

November, 5th 2016 Rally at the McDougal Centre, Calgary

Intro:

Ken Gregory earned his bachelor of applied science degree in mechanical engineering at the University of British Columbia. He worked in the petroleum industry for 35 years and is now retired. Ken has studied climate science and climate policy with the Friends of Science Society for over 10 years. Ken is the webmaster of the Friends of Science dot org website, and a past director of the Society.

Ken Gregory:

Welcome to the Alberta Wide Rally, I will be speaking about
Climate Change and Alberta's Climate Plan.

Since the last great ice age ended 10,000 years ago, we had the warm periods of two Holocene optimums, then cold, then the Roman Warm Period, the Dark Age Cold Period, the Medieval Warm Period, then the Little Ice Age, and now, the Current Warm Period.

The Medieval Warm Period was likely warmer than now. Civilization flourished during the warm periods, and suffered famine and hardship during the cold periods.

In the 20th century, global temperature decreased from 1880 to 1910, increased to 1944, decreased to 1976 which caused the great global cooling scare, which peaked when I was in university, then temperatures increased to 2002, remained flat thru 2014, then we just experience a major natural El Nino. Climate changes naturally all the time without any help from mankind.

Governments are advised by a corrupt United Nations panel on climate change that relies on failed climate models, none of them include significant natural causes of climate change. Natural warming has been blamed on greenhouse gases. The average climate model global temperature trend of the bulk atmosphere from 1979 is 2.5 times reality as measured by weather balloons and satellites. In the tropics, the climate model trend is 3 times reality. That is a huge discrepancy from the measurements. That means the models are wrong.

Models' warming rate by latitude region is far from reality. There has been little warming in the tropics and cooling in the southern ocean, but climate models show much warming in both regions.

The Canadian climate model's global surface temperature trend is 4 times reality from 1990.

Models predict an enhanced warming rate over the tropics due to a predicted increase in water vapour. The weather balloon and satellite data show no enhanced warming at all. The models all assume increasing water vapour, which is the most important greenhouse gas, but measurements show upper atmosphere water vapour declined by 7% from 1970, allowing heat to escape to space. This is a primary reason climate models are all running way too hot.

All of the UN panel's projected temperature ranges in each report they published from 1990 to 2013 are way above the observations.

The Alberta Climate Plan includes 5 components:

1. Phase-out coal-fired power plants by 2030.
2. Cap oil sands carbon dioxide, or CO₂, emissions [at 100 MtCO₂/year]
3. Cut methane emissions by 45% by 2025
4. Carbon tax of
 - \$20/tCO₂ in 2017
 - \$30/tCO₂ in 2018
 - In 2018: there will be at a \$1.52/GJ tax on natural gas, which is a 60% increase in your energy costs,¹ and a 6.7 ¢/L tax on gasoline.
5. \$3.4 billion will be paid out over 5 years in subsidies to wind and solar companies.

The coal phase-out cost will be about \$22 billion,
\$11 billion for replacement gas-fired power plants
\$11 billion for compensation for stranded coal assets and subsidies
In addition to that, there will be \$6 billion for transmission lines, for a total of \$28 billion.

The Alberta government claims that shutting down coal-fired plants will improve health by reducing particulate emissions, or smoke. But smoke from forest fires are about 1000 times that of coal-fired plants in Alberta.

The UN panel published a high greenhouse gas emissions forecast. Temperatures increase by 3.5 °C by 2100. They assume a 10 fold increase in coal use by 2100, and the world's declining population growth rate starts to accelerate. The oceans, which currently sequester a quarter of our CO₂ emissions, suddenly fail to absorb CO₂. It is a barking mad, ludicrous forecast, but most politician call it a business-as-usual case. It is not.

Using the UN panel's estimate of climate sensitivity, with only an exponential increase of CO₂ in the atmosphere extrapolated from recent history, the temperature would increase by only 1.2 °C by the year 2100. Even that is way too much.

The natural millennium cycle shows that some of the 20th century warming was a natural warming from the Little Ice Age.

Also, the temperature indexes used by the UN panel are hopelessly contaminated by the effects of urban development.

In the USA, only 11% of stations are in suitable locations, 69% are within 10 m of an artificial heat source.

Two major studies show that almost half of the warming over land is due to urban development. So what is the UN panel's response to these studies? They dismiss them with the nonsense statement: I quote "the locations of greatest socioeconomic development are also those that have been most warmed by natural atmospheric circulation changes." End quote.

That mean Calgary is warming more than the surrounding countryside, not because of our buildings, and 1.2 million people, but because natural climate change warmed Calgary, but not nearby farmland. That's complete nonsense.

When we account for natural millennium warming and the urban warming effect and new aerosol estimates, temperatures are forecast to increased from now by only 0.6 °C by the year 2100 due to greenhouse gases, not 3.5 °C, assuming we take no further action to limit CO2 emissions.

