Stuck in Dangerous Carbon-Polluting Practices?

Harvey and Orbis (2018: 12) claim that political will to implement effective climate policies has become strong, and give the example of the Paris climate accord. Such optimism, however, is premature. By 2020, its implementation is in deep trouble. The USA withdrew. Most countries are not on track to meet its goals, including near-term ones and much less more demanding longer-term targets. California is a leader but unfortunately an exception in the USA. Obama’s climate and environmental regulations have been undone by Trump. Macron’s carbon tax in France have hit a wall of yellow-vested opposition. Australia remains committed to coal as the backbone of its economy, despite suffering severe drought and wildfires. The 2019 COP25 Conference failed. The closing of all coal-fired electricity generation in Ontario by its Liberal government reduced carbon pollution, but it wasn’t implemented well. This led to increased electricity rates, which caused a backlash and the election of a conservative government that eliminated most environmental measures. Since Harvey and Orbis (2018) wrote their favourable assessment of the California-Quebec-Ontario cap-and-trade system and
of the Canada’s price on carbon, the conservative government in Ontario withdrew its participation and the Canadian government is facing fierce opposition from conservative parties over carbon pricing. Even though wind and solar are developing rapidly, fossil fuels are not decreasing below 80% of global energy supply because of increasing energy demand. Most states are not transitioning their economies off fossil fuels. Rather they are worsening global warming with their emissions exceeding their carbon withdrawals. Global emissions continue to be on an upward trajectory, increasing by 1.5% every year over the past decade (UNEP 2019). Harmful fossil fuels continue to be relatively cheap because their environmental and health costs remain ‘externalities’ costly to victims rather than included in their price. Risk-taking in fossil-fuel investments continues to bring risk-making for others.

Natural scientists are concerned about runaway greenhouse effects where first-order combustion of fossil fuels unleashes second-order global warming by nature’s dynamics. This involves melting of permafrost releasing the powerful greenhouse gas-methane, melting of the reflective ice cover of the Arctic Ocean letting in more sunlight, wildfires emitting greenhouse gases, etc. If humans do not restrain their carbon emissions soon, the dynamics of nature will carry on global warming by themselves even if humans belatedly stop combusting fossil fuels. Unleashing runaway dynamics of nature happens often in the interaction between social practices and nature’s dynamics. If carelessness causes a fire, it can be extinguished easily and quickly if caught early. But left unattended, it accelerates on its own and is very difficult and costly to extinguish and causes much damage: think of Notre Dame Cathedral. China censured doctors’ warnings of the coronavirus (COVID-19) at the outset to maintain its ‘harmonious’ society, so now the virus is travelling by plane in human hosts around the world into a pandemic. Italy, Spain, most of Europe, and the USA were slow to contain the viral spread, with the result being disastrous. On the contrary, Taiwan, Hong Kong, and South Korea took decisive measures quickly, so they have many fewer fatalities. Timeliness of response is crucial for the fossil-fuelled climate crisis as well.
The Accelerating Treadmill of Carbon-Polluting Social Practices

There are also runaway effects on the social side. For example, the more fossil fuels are combusted, the hotter the climate becomes, the more air conditioning is used where coal or natural gas is combusted to produce electricity, which results in more carbon emitted into the atmosphere, thereby intensifying the greenhouse effect, making the climate even hotter, prompting people to use more air conditioning, and so on. Communities adapt to the danger of wildfires from fossil-fuelled global warming by cutting down trees, which reduces nature’s capacity to absorb carbon from the atmosphere, and setting controlled fires which emit greenhouse gases. The global demand for oil has become so great that its exploitation has gone from wells where extraction results in relatively low emissions, as in Saudi Arabia, to sources that require more fossil-fuel combustion for extraction, upgrading, and refining, such as heavy oil from Venezuela and Alberta oil sands (Davidson and Andrews 2013). Most significantly, there is the treadmill of global economic growth that cancels out the benefits of growth in low-carbon energy. The supposed decarbonization of economies in terms of lower emissions per GDP continues to worsen fossil-fuelled climate change because it lags behind economic growth.

Technological innovation to reduce emissions has not kept up with the accelerating treadmill of fossil-fuel emitting social practices. Urban sprawl and resulting home-to-work commuting, typically one person per car, are intensifying. The affluent today fly to distant countries to see the world in much greater numbers than their grandparents, with most being unaware of how many pounds of carbon dioxide such jet-fuelled journeys emit into the atmosphere. Cruise ships driven by polluting bottom-of-the-barrel bunker fuel became popular over the last two decades. Social media servers that are electricity gluttons, usually based on fossil-fuel energy, enable phones to be smart. Air conditioning, typically powered by fossil fuels, is increasingly cooling buildings and vehicles. These are all good, but they also result in bads, namely the fossil-fuelled climate crisis.
The distinctive contribution of the teenage climate activist Greta Thunberg is that her actions speak louder than her words. When traveling in Europe, she goes in electrically powered trains, which underscores the global warming consequences of combusting jet fuel for short-haul flights. When invited to a United Nations summit on global warming in New York, she experienced how difficult it is to avoid fossil fuels for long-distance travel. To cross the Atlantic, she was offered a racing yacht powered by wind, solar, and underwater turbines built for speed rather than comfort, was warned the journey would still take two weeks and the ride would be choppy, but accepted nevertheless. This was her way of drawing attention to the carbon pollution by long-haul flights combusting jet fuel, which are increasingly numerous.

