



ELECTRIC MOBILITY CANADA

**ONTARIO 2023 BUDGET
RECOMMENDATIONS**

February 10th, 2023

Submitted to:

The Honourable Peter Bethlenfalvy
Minister of Finance
c/o Budget Secretariat
Frost Building North, 3rd Floor
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About Electric Mobility Canada

Founded in 2006, Electric Mobility Canada is a national membership-based industry association dedicated exclusively to the advancement of electric mobility as an opportunity to support the Canadian economy while fighting climate change and air pollution. EMC has more than 175 member organizations including light-, medium-, heavy-duty and off-road vehicle manufacturers, infrastructure providers, utilities, technology companies, mining companies, research centers, governmental departments and agencies, cities, universities, fleet managers, unions, environmental NGOs and EV owners groups.

The EMC team works on electric mobility from bikes to cars, from buses to boats, from trucks to trains and from BC to Atlantic Canada. Electric Mobility Canada supports the activities of its members by:

- Communicating to our membership the legislative, policy, technical and operational matters of key interest pertaining to electric mobility. This includes identifying the actions required to meet the needs of the members and proactively communicating these needs to policy makers and other stakeholders.
- Establishing partnerships to accelerate the adoption of electric mobility through research, demonstration projects, policies, programs and strategies to increase market penetration.
- Acting as a resource centre for relevant and contemporary information on electric mobility from across Canada and around the globe.

Electric Mobility Canada is the national voice dedicated to electric mobility in Canada with the most experience and expertise to help advance forward-thinking projects and policies.



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Foreword

There are 3 main reasons to support electric mobility:

1. Air pollution & health

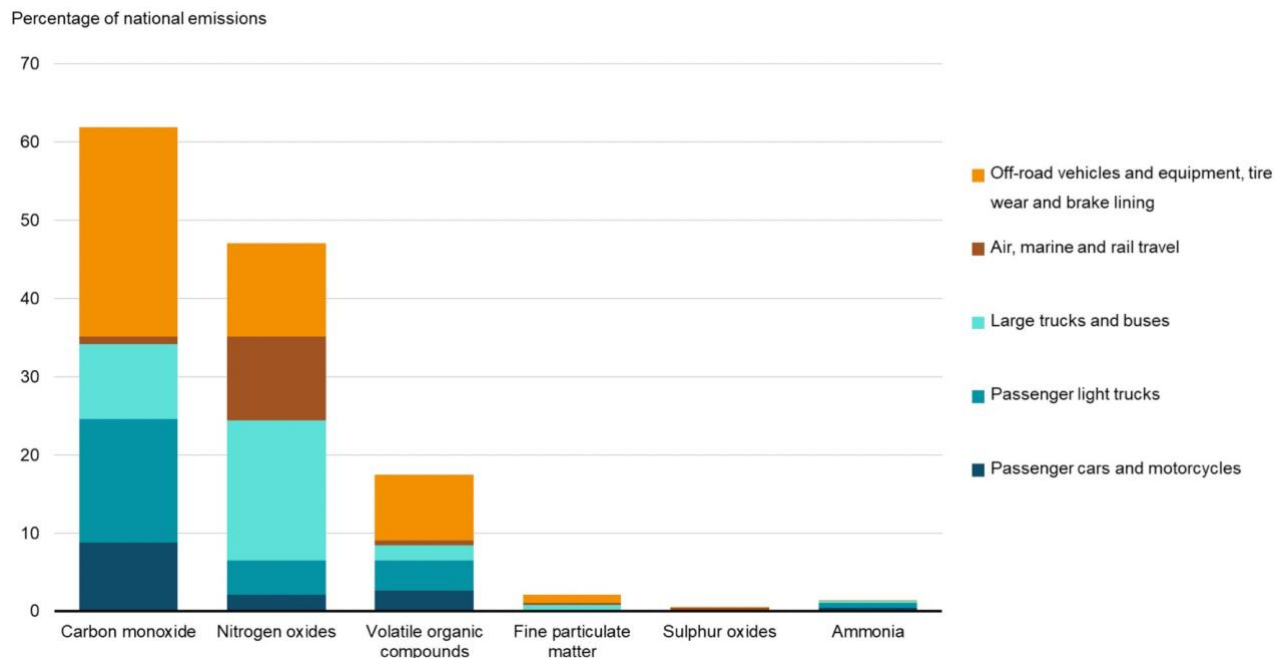
a) According to a 2021 Health Canada report¹:

- 15,300 deaths per year can be attributed to air pollution in Canada, including from chronic exposure to particulate matter, acute exposure to nitrogen dioxide, and chronic and acute exposure to ground-level ozone.
- \$120 billion a year is the total annual economic cost of health outcomes associated with air pollution, equivalent to roughly 6% of the national Gross Domestic Product.
- Combustion emissions from transportation and mobile equipment are the largest source of nitrogen oxide (NOx) emissions, accounting for 51% of total NOx emissions on average; another 28% of NOx emitted in Canada derives from the upstream production of oil and gas.

b) According to a 2022 Environment Canada report², transportation (road, air, rail, marine) accounted for:

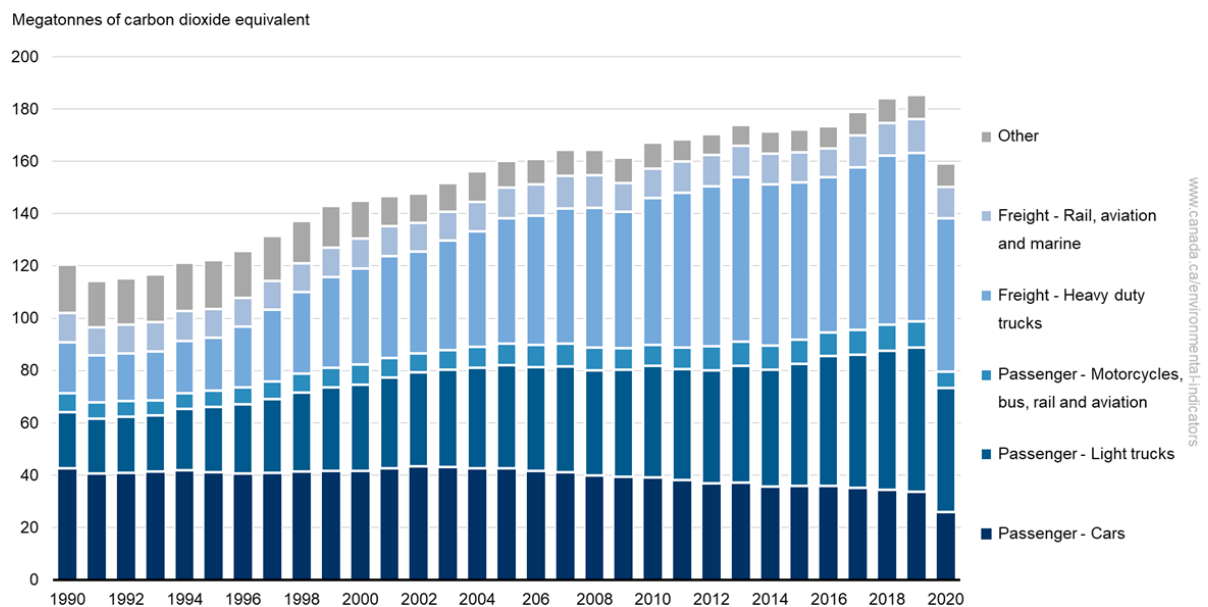
- 62% of total national emissions of carbon monoxide (CO),
- 47% of nitrogen oxides (NOx)
- 17% of total emissions of volatile organic compounds (VOCs)

Figure. Contribution of transportation, off-road vehicles and mobile equipment to total air pollutant emissions by transportation mode, Canada, 2020.

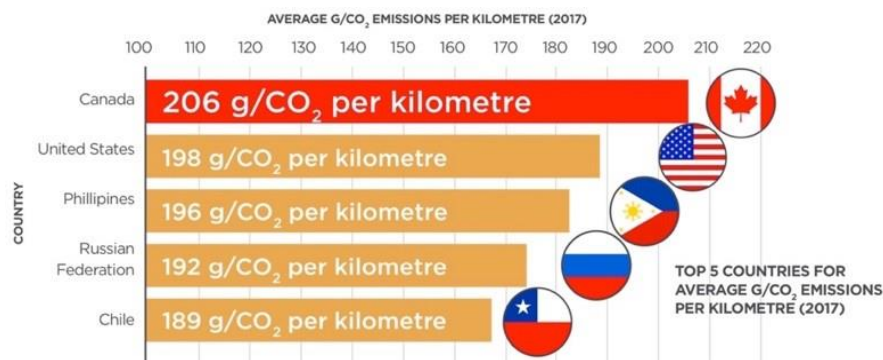


2. Climate change

- Since April 2021, Canada has a new, more ambitious GHG emission reduction target for 2030: 40% to 45% below 2005 levels. According to Canada's 2022 National Inventory Report³, in the 14 years between 2005 and 2019, GHG emissions in Canada decreased by only 1%. In 2020, the transport sector was the second largest source of GHG emissions, accounting for 24% of total national emissions with 159 megatonnes of carbon dioxide equivalent (Mt CO₂ eq).
- In 2020, due to COVID, national sector GHG emissions were 14% lower than in 2019, the largest decrease since 1990.
- Between 1990 and 2020, national GHG emissions from the transport sector grew by 32%. The growth in emissions was mostly driven by increases from freight trucks and passenger light trucks.
- In Ontario, which in 2020 was responsible for 22% (149.6 Mt) of national GHG emissions, transportation-related emissions were the leading source of GHGs, responsible for 32% (47.8 Mt) of the total provincial emission inventory and 30% of national transportation emissions.⁴