Using this climate response we can determine the result of the Alberta Climate Plan.

The Alberta climate panel had forecast the emission reduction by 2030. That will reduce global temperatures by 0.00007 °C; less than one, ten-thousandths of a degree C. Utterly insignificant.

Two economic models indirectly used by Alberta's climate panel to estimate the social cost of emissions do not include any benefits. These models use the UN climate panel forecasts, not reality, and are used to set the carbon tax. There is only one economic model in the world , the FUND model, that estimates the social costs **and benefits** of carbon dioxide emissions. When using our realistic climate response to greenhouse gas emissions, the model shows that globally, the net benefits , net of potential costs, are about **22 C\$/tCO2**. That is a huge net social benefit of fossil fuel use; they should be subsidized, not taxed. Canada is a cold country and we benefit the most by warming. In Canada, net benefits of CO2 emissions increase throughout the 21st century.

The economic forecasts project the world's income/person in 2100 will be 5 times that of today despite warming. The climate plan transfers wealth from us to the extremely wealthy people of the future. Carbon taxes increases costs of all goods & services. It is regressive, hurts the poor, and benefits only crony capitalists and government bureaucrats.

The UN Panel ignored 123 peer-reviewed article published from 2008 to 2012 that show the Sun is a major climate driver. There were another 290 papers published since the beginning of 2014 that show the sun-climate link.

The UN panel wrote in their last report, quote, "Many empirical relationships have been reported between solar activity and some aspects of the climate system. The forcing from changes in total solar irradiance alone does not account for these observations, implying the existence of an amplifying mechanism". End quote. That mean the solar effect is much greater than the direct heat effect. Solar activity also affects cloud cover.

The UN report then ignores solar activity despite the empirical evidence. Many studies report solar activity accounts for more than half of the 20th century warming. Solar activity increased through the 20th century to 1991, the highest in over 8000 years. Solar activity is predicted to fall during the 2030s to conditions last seen during the Little Ice Age.

There is no evidence of increasing severe weather. There is no significant trend of hurricane activity. Tornadoes require a cold front colliding with warm air. Northern warming makes tornadoes less likely and their frequency has been declining.

There is a small declining trend of global droughts from 1982. The most severe droughts in North America were in the 1930s and 1950s.

There has been no sea level rise on Canada's west coast in 40 years. Global sea level rise has averaged only a tiny 2.5 mm/yr since 2003. Arial and satellite photos show that 23 of 27 tropical coral islands grew or stayed the same area since 1950 despite sea level rise.

CO2 is plant food, and the increase of CO2 since 1950 has enhance crop yields by over 16%. CO2 fertilization added \$3.2 trillion to the value of global crops from 1961 to 2011.

Recent satellite data shows that our CO2 emissions has caused a greening of the earth. The greening over the past 33 years is equivalent to adding a green continent twice the size of the continental USA.

The benefits of warming include;

Longer growing season, greater area of arable land, increasing crop yields, lower heating costs, lower construction costs and lower road maintenance costs.

The reduced tropics to the Arctic temperature gradient causes fewer severe storms.

In the U.K., death records show cold kills 10 times as many people as heat.

The death rate in Canada is 100 deaths/day greater in January than July.

A major study of 13 countries finds that cold weather kills 20 times as many people as hot weather. Obviously, warming is good, cooling is bad.

Wind power is extremely variable and unpredictable, which requires 100% backup by fossil fuel power plants. The variability imposes large costs on the electrical grid and greatly increases the fuel consumption per unit of electricity generated from conventional power plants that are forced to ramp their output up and down to offset the wind power variability.

Ontario's feed-in tariffs for wind power is 13 ¢/kWh, about 3 and a half times our power costs. Ontario's solar energy costs are 22 ¢/kWh, over six times our electricity energy costs.²

Germany and Denmark have the highest solar plus wind installed capacity in Europe and they have the highest electricity prices. Hungary has the lowest solar plus wind installed capacity and it has the lowest electricity prices in Europe. German electricity prices are double that in Canada. The experience of these countries show that the Alberta Climate plan will result in escalating power costs.

In conclusion, the Alberta climate plan has no benefit, but imposes a huge burden on Albertans. The benefits of warming and CO₂ fertilization greatly exceed any social costs. Wind and solar power is extremely expensive and will result in fuel poverty, potential blackouts when the wind doesn't blow and the sun doesn't shine, and escalating electrical power prices. Say no subsidies to wind and solar companies, and NO carbon taxes, No carbon taxes, Not carbon taxes.

Notes;

1. Average last bill 2.42 \$/GJ Sept 8 – Oct 6. $1.52/2.50 = 61\%$ increase.
2. Enmax 3.5 ¢/kWh