development, competitiveness and **sustainability**. (emphasis mine)

In January 2017, the council began to discuss opportunities and actions required to grow the oil and gas industry, with a vision that is driven by an innovative, sustainable, local industry that is globally competitive, environmentally responsible, and maximizes benefits to the people of the province. Advance 2030 is the outcome of that work.

Government has accepted the 17 focus areas recommended by the Oil and Gas Industry Development Council, which includes areas of immediate, mid-term and long-term actions.

By working collaboratively, by 2030 the Provincial Government envisions:

- Over 100 new exploration wells drilled;
 - Multiple basins producing over 650,000 barrels of oil equivalent per day;
 - Shortened time from prospect to production;
 - Direct employment of more than 7,500 people in operations;
 - A robust, innovative global supply and service sector;
 - Commercial gas production; and
 - Renewables and oil and gas integrated in a world-class energy cluster.”
- (<http://www.releases.gov.nl.ca/releases/2018/exec/0219n01.aspx>)

On the community side we understand that:

- a) Based on the internationally accepted 1987 Brundtland report that defines the term sustainability as, “*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*” The communities have a different understanding of the concept of sustainable development.
- b) The Government of Newfoundland and Labrador appears to be in contradiction with the agreement Canada (supported by the province of NL) signed in 2015 at the Paris COP21 in relation to reaching our collective (worldwide) target of reducing our CO₂.
- c) The government statement is not compatible with the current marketing strategy of the tourism sector (led by senior officials of the provincial government!), to form with a cluster of 3 UNESCO World Heritage Sites on the west coast of Newfoundland and Labrador - Gros Morne National Park, L’Anse-aux-Meadows, and Red Bay, Labrador.
- d) The government's continuing energy strategy comes in conflict with efforts from community groups to create a *Marine Protected Area* in the Gros Morne region.

Please remember, we are told that due to its geology, hydraulic fracturing is the only way to extract oil in western Newfoundland. If this is the case, oil exploration and tourism are clearly on a collision course...with the communities in the center.

The question remains as to how we can marry this incoherent and inconsistent vision of government and industry with the one from the community in western Newfoundland. The communities are not opposed to development, but are certainly against development that is not appropriate for our future and the future of the next generations.

In this instance, this government plan will compromise, with its focus on this finite resource (oil), the future of the community, the environment, Human Rights and indeed democracy on the west coast of Newfoundland.



Fishermen at Work, Gulf of St Lawrence

Photo Credit: Aiden Mahoney

We are witnessing the slow, painful death, of the industrial revolution and the fossil fuels industry.

Conclusion

As we progress in time, we realize that the threat persists for our way of life, for human rights, the rights of nature, the changing climate and democracy.

We, the citizens and communities, have a moral obligation to speak out, to demand a change and to live the change we want to see. The governments and industry have a moral, if not legal, obligation to listen and a responsibility to ensure public safety. The principle of *duty to consult* and to have *meaningful consultations* does not apply only to Aboriginal / First Nations peoples, it does apply to all citizens.

In order to bring more awareness to the communities and to be better prepared for the possible re-introduction of oil exploration / fracking on the west coast, it is recommended that the communities engage in a:

- Community Baseline Data Inventory of drinking water (prior to drilling / fracking activities) and of air quality
- Human Health Impact assessment
- Human Rights Impact analysis

These three (3) activities could be proposed as research projects with interested universities and be well documented for future reference.

As this story unfolds, the communities are still waiting for a response from the provincial government to the *Newfoundland Labrador Hydraulic Fracturing Review Panel* report with its 85 recommendations, released May 31, 2016. The communities are also requesting a *legislative ban on hydraulic fracturing* in the province of Newfoundland and Labrador.

In closing, I would like to take this opportunity to express, gratitude and thanks to the members of the *Permanent People's Tribunal on Human Rights, Fracking and Climate Change* for their work and dedication in this matter of common and public interest.