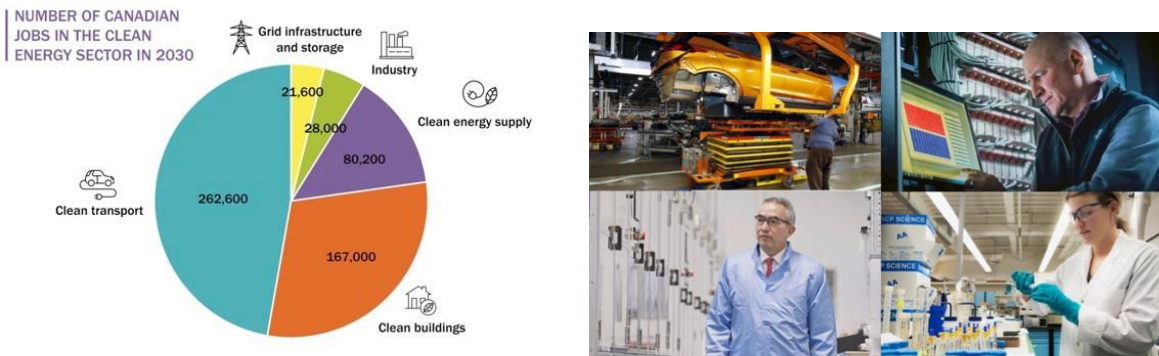


According to 2019 report from the International Energy Agency⁵, Canada's Light Duty passenger fleet is the worst performer in the world in terms of average fuel consumption and GHG emissions per kilometre driven. It is also the largest and second heaviest in the world.



3. The economy

According to a 2019 report from Clean Energy Canada⁶, there will be approximately 560,000 jobs in the clean energy sector by 2030, with almost 50% in clean transport.



According to a 2020 report by Electric Mobility Canada⁷, if Canada adopts a strong electric mobility strategy inspired by those of California, BC or Québec, we can anticipate at least \$200 billion in sales revenue between now and 2030 in the EV sector.

Canada's great potential in transportation electrification

Since 2019, the Canadian government has accelerated investment in the EV industry in order to create high-paying, sustainable jobs for Canadians while decarbonizing its economy. Over the past two years, federal and provincial governments have secured more than \$16 billion in investment and tens of thousands of jobs. These actions will most probably end up saving the automotive sector in Canada, but more work needs to be done. According to an Ernst and Young report published earlier this year, while Canada has been increasing its support for the transition to EVs, other countries have been moving even faster: Canada dropped from 8th place last year to 13th place in this year's EY index of EV leadership.⁸

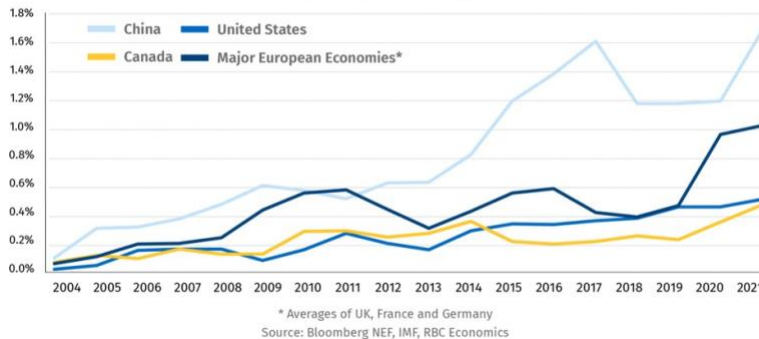
According to an RBC report⁹ published on September 28, 2022, "in Canada, we've lagged since 2014, when spending on clean technologies fell sharply. Though we've made up some ground in the last few years, **the pace of spending is still about half that of other major economies.** China leads the pack, spending about 1.5% of GDP on green investment each year. In some key industries, it's the undisputed global leader, dominating solar panel and battery manufacturing, accounting for 40% of the world's nuclear reactors under construction, and recently overtaking Europe in the share of electric vehicles sold. Historically a leader, Europe spends around 1% of GDP on green investment. The U.S., Australia and Japan are further behind. But a major shift is coming south of the border. The recently passed U.S. Inflation Reduction Act will pump US\$370 billion into clean investment, and leverage additional money from the private sector."

Canada could be left behind

RBC's analysis continues: "Canada will need to adjust its policies, or risk falling even further behind major economies. After a decade of investment, we're still not spending enough on clean electricity, which needs \$200 billion in investment by 2035 to meet current green grid goals, and more thereafter to accommodate rapid growth in electricity demand. That said, we're much closer to spending enough on green electricity than in any other sector: investment there needs to *merely* double. **Spending on electric vehicles (EVs) will need to grow from about \$4 billion to nearly \$22 billion annually** while spending on heat pumps to decarbonize buildings will need to grow more than 8 times over current levels."