Fifty years ago, professional sports had few competitors, and events were held in a small number of cities not too distant from one another. Travel was done in economy class if by plane, and in some cases by train or bus. Salaries and prize money were good but relatively modest, and so were profits of owners. Now professional sports are on a treadmill of expansion—of salaries, prize money, and profits, of cities, distances between events, travel by plane, and jet fuel emissions. This resulted in professional sports becoming a major source of carbon pollution, which is obvious for car races (Formula-1, Indy, etc.) and motorboat races and when fans take short haul, discount flights to sporting events. It is also true for teams and athletes themselves. Today the New York Yankees wouldn’t think of taking a two-hour, low-carbon train ride to play in Philadelphia or Pittsburgh. They fly. National Football League, National Basketball League, and professional soccer (football) teams fly in lavish charter jets. Profits of team owners, prize money for competitors, and sponsorship payments for marketing have exploded. Players in individual sports, like tennis and golf, are flying continually. Owners and successful competitors now have their own private jets, and do not pay the full cost of their emissions in offsets, even though they could easily afford to. They are members of the 1% in wealth, and invest it to maximize returns, typically without concern for environmental consequences. Athletes often become spokespersons for their favourite causes, but have not tackled fossil-fuelled global warming. Thunberg noted the drought and bush fires caused by fossil-fuelled global warming ravaging Australia in January.
2020 during the Australian Open tennis tournament. She found that the world’s most successfully branded person, Roger Federer, is sponsored by Credit Suisse, which invests in oil and gas. So she inspired a protest on social media. ‘No sector of society is more vulnerable to climate protest than pro sports. … Professional athletes are highly visible, highly remunerated, highly mobile, highly out of touch, and highly sensitive to criticism’ (Kelly 2020: B10). But they are also highly supported by fans. It takes courage to criticize the GOAT (Greatest of All Time) Federer? The sports journalist Kelly (2020: B15) concludes that the fossil-fuelled climate ‘struggle is no longer about amelioration, it’s about abstinence. At some point in the very near future, we are all going to be asked to give up frilly things we enjoy. What’s more frilly than sports? … From now on, it’s going to be impossible [for teams and athletes] to say nothing about climate change and their role in it’. But will they take action to fully offset their emissions, using their substantial wealth to finance wind farms and solar energy in poor countries?

People in poor countries make use of animate energy (their own physical labour, horses, mules, oxen). But as countries rise out of poverty, they increasingly use fossil fuels to power economic growth. It is usually coal, which is the cheapest, most available, but also the most carbon polluting. The first things wanted by developing countries are efficient transportation, efficient agriculture, smartphones, and air conditioning, but these are powered by fossil fuels and contribute to accelerating the treadmill of carbon-polluting social practices. Population growth also contributes to that acceleration. Although there is much talk about global population growth slowing down, in absolute numbers it is still increasing because of demographic momentum, with more women having children because of past population growth even as the number of children per woman decreases. Implementation of low-carbon energy has not kept up with all these additional emissions, much less driving down emissions to carbon withdrawal rates.

One of the most difficult issues in the climate crisis was raised by South Africa’s finance minister. He stated that, because of both economic growth enabling people to escape poverty and population growth, South Africa’s economy was two-thirds bigger in 2010 than in 1994 when Nelson Mandela became president. Millions of people previously
deprived of electricity are now on the grid, but supply has not kept pace with demand. His government is promoting wind, solar, hydropower, and nuclear to generate electricity. Nevertheless, he concluded that the near-term need for energy trumps long-term threats from greenhouse-gas emissions, and that stunting economic growth in Africa is not the solution to fossil-fuelled climate change. He therefore supports a massive coal-fired electricity plant financed by the World Bank. This is typical of all poor countries with aspirations to enjoy what affluent societies have, but it accelerates the treadmill of carbon pollution practices. Pielke uses this case to illustrate his solution to global warming: the technological innovation of low-carbon energy cheaper and more accessible than fossil fuels, which would outcompete fossil fuels thereby leaving them in the ground. But this requires a leap of faith in technological innovation. The finance minister added that ‘the journey [to eliminating greenhouse-gas emissions] will inevitably be costly, requiring massive investments in technology, research and re-engineering the ways in which we live and do business. It will also require a true spirit of consensus and collaboration’ (quoted in Pielke 2010: 233). Since poor countries have neither the technology nor financial resources to make massive investments in clean energy, this requires that wealthy societies, which have become rich by combusting fossil fuels and emitting carbon since the industrial revolution, finance the research costs and transfer the technology to poor countries. But as recent climate negotiations demonstrate, resistance remains strong in wealthy, technologically advanced countries to shipping money and free technology to countries that can’t pay.

Increased efficiency of aviation and of ground and water transportation based on fossil fuels, with attendant greenhouse-gas emissions, have resulted in a surge of recreational travel. People with money travel to see sights around the world, especially after retirement, which involves a structured escalation of emissions. ‘We have channeled our desires, our insecurities, our need to demonstrate our worth and our success, our wanting to fit in and to stand out increasingly into material things – into bigger homes, fancier cars, grander appliances, exotic vacations’ (Speth 2009: 161), all of which intensify fossil-fuel combustion. Consumption includes invisible but damaging fossil fuels combusted to ‘get away’, as Carolan (2014) calls it, by travelling on vacations, often distant ones.
People today drive more than their grandparents did, fly more, and take more cruises. They are even cremated more often when they die. The average cremation consists of combusting about 28 gallons of natural gas, propane, or diesel to incinerate the corpse for about two hours at 1000 °C, reducing it to about 3 lb of ashes, and emitting about 540 lb of carbon dioxide. Cruises are double jeopardy carbon polluters: enormous cruise ships propelled by bunker fuel or diesel pollute, and passengers have to take a polluting plane to arrive at the departure point and fly home. The aviation and cruise industries are growing rapidly, propelled by fossil fuels. The issue is one of scale: if one person chooses to fly, the effect is negligible, but if billions make that decision, the emissions result in significant additions to the accumulation of atmospheric carbon. Societies are on an accelerating treadmill of carbon-polluting social practices, which functions at cross purposes to goals of reducing greenhouse-gas emissions.

