Clear the Air in Paris

Climate Change Action for Canada

A Submission to the Government of Canada

Canada withdrew from Kyoto in 2011 to avoid ~$14 billion in penalties. In 2013, the IPCC reported that a naturally induced 15 years hiatus in global warming (now 18 years and 8 months) hiatus began before Kyoto was ever ratified. This evidence conflicts with the hypothesis of Anthropogenic Global Warming/Climate Change of carbon dioxide as the driver of warming. Carbon dioxide emissions from human activity have risen some 35% in the past 20 years despite measures said to reduce carbon emissions. Numerous unintended consequences of climate action have crippled national economies and pushed taxpayers into heat-or-eat poverty. Climate change targets could devastate the Canadian economy, especially if legally binding. **It is time to clear the air.**

FRIENDS OF SCIENCE

Providing Insight into Climate Science

This is a formal submission to the

Government of Canada

by the Friends of Science Society in advance of the

Paris Climate Change talks December 2015.

A copy will go to provincial premiers

and the Alberta Climate Panel.

Friends of Science Society has spent a decade reviewing a broad spectrum of literature on climate change and has concluded the sun is the main driver of climate change, not carbon dioxide (CO_2). The core group of the Friends of Science is a growing group of earth, atmospheric and solar scientists, engineers and citizens.

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Friends of Science Society does not represent any industry and is funded by members.

Cover photo: © Igor Pliner

Climate Change Action for Canada

Kyoto was Flawed and Failed

In 2002, the Association of Professional Engineers and Geoscientists of Alberta (APEGA), then some 50,000 member strong, solicited a debate on the Kyoto Accord. Two members of the Pembina Institute debated with Allan MacRae, P. Eng. and two scientists, Dr. Tim Patterson, Professor of Geology at Carleton University and Dr. Sallie Baliunas, astrophysicist at the Harvard-Smithsonian Center for Astrophysics. (Drs. Patterson and Baliunas - advisers to Friends of Science Society). Allan MacRae and Friends of Science scientific advisers opposed the Kyoto Accord on scientific and economic grounds.

Pembina Institute representatives supported Kyoto, claiming the science of the Intergovernmental Panel on Climate Change (IPCC) was valid and there would be economic benefits from Kyoto.

In 2011, Canada pulled out of Kyoto to avoid penalties of some $14 billion. Based on estimates from Pew Energy Trust some $2.2 trillion was spent from 2004-2014 on renewables world-wide on failed carbon reduction/climate change mitigation. Carbon dioxide levels are higher than ever before.

IPCC – Uncertain Science

In 2013, the IPCC reported that there had been a 15 year 'hiatus' in global warming to 2012, not predicted by a single computer model. That 'hiatus' or 'pause' continues to this day, now 18 years and 8 months, with the surface temperature records bobbling around a flat trend line, despite a rise in carbon dioxide (CO_2) from human industrial activity. This 'hiatus' was not predicted in a single climate model.

Canadian investigative journalist, Donna Laframboise, has reported that green activists, senior people with WWF and Greenpeace are an integral part of preparing IPCC reports.

Canadian economist and author, **Dr. Ross McKitrick, recommends that climate policy makers should wait 2-4 years to better evaluate temperature trends**, and to see if climate models improve in predicting the future.

Canada at Risk when Climate Changes and Cools

In 2002, our scientific advisers said that the sun is the main driver of climate change and that changes go in cycles. At present, solar sunspot activity is extremely low. Based on some 400 years of observations, a period of cooling, similar to the Little Ice Age (1350-1850) is imminent.

It would be catastrophic and untenable for Canada to be constrained in its use or production of fossil fuel energy by offshore, unelected, unaccountable agencies during regional or global cooling.

Canadian energy economist Robert Lyman points out that climate change target implications mean we would be unfairly forced to shutter all our major industries; our economy would be reduced to ashes, like that of Chad. Canada's emissions make up **only ~1.8% of global emissions**. Our sacrifice would be irrelevant in the face of developing nations that would be free to emit at will.

IPCC Process is Flawed

Uncertain Science – Warming has Flat lined for 18+ years despite rise in CO_2

Climate Change Targets would mean Economic Catastrophe for Canada

A Legally Binding Agreement would Contravene UN Right of equal Sovereignty and Convention on Economic Security

"*The Organization is based on the principle of the sovereign equality of all its Members.*"

UN Charter of Principles

Chapter 1 Article 2.1

As a sovereign nation, Canada has an obligation to protect its own citizens and economy; it has no obligation to comply with demands for economic suicide.

Clear the air in Paris.

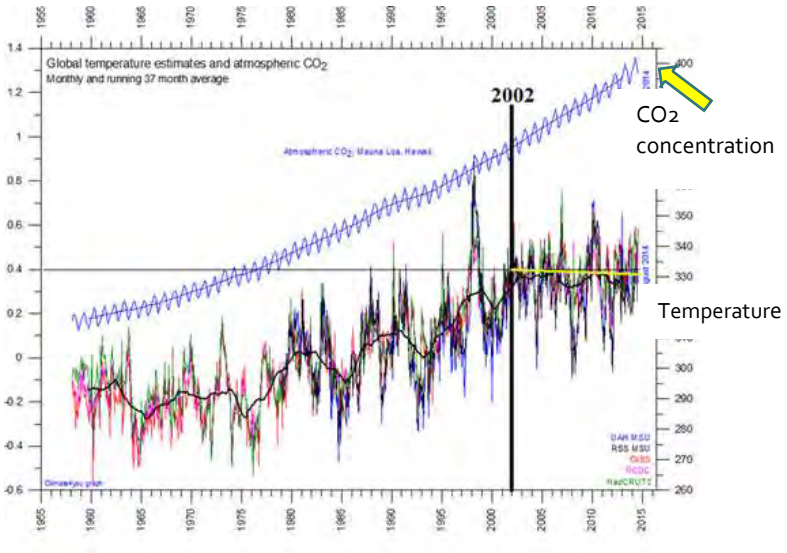
UNFCCC – Prevent Dangerous Anthropogenic Global Warming

Evidence does not Support Premise; Outcomes do not Support Methods

With 196 Parties, the United Nations Framework Convention on Climate Change (UNFCCC) has near universal membership and is the parent treaty of the 1997 Kyoto Protocol. The Kyoto Protocol has been ratified by 192 of the UNFCCC Parties.

The ultimate objective of both treaties is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system.
http://newsroom.unfccc.int/about/

The stated objective of the United Nations Framework Convention on Climate Change (1997) was to prevent dangerous human interference with the climate, assumed at the time to be primarily driven by greenhouse gas emissions.



The evidence shows that despite a significant rise in carbon dioxide concentration (blue line) from human industrial activity, since 2002 temperatures have flatlined (multi-colored lines of 5 different temperature datasets).

In acordance with UNFCCC, precautionary measures were instituted by various countries based on climate models. The European Union incorporated stringent climate change emissions reduction targets. This has resulted in wide-spread 'heat-or-eat' poverty[1] for citizens and in the UK, the energy grid sits on the edge of its capacity.