Wishing you the best and with respect,

Raymond Cusson

APPENDIX 1

NL-Fan Network: groups, organizations, associations and NGOs

NL West Coast (26)

- St. Lawrence Coalition (representing over 5000 members: 85+ organizations, towns, regional governments, business operators, academics, fishers, business and tourism sectors, in the 5 Atlantic provinces)
- Gros Morne Co-operating Association
- Hospitality NL (over 400 members in the tourism sector across NL)
- Western Destination Marketing Organization (Go Western Newfoundland)
- Atlantic Salmon Federation
- Gros Morne Coastal Alliance
- Coastal Landowners Association of Western Newfoundland
- West Coast Citizens Against Fracking (Corner Brook)
- Western Environment Centre (Corner Brook)
- Port au Port / Bay St. George Fracking Awareness Group
- Port au Port / Bay St George Fishery Committee
- Bay St. George South Fracking Awareness (Robinson)
- Canadian Parks and Wilderness Society (Ottawa, St. John's chapters)
- Council of Canadians (Ottawa, St. John's chapters)
- United Church (Stephenville)
- Diocese of Corner Brook (Environmental committee)
- NL Fracking Awareness Network (nlfan.ca)
- NL College of Family Physicians
- Coalition for Alternatives to Pesticides NL
- Qalipu First Nation Band
- Conne River Miawpukek Tribal First Nation
- SOSS NL (Save our Seas and Shores)
- Divest Memorial University of Newfoundland / Grenfell campus
- David Suzuki Foundation
- Whaleback Nordic Ski Club for a clean and healthy environment
- Democracy Action Western Newfoundland

NL East Coast (10)

- East Coast Fracking Awareness Group
- Sierra Club (NL Chapter)
- Nature NL
- Sandy Pond Alliance
- Social Justice Cooperative NL
- Mercy Centre for Ecology & Justice
- Public Service Alliance of Canada
- Research Exchange Group (Memorial University Newfoundland)
- East Coast Environmental Law (Halifax, Nova Scotia)
- UNIFOR (largest private sector union in Canada)

APPENDIX 2

<http://www.cnlopb.ca/information/maps.php>

UNESCO monitoring related links:

<http://whc.unesco.org/en/decisions/5037>

<http://whc.unesco.org/archive/2013/whc13-37com-20-en.pdf>

<http://whc.unesco.org/en/soc/1930>

<http://whc.unesco.org/en/soc/2878>

<http://whc.unesco.org/en/soc/3471>

<http://www.cbc.ca/news/canada/newfoundland-labrador/gros-morne-fracking-plan-on-unesco-radar-1.1339057>

<http://www.cbc.ca/news/canada/newfoundland-labrador/unesco-gros-morne-industrial-buffer-1.3603972>

http://www2.gnb.ca/content/gnb/en/departments/erd/energy/content/NBCHF_FinalReport.html

<http://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Publications/NBCHF-Vol1-Eng-Feb2016.pdf>

<http://www.releases.gov.nl.ca/releases/2018/exec/0219n01.aspx>

<http://www.thewesternstar.com/news/local/newfoundland-and-labrador-wants-more-oil-gas-production-187380/>

<http://www.ag.gov.nl.ca/ag/annualReports/2017AnnualReport/Annual%20Report%202017.pdf>

<http://www.lancetcountdown.org>

http://international.gc.ca/world-monde/issues_development-enjeux_developpement/human_rights-droits_homme/climate_rights-droits_climat.aspx?lang=eng

Le collectif scientifique sur le gaz de schiste

The Scientific Collective on Shale Gas Issues in Quebec brings together **182 scientists** from various disciplines, attached to an institution of higher education or to an independent research structure of the oil and gas industry.

<https://translate.google.ca/translate?hl=en&sl=fr&u=http://www.collectif-scientifique-gaz-de-schiste.com/accueil/&prev=search>

WEBSITES OF INTEREST

<http://www.pc.gc.ca/en/pn-np/nl/grosmorne>

Gros Morne Tourism video (credit NL Department of Tourism)
<https://www.youtube.com/watch?v=oHmsHU1zuoc>