**Market Innovation as Part of the Problem**

Market innovation could in principle be part of the solution to fossil-fuelled climate change. The private sector has been involved in innovating low-carbon energy sources: hydroelectricity, solar and wind energy, nuclear energy, electric energy storage, etc. But most of these have required government feed-in tariffs, tax deferments, subsidies, etc., to take off. Market innovations that reduce emissions are, however, overpowered by those that increase them. The private sector has innovated hydraulic fracking, deepwater drilling, developed ways to extract oil from bituminous (tar) sands, Arctic oil and gas exploration, liquefied natural gas, and pipelines to bring these fossil fuels to market. Profit-seeking companies are great at digging and pumping fossil fuels out from safe storage in the ground, and developing new ways to use them. They are not good at preventing emissions from combustion being dumped in the atmosphere to accumulate, for example, ‘clean coal’ remains an oxymoron. The reason is because there is no profit to be made, unless government imposes a high price on carbon pollution. Although free-market capitalism can help spark innovation in new technologies, our
current economic systems demand endless growth, continued consumption, and the most profitable pathways, which often means using the cheapest fuels to extract the most money from energy and production’ (Suzuki and Hanington 2017: 251). This has been called the capitalist growth imperative. Most companies steer innovation towards profit-making without consideration of environmental consequences. They have to be pushed to pursue less polluting but more challenging energy resources like solar, wind, hydro, tidal, and geothermal energy. The entrepreneur Hawken (2010: Introduction to the Revised Edition) concludes that ‘business is destroying the world, no one does it better’. Whereas the market left to itself speeds up extraction and use of valuable but dangerous resources (coal, oil, asbestos), it is necessary to slow down that treadmill of production (Schnaiberg 1980). As Nordhaus (2013: 257) states, this constitutes market failure, and he concludes that ‘free markets will not do the job’ of solving the urgent climate problem. Moreover, the relative concentration of decision-making results in profit-seeking companies convincing the population to give priority to near-term economic benefits over long-term environmental and economic benefits. The fossil-fuel industry finances political parties and think tanks (Jacques, Dunlap, and Freeman 2008; McCright and Dunlap 2010; Dunlap and Jacques 2013; Elsasser and Dunlap 2013; Dunlap and Brulle 2015; Dunlap, McCright, and Yarosh 2016) which discount future harm from fossil fuels and oppose solutions to climate change. Many of these right-wing think tanks have misleading names, such as The Global Warming Policy Foundation which leads people to believe it constructs policies to combat global warming but is instead a UK lobby group to promote fossil fuels. In the USA, the ‘Global Climate Coalition’ was created to discredit climate science (Schneider 2009: 120–121). Science is usually seen as being disinterested and apolitical, but when it brings troubling news about the activities of vested interests, it has been described as a ‘contact sport’ (Schneider 2009) between impact scientists and production scientists. Speth (2009: 116) concludes that ‘the planet cannot sustain capitalism as we know it’. Time will tell whether he is right.

Market innovation has given us social media capable of manipulating enormous amounts of data instantaneously, but the powerful
computer servers require huge quantities of electricity to operate and be cooled. Since much of its energy comes from combusting fossil fuels, it has worsened global warming. Data storage clouds bring with them century-long greenhouse-gas clouds. Take a recent example of the private sector’s innovation of a seemingly pure cultural object. Bitcoins, unlike physical coins, have no tangible existence. They are instead based on algorithms. The complex computations are done by powerful computers, which are only able to function by consuming huge amounts of electricity generating enormous amounts of heat, hence have to be cooled. One of the biggest bitcoin centres is in Dallas Texas because it has cheap electricity provided mainly by combusting coal and natural gas, which emit greenhouse gases causing global warming. Its hot climate requires much electricity for cooling the computers. Even seemingly pure cultural objects like cryptocurrencies with no physical existence are important carbon polluters contributing to global warming. Where on Earth could bitcoin computers be run efficiently using abundant, clean, cheap energy? A few bitcoin companies are now profiting from nature’s free services by moving their computers to Iceland to benefit from (i) its abundant geothermal energy for generating electricity and (ii) its cold location by letting the frigid Arctic air cool the computers. This bitcoin industry is not without its critics in Iceland, who argue that the country is ‘spending tens or maybe hundreds of megawatts on producing something that has no tangible existence and no real use for humans outside the realm of financial speculation’ (Bjarnason 2018).

Apathy Towards the Scientific Forecast of Catastrophe

As scientific evidence accumulated, denial of anthropogenic climate change has in most quarters changed to apathy. In complete apathy, there is indifference to the crisis even though its existence is acknowledged. In partial apathy, something is done but there is a refusal to change fossil-fuelled practices or pay carbon taxes, despite good scientific evidence about the scale and timing needed. In both, danger is discounted, resulting in a failure of foresight, the carbonization of the
atmosphere, and the incubation of disaster. Discounting danger is a frequent response when confronting threats where prevention would be costly and disrupt present social practices. Thus disaster researchers have documented many ‘repeat disasters’ (Platt 1999), ‘unnatural disasters’ (Abramovitz 2001), ‘disasters by design’ (Mileti 1999), and the like. In 2009, Schneider (2009: 231) argued that ‘we’ve known pretty well for at least three decades of the climate threat, yet we were paralyzed from much action [to prevent it]’. This still is true a decade later. Paralysis has not resulted from lack of goals and targets, but rather from measures to implement goals into action: ‘aspirational targets are necessary to scale roughly how much to invest, so I am not against targets per se. But without explicit policies and measures to achieve any aspirational targets, it is talk, not action. Remember the problem with the Kyoto Protocol: targets without teeth’ (Schneider 2009: 244). Rand (2014) also demonstrates how paralysis characterizes the response of most societies to climate change.

**Lucrative Discounting of Danger**

Discounting danger refers to being unresponsive to preventing catastrophes forecast by science, but it can innovative new practices to benefit from global warming and even hasten it. The pursuit of near-term economic benefits trumps predictions of distant catastrophe in inciting action. There is inaction to prevent fossil-fuelled climate change but much activity to profit from it. Deutsche Bank created mutual funds to capitalize on global warming and shift the focus from risk and cost to profiting from its enticing business opportunities (Funk 2014: 2). For his book entitled *Windfall: The Booming Business of Global Warming*, Funk (2014) investigated bonanza profits for companies flying water bombers and manufacturing aerial fire retardant to fight wildfires, businesses profited from water scarcity because of drought and farmland scarcity, others making windfall profits from selling seawalls and reinsurance due to storm surges and deluge, and companies specializing in climate geoengineering and climate genetics. Insurance companies are adapting to fossil-fuelled climate change by refusing coverage and increasing
premiums for flooding and wildfires. Funk (2014: 285) concluded as follows. ‘Perhaps the most magical assumption of the moment is that our growing belief in climate change will lead to a real effort to stop it. But as I discovered in Canada and Greenland and Sudan and Seattle and all over the globe, that is not automatically true. We are noticing that in this new world, there is new oil to find. There is new cropland to farm. There are new machines to be built. From what I have seen in six years of reporting this book, the climate is changing faster than we are’. His research constitutes a salutary warning of the need to be wary of the enticing side effects of global warming. Global warming is something like a tsunami, which lulls people on the beach into assuming the receding water is safe, before the massive waves crash into them.