Carbon taxes and carbon trading were introduced as methods to offer incentives or means to reduce emissions. However, INTERPOL[2] reports that white collar and organized crime have infiltrated these

[1] http://www.spectator.co.uk/features/9176251/let-them-eat-carbon-credits/
[2] http://www.interpol.int/en/News-and-media/News/2013/PR090/

markets – happy to deal with *"the lack of delivery of an invisible substance to no one."*[3] INTERPOL notes that sometimes emissions have been upped in order for traders to make more money.

Renewable energy devices like wind and solar farms were implemented; this has resulted in the toxic devastation of poor communities like that of Baotou, China,[4] where uncontrained rare earth mineral mining, necessary for wind turbine magnets, have destroyed the lives of villagers.

The evidence to date does not support the premise of the original UNFCCC convention. The outcomes do not support the methods. Pollution grows in non-OECD countries unfettered, unabated.

CLIMATE TARGETS: ENVIRONMENTAL AND ECONOMIC IMPLICATIONS FOR CANADA

PART I

Article 1. 1. All peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.

2. All peoples may, for their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic co-operation, based upon the principle of mutual benefit, and international law. In no case may a people be deprived of its own means of subsistence.

International Covenant on Economic, Social and Cultural Rights[5]
Entry into force: 3 January 1976

Canadian energy economist, Robert Lyman, an expert of 37 years' experience, has written a report on the implications of climate change targets for Canada.[6] In it, he notes that Canada's GHG output is nominal in the global context and that all growth in emissions are forecast to come from developing nations. There would be no common sense or justice in Canada complying with the UNFCCC/Paris Climate Change targets if their implementation leads to Canada's economic destruction. This would be in breach of the International Covenant of Economic, Social and Cultural Rights.

Canada is an energy, resource, forestry and agricultural producing nation with challenges of vast distances, sparse population and extremes of climate. Canada feeds, fuels and houses the world. The proposed climate change targets would unfairly penalize Canada, a nation that has steadily reduced real pollution since the 1970's. Further, Canada's very significant charitable and foreign aid contributions to the world would end if the Canadian economy was destroyed by compliance with climate change targets. It would also appear, based on the evidence, that the climate science case for such action has been misrepresented or exaggerated by environmental activists and the IPCC.

[3] http://citizensclimatelobby.org/files/Conning-the-Climate.pdf
[4] http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html
[5] http://www.refworld.org/cgi-bin/texis/vtx/rwmain?docid=3ae6b36c0
[6] http://friendsofscience.org/assets/documents/climate_change_implications_Lyman.pdf

In light of this, a **legally binding agreement** as proposed for Paris could be catastrophic for Canada.

> *Canada represents a small share of global anthropogenic emissions. Even if Canada and other OECD countries were to meet the extraordinarily stringent emission reduction targets, global emissions would still grow above 2010 levels. While meeting the targets would prove very costly, indeed possibly destructive to Canada's economy, the IPCC goal would not come even close to being met. Canada's sacrifice, in effect, would be largely a symbolic gesture. Canadians should judge carefully how great a cost they wish to bear for symbolism. – Robert Lyman*

SOCIAL COSTS OF CARBON EXAGGERATED; SOCIAL BENEFITS EXCLUDED

"[The] models are so deeply flawed as to be close to useless as tools for policy analysis. Worse yet, their use suggests a level of knowledge and precision that is simply illusory, and can be highly misleading." – *Robert Pindyck, American economist on the Integrated Assessment Models used to calculate Social Costs of Carbon*[7]

"What needs to be fixed in the models? My guess is that the overall climate sensitivity to CO_2 emissions is just way too high. I would say we need to wait. We're going to get some new information in a couple of years on the social cost of carbon[8]....**climate policy makers should wait 2-4 years**." Dr. Ross McKitrick, Canadian economist and co-author of "*Taken by Storm:: he Troubled Science, Policy and Politics of Global Warming"*

On January 16, 2014 atmospheric scientist Dr. Judith Curry of Georgia Tech testified to the US Senate committee on Environment and Public Works that:

[7] http://web.mit.edu/rpindyck/www/Papers/PindyckClimateModelsJELSept2013.pdf

[8] 'carbon' referring to carbon dioxide and equivalent warming effects of greenhouse gases; in reality the proper use of the term 'carbon' refers to soot, not the odorless, tasteless gas you breathe out at 40,000ppm with every breath

♦ the case for human-caused global warming had been weakened by the evidence of (then) 15+ years of 'hiatus' or pause, despite a rise in carbon dioxide,
♦ the IPCC (Intergovernmental panel on Climate Change) was unable to explain why their theory of Anthropogenic Global Warming was not proving out,
♦ carbon dioxide (CO_2) is likely not the 'control knob' of climate variability.

Dr. Curry has called for the IPCC to be shut down, saying: **"the IPCC still has not provided a convincing argument for how much warming in the 20th century has been caused by humans."**

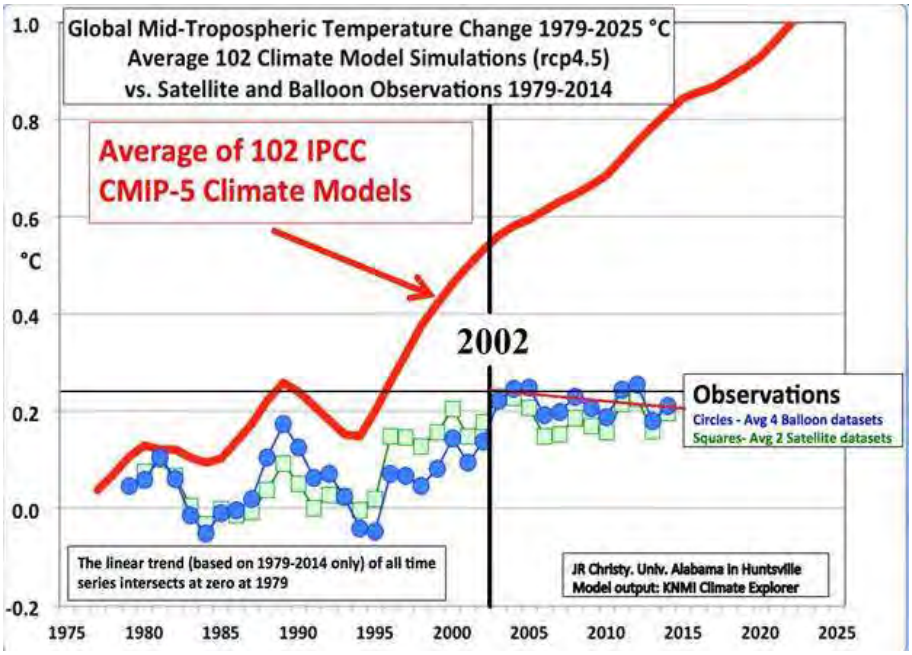
Activists claim that the detrimental effects of fossil fuel use – or a price known as the Social "Costs" of Carbon should be counted against current use of fossil fuels in carbon taxes. However, numerous economists object to the Integrated Assessment Models used to calculate Social Costs of Carbon because:

a) The calculations do not have a 'benefit' column - the physical burden of subsistence living alleviated; freedom of movement enhanced; agricultural output multiplied, hi-tech innovation, etc
b) The social costs of carbon models are calibrated to climate models which predicted a global surface temperature trend from 1998 to 2012 that is more than **four** times higher than the actual recorded temperature trend.

