

FOS MEMBERSHIP QUARTERLY NEWSLETTER
No. 52

“FoS is dedicated to providing the public with insight into Climate Science”

PRESIDENT’S MESSAGE

“For a successful technology, reality must take precedence over public relations, for Nature cannot be fooled.” Richard Feynman https://en.wikipedia.org/wiki/Richard_Feynman

FRIENDS OF SCIENCE SOCIETY IS FACING A SIGNIFICANT FINANCIAL CRISIS. Unless our members are prepared to support our efforts we will be forced to significantly reduce our activity starting in the first quarter of 2017. We are not financed by “Big Oil” or big anything – we are financed by the generous “grassroots” contributions of our membership. Unfortunately, the down turn in the health of the Alberta economy has significantly affected our funding.

We are making increasingly significant progress in communicating our message to the silent majority. Now is NOT the time for our efforts to be forsaken.

I assume that approximately 10% of our members have recently become unemployed and I know that our financial supporters are feeling the effects of their reduced economic opportunities. Apart from those who are fighting to keep the wolf from the door, if, on average, each of our members provided a \$100.00 (\$40,000 Total), contribution to our efforts we could continue to grow the successful educational efforts which you expect from Friends of Science. Consider your support as an investment in your welfare and of your province and country. Any fund raising ideas you might have are most welcome and encouraged.

Would it not be perverse if the myopic and ideological policies of our current provincial and federal governments are successful in defeating the voice of empirical and scientific evidence due to the successful implementation of their egregious and impoverishing policies.

It is up to each of YOU whether we fail or succeed in communicating Truth over ideology and perverse vested interests. **Please consider our request most seriously.**

What if a small group of these world leaders were to conclude the principal risk to the earth comes from the actions of the rich countries? In order to save the planet, the group decides: Isn't the only hope for the planet that the industrialized civilizations collapse? Isn't it our responsibility to bring this about? Maurice Strong https://en.wikiquote.org/wiki/Maurice_Strong

We are living in most interesting times. It appears that the “silent majority” remains silent only so long. It is hard to predict when they will rise against the political elites who profess to know best: the Brexit vote, the election of Trump, the resurgence of right of centre political parties in Europe and the obvious discontent in Alberta and Ontario seems to indicate that the silent majority is not as compliant as the elites and their main stream media spin doctors would wish or imagine. Apart from opinions of these events being right or wrong the common element is that the silent majority is expressing its discontent with the current agenda. The pendulum swings.

Warren Blair
President, Friends of Science

PUBLIC OUTREACH

Our Communications Manager, Michelle Stirling, has been busy producing 16 new videos this quarter which are on our Friends of Science YouTube channel [here](#). Some of these videos are about rallies against the

carbon tax to be introduced on January 1, 2017. Friends of Science participated in the Alberta Wide Rally held simultaneously in eleven cities across Alberta in protest against the carbon tax by providing five speakers. Pictures and the text of the Friends of Science speeches are on our website [here](#). We also participated in "The Rebel" rallies in both Edmonton on December 3, see [here](#), and Calgary on December 11, see [here](#), against the carbon tax by providing Friends of Science signs.

Here are some videos from The Rebel Media Rally for Alberta;

Oil Sands Proud - Robbie Picard - Speaks at The Rebel Rally for Alberta in Calgary, [here](#).

The Voice of the People - Calgary Rally for Alberta Dec. 11, 2016, [here](#).

A Heartfelt Message to Premier Notley from a Woman at The Rebel Rally Dec. 11, 2016, [here](#).

Others videos are on a variety of subjects;

Our request for a conflict of interest inquiry into the Alberta Climate Plan, [here](#).

How tax subsidized charities are putting Canadians out of work, [here](#).

Climate Facts over Climate Fears, [here](#).

Dec. 10, 2016 - No Wind. No Sun. No Free Power, [here](#).

Please share our video clips with all you can.

Our Friends of Science blog [here](#) features 26 blog posts so far this quarter, including 10 excellent posts by energy economist Robert Lyman. He is a retired federal public servant who spent much of his career working on energy, transportation and environment issues. Some examples:

Vehicle Trends – Robert Lyman, see [here](#).

The Energy Subsidy Debate – Robert Lyman, see [here](#).

False statements from the David Suzuki Foundation and Ecojustice Canada Society, see [here](#).