At the 2019 Arctic Council, the members, namely Sweden, Norway, Denmark, Finland, Canada, Russia, Iceland, and the Inuit Circumpolar Council signed a declaration stating climate change is a serious threat to the Arctic because its temperature is increasing at twice the rate as the rest of the planet. But the remaining member, the USA led by Secretary of State Mike Pompeo, refused to sign because the melting ice creates the potential for new shipping lanes and exploiting new reserves of oil and natural gas. Where the others saw an environmental threat, Pompeo saw near-term economic opportunity even though he claimed the Trump Republican Administration ‘shares your deep commitment to environmental stewardship in the Arctic’ (Dickson 2019: A7). Since Inuit already experience adverse consequences of climate change, their leader described Pompeo’s refusal as a moral failure.

Freudenburg et al. (2009) documented how New Orleans was given multiple science-based warnings of hurricanes, but they were not heeded because priority was given to economic growth. Canals were built, dredging was done, and other constructions were made for immediate economic gain, which exacerbated vulnerability to hurricanes. ‘Predictions of danger that were chillingly similar to what came to pass with Katrina were put forth repeatedly …. however, environmentally damaging projects such as MRGO [which intensified the harmful effects of hurricanes] have continued to be described as necessary “for the good of the economy”’ while risks of environmental harm have routinely been
dismissed as something ‘not to be feared’ (Freudenburg et al. 2009: 163–164). Scientific warnings of catastrophe had little effect in promoting safety when they confronted near-term economic priorities. Actions fostered by economic interests made the danger worse. Even emergency management and disaster preparation were woeful.

Freudenburg and Gramling (2011) documented warnings of the likely failure of BP’s blowout protector for deepwater drilling in the Gulf of Mexico where pressures are particularly high, but the company and its regulators claimed it was safe. They discounted danger for the profitable operations and went full speed ahead towards a blowout and catastrophic two-month long oil gusher. In other cases as well, pre-disaster reports claiming safety have been called ‘fantasy documents’ (Clarke 1999). Freudenburg and Gramling (2011: 158) concluded from their study of the Deepwater Horizon blowout that there ‘needs to be prevention, not a mistaken belief that we can actually “clean up” such a mess’. But prevention is not being done in North America and in many countries concerning fossil-fuelled global warming. Hence ‘literally and figuratively, and both in the Gulf of Mexico and elsewhere, we have been getting into increasingly dangerous waters, doing so without being sufficiently vigilant about the implications of our actions’ (Freudenburg and Gramling 2011: xiii).

Backsliding

It would be superficial to assume that the directionality of movement is straightforwardly towards solving global warming. Like any road, there can be backward as well as forward movement. Hoped-for solutions must not blind us to backsliding. One technical type involves the shift from oil wells to extraction of heavy oil and bituminous sands oil which produce more emissions per barrel than oil from a well (Davidson and Andrews 20). Political backsliding is common. From 1992 to 2000, the USA had Vice-president Al Gore whose main priority was mitigating global warming. But mitigation stalled from 2000 to 2008 under the George W. Bush Republican Administration. There followed a great hope for mitigating global warming because ‘after 2009, there will be
a new U.S. administration that plays a positive role in the process rather than deliberately trying to sabotage it’ (Dyer 2008: 174). The Obama Administration did indeed enact policies to diminish carbon emissions from 2008 to 2016, but then came President Trump’s belief that ‘the concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive’ (Fife 2016: A3). He withdrew the USA from the Paris Agreement to mitigate climate change, named a climate sceptic as head of the American Environmental Protection Agency, dismantled Obama’s measures to protect the environment, particularly from fossil-fuel emissions, and called for using more coal to please his voting base in coal-producing states. There is a pattern in American politics concerning the mitigation of global warming: one Democratic step forward followed by one or more Republican steps backward (Dunlap, McCright, and Yarosh 2016). Decisions by the USA whether or not to mitigate global warming then has strong effects on other nations because of American power in the market.

This is an important part of the reason why mitigating fossil-fuelled climate change doesn’t get done in democracies. Centre-left governments implement measures to deal with it, then these are undone by right-wing governments in the back-and-forth of electoral politics. In Ontario, Liberals introduced cap-and-trade in cooperation with California and Quebec, promoted wind and solar energy, eliminated coal-fired electricity generation, and did other mitigation measures; then these were reversed by the subsequent conservative government. The Alberta conservative government repealed environmental reforms of the previous social democratic government, such as phasing out coal-burning electricity generation. Backsliding is an integral part of discounting danger when the scientific anticipation of a slow-onset catastrophe confronts near-term economic interests. Even if corrected in a subsequent phase of the electoral cycle, it results in falling further behind the steady accumulation of greenhouse gases in the atmosphere. Thus Lockie and Wong (2018) analyse the conflict between the temporalities of climate change and the temporalities of politics. Schneider (2009: 269) argues that ‘we need national mandatory performance standards to be implemented as an urgent priority and thus help to reduce our emissions relative to
business as usual now, not decades down the road’. In 2009, he was optimistic based on the Waxman-Markey bill, but it was never passed by the American Senate.

Nordhaus (2013: 250–252) suggests an international carbon price regime whereby nations would negotiate a framework agreement with a minimum price for carbon, then each would be free to choose whether to implement a carbon tax, cap and trade, or a hybrid to achieve it. This he argues would be easier than alternatives. However, its implementation is far from politically easy. It is similar to Canada’s attempt to achieve its Paris Agreement commitments. It set the national emissions reduction level, and let provinces choose carbon taxes, cap-and-trade, regulations, or a hybrid providing they meet Paris commitments. British Columbia has a successful carbon tax, Quebec and Ontario joined California’s cap-and-trade system, the oil province of Alberta began a hybrid of a carbon tax, regulations, phasing out coal, and a cap on emissions from the bituminous sands oil sector. But the harmony fell apart when provinces voted for conservative governments. Alberta and Saskatchewan are fighting the federal initiative in court, Ontario eliminated cap and trade, Alberta repealed the former social democratic government’s climate initiatives, and Manitoba pulled out of the agreement. So the Trudeau federal government will have to impose its own carbon tax, and to sell that, it is returning the monies to families in the provinces paying it. On the international level, Nordhaus suggests using trade sanctions to enforce a carbon price on every nation. That might have worked on small nations, but imagine how difficult it would be for the international community to use trade sanctions against Trump’s America to force it to place a price on carbon pollution.

