# A cautionary tale


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**Of the thousands of governments across the world to have declared a 'climate emergency', perhaps the most misguided is the City of Ottawa, Canada's national capital. Not only do the Mayor and city councillors of Ottawa apparently believe that what they do actually has an influence on global climate, but they are prepared to bankrupt the city and risk the safety of its most vulnerable citizens to put their plans in place.**

With their extreme focus on possible warming impacts, Ottawa's politicians seem unaware that cold weather kills 20 times as many people across the world as hot weather, according to an international study analysing over 74 million deaths in 384 locations across 13 countries. And Ottawa is the seventh coldest national capital city in the world.

Yet, instead of preparing the City for problematic cooling, Ottawa is on the verge of a self-induced crisis, committing to spend no less than $57.4 billion between now and 2050 to fight global warming. That's almost $60 thousand for every man, woman and child in this city of a mere million souls.

The revenues to finance these expenditures would come largely from additional taxes and fees imposed on Ottawa residents, including road tolls ($1.6 billion), congestion charges ($338 million), road user fees ($188 million) and land transfer tax increases ($130 million), in addition to major increases in electricity rates and property taxes. Ottawa residents would also pay much higher parking fees for much reduced public parking spaces.

Equally astonishing is the magnitude of the 'renewable' energy projects that the City of Ottawa says it will engage in to meet its 'net-zero by 2050' target:

- 36 square kilometres of rooftop solar will be required, they say, a 161,485% increase over today's levels;

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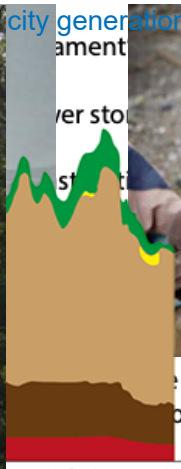


of what can and will inevitably happen when fiscal
ology and special interest, pressure politics.

n with 'stopping climate change', prioritizing it over real world
ems. The catalysts that sparked the City's plans were local flooding
that struck the region in late summer of 2018.

Despite the floods being shown to have been caused by mismanagement of the annual run-off of melting snow and the fact that no tornadoes have been reported in the area since the 2018 event, local politicians saw fit—under extreme pressure from local activists—to declare a 'climate emergency' and direct city staff to develop a plan in response. The result is the City of Ottawa's Climate Change Master Plan.

ICSC-Canada has carefully examined the City's plans and found them to be generally infeasible, dangerous to the well-being of residents and destructive of the local environment. In addition, if the City's climate mitigation efforts were to be implemented, they would support the worst human rights and environmental abuses across the world. We have published an 83-page report[1] on our website that considers these issues in detail. Some of these problems are described as follows.





## The problems are being created by the City's council itself for promoting dangerously foolish and futile environmentalist symbolism over the real-world needs of its citizens. Let's hope no other governments follow in our footsteps

### Electrifying transportation

A major part of the City of Ottawa's net-zero by 2050 plans involves electrifying its entire transportation system, both public and private.

On the public side, the City will spend $1 billion to roll out 450 new 40-foot battery-powered buses over 5 years (by 2027) and transition to a *"fully zero emission bus fleet by 2036."* This will present huge problems for riders. Electric buses, which cost twice as much as diesel-powered buses, have a record of higher breakdowns and reduced range in winter weather. Therefore, the City would have to establish recharging depots throughout Ottawa, at great cost.

Most electric buses are powered by a lithium-ion battery. In addition to the large production and transport costs for the batteries is a sensitivity to temperature that makes using electric buses in cold weather challenging.

For example, a change from about 10 degrees Celsius to about –6 degrees Celsius decreases electric bus range up to 38%. During this past winter, in Berlin, Germany, 23 electric buses broke down in the cold due to the batteries giving out. They had

to be quickly replaced with other buses, often internal combustion engine-driven buses.

At –10 degrees Celsius, Berlin's electric buses were supposed to have a range of 130 km, but the batteries ran out halfway through their journeys. And Ottawa is much colder than Berlin, of course. Consequently, our transition to electric buses will jeopardize reliability, stranding commuters in our coldest weather.