Friends of Science published an advertisement in the Calgary Herald and the Calgary Sun that ran October 20 - November 16 promoting Friends of Science presentations. The ad [here](#) shows the Canadian climate model exaggerates the actual temperature trend since 1990 by a factor of four, and that carbon dioxide provides a large social net benefit.

PS – Membership makes a great gift any time of the year, video [here](#)!

POLITICAL DEVELOPMENTS

The Coming National Carbon Price Gap

In October Canadian Prime Minister Justin Trudeau announced the most significant federal intrusion into provincial jurisdiction in decades – a new national carbon tax. This will start at \$10/t in 2018, rising each year to reach \$50/t in 2022 and will be imposed on all provinces that do not tax CO₂ at an equivalent rate or do not have a cap-and-trade system. For provinces choosing the cap-and-trade alternative, they [must have](#):

- a) a 2030 emissions target that's in line with the federal objective of a 30% reduction from a 2005 base, and
- b) declining annual emission caps at least to 2022 that "... correspond, at a minimum, to the projected emissions reductions resulting from the carbon price that year in price-based systems."

British Columbia already has a \$30/t tax and Alberta will start charging \$20/t in 2017, rising to \$30/t in 2018.

It appears curious that Quebec, always vigilant against any federal intrusion into its jurisdiction greeted the new federal tax as a "positive" move. The reason is that Quebec participates with California in the Western Climate Initiative's cap-and-trade system that has a current price of \$16/t. (Ontario plans to join the WCI shortly). As the table reproduced below from the [C2C Journal article](#) shows, by 2022, Quebec and Ontario will be paying \$23.70/t, compared to \$50/t for the other provinces.

To keep the price low, California has deliberately created a massive oversupply of emissions permits through giveaways to the state's utilities and a deceptive game called "resource shuffling" where utilities swap their "dirty power" for cleaner electricity obtained elsewhere from the regional grid. Another scheme is to create permits by planting trees, trapping methane and improving California's rice farms.

CO₂ Prices (per tonne) by Province from 2016 to 2022

	2016	2017	2018	2019	2020	2021	2022
Quebec	\$16.45	\$18.09	\$18.10	\$18.82	\$19.86	\$22.13	\$23.70
Ontario	n/a	\$18.09	\$18.10	\$18.82	\$19.86	\$22.13	\$23.70
Alberta	n/a	\$20.00	\$30.00	\$30.00	\$30.00	\$40.00	\$50.00
BC	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$40.00	\$50.00
Federal	n/a	n/a	\$10.00	\$20.00	\$30.00	\$40.00	\$50.00

To help design its cap-and-trade program the Ontario government commissioned EnivroEconomics and Navius Research to do a [detailed analysis](#) of the program's potential economic and emission impacts. According to Table 3 in the analysis, Ontario has to achieve net reductions in greenhouse gas emissions of 18 Mt in 2020. Purchasing cheap permits from California will cost the province \$18/t, compared to \$69/t – \$157/t for three go-it-alone alternatives that would achieve 13 – 17 Mt of GHG reductions.

In short, by participating in the WCI, Ontario and Quebec will gain a huge advantage over provinces with a straight carbon tax. As the *C2C Journal* points out, Ottawa would never dare impose on Quebec a floor price for permits equivalent to the national carbon tax – that would be a gift to the province's separatist movement.

The Ontario/Quebec advantage caught the attention of BC Premier Christy Clark. At the December 9 federal-provincial meeting to craft a national "framework" agreement on climate change, she [created](#) some late-afternoon drama by saying that she wouldn't sign the deal without a mechanism to ensure that all provinces will meet an equivalent price before committing to increase BC's CO₂ tax. Later Ms. Clark signed the agreement [after getting](#) such a mechanism. However, the federal environment minister had a different interpretation, saying that there will be a review in 2020 to look at the comparability among the various provinces. In other words, the meeting was all about getting most of the first ministers to go along so that the prime minister's office could issue a bland, [feel-good communiqué](#) while putting off any disputes for at least three years.