What of the "Social Benefits" of the use of fossil fuels? The French economist and demographer Emile Levasseur described how, if one steam horsepower was equivalent to the power of 21 men, in 1840, French industry had a million new workers, thanks to steam power. By 1885 - 87 that number had risen to 98 million or *"deux esclaves et demi par habitant de la France"* (two and a half slaves for each inhabitant of France.) -Matthew Sinclair *"Let them eat carbon; the price of Failing Climate Policies and how governments and big business profit from them"*

Today, it is estimated that people in the Western world have the equivalent of ~97 men working on their behalf, through the power generated by fossil fuels. Thus life is comfortable, creative, filled with recreation and travel options and numerous time-saving, handy electrical devices. And…Reliable, affordable electrical power, on-demand. This is clearly not reflected in Social Cost of Carbon assessments, which rely on predictive claims of impending doom, citing threats of natural disasters which have occurred in times past before fossil fuel use.

GOVERNMENT CLIMATE CHANGE POLICIES WERE SET BASED ON CLIMATE MODELS THAT HAVE SIGNIFICANTLY DIVERGED FROM OBSERVED TEMPERATURES



In 1998 there was a natural phenomenon called an "El Nino" (El Nino Southern Oscillation – ENSO) which caused a global temperatures spike. Since that time, observed temperatures show no significant trend in warming, despite a rise in carbon dioxide.

Many expert scientists disagree that additional carbon dioxide can cause more warming beyond a certain point because of a 'saturation' effect; others point to the ameliorating role of water vapour, a much larger source of greenhouse gases in the atmosphere and one which NOAA calls the 'wild card' in global warming.

Canadian mathematician David Orrell noted that "Trying to model a cloud is about as easy as trying to hold one in your hands…they are a major source of error."

Canadian earth scientist Jan Veizer, Distinguished Professor Emeritus of the University of Ottawa and Dr. Nir Shaviv, astrophysicist of Hebrew University in Jerusalem and former post-doc student of the University of Toronto's Canadian Institute for Theoretical Astrophysics have found evidence of the influences of cosmic rays on climate, supporting the work of Hendrik Svensmark of Denmark's Sun-Climate research unit. Clearly climate is not all about human influence and there is much to be learned.

RENEWABLE ENERGY – A "NOBLE WAY TO LOSE MONEY"

Joseph Dear was chief investment officer of California Public Employees' Retirement System, the sixth largest pension fund in the world. According to Mr. Dear, a CalPERS fund devoted to clean energy and technology which started in 2007 with $460 million has an annualized return of minus 9.7% to date (March 25, 2013 Wall Street Journal). Dear said, "What's going to make these markets really take off is if the price of alternative energy drops below the price of a carbon-energy equivalent. You will no longer need incentives or anything else. **If that's not going to happen, somebody has to step in and either raise the price of carbon or lower the cost of the alternatives."** [9]

The hope that wind and solar – the 'free' energy resource – would lead to a low-carbon, emissions-free environment has been dashed by numerous issues with wind and solar farms. Initially, governments were willing to subsidize alternative energy options. Canada provided a generous 30% capital cost allowance for wind farm investments. Most major institutional investors and pension funds moved substantial resources into wind and solar, attempting to meet UN Principles for Responsible Investing – especially "comply or explain." While they divested of valuable fossil fuel stocks, private funds, not bound by UN PRI, moved in to snap up the divested energy stocks. Corporations, intent on accessing the ~$95 trillion in investment funds held by institutional investors, bought into wind and solar for tax write-offs and social license. Activists claimed this showed renewables were the way of the future. Accounting firms set up carbon trading departments. Banks followed suit – some looking for social license after being hounded by the Rainforest Action Network or the virulent BankTrack. The World Bank invested heavily in renewables and many international projects were based on implementing wind and solar. A Green Bond system was set up.

Across Europe, there was a 'rush-to-renewables' in the hope of meeting stringent climate targets Europe set for itself about a decade ago. To help, countries established substantial incentives of various types, most of which relied heavily on taxpayer subsidies in one form or another. These have resulted in a combination of crushing burdens on taxpayers, and infiltration of organized crime. Now it is reported that climate change consulting has become its own USD$1.5 Trillion annual industry.[10]

According to Forbes "Warren Buffet once bragged…for example, on wind energy, we get a tax credit if we build a lot of wind farms. That's the only reason to build them. They don't make sense without the tax credit."[11]

Bloomberg reported on Jan. 9, 2014: "*Wind farms, whether privately owned or part of a public utility, receive a $23 tax credit for every megawatt-hour of electricity they generate.*[i]*"* This allows them to sell power at below market rate and still make a profit.

In Australia, Pacific Hydro's wind power project just lost $700 million of 'mom and pop' retirement pension savings.[ii]

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[9] http://www.wsj.com/articles/SB10001424127887324557804578374980641257340

[10] http://www.insurancejournal.com/news/national/2015/07/30/377086.htm

[11] http://www.forbes.com/sites/chrisversace/2015/05/03/the-wind-power-industry-could-lose-the-subsidy-tailwind-at-its-back/

This begs the question – is the urgency to make a binding legal agreement in Paris, and demands for higher carbon taxes, more about saving pension funds and banks from bad investments, trying to make up the losses, as Joseph Dear's comments suggest, on the carbon tax side, as opposed to wind and solar earning their own way? If so, are global markets in for another massive collapse, bigger than the mortgage melt-down?

'Climate Credit' by Demand vs. Voluntary Aid, Charity and Work

Developed nations are in the process of setting up the "Green Climate Fund" – some $100 billion annually – payment of the 'climate credits' claimed by developing nations. This fund is intended to assist developing nations meet the potential negative climate impacts that are claimed to be driven by the fossil fuel greenhouse gas emissions of the developed nations.

As outlined earlier, though there does not seem to be any significant warming in progress, despite a rise in carbon dioxide; this does not preclude future impacts from human industry. However, a detailed review of the evidence by Canadian climate research scientist, Dr. Madhav Khandekar, formerly of Environment Canada, does not indicate any trends in climate extremes other than unusual cold snaps.[12] If anything, these are harbingers of global cooling due to a solar minima cycle.

Along with the **Green Climate Fund,** developing nations are demanding continuation of all charitable giving and foreign aid. Presently, the World Giving Foundation marks Canada as the third most generous nation in the world, despite its relatively small population (~1/10 of the US).

In addition to formal federal government relief through Foreign Affairs, numerous charities, such as the Canada Food Grains Bank, a collective of some 15 Christian Churches and farm groups, delivers aid directly to needy people in 40 countries around the world.[13]

Likewise, Canadian entrepreneurs who have travelled to developing nations, have seen their plight and applied technology to address problems of safe lighting, safe water, and more. Light Up the World Foundation has provided safe lighting to +1.5 million people in 54 countries.[14] The Center for Affordable Water and Sanitation Technology has worked with NGOs in 68 countries, spending $19.9 million and 50 person years of volunteer time to make safe drinking water technology and knowledge available.[15] Their sponsors include major oil companies.

Canadians give generously and voluntarily when disaster strikes overseas. This is only possible due to Canada's vibrant economy.