The President of the International Institute for Sustainable Development David Runnalls (2008: 3–4) concluded that in 1988–1992, ‘Canada was the most advanced country on earth in terms of sustainable development. … we have been going backward, or perhaps more generously, sideways, ever since’. The backsliding of Canada during the period 2006–2015 when the Conservatives were in power is also confirmed by the Yale University Environmental Performance Index (Yale University 2012, 2018) and other indexes (Germanwatch 2012, 2019), by its increasing per capita greenhouse-gas emissions, reneging on its Kyoto
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Protocol commitments then withdrawing, promotion of high-emissions oil extraction from tar sands, its strenuous lobbying against European Union labelling of tar sands oil as high emissions, etc. Canada had many enlightened policies to deal with anthropogenic global warming, but they were not implemented, and hence have been aptly described as ‘hot air’ (Simpson, Jaccard, and Rivers 2007). There is evidence of backsliding in Australia, which rescinded its carbon tax. New Zealand, which was presented by Giddens (2009) as an exemplary case of taking action to prevent anthropogenic climate change, slid back to ineffective measures after a change in government from the Labour Party to the conservative National Party. In the USA, Canada, Australia, New Zealand, and other countries, discounting fossil-fuelled danger has been typical when conservative governments (called Liberal in Australia) come to power.

Fossil fuels tend to be default options when there is resistance to non-carbon-emitting sources of energy. When communities oppose wind farms but don’t reduce their energy demand, they rely on fossil fuels. If problems emerge, countries return to fossil fuels. When Japan closed its nuclear reactors after the Fukushima disaster, it turned to liquefied natural gas and other fossil fuels. When Germany lacked energy for electricity generation while phasing out nuclear power, it imported electricity from France’s nuclear reactors and used fossil fuels. When the COVID-19 virus struck and practising social distance was counselled, many people abandoned public transit and returned to commuting alone in their private car.

Contemporary conservative parties follow Ronald Reagan’s belief that government is the problem, not the solution, for the ills of society (except for the military, police, and jails). American anti-trust laws were eliminated, so monopolization of market power increased. Political parties that advocate redistribution of income and wealth are opposed, so inequality is amplified. Government control of guns, including assault weapons, was weakened by an expansive interpretation of the 2nd amendment of the right to bear arms, so the USA has the most gun violence in the developed world. Libertarianism is interpreted as freedom from government, which results in enfeeblement of the principal institution that can moderate excesses of the market and promote equal opportunity. The lower, working, and middle classes are not free if they
are sick and have no health care, and they are not free to develop their talents if they cannot afford quality postsecondary education. Free speech was interpreted as freedom from limits on spending for political parties, so the country became a plutodemocracy where money has an inordinate influence on politics. The government is subjected to powerful fossil-fuel lobbies and prevented from regulating greenhouse-gas emissions, resulting in a climate crisis, and closing off opportunities for future generations who will be deprived of natural capital and nature’s services. Heal (2017: 199) argues that ‘the external costs that generate them [environmental problems] require government policies and are a logical stake through the heart of belief in unadorned markets. It’s hard to believe that we need to solve environmental problems while also believing that the government is the problem and not the solution. … The result is that many conservatives ignore environmental problems, pretending that they don’t exist’. They discount danger and oppose government regulations that would ensure the full cost of fossil fuels is paid. Although most pronounced in contemporary USA, this is an outcome of conservative ideology in many countries. Free market ideology and practices, in the sense of free from government regulations, is a significant factor in backsliding on climate action.

Playing Batty Politics

Windmills are often opposed using the claim they kill bats, but it can be greatly diminished by mitigation measures: building wind farms in low-risk areas for bats, shutting off turbines when wind is weak and bat migration occurs, etc. Most important, climate change poses a much greater threat to bats and biodiversity by destroying habitats, as documented by Baerwald (2019), a conservation biologist who specializes in research on bats and wind farms. He concludes that wind farms reduce the climate-change threat to bats by replacing fossil fuels in electricity generation. Nevertheless, the Ontario conservative government cancelled a 29-unit wind farm under construction claiming it would cause irreversible harm to bat populations, despite the opposite conclusion by a scientific committee. The unstated reason for cancellation, at a cost of
hundreds of millions of taxpayer dollars, was that some residents feared property values would decrease, which is likely unfounded, and a conservative politician was up for re-election. Baerwald concludes that bats are being used as pawns in batty politics and that this wind farm developer, who is following scientific bat mitigation recommendations and should be emulated by other developers, is being punished.

Every Man for Himself

Funk (2014: 7) argues that the scientific anticipation of global catastrophe is being discounted. ‘We hope our collective fear of global warming will push us inevitably toward collective behavior [sustainable green activities]. But what if the [socioeconomic] world as we know it goes on even as the [biophysical] Earth as we know it begins to disappear?’ Blumenthal (2014) confirms this is happening in Louisiana: ‘the state is also disappearing, overtaken by waters due in part to the drilling, dredging and runoff associated with the state’s biggest economic driver [the oil industry]. Not to mention the rising tide from a changing climate’. Funk found evidence supporting a hypothesis opposite to Beck’s (2015) cheery postulate that the anticipation of global climate change catastrophe results in a cosmopolitan orientation taking into account needs of distant people and future generations. ‘There’s another possible response to melting ice caps and rising sea levels, to the reality of climate change – a response that is tribal, primal, profit-driven, short-term, and not at all idealistic. Every man for himself. Every business for itself. Every city for itself. Every country for itself’ (Funk 2014: 7–8). It leads to hunkering down in a bunker mentality. He integrates social class and national differences into his analysis. ‘Some people – the rich, the northern – will find ways to thrive while others cannot, and many people will wall themselves off from the worst effects of warming while others remain on the wrong side. … The people most responsible for historic greenhouse emissions are also the most likely to succeed in this new reality and the least likely to feel a mortal threat from continued warming. The imbalance between rich and north and poor and south – inherited from history and geography, accelerated by warming – is
becoming even more entrenched’ (Funk 2014: 288). Even safety is being monopolized.