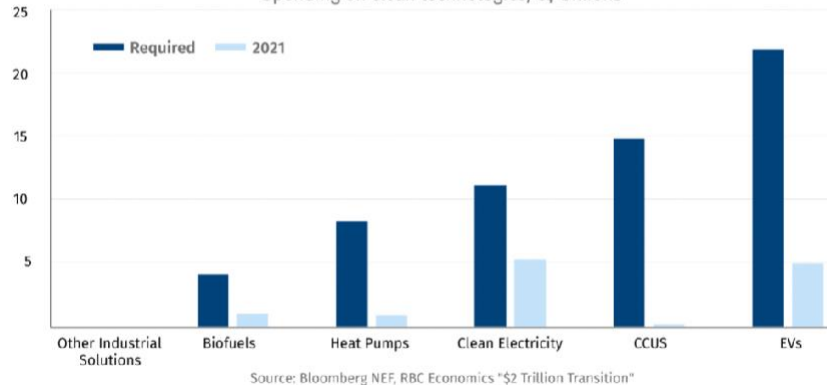
Canada lags in green investment

Climate-related investment, % of GDP



Clean tech spending in Canada falls short of Net Zero needs

Spending on clean technologies, C\$ billions



Canada's level of assurance that it is moving *toward* its 2030 reduction targets will become more or less robust as actual deployment and operational data comes to be compared against hypothetical or projected adoption rates. Further, Canada's ability to move policy and programs into finalized regulation, and beyond into a phase of delivery and implementation, will depend on the electric mobility sector's collective capacity to point to on-the-ground projects. This dialectic of deploying, learning, and scaling must have the full attention of the industry and their regulators if we are to retain a realistic hope of achieving Canada's 2030 GHG reduction targets, while still enjoying economic growth.

Canada has the natural resources, the qualified workforce, the universities, the research, and now the will. That's why we at Electric Mobility Canada support accelerated investments in the EV industry to help Ontario and Canada fulfill its highest potential as a global leader in this growing sector.

Electric Mobility Canada recognizes the significant efforts that the Ontario government has recently undertaken to make the province and, by extension, Canada, a global player in the electrification of transport, with many new programs and projects announced to support the acceleration of the EV industry in our country. To help Ontario rise to the top with other leaders, EMC proposes the following recommendations ahead of the 2023 Ontario Budget:

ONTARIO 2023 BUDGET RECOMMENDATIONS

I. Light-Duty ZEV Consumer Adoption

1. Establish a light-duty EV sales target of 100% by 2030. Achieve the target with a provincial ZEV sales regulation to ensure that Ontarians get access to their fair share of EVs.

An Ontario ZEV sales regulation will increase consumer choice, provide earlier access in Ontario to new products launched by manufacturers, reduce wait times for vehicles, and even potentially reduce vehicle costs. Today, most ZEV supply goes to the two provinces that already have ZEV sales regulation in place: British Columbia and Quebec. As a result, Ontarians enjoy only limited access to EVs, despite clear and growing evidence of demand. A strong target and regulated ZEV sales regulation in Ontario will overcome this problem and ensure Ontarians have access to the EVs that Ontario workers are increasingly going to be making. In addition to Canada's two leading provinces, 15 US states accounting for more than 35% of new US car sales have adopted a ZEV standard modelled after California's. In other words, these standards are increasingly the norm, not the exception. For details regarding how to adopt a federal ZEV mandate, see EMC's 2022 report (co-authored with Clean Energy Canada) titled *How Canada can develop a truly effective Zero Emission Sales Mandate*.¹⁰

2. Establish a modest provincial incentive for new passenger EVs focused on *value for electric-only range*. Doing so will incentivize the efficient use of battery resources and ensure Ontarians can access the types of electric cars, SUVs and pickups they are seeking.

The federal purchase incentive program in Canada continues to be successful in accelerating the transition to electric mobility, but more should be done to accommodate long-range zero-emission vehicles, including SUVs and pickup trucks which are so often preferred by Ontarian consumers. Until EVs reach price parity in up-front sticker price, point-of-sale purchase incentives or tax credits are needed to level the playing field between electric and combustion cars for consumers. New vehicle incentives also help grow the supply of used EVs in the market, bringing down vehicle costs in that segment over time. Any incentive created in Ontario should base eligibility on a straightforward evaluation of *price* relative to *electric range*—not the Manufacturer's Suggested Retail Price (MSRP). The incentive amount issued could be based on achieving revenue neutrality relative to revenues generated through a feebate program (see below).

3. Fund incentives through a revenue-neutral system in which the most polluting vehicles fund EV incentives for new vehicles.

The government could establish a feebate system where purchases of the most polluting new vehicles would be subject to polluter-pay fees that would fund ZEV purchase incentives (see above). Average and less-than-average polluting vehicles would face no fee. This approach would offer consumers a choice: they can purchase a low-polluting vehicle and avoid the fee or they can choose a higher polluting vehicle and help support other Ontarians in going electric. Until all categories of vehicles are available in an electric version, exemptions could be proposed for large families and people who need bigger ICE vehicles for work.

4. Offer incentives for used EVs.

Establish a used EV incentive to encourage used-vehicle buyers to consider an electric vehicle when making their next purchase. This program would be complementary to the new vehicle incentive which acts in part to guarantee sufficient long-term supply of used vehicles to the market.

5. Low-and-modest income household purchase incentive “top-up”

To further support low- and modest-income households and individuals in going electric, it is recommended that Ontario establish a meaningful income-based incentive such as rebate or a tax credit “top-up” for new or used EVs, and further offer grants to support the installation of home charging infrastructure.