[12] http://www.thegwpf.org/content/uploads/2013/11/Khandekar-Extreme-Weather.pdf
[13] http://foodgrainsbank.ca/our-work-2/project-map/
[14] http://lutw.org/
[15] http://www.cawst.org/en/about-us

In addition, the Temporary Foreign Workers in Canada sent some CDN$24 Billion home in 2012; more per capita than any country in the world, to China (which receives $3.9 billion), India ($3.5 billion) and the Philippines ($2 billion), and other countries like Britain, France, Lebanon, Vietnam, Germany, Italy and South Korea.[16]

Canada also deploys its Special Disaster relief unit (DART) of the Canadian Armed Forces. In the month following Typhoon Haiyan the DART team "purified nearly 500,000 litres of water, treated 6,525 medical patients, transported 828 passengers by CH-146 Griffon helicopters, conducted 14 different construction projects, repaired 8 generators and cleared 131 km of roads. The task force also helped non-governmental organizations and local authorities by delivering 230,485 pounds of food, 59,536 pounds of humanitarian assistance goods and 10,325 pounds of shelter and building materials."

The "Canada Goose" is generous with its "golden eggs" – but will not be if its economy is sacrificed.

No Mandate for Global Economic Transformation –

Apparent Conflicts of Interest at the UNFCCC

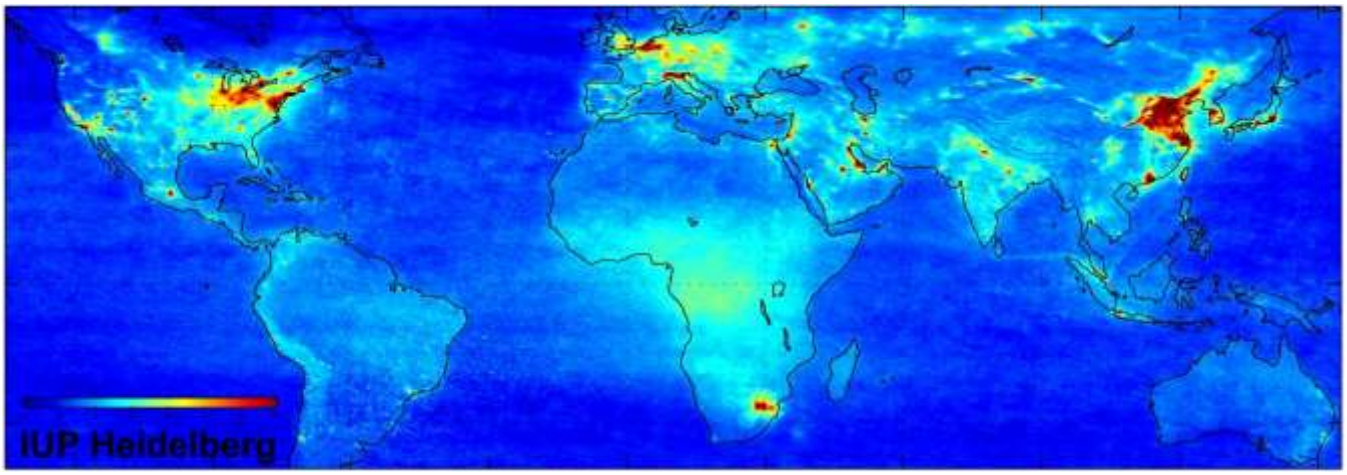
"This is probably the most difficult task we have ever given ourselves, which is to intentionally transform the economic development model, for the first time in human history", *Ms. Figueres (Executive Secretary of the UNFCCC) stated at a press conference in Brussels.* http://www.unric.org/en/latest-un-buzz/29623-figueres-

In reviewing the UNFCC Convention, we do not find any mandate for this organization to entertain such a notion of transforming the world's economic development model. Ms. Figueres has been involved in the development of the Clean Device Mechanism, a tool for carbon trading which has made pollution into a money-maker for some, but has nothing to reduce pollution. This presents a conflict of interest on her part in our opinion. We find this statement and such intentions to overstep the original mandate of the UNFCCC and to be in breach of the *International Covenant on Economic, Social and Cultural Rights*.

16 http://www.vancouversun.com/business/Remittances+billion+year+sent+home+from+Canada/10080290/story.html?__lsa=41d9-c521

There are concerning allegations about the relationships between various parties, the IPCC, UNFCCC and carbon trading markets.[17] Major accounting firms and insurance companies, brokers and banks now engage in carbon trading; none of it founded in science; none of it reducing carbon dioxide or pollution. It appears to be nothing more than a wealth transfer imposed upon unwitting citizens who are told this will 'save the planet.'

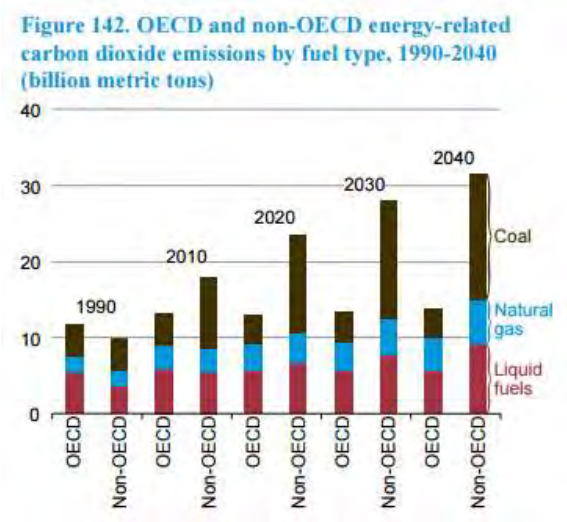
Clear the Air at Paris



This 2004 ESA image from space gives a picture of international pollution hot spots.

Paris, most of Europe, the industrial complex of Eastern Canada and the US, and Asia need to be cleaned up. That's the real problem we should be dealing with, not carbon dioxide reduction.

[17] http://sppiblog.org/news/a-nest-of-carbon-vipers



As evident in the adjacent projected non-OECD expansion of energy use chart, fossil fuels will continue to drive developing economies. Rather than have that expansion fraught with the same pollution problems the western OECD nations have largely resolved, we should be applying new technologies as well as cleaning up catastrophic brownfield sites and polluted rivers in developing countries, most of which threaten vulnerable populations and the world at large.

In addition to industrial pollution visible in the ESA map, the human set fires raging across Africa, Brazil and the Indonesian as a means of land-clearing, in the absence of heavy equipment, area must be stopped. The emissions from wildfires has many equivalencies to those of volcanic activity; unconstrained ash, soot, aerosols and Polycyclic Aromatic Hydrocarbons damage the air, soil, water and health of nearby citizens.

Canada's Contribution to the World – "DART"-style Teams with Canadian Food Grains-style Mandate to Mitigate and Reclaim

Rather than destroying Canada's economy through punitive measures related to climate change emissions targets, we propose that our country's economic strength and environmental expertise be leveraged to practically address pressing issues of air and water pollution, creating small teams of experts in engineering, environmental management, reclamation and agricultural enhancement who would incrementally address specific challenges worldwide. In some case, international relationships already exist as in the Germany-Canadian Heimholz-University of Alberta oil sands research and reclamation.

