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Session 2: Climate Change Impacts & Actions in NL

10 Mar 2021



On March 10th, we heard from Dr. Joel Finnis, Dr. Ashlee Cunsolo, and Ashley Smith on the impact climate change is having on Newfoundland and Labrador--and some advice about the actions that we can take to mitigate and adapt.

You can view the recording of the session, above, and then feel free to post your thoughts, concerns, or questions below!



Write a comment... You can use @ to tag somebody in the conversation

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👤 Mandy Rowsell, almost 2 years ago

Another audience question for us to consider:

"Do you think our current infrastructure is built for these future climate changes? Using Texas as an example, are there structural changes that we should start thinking about?"

REPLY



Hide reply (1)



Shealah, over 1 year ago

[Alert moderator](#)

I think this is a really important question to ask!

REPLY

Do you agree? 👍 👎



👤 Mandy Rowsell, almost 2 years ago

Some more great audience questions from Wednesday's session:

"One of the best ways to transition to a more environmentally-friendly society is to improve local food sustainability. This is especially relevant considering that a majority of food in NL is shipped in, increasing the GHG emissions of NL. One solution, therefore, is to increase local farming--but, given the poor growing conditions and harsh climate, what are some ways to achieve more local food sustainability in our unique environment?"

REPLY



Hide replies (2)



GeorgeOBrien, almost 2 years ago

[Alert moderator](#)

The province has a number of abandoned underground mines which have become flooded. The depth of some of these is thousands of feet, flooded with gigantic amounts of water which is being warmed the same way that the water for geothermal heat pumps is being warmed. These energy sources can be utilized to make the operation of greenhouse or hydroponic agriculture operations more economical. Perhaps displacing some and possibly a large portion of imported produce. The first step would be an analysis of the size heat reservoir that exists. Then a marketing of the energy source.

An alternate or additional use of this energy store would be for residential and commercial heat in communities where these energy sources are available. Thus displacing CO2 producing fuels. The water with the recovered heat removed would be allowed to flow back into the reservoir thus resulting in a closed loop system. In some instances the water will be acidic and before being recycled back into the reservoir could be run through ponds containing local limestone to increase the ph thus providing additional environmental benefit

George O'Brien

REPLY

Do you agree?  



Nick, over 1 year ago

[Alert moderator](#)

This is a good point not only for this forum but for more widely based provincial policy initiatives. Snowmageddon of 2020 illustrated how susceptible we are to food shortages. We have to fully utilize science and technology to secure provincial maintenance of our food sources. Climate change may hinder, or may assist in accomplishing this key element.

REPLY

Do you agree?  



👤 Mandy Rowsell, almost 2 years ago

Hi, Everyone

Thanks for joining us today for our session. I'm going to be posting some of the questions that we weren't able to ask live. I'll keep these anonymous, just in case the askers didn't want their personal information shared (but feel free to jump in and take credit).

We hope some of these will inspire some conversation, and our panelists should be dropping by pretty soon to reply!

First up:

"NL has enormous renewable energy natural resources, which provides significant opportunities for NL to reach Canada's commitment to Net Zero by 2050. How can we get there?"

With the expected clean hydropower from Muskrat Falls, we need a NL "Climate Action Road Map" towards a Green and Blue Economy, through electrification-- including, for example, electrification of ports and marine shipping; electric or hybrid ferries; harbourcraft; etc.--we need an inclusive road map for electrification."

REPLY



Hide replies (2)



MSamms, almost 2 years ago

[Alert moderator](#)

The simplest thing to be done for "an inclusive road map for electrification" is to connect the communities who live along the Muskrat Falls transmission line, especially those with outdated systems. Ours was built in the '70s, and as far as I know there haven't been any upgrades in that time. The transmission line to NS passes by our station - it's (I'm estimating) about 1km closer to the mountains. I can't see a reason not to hook up the communities on the way.

REPLY

Do you agree?  