6. Support the establishment of a shared-EV program for low-income communities. Recognizing the shortage in supply of used EVs in Ontario (driven by a lack of new EV supply in the province), and the lack of charging infrastructure in rental buildings, we recommend the establishment of a program to deploy shared EVs and charging to social housing properties and other buildings in lower-income communities for use by residents.

7. Electric taxis, car sharing and carpooling incentive: Offer a \$2000 rebate or a tax credit for taxis, car sharing and carpooling businesses and individuals who want to transition to electric vehicles. This commercial program should be stackable with other consumer-facing EV incentive programs to help reduce GHG emission, air pollution *and* traffic congestion.

8. Support more consumer education

While many Ontarians want to go electric, for others, low levels of consumer awareness continue to be a barrier. EMC recommends that the province work with leading and trusted organizations like Plug n' Drive, EV Society, Tesla Owners Club of Ontario and others to establish a suite of programs to educate and support consumers in making the transition to electric vehicles.

9. Maintain the existing Green Plate program

Access to HOV and HOT lanes has been a motivator for many Ontarians to go electric. Maintain the green plate program given its successful track record and historic all-party support. Continue to provide the same benefits as currently offered on existing highways when new HOV/HOT lanes are constructed in the province until a significant percentage of new vehicle sales are EVs.

II. Medium, Heavy and Off-road ZEV Fleet Electrification

10. Establish a medium/heavy-duty EV sales target of at least 100% by 2040, at the latest.

Make Ontario a leader in electric medium- and heavy-duty vehicle deployment and use. Electrifying transit and freight will deliver significant economic benefits to transit operators, freight carriers and others, strengthening the Ontario economy. Consider establishing a medium/heavy duty truck ZEV Standard or fleet rule to achieve the target, taking into account learnings from relevant US programs.

11. Work with regulators and utilities to ensure transmission and grid capacity exists to serve the electrified return-to-base operations projected to become common in freight and transit contexts.

Given the significant financial savings associated with the operation of electrified fleets (once purchased), electric heavy-duty vehicles are expected to see a rapid growth in demand as more products come to market. Work with IESO to ensure transmission and grid capacity is available in Ontario's large freight / logistics districts and near transit facilities. Work with the OEB to ensure distributors are well-equipped to provide connections to new heavy-duty freight and transit customers swiftly so as not to bottleneck commercial adoption.

12. Establish tax credits or rebates for the purchase of medium/heavy-duty charging infrastructure or vehicles for freight use.

To facilitate EV adoption in transit and freight sectors, we recommend incentivizing fleet transitions to electric for companies that have publicly committed to eliminate all combustion trucks/vehicles from their fleets by no later than 2040. New provincial rebates or refundable tax credits (stackable with federal programs) should be established for the purchase of electric vehicles for transit and freight fleets.

13. Support public transit and school bus electrification and work with the federal government to secure federal-provincial funding programs.

Working with the federal government, we recommend that Ontario provide predictable and long-term funding to municipalities, transit agencies and service providers, public bodies and school bus operators that establish official plans to convert their entire fleet to electric vehicles. This includes helping entities procure electric buses and build out infrastructure, including charging infrastructure and facility upgrades,

as well as shorter-term operational support due to lost revenue from the recent decrease in ridership associated with COVID-19. More should be done to support operators, distributors and transmission companies as they work to finance the electrical upgrade costs associated with charging large batteries for transit and school bus electrification.

III. EV Infrastructure Deployment Plan

14. Set provincial targets for EV charging deployment for all vehicle classes.

Set ambitious two-, five-, and ten-year targets for AC and DC charging connector deployments in each of the following sectors: multi-unit residential buildings, workplaces, town/city destinations, long distance travel, remote travel corridors, and fleet depots.

15. Allocate \$300 million over four years to make 300,000 existing condominium and apartment parking stalls in Ontario EV-ready.

Multi-unit residential buildings (MURBs) represent the largest infrastructure barrier to EV adoption, as highway-side and public charging is increasingly competitively developed or is supported by the federal government. As such, the province can alleviate this important barrier to EV adoption and enhance equity by allocating \$75M/year for four years specifically for the purpose of funding 50% of electrical power upgrades and make-ready infrastructure costs in Ontario's existing multi-unit residential building stock through building owners (for rental apartments) and condominium corporations. The goal should be to bring electrical capacity to 300,000 parking spaces, eliminating a major barrier to EV adoption by apartment dwellers.

16. Establish EV-ready requirements for multi-unit buildings and workplaces in the provincial building code and Provincial Policy Statement.

Requirements should be established in the provincial building code to mandate the installation of EV-ready power infrastructure in new construction that would require 100% of multi-unit residential parking to be EV-ready, and 20%-40% of workplace parking to include the basic electrical infrastructure needed for EV charging, at the time of construction. Such requirements should be included in the Ontario Building Code and will save EV drivers and businesses money by avoiding expensive and complex retrofits. While building codes are the best tool to implement these requirements, alternatively, the province could update the Provincial Policy Statement to direct municipalities to have regard for EV charging infrastructure in municipal planning frameworks. In either case, requirements should be structured so as to meet the needs of current *and* future EV charging based on local, provincial and national targets, where they exist.