Moreover, bus batteries take two and a half to six hours to fully charge, with each charge only taking the bus about 200 km under optimal conditions. Steep hills, heavy loads and rough surfaces make them even more inefficient. On December 3, 2021, the City of Ottawa's Auditor General committed to conducting an audit of the electric bus plans to be reported on in 2022. She has plenty to consider.

The City also intends to oversee complete electrification of personal vehicles in the City. Electric vehicles represent only about 1% of the vehicle stock in Ottawa today. There are good reasons for this.

The most obvious is that they are far less convenient and less useful than cars powered by internal combustion engines. ICSC-Canada board member New Zealand-based consulting engineer Bryan Leyland explained why:

> *"When the Model T came out, it was a dramatic improvement on the horse and cart. The electric car is a step backwards into the equivalence of an ordinary car with a tiny petrol tank that takes half an hour to fill. It offers nothing in convenience or extra facilities."*

Leyland also describes why installing electric car charging stations in a city is impractical:

> *"If you've got cars coming into a petrol station, they would stay for an average of five minutes. If you've got cars coming into an electric charging station, they would be at least 30 minutes, possibly an hour, but let's say its 30 minutes. So that's six times the surface area to park the cars while they're being charged. So, multiply every petrol station in a city by six. Where are you going to find the place to put them?"*

Like the buses, electric cars are also costly. On April 13, 2021, the Canadian House of Commons environment committee published *The Road Ahead: Encouraging The Production And Purchase Of Zero Emission Vehicles In Canada*, a report in which they concluded that replacing gas vehicles with electric cars would be too expensive for most Canadians. *"Witnesses agreed that higher battery costs were the main cause of the higher price of ZEVs,"* the committee reported.

Besides the fact that electric cars have poor low temperature performance, there are also serious safety issues. The Bolt, an electric vehicle sold in North America by General Motors, has been tied to at least nine fires since early 2020, and Hyundai's electric vehicles have been tied to about 15 fires. We are also starting to occasionally see Teslas burst into flames, one as recent as November 2021 when the fire spread to the nearby garage of the owner's home.

The cause of the electric vehicle fires is their lithium-ion batteries. These batteries burn fiercely, and in addition to the fire and heat danger is extremely toxic fluoride gas emissions. These fumes are especially dangerous in confined environments.

Since lithium-ion fires are a chemical reaction, they can only be cooled rather than extinguished and can end up burning for several days. According to the Austin, Texas Fire Department Division Chief Thayer Smith, it takes 200 to 1,000 gallons of water to put out a typical gasoline fire, while this can increase to 30,000–40,000 gallons of water for an EV fire.

After severe damage to a parking structure in Germany, all lithium-ion and nickel-metal hydride battery-based electric vehicles have been banned from parking underground. Will the City of Ottawa have to close underground parking garages if they go to all electric vehicles?

Concerns are also being raised around the world that widespread use of EVs will result in serious electricity shortages in the rest of society. Put simply, the grid and infrastructure just aren't there to support the electrification of the private car fleet.

For example, Toyota president Akio Toyoda warned on December 16th that Japan would run out of electricity in the summer if all cars were running on electric power. Robert Wimmer, Toyota's head of energy and environmental research testified before the US Senate in March 2021 and said, *"If we are to make dramatic progress in electrification, it will require overcoming tremendous challenges, including refuelling infrastructure, battery availability, consumer acceptance, and affordability."*

Of course, the reason the City want to electrify its transportation system is to reduce carbon dioxide emissions and protect the environment. But California engineer Ron Stein, co-author

of the newly released book, *Clean Energy Exploitations – Helping citizens understand the environmental and humanity abuses that support 'clean' energy*, explains that, when one counts the emissions produced when generating the electricity to power the vehicles as well as the mining, material processing, manufacturing and transportation involved in making the vehicles, especially their energy intensive batteries, there is no significant emissions saving.

Stein and co-author Todd Royal also explain that lithium-based electric vehicle batteries rely on a mix of rare earth metals and cobalt, manganese, nickel and graphite that require massive amounts of energy to mine, transport, process and refine, far greater than the extraction and transport of oil and natural gas.

Mining and mineral processing also require large volumes of water and can pose contamination and degradation risks from mine drainage and wastewater discharge. When mining rare earth metals, about 90% of what is pulled up from the ground contains uranium, thorium and other radioactive nuclides. This radioactive waste can pose serious risks if it is not properly disposed of.