Nick, over 1 year ago


[Alert moderator](#)

I agree that NL's hydro power may be a key to assisting in stabilizing both local power issues as well as adding to provincial economic growth factors. The question of clean may present some issues but at the present it is the 'more' clean answer (I think). In terms of economic stabilization, the expected growth in demand for electric sources puts NL in a favourable position for taking advantage of key market growth - the questions is can we accomplish this? The albatrosses of Churchill and Muskrat Falls developments make us somewhat gun shy, however, we as a province are in a unique position of have an abundance of cheap, renewable energy that is awaiting consumption. This would definitely make a good discussion topic for solutions to climate change and how it could impact NL.

REPLY

Do you agree?  





 Mandy Rowsell, almost 2 years ago

Audience question:

"How should the province proceed with managed population decline in conjunction with reducing per-capita GHG emissions? How do you expect population decline and concentration will impact transportation emissions, and so on?"

REPLY

  Hide reply (1)



jfinnis, almost 2 years ago

[Alert moderator](#)

Tackling climate via population is a losing battle - and places responsibility for addressing climate change on the developing world (where populations are growing, but fossil fuel consumption is very low), rather than wealthy countries populated by high emitters (Canada, Europe, the US etc - where birth rates are already very low). Reducing global population without reducing fossil fuel consumption will do nothing to address climate change.

The upside is that consumption *is* under our control - while population is not. Canada's current growth is due to immigration, not our birth rate - so we aren't contributing to global population growth. We *are* a major fossil fuel consumer (among the highest in the world, per capita!) We've also built up a great deal of wealth while taking advantage of cheap fossil fuels - and we now have the capacity (many would argue responsibility) to work hard to reduce our individual consumption, while making it cheap/easy for the developing world to do so as well.

As an aside: Historically, the most effective means of decreasing population growth in a country are to increase wealth, health, human rights, and access to education. Working to reduce global inequality is our best strategy for stabilizing population.

REPLY

Do you agree?  1 



■ Mandy Rowsell, almost 2 years ago

Audience question:

"Are geoengineering strategies (such as carbon dioxide removal and solar radiation management) a viable strategy to compliment a reduction in fossil fuel consumption, or is cutting back on carbon emissions the only way to mitigate climate change effects?"



REPLY



Hide reply (1)

jfinnis, almost 2 years ago

[Alert moderator](#)

Modest geoengineering proposals can help offset emissions, but i) can't address the problem without considerable emissions reductions and ii) often raise serious environmental concerns. We have a pretty bad track record of anticipating all the ways our chemicals & activities will negatively impact the environment (DDT vs birds, acid rain, CFCs vs ozone, and climate change are just a handful of the many, many examples). Geoengineering options that suggest we release chemicals or shift landscapes *on purpose* to achieve a *predictable effect* are consequently very risky. A good example of a bad idea is ocean fertilization - the idea that we could pull carbon into oceans if we 'feed' ocean plants on a large scale. This presents real risks to ocean ecology & already-stressed fish stocks - but it hasn't stopped people from (illegally) experimenting (e.g. <https://www.nature.com/news/ocean-fertilization-project-off-canada-sparks-furore-1.11631>).

Better (smaller-scale/less invasive) approaches include ideas like planting trees. Or, if we want to scale this up, and make greater use of the same chunk of land: growing plants to make charcoal to be mixed with soils ('biochar') - which traps the carbon as charcoal for very long periods, while allowing us to re-use the same land for this purpose repeatedly. These are more modest proposals - they can't solve our problem entirely, and may be difficult to scale up without sacrificing land currently used for other purposes (agriculture, natural landscapes etc), but present fewer environmental concerns - and are perhaps worth exploring.



REPLY

Do you agree?  


🚩 Mandy Rowsell, almost 2 years ago 

Audience question:

"Has it become harder to be trusted as experts in the recent political climate?"