17. Include EV charger installation or EV-readiness as part of energy efficiency programs to help Canadians who live in older houses (40 years and older) retrofit their electrical infrastructure and so accommodate the additional household energy load from switching to an EV.

18. Put underutilized government lands to work solving the urban charging challenge by establishing “charging hubs.”

To support access to charging in urban areas for those without reliable home charging access, and to put underutilized and high-cost provincial/agency real-estate to work supporting EV adoption, Ontario could take the lead in identifying parcels of public land in its high-cost real estate markets to establish as “Charging Hubs.” Charging hubs would help charging network providers to defray or avoid the high capital cost of land acquisition in major markets and centres. Such hubs should be large, available to any and all charging operators without exclusivity, and should not cost EV drivers a fee to enter. In addition to its own lands, Ontario should also work through multi-party agencies (e.g., Waterfront Toronto) in which it is a member, to achieve this goal. Charging hubs will provide scale in urban settings, enabling the market to meet growing demand for charging services until MURB retrofits in cities can be completed. Approach provincially controlled highway rest stops in the same manner: without exclusivity to any and open to all operators to ensure a sufficient level of service is provided to Ontario's EV drivers over the long term.

19. Implement a time-limited, provincially funded utility connection rebate to support deployment of large-scale EV charging installations for all vehicle types.

Moving freight and large volumes of passenger vehicles with electricity will require electrical service upgrades to accommodate the power needs of large-scale charging deployments. The provincial and federal governments should provide funds to rebate a portion of the cost of electrical service upgrades and connections for these large, high power, charging deployments in the near-term to afford provincial regulators, working with utilities and charging operators, time to address these costs permanently through provincial measures. Examples of eligible costs could include line-extension costs and private substation costs, where required.

IV. Provincial Leadership

20. Direct the Ontario Motor Vehicle Industry Council to require the estimated cost of fuel (whether gasoline, diesel or electric) be advertised over a 6-year ownership period with every vehicle advertisement made in Ontario.

To better inform and protect consumers, require dealers and manufacturers to advertise the estimated cost of fuel over a six-year ownership period next to the purchase price of every advertised vehicle (whether gasoline, diesel, hydrogen or electric), including on website advertising and in-store, as part of OMVIC's obligations to protect fair advertising practices. This will help consumers better understand the total cost of ownership of any vehicle – ICE vehicle or ZEV – at point of purchase and better inform consumers who are making a major purchase decision about the costs they will face.

21. Establish a “Cabinet Office Secretariat for Electric Transport”

To ensure EV issues receive sufficient attention and priority, we recommend the creation of a dedicated secretariat within the Cabinet Office to coordinate and advise the Premier on progress made by government departments toward transportation electrification. Such an office is justified on account of the public health benefits, climate change imperatives and the number of different government departments responsible for different aspects of electrification.

22. Make government & MPP EV awareness and education a priority

Unless both consumers and policymakers understand all the benefits and savings associated with electric vehicles, along with the challenges to adoption, the transition to an electric future will take longer than necessary. As such, the government should make its own internal EV education a priority, working with leading educational and independent consumer organizations like Plug n' Drive, EV Society, and Tesla Owners Club of Ontario.

23. Provincial fleet rule: 100% EV unless otherwise justified.

Government can lead by example and foster demand and investment in the EV ecosystem through its own purchasing power. No internal combustion engine vehicles—whether heavy duty, medium duty, light duty or off-road—should be purchased by the government unless an electric option does not yet exist to meet a specific need. In other words, every vehicle purchased by the government should be electric from this point forward, unless a compelling reason exists to purchase a combustion vehicle. This rule should extend to crown agencies and delegated administrative authorities in Ontario. Ontario should also start installing charging infrastructure in its owned and leased parking lots immediately to ensure that charging access does not act as a barrier to EV adoption by government fleets or employees.

V. Policy & Regulation for Off-Road Vehicles and Marine Transportation

A growing number of companies offer a diversity of off-road vehicles, ranging from electric snowmobiles to electric watercrafts and electric side-by-sides that are either used for work or pleasure, and that can help significantly reduce GHG emissions, not to mention air and water pollution. It is important to note that:

- A single modern gas snowmobile emits a level of air pollution equivalent to that of 40 modern cars.
- Noise pollution is a nuisance to human operators and wildlife alike.
- In remote regions, snowmobiles are often the first, sometimes the only means of transport.
- Because of our winters, snowmobiles are relied upon by law enforcement units (for search and rescue work and emergency missions); they are similarly depended upon by surveyors, ranchers, public utility employees, environmental and wildlife scientists, ski centres, recreational park agencies, and countless other organizations. The same is true for other off-road vehicles.

Today, a growing number of cities, states, countries and automakers are moving towards 100% ZEV sales by 2035 of both on-road and off-road vehicles; Canada could do the same. Several jurisdictions are now including targets for the electrification of off-road vehicles, including New Jersey (Bill S 432), California (Executive Order of Sept. 23, 2020) and New York (Bill S 2758). If the government is serious about reducing emissions in the transportation sector—Ontario's largest source of greenhouse gases—and if it is committed to an equitable clean energy transition in which zero-emissions options are made available to rural and remote Canadians, it must also extend these policies to the off-road sector.