The potential for exclusion because of global warming is enormous. Already many countries, such as the USA and Eastern Europe, are refusing to accept refugees fleeing war-torn countries, failed states, etc. English resentment against Eastern European immigrants was one important factor motivating Brexit. Fossil-fuelled global warming is predicted to result in sea level rise and inundation of coastal cities, drought and famine (Goodell 2017). Imagine the displacement away from areas made unliveable by climate change. ‘Quickly decarbonizing transportation around the globe is essential if humanity is to slow and then reverse the intensifying wildfires, floods, and storms, and the mass migration of people fleeing the worst impacts of climate change’ (Rivers and Jaccard 2019: A15). Will prosperous countries that disproportionately caused the problem open their borders and welcome climate refugees, or will they build walls? Moreover, the problem of climate refugees will distract attention from the ongoing carbonization of the atmosphere and from cooperation needed to mitigate it, perhaps even sabotage cooperation.

Top-Down Discounting of Danger

Diversions and apathy have been promoted by the fossil-fuel industry and prominent media commentators, as documented by Freudenburg (2006). Merchants of doubt attempt to confuse the public by constructing disbelief concerning whether fossil fuels cause climate change, like they did about whether cigarettes cause lung cancer (Oreskes and Conway 2010; Dunlap and Brulle 2015). A widely circulated tweet wished an accident would destroy Greta Thunberg’s low-carbon boat as it crossed the Atlantic; a meme depicted Trump tipping over the Statue of Liberty to crush her boat as it arrived in New York; the sceptical environmentalist Bjorn Lomborg shared an article which called her a fanatic (Gelin 2019); Russia’s petro-state President Putin condemned her. Holman’s (2019) large-scale study of the English Canadian mainstream media found that their reports often do not reflect the severity and
scope of the fossil-fuelled climate crisis and that ‘some sources seemed more interested in convincing Canadians there isn’t a climate crisis than actually reporting on it’. Murphy (2015) showed how the scientifically documented environmental problem of global warming becomes a societal non-problem. By focussing on the discursive legitimation of practices that cause anthropogenic climate change, he demonstrated how communication power in the mass media veils the adverse consequences of high-emissions oil extraction and showed how concern about emissions is dampened and quiescence socially constructed. The mediation by media communication power between scientific warnings of danger and fossil-fuelled social practices constitutes an important element explaining why emissions are increasing and why science is having little influence concerning fossil-fuelled social practices.

The media goal of balance, which is a worthy aim for the communication of opinions, is a catalyst for discounting danger concerning complex issues when the preponderance of scientific evidence lies on one side. It gives outlier scientists a megaphone to undermine the scientific consensus and confuse non-scientists. ‘If the public is bamboozled into thinking that each “side” in a typical media debate is credible, a typical reaction is to say, “Well, if the experts don’t know, how can I know! Let’s just wait a while until they figure it out.” That is precisely the strategy of the climate deniers. To create public confusion and apathy, which slows policies that help the planet and our children but hurt the special interests who are vested in the status quo’ (Schneider 2009: 205). Activities that cause greenhouse-gas emissions are not stopped, so waiting for certainty results in continuing emissions that will remain in the atmosphere for a century and accumulate. And there are double standards at play. The media strive for balance between (i) experts who communicate the preponderance of the evidence demonstrating fossil-fuelled climate change and (ii) people who deny it. But the media wouldn’t do the same for the evolution versus creationist debate, or vaccinations causing autism, or now for debate about asbestos or cigarettes causing lung cancer although they did in the past. For complex issues requiring scientific evidence of danger, simple-minded media balance results in discounting, whereas prevention requires an assessment of the credibility of spokespersons founded on the preponderance of the evidence. Concerning global
warming, it remains to be seen whether powerful fossil-fuel industries will prevail in discounting danger or whether attempts to discredit scientific findings of danger will fail and foresight emerge as in the cases of CFCs, cigarettes, and asbestos.

**Bottom-Up Discounting of Danger**

Big oligopolistic fossil-fuel companies are promoting its use and discounting its danger, as are fossil-fuel extracting states that based their economies on it, and large parts of the media. But it is an oversimplification to claim they are the only ones responsible for the fossil-fuelled climate crisis. The population does not consist of mere puppets. People have their own desires. They contribute to emissions by their demand for inexpensive electricity, cheap gasoline, dragging a motor home across the continent, for discount flights, getaway flights of intercontinental tourism, cruises, low-cost data servers, air conditioning, etc. In a democracy, they vote for political parties that oppose taxes on carbon pollution. Even if they alternate their vote in favour of a more environmentally friendly party in the next electoral phase, the one step forward one step back on climate action lags far behind the continual accumulation of carbon emitted into the atmosphere. They demand cheap gasoline, and increase sales of gas-guzzling vehicles over fuel-economical ones.

North Americans have become accustomed, when raising a family, to a single-family house in the suburbs with a yard, and to paying lower prices and less taxes for the same size house compared to the central city. But they then have a long commute from home to work, and most use private cars for reasons of convenience and flexibility, typically one person per car. This results in greater emissions than public transportation in high-density cities like Seoul South Korea. Single-family houses are what their parents had and what they grew up with. Then immigrants see what others have and aspire to the same. When developers construct new inner-city condos, they build them small to make more money by stuffing more in a small city lot. These bachelor-and-widow condos are not suitable for families. American urban sprawl, the long commute,
and difficulties in providing flexible, cost-effective public transportation over long distances result in dependence on automobiles, a sense of entitlement to low-cost gasoline and resistance against carbon taxes. This encourages fossil-fuel consumption and greenhouse-gas emissions. Despite densification attempts, sprawl is growing in exurbia. Although most prominent in North America, this pattern is occurring in other countries too. Support by the population for inexpensive fossil-fuelled practices should not be ignored as part of the climate crisis.