Funding

Instead of contributing to a Green Climate Fund, which may be subject to corruption and appropriation in certain developing nations before the funds can be applied to necessary causes, we propose the sovereign nations, as under the UN Charter develop practical, applied, response teams and programs with a focus on capacity building, pollution abatement and reclamation. OECD Nations would apply relevant expert teams to known crisis areas around the world, and much like the DART or Canadian Foods Grains missions in Canada, would make arrangements with individual nations for capacity building in the affected nation and immediate mitigation measures, as well as developing long-term reclamation and resolution of the pollution issue. This would be in keeping with numerous

global initiatives, like the IMF Millennium Development Goals[18] and would be a far more "SMART" – Specific, Measurable, Achievable, Results-oriented, Time-based" solution to maximize the existing knowledge base of the developed nations – a much more practical effort than simply funding a "Green Climate Fund" which has no defined or measurable outcomes.

Alberta has particular expertise in this area, but in general Canada has teams of experts across the country through the Canadian Land Reclamation Association and the various professional organizations like APEGA – Association of Professional Engineers and Geoscientists of Alberta, the largest concentration of such expertise in Canada, and similar organizations in Ontario, Quebec and British Columbia.

In particular, innovation engineers can often find methods for creating value-added enterprises out of what otherwise appears to be an 'environmental problem' (i.e. turning slash waste forestry wood into wood pellets or wood alcohol, possibly processed on site, thus providing new jobs and value-added products for domestic use or export, while managing what might otherwise be a wildfire hazard.)

Alberta Oil Sands mining site during

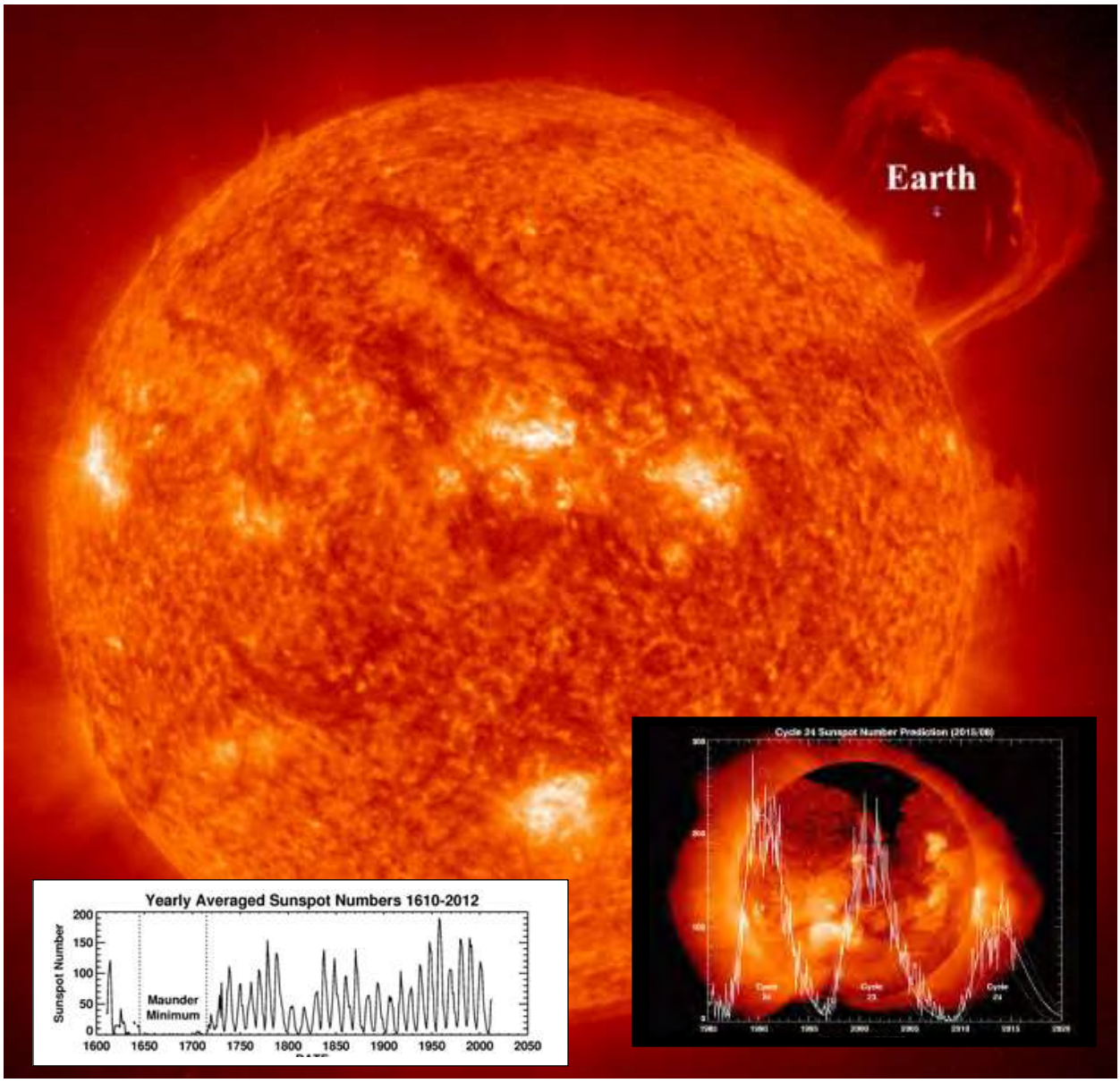
From this….

To this.

Alberta Oil sands mining site following reclamation

[18] https://www.imf.org/external/np/exr/facts/mdg.htm

THE SUN IS THE MAIN DIRECT AND INDIRECT DRIVER OF CLIMATE CHANGE



"HUNDREDS OF STUDIES HAVE SHOWN THAT IT IS THE SUN, AND NOT CARBON DIOXIDE… THAT IS THE MAIN DRIVER OF CLIMATE CHANGE." PROFESSOR TIM PATTERSON, CARLETON UNIVERSITY, SENATE TESTIMONY 2011

The Sun is currently experiencing the weakest solar cycle in 100 years.[19] Normally the magnetic poles of the sun 'flip' every 11 years. The number of sunspots reflects various stages of magnetic activity on

[19] [19] http://www.skyandtelescope.com/astronomy-news/the-weakest-solar-cycle-in-100-years/

the sun. However for the past several years, the sun has been 'going to sleep' – low sunspot activity has been tracked throughout history. Periods of low sunspot activity have coincided with periods of cooler climate on earth.

The Consequences for Canada in a Cooling Climate

Projected drop in arable land if due to nuclear winter – similar outcome for temperature drop if in a Little Ice Age.

Canada's strengths lie in its massive energy and agricultural resources. For years Canada's image as a global peacemaker has been supported by its generous contributions of food to developing nations or countries experiencing food shortages through natural disasters.

A cooling climate would greatly constrain the food production of Canada's 'breadbasket' – the prairie provinces, and may negatively impact the 'fruit basket' of interior B.C. and lakeshore Ontario, and other fresh produce markets gardeners. This would in turn negatively impact millions of people world-wide and have severely negative impacts on the Canadian economy and our sustenance.