Overhauling the Alberta Power Market

The Alberta government's Climate Leadership Plan of November 2015 [states](#) that 30% of the province's electricity will come from renewable sources, such as wind, hydro and solar by 2030. This will require adding 5,000 MW of capacity to the system. Last January the government directed the Alberta Electric System Operator to design and implement a plan to achieve this. On November 3 the government [announced](#) its acceptance of AESO's recommended plan, which [proposes](#) a three-step competitive bidding process:

- Request for Expressions of Interest (4-6 weeks)
- Request for Qualifications (4-6 months)
- Request for Proposals from those bidders that have passed the RFQ stage (2-3 months).

The [first competition](#) for up to 400 MW of renewable capacity will occur between Q1 and Q4 of 2017, with the contracts awarded soon thereafter. The new generation is to be operational by 2019 and must use the existing transmission/distribution system. The winning bidders will [receive or pay](#) an Indexed Renewable Energy Credit, or REC (the difference between the pool price and lowest acceptable price for the renewable energy project.) The REC can be negative or positive, which determines whether the winning bidders will receive or pay.

A problem for the government is that, under the current deregulated market, Alberta's electricity prices are near 20-year lows due to oversupply and weak demand – not an environment in which to attract new investment in renewables and backup natural gas power generation. To fix this the government, claiming that the market isn't working, is considering changing from an energy-only market to one where producers would be paid for their generation capacity. This, of course, means a price increase for users. The province's energy minister [said](#) that the government would reveal its plans before Christmas.

Ian Cameron
Director, Friends of Science

SCIENCE NEWS

The Economic Impact on the Alberta Electricity Market of the Climate Plan

An economy wide carbon tax of \$20/tonne CO₂ will be imposed on Alberta's on January 1, 2017. The tax will rise to \$30/tonne in 2018. The climate plan includes the phase-out of coal-fired power plants, which will be replaced by natural gas and renewable energy. Much of the carbon tax revenue will be used to subsidize wind and solar projects.

EDC Associates Ltd. published a multi-client study of the potential impact on Alberta's electricity market of Alberta's climate plan. Some key conclusions of the study are;

- The cumulative cost of electricity is expected from 2017 to 2030 is expected to increase by \$3.3 to \$5.9 billion depending on policy choices.
- Replacing coal with natural gas generation reduces CO₂ emission by 10 Mt/yr compare to the business as usual case. Incentive payments of \$20.1 billion to subsidize 7200 MW of renewable energy along with new natural gas plants will reduce CO₂ emissions by 16.5 Mt/yr. Natural gas alone would achieve 61% of the emissions reduction. [Mt means mega-tonnes]
- The CO₂ reduction from 7200 MW of renewable capacity will costs \$325/t_{CO2} of renewable energy incentive payments. Including the increased cost of the electricity, the CO₂ reduction costs could increase to \$420/t_{CO2}. This is 21 times the carbon price in 2017. If renewables achieve a capacity factor of 33%, 7200 MW of new renewable capacity will result in 26% of Alberta's electricity being generated by renewables by 2030, which will be mainly wind power.
- The cost of new electrical capacity with 7200 MW renewables is \$30.7 billion.
- Incentive payments for solar power are 40-80% higher than for wind power, so little solar would be added.

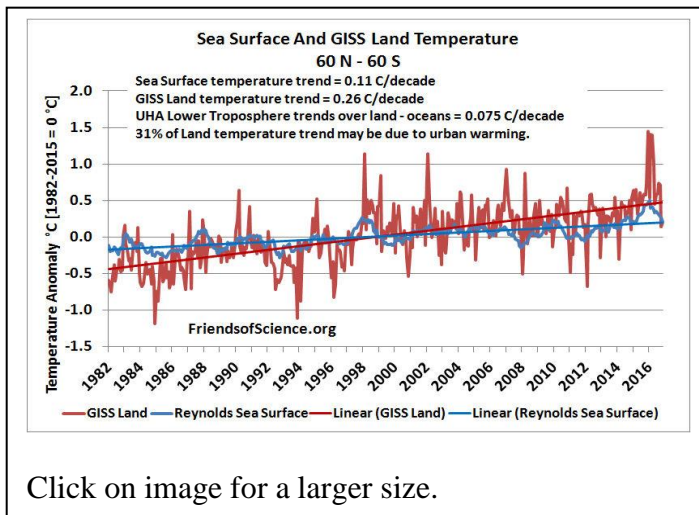
See the summary report [here](#).