Free-Ridership Carbon Pollution as Discounting Danger

Since fossil-fuelled climate change is a global slow-onset problem, the costs paid by any country placing a price on its carbon pollution through carbon taxes, cap and trade, etc., would be immediate but produce few if any near-term benefits for that country, even though it will produce benefits for other countries and future generations. Nordhaus (2013: 318–319) estimates the main climate benefits of placing a price on carbon pollution now will occur about fifty years later, which he refers to as a ‘temporal trade-off’. Hence there is an incentive to reject a price on carbon, keep emitting carbon pollution, hope that other countries reduce their emissions, or have faith that a last-minute, cost-effective technological solution will be found and implemented. Since near-term economic benefits are typically given priority, the optimal financial strategy is to do nothing and let other countries pay the costs of carbon taxes, etc. Mitigating climate change is resisted because it appears to involve a redistribution of wealth from the virtuous country to polluting ones and from this generation to future generations (Keith interviewed in Dyer 2008: 165–167). ‘Countries have strong incentives to free ride on the efforts of others because emissions reductions are local and costly while the benefits are diffuse and distant over space and time. … This incentive leads to a noncooperative free-riding equilibrium in which few countries undertake strong climate–change policies – a situation that closely resembles the current international policy environment. … Additionally, there is a tendency for the current generation to ride free by pushing the costs
of dealing with climate change onto future generations. Generational free riding occurs because most of the benefits of emissions reductions today would accrue many decades in the future’ (Nordhaus 2013: 8). This enticement to discounting danger also applies to companies and individuals.

In a transnational global economy, companies lobby governments against pricing carbon claiming they will be uncompetitive compared to trading partners that are allowed to externalize their costs of carbon pollution. The Canadian government coordinated its carbon pricing with the Obama Administration to meet its 2015 Paris Agreement commitments, but the Trump Administration’s withdrawal from that agreement, its elimination of fuel-efficiency requirements, etc., created major competitiveness issues for Canada. Carbon-taxed Canadian companies contend they can not compete against American companies that do not pay a carbon tax. This promotes a race to the bottom, which could be called the economic survival of the dirtiest. Externalizing costs to the environment and therefore to populations distant in space or time is cheaper and better for the bottom line. Even when they agree that fossil-fuelled climate change is a significant threat, companies, governments, and populations have an economic competitive incentive to avoid taking the lead in paying upfront costs required to reduce carbon pollution, and let other countries and companies do it.

However, assuming that polluting countries which place a price on carbon are centrifugally redistributing their wealth to other countries and other generations is a partial view which sees only one side of the issue. The other side is that carbon-polluting societies, companies, and individuals have already partaken of centripetal wealth redistribution by appropriating unduly cheap fossil fuels while shifting the environmental costs of their pollution to all countries and future generations. Polluters deploy the near-term economic strategy of not paying the costs of their degradation of the environment others will need. The issue consists of refusal to pay for costs carbon polluters are causing and shifting costs to others distant in space and time. If a country (or company or individual) combusts fossil fuels but refuses to spend money for carbon capture and storage, carbon taxes, and other measures to eliminate its emissions, then it appropriates the benefits of excessively cheap fossil fuels and foists the
costs of its pollution on others. Hence they close off opportunities to others who will be adversely affected by the pollution even in distant places and future generations. This is the way the closure theory perspective analyses fossil-fuelled global warming by taking into account the externalities of harm and costs. This involves a redistribution of costs and benefits, namely (i) letting carbon polluters save money by having victims pay the health and environmental costs of the former’s pollution, and (ii) allowing this generation of carbon polluters to indirectly take money from future generations who will have to pay the environmental costs of carbon pollution. It consists of free riding by polluters not paying the cost of their externalities.

The enticements of free riding and refusal to stop it are part of the explanation of why it is exceedingly difficult to implement carbon pricing nationally and internationally, with the result that there remain economic incentives to pollute. Therefore fossil-fuelled climate change continues unabated. Changing freeriding practices by including the cost of pollution in the price of fossil fuels is hard to implement. Polluters who have developed a sense of entitlement to riding freely vigorously combat having to pay the full cost of their pollution. Empathy with victims of fossil-fuelled climate change, cosmopolitanism, and foresight envisioning future harm have been in short supply. This free-rider dilemma can be solved by a rules-based order within and between nations consisting of a binding and enforced international agreement to price carbon pollution, similar to the successful Montreal Protocol phasing out CFCs, and international enforcement practices, such as trade sanctions in the Kigali Agreement. But such international agreements are very difficult to negotiate and even more difficult to implement and enforce, so free riding persists in the case of carbon pollution.

The Dark Side of Adaptation and Resilience Building

Adaptation to fossil-fuelled climate change and building robustness and resilience are necessary, indeed indispensable. But concepts of adaptation and resilience are not as straightforward as they appear. Rather than only
postulating overly optimistic concepts, the following negative sides need to be taken into account.

**Adaptation and Resilience as Legitimation Devices to Avoid Prevention**

Adaptation and resilience construction are popular among those promoting and profiting from the social practices causing climate change and those resistant to including the costs of fossil-fuel externalities in their price. The recent emphasis on adaptation and resilience fits nicely with the growth of the fossil-fuel industry, which claims that instead of using less fossil fuels or innovating expensive technologies to reduce emissions, just rely on end-of-pipe adaptation, robustness, and resilience. For example, building seawalls around New Orleans to defend against hurricanes and buying more powerful pumps to expel water will supposedly enable Louisiana to grow its fossil-fuel economy and have safety too. Adaptation can be promoted to maintain present dangerous social practices by fostering the belief that it will provide the capacity to ride out climate change. By providing a reassuring sense of security, which may be false security, adaptation can inhibit prevention. Thus it can have a consequence similar to the Jevons paradox: the more adaptation is successful, the less people are willing to undertake prevention, and the more persistent are dangerous social practices.

Notwithstanding this dark side, the more prevention is insufficient, the more adaptation and resilience building will be necessary. Moreover, emissions reduction is needed to make both resilience and adaptation successful. ‘Enabling climate resilience and sustainable development depends critically on urgent and ambitious emissions reductions coupled with coordinated sustained and increasingly ambitious adaptation actions’ (IPCC 2019: SPM-40 C4).