REPLY



🚩 Mandy Rowsell, almost 2 years ago 

Audience question:

"The contribution of NL citizens has an impact on NL, like anywhere else, but how much are we impacted by others, outside our province and/or country? How should we act in the face of this? Should we focus our limited efforts on mitigation of climate change impacts, which will slowly affect our societal view of the problem, or should we focus on the mitigation of our contribution, which may impact our ability to act fast enough to the changes coming from beyond our borders. Or do we put equal weight on both?"

REPLY



🚩 Mandy Rowsell, almost 2 years ago

Audience Question:

"Joel mentioned that it's possible that average participation will increase by 1mm/day in the future. Has any work begun with NL Hydro to discuss how this impacts their hydro reservoir system, both as safety measures (dams) and opportunities, such as increasing energy output from this resource, thus reducing thermal output from Holyrood?"

REPLY



Hide reply (1)



jfinnis, almost 2 years ago

[Alert moderator](#)

While I'm not familiar with the details, there have been analyses of climate change impacts on hydro-power. I know Ken Snelgrove (MUN Engineering) and Jonas Roberts (now with Wood PLC) have studied some of these issues.

REPLY

Do you agree?



Mandy Rowsell, almost 2 years ago

Audience Question:

"With Joel's current model, will any of our coastal areas in the province become inhabitable? If so, what areas?"

REPLY



Hide reply (1)



jfinnis, almost 2 years ago

[Alert moderator](#)

While we can expect increased coastal erosion & damage to coastal infrastructure as sea level rises, our steep topography really helps limit the damage. There will, however, be challenges in low-lying areas very near the coast.

Here's a tool you can use to explore future coastal flooding - in NL and abroad. Take a look at CBS: for moderate climate change, a moderate coastal flood in 2100 could be expensive...

[https://coastal.climatecentral.org/map/11/-53.0541/47.5124/?
theme=sea_level_rise&map_type=year&basemap=roadmap&contiguous=true&](https://coastal.climatecentral.org/map/11/-53.0541/47.5124/?theme=sea_level_rise&map_type=year&basemap=roadmap&contiguous=true&)

elevation_model=best_available&forecast_year=2100&pathway=rcp45&percentile=p50&refresh=true&return_level=return_level_10&slr_model=kopp_2017



REPLY

Do you agree?

DGT Inc, almost 2 years ago

[Alert moderator](#)

Based on some of the queries during the session I would like to suggest that it may be useful, in a future session, for Dr Finnis and/or others to discuss the nature and validity of the climate models in use. This should/could include the validation processes associated with them and, in particular, the 'state of the art' so to speak of down sampling of these models to make them more applicable to forecasting for NL which is the target of interest here. It would also be of interest to know if there is a model running for this part of the world on a continuing basis to support researchers. This level of detail might go some way to help folks deal with the disconnects associated with coming to terms with trends that are not obvious by looking at the data readily accessible to them via ECCC etc.



REPLY

Do you agree? Hide reply (1)

jfinnis, almost 2 years ago

[Alert moderator](#)

Rather than re-constructing the science behind climate change, we decided to focus on what climate change will mean for the citizens of NL. This allowed us to highlight information that is likely to be most relevant to the people of this province, while engaging in a discussion (rather than an extended science lecture).

Some of the audience may be interested in digging further into the science & methods that have informed the scientific consensus on human-driven climate change. Fortunately, there are a variety of resources available already – from fairly accessible documentaries like 'An Inconvenient Truth', through to higher-

level synthesis of observations & modelling exercises issued by the Intergovernmental Panel on Climate Change (IPCC).

Inconvenient Truth: <https://www.youtube.com/watch?v=8ZUoYGAI5i0>

IPCC 5th Assessment Report (see Chp 9 for model evaluation):

<https://www.ipcc.ch/report/ar5/syr/>

I'll also ask if we can upload recordings of some introductory climate change lectures, outlining the observational & modelling evidence.

If anyone is interested in NL numbers specifically, you can find detailed projections and a discussion of methodology (as an Appendix) here:

https://www.turnbackthetide.ca/tools-and-resources/whatsnew/2018/Final_Report_2018.pdf

REPLY

Do you agree?  



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