Low CO₂ and the Sun Caused the Warming that Ended the Ice Ages

It is commonly believed that ice ages ended due to rising CO₂ level that caused global warming. The belief was promoted by Al Gore in his movie "An Inconvenient Truth" which showed a correlation of temperatures and CO₂ levels and implied that CO₂ changes caused the temperature changes despite several studies available at the time which showed that the temperature changes preceded the CO₂ changes by approximately 800 years. This fact proves that the warming was not cause by increasing CO₂ levels. A paper by Ellis and Palmer (2016) proposed that low CO₂ concentrations and solar cycles cause the termination of ice ages. The paper shows that CO₂ concentrations slowly falls during ice ages, eventually causing plant life to die resulting in grasslands of the high altitude Gobi and Taklamakan plateau regions becoming sand deserts. The abstract says "CO₂ depletion starves terrestrial plant life of a vital nutrient and causes a die-back of upland forests and savannahs, resulting in widespread desertification and soil erosion." Large dust storms from these regions deposited dust on the large ice sheets decreasing their albedo. Then increasing solar intensity due to the Milankovitch cycles can melt the darkened glacial ice leading to the warming that ends the ice age. The earth's precession causes a Seasonal Great Year (SGY) averaging 22,200 years. But the solar irradiance changes by themselves are insufficient to end an ice age. After the start of a glacial period it takes several SGY cycles for the oceans to absorb enough CO₂ to cause vegetation die-off and the resulting dust storms. The theory explains why ice ages end after 4 or 5 SGYs. The last sentence of the paper is significant; "And the greenhouse-gas attributes of CO₂ play little or no part in this complex feedback system." See the open access paper [here](#).

Non-polar Land Temperature Trends Higher than Sea Surface Partly Due to Urban Warming

Numerous papers have been published using government temperature indexes to estimate climate sensitivity to CO₂. Almost all of these fail to correct the temperature indexes for the effects of urban development despite dozens of papers that show these records contain large uncorrected urban warming contamination. The graph compares the temperature trends of the NASA GISS temperature index to the Reynolds sea surface temperature index, over the period 1982 to 2016. The Reynolds index starts in 1982 as it in part uses satellite data. The satellite record of the lower atmosphere shows that warming over land is 0.075 °C/decade higher than over the oceans. This record is not affected by urban warming. The warming trends of the air over the oceans and the sea surface are almost identical, both at 0.11 °C/decade. The



difference between the land and the sea surface trends is 0.156 °C/decade, consisting of the 0.075 °C/decade trend of near surface air temperature and a 0.081 °C/decade urban warming effect. This shows that 31% of the GISS land temperature trend is due to urban warming contamination.

Ocean Cycles Caused Much of the Late 20th Century Warming

A paper by Meehl et al 2016 analyzed climate models, observed temperature trends and ocean cycles and concluded that the Interdecadal Pacific Oscillation (IPO) explains 75% of the difference between the climate modelled trends and the observed trends during the period 1971 to 1995. The analysis shows that during this period, the IPO

contributed 0.06 °C/decade of warming, the direct solar and volcanic affects contributed 0.09 °C/decade warming, and the total observed warming was 0.19 °C/decade. 60% of the warming in excess of solar and volcanic effects was caused by the IPO and 40% was due to other causes. Andy May reviewed the paper [here](#). He writes, “Of the 40% probably some was due to man, but some of it could be due to other ocean oscillations (or cycles) or other natural causes. In short, this paper appears to support the idea that man is not the dominant cause of recent warming.” The IPO is similar to the Pacific Decadal Oscillation (PDO) except for the area of analysis. The PDO is north of 20° N and the IPO is 50°S to 50°N.

Ken Gregory
Past Director, Friends of Science

DONATIONS

You can help us expand our pool of members and donors. Do you have a local chamber of commerce or service club? Invite one of our speakers or ask for one of our presentations and present it yourself (or perhaps do your own version if you feel up to it). If every person brought us five new people, it would make a big difference to our message.

This debate matters, you are making a difference.

Please continue to make donations to Friends of Science and to email, tweet and facebook share our materials. We can be a voice for your climate change issues – and we thank all of you who have given us tips on the misinformation they see in the marketplace. Donations made directly to Friends of Science will help us bring in quality guest speakers, expand our media presence and create a platform for informed debate.

To make a contribution at www.friendsofscience.org; click on Become a Member/DONATE in the upper right of the home page. Alternately, you can mail donations to Friends of Science at the following address:

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