The Little Ice Age – Brutal Times

In the first, six famished and ghastly skeletons, to all appearances dead, were huddled in a corner on some filthy straw, their sole covering what seemed a ragged horsecloth, their wretched legs hanging about, naked above the knees. I approached with horror, and found by a low moaning they were alive — they were in fever, four children, a woman and what had once been a man.

– "*The Little Ice Age: How Climate Made History*"

(1300-1850)

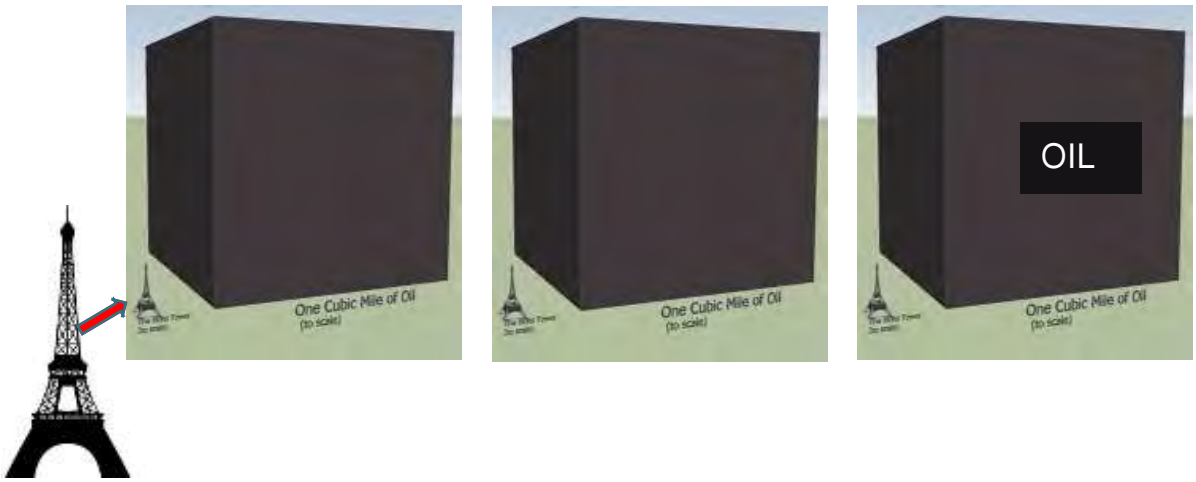
Brian Fagan

According to a Farm Credit Canada report,[20] in 2014 some 75% of food exports from Canada went to the US, representing a significant portion of Canada's economic income (agriculture being the 3rd largest contributor to the GDP at 8% in 2011 and employing 1 in 8 people across Canada).

Loss or reduction of productive crop land would drive up the cost of meat and poultry and all related food costs. This is evident in the outcome of the US EPA food-to-fuel climate change policy which is, according to New England Complex Systems Institute analysis, the primary driver of current civil unrest, as the movement of megatons of corn from animal feed and human consumption markets has caused global food prices to spike.

History shows that climate is fickle and may warm or cool. **We are not prepared for cooling.**

The Reality – Fossil Fuels Drive Development; the Sun Drives Climate



The world uses three cubic miles of energy per year, one of which is oil. According to a 2010 report in Forbes, "Each year the world uses 3 CMO of energy: 1 CMO of oil, 0.8 of coal, 0.6 of natural gas and about 0.2 each of wood, hydro and nuclear. **At 0.01 CMO per year, wind and solar combined barely register."**

Practically speaking, industrialized nations and developing countries will continue to use coal and oil because it is a form of power that can be stored, provides high energy output and can be transported. Likewise both have very useful byproducts.

Claims that a low-carbon future are immediately possible or desirable fall apart once the evidence is reviewed. In the spring of 2015, McGill/Trottier Institute released a report wherein some 70 scholars in Canada claimed to support the principles of *Acting on Climate Change* – one of which was the development of a complete east-west Canadian wind-hydro power grid by 2035.

[20] https://www.fcc-fac.ca/fcc/about-fcc/corporate-profile/reports/cage-report/cage-report-2013.pdf

Friends of Science Society conducted a technical review of this proposal and provide an assessment in the Appendix of this document, that demonstrates the general naivety of those who make sweeping and enthusiastic comments about the ease in which renewables can be integrated into the grid, and how uninformed they are of the actual costs. The idea is infeasible and would be extraordinarily expensive. However, media commentators have continued to promote the idea. The truth is not welcome.

Accordingly, as a nation whose economic foundation relies on energy and resources, we hope the Canadian government will stand up for our citizens and sovereignty at the Paris Climate Change Talks 2015. We recommend taking the advice of Dr. Ross McKitrick. Put a four year moratorium on any climate change policy decisions. This will help assess actual climate trends – whether stagnant, warming or cooling, it will allow for modifications to climate models to see if greater accuracy is more useful for policy making, and it will help weed out the failed renewables and carbon trading schemes that are no longer worthy of social support.

In closing, we recommend reading the comprehensive and thoughtful discussion on energy use and corporate responsibility put together by EXXON for its shareholders.
http://cdn.exxonmobil.com/~/media/global/files/other/2014/report---energy-and-carbon---managing-the-risks.pdf

WHAT TO TAKE TO PARIS TO COP-21?

1. **Policy makers should wait 2 to 4 years** before implementing any new climate policies. New information and new adjustments to climate models will give better information. Also, if cooling trends continue, a "Little Ice Age" might be on the horizon. Public policies should be ready for either warming or cooling. Cooling periods have generally been the most deadly for humankind and the most difficult for governments. A full documentary on how life was in the Little Ice Age is frightening and instructive. https://youtu.be/uPNgX_T1wKI

2. **Climate change is less important than pollution emissions management and reclamation.** We cannot claim any 'green' moral high ground for putting up a wind farm if it means the people of Baotou, China are dying due to toxic waste from the rare earth minerals used in making turbine magnets. We, as a world, cannot ask the Western OECD nations to reduce emissions from well-managed industry—while allowing and encouraging developing non-OECD nations to pollute at will.

3. **Instead of cutting emissions in Canada, let our emissions management knowledge and industrial manufacturing be our contribution to reducing global pollution.**

4. **Regarding the "Green Climate Fund"** - developing nations should be aware that forcing Canada to shut down industry, will mean we won't have an economy, so Canada will stop being the third most generous country in the world, next to the US and Myanmar. We won't be able to send our Canadian Armed Forces Disaster Relief team anywhere (DART), the ~$24 Billion in remittances from our Temporary Foreign Workers would stop; our annual Canada Food Grains Bank contributions would be needed at home; our billions of dollars in foreign aid would grind to a halt; our tourism industry would be shut down—there would be no *snowbirds* and no flow of tourist dollars overseas in those warm countries.

5. **A Canada without a vibrant economy would be forever unable to continue its generous foreign aid and disaster relief programs described above.** It would seem that the present voluntary contributions are far more beneficial to developing nations and crisis situations than the "Green Climate Fund" would ever be. Much of the money voluntarily donated by Canadians goes directly to those who need it most—money into a legally mandated national "Green Climate Fund," with no set objectives or accountability might disappear into unknown pockets and never reach those who need it most.