**Perverse Adaptation**

This consists of adapting to harmful environmental consequences that fossil-fuelled practices cause by intensifying those practices, which will perversely exacerbate global warming. The ice cover over the Arctic Ocean and around Greenland prevented oil and gas extraction and shipping in the past. But fossil-fuelled global warming is melting much of the ice lengthening the season when shipping, oil drilling, and natural
gas extraction are possible. Some countries and companies are adapting to this new situation by increasing oil and natural gas extraction there, which itself combusts fossil fuels and will increase the supply of fossil fuels thereby reducing their cost and promoting more combustion, all of which will cause more emissions, exacerbate global warming, and further melt the ice cover (Funk 2014). Planning has begun for shipping between Europe and Asia through the Northwest and Northeast Passages in the Arctic to cut costs of shipping the long way through the Panama Canal. Cruise ships have already begun to visit the Arctic. Russia is particularly active in Arctic extraction and shipping using nuclear-powered icebreakers to break the remaining ice. Shipping in the Arctic combusts fossil fuels and threatens to result in oil spills in a particularly sensitive region where restoration by nature’s processes is slower because of the frigid temperature. There are also the perverse effects of last-chance tourism: taking a flight or cruise to see a historic city like Venice or a glacier before they disappear, with the flight or cruise combusting fossil fuels whose emissions contribute to their disappearance. Another pernicious form of adaptation to anthropogenic global warming consists of extracting and combusting fossil fuels quickly to avoid having to leave them in the ground as stranded assets if carbon pricing escalates. Funk (2014) documented many other cases of perverse adaptation to global warming that are intensifying. Perverse adaptation to global warming is arguably the most prevalent form of adaptation at the present time, but nevertheless its study has been largely neglected.

**Excuses**

One often hears as justification for a country’s, an industry’s, or a person’s greenhouse gas-emissions that their contributions are miniscule compared to that of big emitters. For example, Alberta and its bituminous sands oil industry claim repeatedly that Canada is only responsible for 1.6% of the world’s emissions, whereas India and China account for a much higher percentage. This deflects attention away from many significant facts. Canada as a whole only accounts for 0.5% of the world’s population, and Alberta for only 0.05%. Canada is among the world’s
big absolute emitters and one of the biggest in per capita emissions. If Alberta were a country, it would be a big absolute emitter and the world’s biggest per capita emitter. The high emissions of India and China are proxies for their high populations despite their low per capita emissions. Moreover, China and India’s emissions bring their populations out of extreme poverty, whereas Alberta’s and Canada’s emissions add to economic growth of already wealthy societies. And India’s and China’s emissions are recent, whereas Canada and Alberta have been disproportionately placing carbon dioxide in the atmosphere for a century or more. Flannery (2015) shows that this excuse is also used in the high per capita emitting country of Australia because of the importance of coal in its economy. Most importantly, it is incumbent on all emitters, especially high per capita ones, to reduce their emissions, even if they have small populations. Luxembourg is a chronically high per capita emissions country but its total emissions are small because of its small population. Since there are so many small population, high per capita emitters, the cumulative effect is enormous. An enforced international agreement is needed where excuses by the recalcitrant will not be accepted.

There are many problems other than fossil-fuelled climate change in the world: wars, nuclear arms, poverty, racial, gender, religious exclusion, market monopolization, pandemics, etc. If these are used as excuses to avoid dealing with social practices that cause climate change, then danger is discounted, global warming is intensified, and the vulnerable will be threatened even more. Multitasking is possible.

Attachment to Fossil-Fuelled Normality

Beck (1995: 48–49) hypothesized there is a ‘death reflex of normality’: ‘as the hazards increase in extent, and the situation is subjectively perceived as hopeless, there is a growing tendency not merely to accept the hazard, but to deny it by every means at one’s disposal’. He argues that bads result in more bads and vicious circles. The attachment to social practices that damage the biophysical environment brings the risk of resulting in irreversible societal collapse, which happened for particular societies (Diamond 2005). There is no reason to conclude this could not occur
on a global scale. Beck’s normality hypothesis is worryingly close to the present evidence concerning the fossil-fuelled climate crisis. His construction of the reflex-of-normality hypothesis holds up a mirror to let us see what societies are actually doing. Although this is troubling, it is necessary to accurately assess the situation and hopefully take actions needed to allay the crisis. This requires a reality check to determine what is being done. It is indispensable to ask why, when faced with overwhelming scientific evidence about the dangers of fossil-fuelled climate change, there is so little improvement of social practices having harmful side effects. Nordhaus (2013: 325) concludes that ‘governments have made little progress in implementing policies [to slow global warming]’. Thus he titles his book *The Climate Casino* implying humanity is rolling the dice and depending on luck. Some obstacles are structural, such as (i) that carbon dioxide is an odorless, invisible gas, (ii) people causing fossil-fuel harm are not the principal victims, (iii) the long lag between both cause and effect and between costly remedial policies and ultimate benefits, and (iv) the need for international cooperation and enforcement. Since populations have developed a sense of entitlement to inexpensive fossil fuels for driving, flying, boating of all sorts, social media servers, electricity, etc., and since charging for harmful carbon pollution will increase their cost, there is strong resistance to a charge even though the money raised could reduce taxes elsewhere, provide more services, finance research to innovate low-carbon technologies, and benefit the economy in the long run.

The danger of fossil-fuelled climate change is that it has the potential to become the mother of all disasters—literally—by spawning multiple catastrophes on a global scale. One possible outcome is that ‘the climate-change externality is not corrected. This has been the approach of most nations up to now’ (Nordhaus 2013: 245–246). It is the path of fossil-fuel dependency which could be succinctly expressed: societies will continue to enjoy the benefits of fossil fuels; dangers be damned. We are now living in both the golden age of fossil-fuelled practices and the incubation of a global climate change disaster brought about by the massive combustion of fossil fuels. It is likely that latecomers, particularly poor people, poor countries, future generations, and other species, will face a hypercarbonized atmosphere and global warming because of
the fossil-fuelled practices of the affluent of the present and previous
generations, with all the partly foreseeable, partly unforeseeable adverse
consequences that entails. Not only is the habitat of non-human species
threatened but also the habitat of humanity. Future forces of nature
unleashed by fossil-fuelled climate change could be worse than worse-
case scenarios and overwhelm those defenses, as occurred with extreme
weather in northeastern North America in 1998 (Murphy 2009), with
Hurricane Sandy striking New York City in 2012 (Superstorm Research
Lab 2014), and with the 2010 tsunami at Fukushima Japan (Hasegawa
2012). The present period is characterized by a global failure of foresight.
Stuck in the fossil-fuelled old normal is the path of least sociopolitical
resistance, even when science reveals it brings the greatest threat. This
possibility must be confronted rather than discounted in order to take
action to get unstuck.

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