In addition, some of the leaders in the electric off-road and marine industry are based here in Canada, which means that supporting the transition to zero emission will help create high paying sustainable jobs in the country.

That's why we recommend:

24. A rebate or tax credit for the purchase of an electric snowmobile, a personal watercraft or an RV in line with the Yukon electric snowmobile rebate of \$2500.¹¹

25. A luxury tax exemption for zero-emission vessels, since they cost more than gas- or diesel-powered vessels and their purchase should be supported, rather than discouraged.¹²

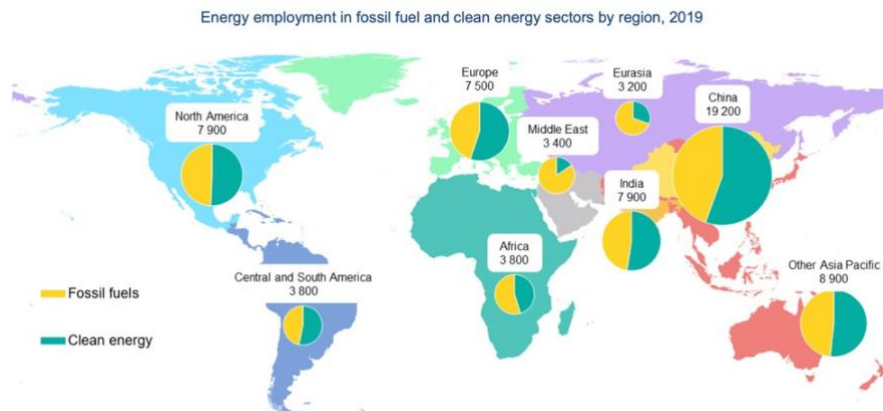
26. Electric ferries deployment: According to the Canadian Ferry Association, "Canada is home to over 180 different ferry routes with a route presently operating in each province and the majority of the territories. These ferries represent a mix of private and publicly operated routes and well as a mix of passenger, freight, and mixed-use ferries... Transportation through waterways has always been a crucial part of Canada's history."¹³ With ferry routes in every region across Canada, the ferry sector continues to play an integral role in Canada's economic and social development.

In June 2022, a large EMC delegation went to Norway for the EVS35 international conference. There, our delegation discovered that 47% of the Norwegian ferry fleet had already been electrified. The largest ferry in Norway, the Bastø Electric¹⁴, is 139 metres long and 21 metres wide, with room for 600 passengers and 200 cars or 24 trucks. In view of the clear potential for progress in electric ferry deployment, we recommend that the Ontario government work with regional transit agencies, as well as Crown corporations to launch a program to support the electrification of ferry services across Canada. This action will help to lower GHG emissions, air and water pollution, and stimulate the Ontario and Canadian zero emission marine industry to become a North American leader.

VI. Policy & Regulation for EV Industry Jobs

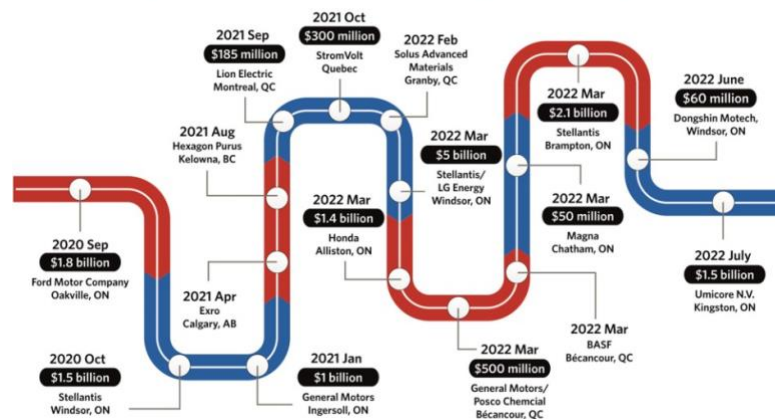
One of the most important reasons why Ontario and Canada both need to accelerate electric mobility policies is **jobs**. While we must reduce our GHG emissions and air pollution, those goals must be pursued in parallel with supports for the transition to sustainable jobs in the clean energy and transportation sectors.

According to the 2022 World Energy Employment report of the International Energy Agency¹⁵, “Energy employment is set to shift rapidly as countries and companies accelerate efforts to decarbonize and meet net zero emissions pledges... Clean energy employs over 50% of total energy workers, owing to the substantial growth of new projects coming online. **There is tremendous growth for energy employment on the horizon, driven primarily by new investments to decarbonize.** In all IEA scenarios, energy employment is set to grow, outweighing declines in fossil fuel jobs. In the IEA’s Net Zero Emissions by 2050 Scenario, [there are an estimated] 14 million new clean energy jobs created globally by 2030, while another 16 million workers shift to new roles related to clean energy. Around 60% of these new jobs require some degree of post-secondary training.”



Since 2020, the Ontario and federal governments have announced many inspiring projects in the electric mobility industry, ranging from vehicle assembly to battery manufacturing, to cathode materials and more. Since the spring of 2022, the Ontario and federal governments have secured some \$16 billion of investment and tens of thousands of jobs, and more is expected in the coming months.