6. **Carbon taxes and carbon trading have not reduced any volume of carbon dioxide or polluting emissions.** These programs should be phased out and taxpayers relieved of this hidden burden.

7. **Climate warms and cools.** We should be prepared for both—as a nation and as a world. Cold kills. We are not prepared for imminent cooling, predicted by the lowest sunspot activity in 100 years.

8. **Exit clause -** Interpol's "Guide to Carbon Trading Crime" shows that corruption and the infiltration

of organized crime is rife in climate matters. This could be exacerbated, especially since senior people associated with the UNFCCC are said to have links to carbon trading.

9. **End clause** - The entire exercise of the Conference of the Parties-21 (COP-21) is premised on the hypothesis that humans are causing global warming to a potentially catastrophic degree through fossil fuel use. Current evidence indicates that the hypothesis is flawed - perhaps wrong. One has to wonder, if the environment is at stake, why will COP21 " *be one of the largest international conferences ever held in the country (France). The conference is expected to* ***attract close to 50,000 participants including 25,000 official delegates*** *from government, intergovernmental organisations, UN agencies, NGOs and civil society."* Seems like these people are willing to travel anywhere in order to "save the planet." What's their carbon footprint? If the evidence of the coming years does not support the hypothesis, there should be a provision to eliminate this aspect of international climate change legislation according to new evidence.

10. **Maintenance of Canadian Sovereignty over all.** The existential threats that environmental groups have presented about climate change have terrified people into a willingness to do anything to save the planet for their children. In the process, as witnessed in the UK, millions of pensioners have been reduced to abject poverty and premature deaths due to skyrocketing energy prices. Across the EU a generation of youth face joblessness. Meanwhile nothing beneficial has been done for the environment and nations have foregone important sovereign protections for their own people. This must not happen to Canada. We are blessed with rich resources, innovative scientists and technicians who have improved air quality greatly since the 1970's. To be environmentally responsible, you need a healthy economy. We are the third most generous country in the world; we can only continue to be so if we have a vibrant economy.

EXPERT COMMENTS & RESOURCES

(Inclusion does not imply that these individuals endorse all of the views of the content of this document)

Donna Laframboise – Canadian investigative journalist and author wrote the book "The Delinquent Teenager" on the IPCC's internal corruption and infiltration by agenda-driven activists.

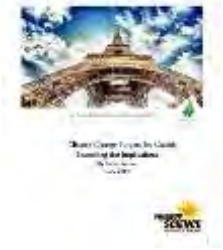
Here presentation to Friends of Science Society:
http://www.friendsofscience.org/index.php?id=603

Dr. Ross McKitrick of the University of Guelph discusses "The Pause" in this 2013 presentation to Friends of Science Society:
http://www.friendsofscience.org/index.php?id=750

A series of interview clips Dr. McKitrick discusses the Social Costs of Carbon and economic implications:
https://youtu.be/g30JfQIK6GA?list=PLZcRTdbkGEnHfU8-dkQfGnO67K6p1m8rh
A layman's guide to evaluating the Social Costs of Carbon:
http://www.friendsofscience.org/assets/documents/McKitrick_Climate_Change_SCC_Feb_14_2015.pdf

Dr. Tim Patterson and Dr. Sallie Baliunas (Friends of Science scientific advisors) were participants in the solicited APEGA public debate on Kyoto, led by contributing author Allan MacRae, P. Eng. (Note: Mr. MacRae independently undertook this debate and he was not a member of Friends of Science)
http://www.friendsofscience.org/assets/documents/KyotoAPEGA2002REV1.pdf
Dr. Patterson is also featured in "Climate Catastrophe Cancelled" A documentary on how the sun drives climate:
http://www.friendsofscience.org/index.php?id=158

Dr. Sallie Baliunas discussed the climate and weather extremes of the Little Ice Age and how people were accused of 'weather cooking' or causing bad weather and burnt as witches. https://youtu.be/wcAy4sOcS5M



Robert Lyman – Canadian energy economist and former public servant and diplomat is author of two reports:
Climate Change Targets for Canada – Examining the Implications:
http://friendsofscience.org/assets/documents/climate_change_implications_Lyman.pdf
Who Cuts? Who Pays? (Green Climate Fund)
http://www.friendsofscience.org/assets/documents/Lyman_Who_Cuts_Who_Pays.pdf

Dr. Madhav Khandekar, former research scientist with Environment Canada and scientific advisor to Friends of Science Society wrote an assessment whether there was a link between global warming and extreme weather:
http://www.thegwpf.org/content/uploads/2013/11/Khandekar-Extreme-Weather.pdf

Distinguished professor emeritus, Earth scientist Jan Veizer of the University of Ottawa and Dr. Nir Shaviv, astrophysicist of the Racah Institute of Physics, Hebrew University of Jerusalem, Israel (former post-doc student of CITA st University of Toronto) have confirmed the influence of cosmic rays on climate change.
Dr. Shaviv – a layman's overview of solar effects on climate: https://youtu.be/VlpoPAVRV-k
Dr. Shaviv's June 2, 2015 presentation in Calgary:
http://www.friendsofscience.org/index.php?id=2125

Professor emeritus of chemical engineering, Dick Thoenes of Eindhoven University of the Netherlands explains the role and limitations of carbon dioxide (CO_2) as a warming agent in this brief:
http://www.friendsofscience.org/assets/documents/Thoenes_Views_CO2_Climate.pdf

Friends of Science Society reviewed the four most cited "97% consensus" surveys and found them to be flawed. In fact, the recurrent number '97%" is nothing more than a social proof intended to work on human 'herd mentality.'
http://www.friendsofscience.org/assets/documents/97_Consensus_Myth.pdf

In 2013, the Pembina Foundation and Pembina Institute issued a report claiming Albertans were paying for the use of coal with their health. "Burning Questions" is the Friends of Science Society's critical review which shows the claims of Pembina are not supported by the evidence.
http://www.friendsofscience.org/assets/documents/FoS_BurningQuestions_Health_Coal_Wildfires_Jan2015.pdf

APPENDIX

POWER GENERATION INFORMATION ON DIFFICULTIES OF INSTITUTING THE PROPOSED WIND-HYDRO NATIONAL GRID NETWORK IN "ACTING ON CLIMATE CHANGE"

Technical

Generation Perspective

In "Act on Climate Change" – a McGill Trottier report issued in spring of 2015, there was a proposal for a Canadian national wind-hydro grid and the authors claimed it could be implemented by 2035. Friends of Science Society asked the Alberta power generation experts for a discussion of whether or not that would be possible and at what cost. One of the papers cited in support of the proposal by Harvey et al. focused on Alberta as a significant wind resource. Here follows the technical discussion.

Even if we take it as a given that there is enough wind potential, there are major technical issues with using a national wind/hydro hybrid system to supply all of Canada's power. The biggest problem with wind is that it doesn't respond to demand. In fact, in Alberta it is negatively correlated to peak demand. Our winter peak occurs when there is extreme cold and in these situations, there is ALWAYS an absence of wind. Ontario may be similar but no research on this area has been included in this commentary.