In China, for example, champion of rare metals, in Heilongjiang province, a carpet of toxic dust covers agricultural regions. And, of course, China controls most of the lithium and cobalt, which are often produced with child labour and near-slave labour, with practically no health, safety or environmental safeguards. Even the CBC reports that *"there have been mass fish kills related to lithium mining in Tibet."*

ICSC-Canada Economics/Policy Advisor Robert Lyman explained:

> *"A recent United Nations report warned that the raw materials used in EV batteries are highly concentrated in a small number of countries where environmental, labour and safety regulations are weak or non-existent. 'Artisanal' cobalt production [cobalt is crucially important for solar panels, wind turbines and batteries] in the Democratic Republic of the Congo now supplies two-thirds of the global output of the mineral.*
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> *Many of the mines employ child labour in extremely dangerous tasks. Up to 40,000 children [some as young as 4-years old] are estimated to be working in extremely dangerous conditions, with inadequate safety equipment, for very little money in the mines in Southern Katanga. The children are exposed to multiple physical risks and psychological violations and abuse, only to earn a meagre income to support their families."*

Why would Canada's national capital want to deploy a transportation system that is costly, unreliable and based on minerals and metals which are mostly limited to environmentally negligent human rights abusers such as China, Russia, the Congo and the lithium triangle in South America?

## Powering Ottawa with wind and solar power will ruin the City

If Ottawa Hydro were to go all-renewables with a focus on wind and solar power, as the current City government wants, it would sharply increase electricity costs, perhaps doubling them every decade, forcing many businesses and citizens to leave.

In addition, it would significantly reduce the security and reliability of electricity supply to consumers, increasing the probability, severity and duration of brownouts and blackouts.

The major problem is the intermittency of these energy sources. In order to assure uninterrupted supplies, utilities must either have backup generation that is 'dispatchable', such as natural gas-fired plants, or electricity storage, ready to go online the instant the wind slows or the Sun goes behind a cloud (or at night).

Consumers end up paying twice and the emissions produced by the inefficient operation of backup powerplants that must regularly ramp up and down to compensate for variable wind and solar power largely negates any emissions benefit the renewable sources supposedly provide.

Bad as that is, the most dangerous impact of the City's climate plans, if they ever came even close to being enabled, is widespread backouts and complete failure of our electricity supply. We had a relatively mild preview of what is in store for Ottawa in February 2021 when severe cold hit Texas, the state with the most wind power in America. Here is what happened.

Four days before the Texas snowstorm started, wind and solar were providing 58% of the state's electricity (see graph below). As the weather conditions changed, 13,000 megawatts of wind and solar power went offline within a matter of hours.

*Source: US Energy Information Administration*

Natural gas, coal and nuclear facilities ramped up to compensate for the drop in wind and solar. Then the storm hit and demand soared. Even as the wind picked up, ice had formed on the turbines, keeping them offline, and snow and ice coated solar panels, preventing them from generating power.

Conventional power plants could not keep up and more than eight million Texans, in more than four million homes, lost lights, power and heat. Thousands of people lost access to clean water as water-treatment plants lost power and widespread 'boil water' orders were issued, although no one with an electric stove could comply, of course.

The final tally, *The Wall Street Journal* reported, was approximately $200 billion in damage and about 700 people dead from hypothermia, carbon monoxide poisoning and other causes. And it could have been much worse—the state came within a few minutes of a total grid failure that could have lasted weeks and killed thousands of people.

If a prolonged power failure like that which occurred in Texas happened in Ottawa in the depths of a –30° C cold spell, it would make Texas' experience seem mild by comparison. We would likely see huge numbers of casualties and bankrupt businesses while local air pollution would soar as citizens increasingly resorted to fossil fuel-powered home generators.

Trying to electrify everything, and making wind and solar power our main power source, would be especially hard on low-income Ottawans who are more likely to suffer and die during winter blackouts, as they cannot afford expensive generators or backup battery systems. And, of course, without electricity to charge their electric cars, few people could evacuate the City no matter how bad things became.