The AESO publishes Long Term Adequacy Metrics to monitor the long term supply of electricity in Alberta. In the adequacy calculations, wind is excluded for the reason mentioned above. See ww.aeso.ca/downloads/Division_202_-_Section_202-6_Adequacy_of_Supply_(Oct_1_2014).pdf section
4(2)(b)(v) and 4(2)(c)(v) on page 3 for the detail. The methodology "excludes wind" from the calculations.

Currently in Alberta, we consume about 80,000 GWh of electricity per year and wind generation in the province has a capacity factor of around 30%. See pages 19 and 10 here http://www.aeso.ca/downloads/2014_Annual_Market_Stats_WEB.pdf. In theory, if Alberta were to be self-sufficient on an energy basis, we would need to install over 30 GW of wind turbines. Even with 30 GW of wind capacity, there would be times when wind contributes ZERO to the supply. In these cases we would need to import 100% of our power from other provinces. When the wind is blowing, we would be producing over 3 times as much power as we're consuming. This would mean that we would need to export or spill up to 20 GW of power. "Spill" (lack of use) is a definite possibility as there is no guarantee there would be demand for that much power.

In the Harvey paper, they talk about installing between 18.4 and 25.8 GW of wind in Alberta. This is 31% and 28% respectively of total wind capacity in their plan. This shows how heavily they on our province.

Ontario is the other major contributor to their plan with between 45% and 48% of total wind capacity. They also use a capacity factor of 40% for Alberta when in reality it is only 30%. This paper does not review other regions in Canada but they quote higher capacity factors than Alberta, above 50% in some provinces. A few internet searches show that these values may be overly optimistic by at least 10%.

The Harvey paper relies mainly on wind from Alberta and Ontario. Although, as they mentioned, it is true that there are benefits of diversification for wind sources, both provinces experience similar patterns. Higher wind in the winter months and lower in the summer. This can be seen in the AESO Market Statistics above and here for Ontario http://coldaircurrents.luftonline.net/2013/01/monthly-capacity-factor-of-wind.html. It is a certainty that there will be periods when both Alberta and Ontario simultaneously have low or no wind output. In these situations, the vast majority of the country would be entirely dependent on Hydro. Hydro has some flexibility but would not be adequate. A large portion of hydro is run of river and it can't be turned on/off at will. Major blackouts would occur and the consequences would be severe at times of extreme hot or cold temperatures.

In the paper, Section 4.1 Future Research Steps, they talk about looking into wind correlations and hourly demand. The fact that they didn't do this before writing this paper is the fatal flaw. Perhaps if/when they finish their research, reality will set in.

Transmission Perspective

Given the low capacity factor for wind, two to three times as much transmission is needed when compared to conventional generation. In the Harvey paper, they plan on transmitting wind energy across the country using HVDC lines to nodes in major demand centres. They consider only the "HVDC portion of the transmission and distribution system." They ignore the integration of these HVDC lines into existing grids and they also don't consider any transmission reliability issues. Even if we assume that their math for the HVDC lines is correct, they are severely understating the true cost of transmission and distribution.

In Alberta, we spend around $1 million to integrate 1 MW of wind generation. See pages 61 and 62 of http://www.ucahelps.alberta.ca/documents/ABE_TFCMC_Report_7_WEB_-_June_2014.pdf for background and costs of "SOUTHERN ALBERTA TRANSMISSION REINFORCEMENT (SATR); PROJECT 787 –
To accommodate wind generation in southern Alberta."

In summary Alberta would need to integrate the 18.4 to 25.8 GW of wind generation in the Harvey paper. HVDC lines would also need to be built across the country and the provinces receiving the power would also need to reinforce their grids. Alberta would also need to reinforce the grid to receive power and get it to load centres when the local wind isn't blowing. The bottom line is Harvey considerably understated the transmission requirements.

Economic

Above it is mentioned how the whole plan is technically infeasible. But if we ignore that fact and pretend it could actually work, we can look at the economics.

The Harvey paper estimates their hybrid wind/hydro plan would be able to supply the entire country at a price of between 4.5 and 6.39 cents per kWh including transmission costs. This is less than the majority of the country pays just for electricity right now and begs the question, if wind energy is so inexpensive, why hasn't this plan already been implemented?

First, Harvey states that power from wind costs between 3.75 and 4.97 cents per kWh. This requires "government-backed utility financing" at 3%. Then he states that private financing is closer to 12% and would essentially double the delivered cost of wind power. The reality is there is no "government-backed utility financing" in Alberta and even Ontario wind is being developed by private investors.

Again, these are the two provinces where he expects most of the wind power to be developed. Also, as discussed above, the transmission costs are likely two to three times higher than he states. The bottom line here is that wind energy in his plan would cost at least double what he is claiming.

If we assume his cost of $2k per kW of wind and that transmission costs are around 35% of wind costs (estimated from Table 1) this would require a capital investment of around $160 to $200 billion. Then, if we actually use realistic transmission assumptions it would likely be around $240 to $380 billion. This is in addition to the existing perfectly good infrastructure that we already have. Where would this money come from?

Philosophical

Canadian society is generally based on free markets, voluntary transactions between people. Harvey's paper is anathema to free markets and describes a philosophy that would obligate society to pay $100's of billions for an energy plan that won't even keep the lights on. There would also be $100's of billions of stranded generating assets and potentially bankrupt utilities. This would result in a huge loss of wealth to Canada and we would never realize all the positive benefits if the money was invested in productive assets rather than wasted on wind turbines.

On wind versus conventional generation, the paper discusses how wind resources are vast and "a very small wind farm area in each sector would be sufficient to displace the entire current national fossil fuel-and nuclear-generated electricity." This may be true but it would still be a much, much larger area than conventional generation. Also, large corridors across the entire country would need to be draped in transmission lines. You don't have to read too far in to this website to understand how people really feel about transmission lines https://retasite.wordpress.com/.

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Additional Notes:

The full paper **Reality vs. Climate Change Uncertainties – Challenging the claims of "Acting on Climate Change"** can be read: https://friendsofsciencecalgary.wordpress.com/2015/04/07/reality-vs-climate-change-uncertainties-challenging-the-claims-of-acting-on-climate-change/

A critique of Ontario's Climate Discussion Paper is also available: **Ideology or Evidence – Asking Questions about Ontario's Climate Change Policy Discussion Paper**
https://friendsofsciencecalgary.wordpress.com/2015/03/19/ideology-or-evidence-asking-questions-about-ontarios-climate-change-policy-discussion-paper/

Technical and comprehensive scientific material:

Critique of the Canadian Climate Model:

http://www.friendsofscience.org/assets/documents/CanadianClimateModel.pdf

Friends of Science Climate Science Essay:

http://www.friendsofscience.org/index.php?id=681

Friends of Science Society has spent a decade reviewing a broad spectrum of literature on climate change and have concluded the sun is the main driver of climate change, not carbon dioxide (CO_2). Friends of Science welcomes earth, atmospheric and solar scientists, engineers and citizens who challenge the alleged consensus on climate change.

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[i] http://www.bloomberg.com/bw/articles/2014-01-09/wind-energy-companies-prepare-for-tax-credits-end
[ii] http://stopthesethings.com/2015/03/15/pacific-hydros-ponzi-scheme-implodes-wind-power-outfit-loses-700-million-of-mum-dad-retirement-savings/