This scenario, more than any other, should frighten politicians intent on following Texas' lead into a green energy nightmare. A secure and prosperous city is impossible with a weak electrical grid, and our grid would be the weakest imaginable if the City of Ottawa's Climate Change Master Plan is fully enabled.

## Just the tip of the iceberg

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Serious though these issues are, these are just the beginning of the problems that would engulf Ottawans due to the City's climate change plans. Also detailed in the ICSC-Canada report are many other complications our politicians seem unaware of, some of which are as follows:

- wind turbines have a serious negative impact on the health of nearby residents, have been known to collapse and catch fire and kill millions of birds and bats;
- solar power cells leach out toxic substances when they disintegrate in landfills;
- wind and solar stations need far more land and a hundred times more steel, iron and other materials to generate the same electrical capacity as a gas-fired fossil fuel plant;
- unsubsidized wind and solar power are far more expensive than conventional power sources;
- regulations requiring heat pumps in place of natural gas heating will sharply increase the costs of living and doing business in Ottawa and drive jobs and people away;
- In contrast to fossil fuels, which are found throughout the world, especially in Canada, the raw materials, processing and manufacture of 'green energy technologies' are largely concentrated in unstable and/or countries unfriendly to the west.

**The Australian anti-wind power group, Stop These Things, writes: "Unless you're living with it, you'll have no idea what it's like to suffer incessant wind turbine generated low-frequency noise and infrasound. A trail of abandoned homes wherever these things operate is testament to the fact that the noise is insufferable."**

## Ottawa's sacrifice would be for nothing

According to United Nations data, the global population will grow by more than two billion people between 2018 and 2050, and almost all of this growth will be in Asia and Africa. Europe and North America, which had only 15% of the world's population in 2018, will see that share shrink to 11% by 2050.

Further, emerging markets could grow around twice as fast as advanced economies on average. As a result, six of the seven largest economies in the world are projected to be emerging economies in 2050 led by China, India and Indonesia.

The United States Energy Information Administration (EIA), in its *2021 International Energy Outlook* report, projected the trends in global energy supply, demand and emissions to 2050. Overall, the 2021 EIA *Outlook* projected world energy consumption to rise about 50% between 2021 and 2050, due almost entirely to strong economic growth, increased access to marketed energy and rapid population growth in the non-OECD countries.

World energy-related '$CO_2$ equivalent' emissions are projected to grow in the OECD countries by about 5% and in the non-OECD countries by 35% between 2019 and 2050. In other words, the EIA projects global $CO_2e$ emissions to grow from about 35 billion tonnes in 2022 to 43 billion tonnes in 2050.

This is a long way from the 'net-zero emissions' targets that environmental groups promote and the City of Ottawa is imposing on their citizens. And what would the sacrifice of Ottawans accomplish?

We show in our report that immediately bringing Ottawa's $CO_2$ emissions to net-zero and extending it over 100 years would reduce the global concentration of $CO_2$ by about 0.026 ppm, an amount too small to even measure. And the temperature consequences of the City's plans would be even less—reducing emissions to net-zero by 2050 and keeping it there all the way to 2100 would result in about one-ten-thousandths of a degree global temperature change.

What this means, of course, is that the City of Ottawa, like any city in the developed world which was foolish enough to actually attempt to achieve net-zero greenhouse gas emissions any time in the near future, will find their sacrifices will be for absolutely nothing.

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Whether justified or not, politicians in the City of Ottawa and other municipalities across the western world, along with the media and a substantial share of the public, support a large climate policy response. In these circumstances, the only sensible approach is to:

- prepare for future climate change with sensible adaptation strategies;
- promote economic prosperity so as to provide the wealth we need to ensure resiliency;
- ensure a reliable, affordable energy supply to safeguard our citizens and maintain our standard of living.

Concerning the City of Ottawa's declaration of climate emergency, Councillor Jenna Sudds said, *"It's the young people who are inheriting the problems that we're all responsible for creating."* Ms Sudds is correct, but not for the reasons she assumes. The problems are being created by the City's council itself for promoting dangerously foolish and futile environmentalist symbolism over the real-world needs of its citizens. Let's hope no other governments follow in our footsteps.

*Endnote*

*1. The ICSC-Canada report on the City of Ottawa's climate change plans may be viewed online at https://www.icsc-canada.com/ottawa-climate-change-plan*