Major Canadian EV investment in Canada September 2020-July 2022



(EV Investment in Canada - Credit: Unifor¹⁶)

The Canadian Battery industry: a once-in-a-generation opportunity

According to the 2022 Clean Energy Canada & Trillium Network for Advanced Manufacturing report entitled “Canada’s Economic Engine”¹⁷,

- By 2030, Canada’s EV battery supply chain could support nearly 250,000 direct and indirect jobs and add \$48.2 billion to its economy. When induced jobs are considered (for example, employees at a restaurant popular with supply chain workers), a total of nearly 323,000 jobs could be created across Canada and \$59 billion added to the Canadian economy.
- Between 2020 and when the analysis underlying this report was finalized in June 2022, Canada attracted at least \$1 billion related to EV battery mineral extraction and materials manufacturing, \$5.2 billion related to EV battery cell and module manufacturing, \$6.6 billion related to EV assembly, and \$1 billion related to EV battery components and recycling.
- Since June 2022, Canada has seen additional major battery announcements, such as Umicore’s \$1.5 billion plan to construct a cathode active battery materials facility in Kingston, Ontario, and recent deals with Volkswagen and Mercedes-Benz to secure Canadian EV battery raw materials while cooperating in other areas such as battery manufacturing.
- Canada ranks among the world’s top five countries when it comes to battery supply chain potential, largely due to its access to key metals and minerals.
- The global market for batteries will be worth at least US\$360 billion by 2030. By 2040, the International Energy Agency projects demand for critical minerals to grow by at least 30 times to meet rising demand for batteries used in EVs and storage.

Here are the 6 key recommendations from this report:

- **Develop a strategy:** Canada needs a public-facing, national battery strategy that pulls existing efforts together, connects dots across the battery supply chain, and guides industrial development.
- **Build the workforce:** Canada is home to one of the world’s top talent pools but is faced with worker shortages and challenges ensuring the right talent is in the right place. Canada must develop new strategies to engage and mobilize big populations of skilled workers.
- **Accelerate project development:** Canada faces significant competition in securing additional battery supply chain investments. Canada should focus on lining up project land and infrastructure needs while creating predictable and efficient review processes for projects across the supply chain.
- **Grow the North American market:** Canada must support and expand policies to increase domestic EV demand and uptake.
- **Promote Canada’s clean battery brand:** Canada should continue promoting its many clean battery advantages—including low-carbon critical minerals, proximity to the U.S., a cutting-edge battery research and recycling leadership, and abundant clean electricity—to attract investment into its battery supply chain and increase export opportunities.
- **Scale up homegrown clean battery leaders:** Canada is home to a host of innovative battery technology companies. The next step is to leverage existing investments from multinational battery cell manufacturing companies to also support domestic companies.

On the heels of these recent successes, we recommend that the federal government keeps working to attract foreign investments while helping Canadian workers transition as smoothly as possible in this new industry.

Here are EMC’s additional recommendations:

27. **Develop an integrated electric mobility strategy to achieve Ontario’s climate and electrification targets in coordination with First Nation, Inuit and Métis communities:** We recommend the launch of an Ontario EV Strategy that includes an EV Action Plan¹⁸ to accelerate EV adoption. Enact legislation requiring the federal government to (1) establish an EV strategy, and (2) maintain and regularly update an EV action plan through 2035. Accountability measures, such as

periodic audits, should be established. Considering that transportation electrification projects might impact First Nation's, Inuit and Métis, we highly recommend collaboration as soon as possible with affected communities to make potential projects fruitful for all parties involved from environmental, social and economic points of views.

28. **Support workforce training program for EV sales, repair and maintenance:** As more and more Ontarians are now interested in buying EVs, the lack of experience and knowledge displayed in many stores and dealers selling EVs in 2023 remains a significant roadblock to EV adoption. We recommend the creation of dedicated EV training programs to help retailers in this industry take advantage of the growing opportunities ahead.
29. **Support training and retraining programs to help workers make the transition to a decarbonized economy:** Building a labor force with the right skills—including but not limited to engineering and research, electrical and mechanical, charging infrastructure installation, maintenance, and fleet management—will be critical to the success of Canada's transition to a zero-carbon economy. Explore opportunities for the government to support employers, whether traditional industry or all-EV, to train new employees who have not previously worked in the EV industry. Maintain existing funding commitments for training and re-training.
30. **EV battery circular economy:** In collaboration with industry, adopting and implementing a framework based on the highest international standards for a circular economy will optimize EV battery lifecycles and ensure batteries are managed efficiently at the end of their useful life.
31. **Establish a Zero Emission Zone in the City of Ottawa:** The Governments of Ontario and Canada should work together with the National Capital Commission and the City of Ottawa to establish a Zero Emission Zone (ZEZ) in downtown Ottawa. ZEZs are areas in which polluting vehicles are required to pay a fee to enter, acting as a disincentive for gas-vehicle use within the zone, and encouraging forms of zero emission travel such as EVs, bicycles or electric public transit. Other cities and national capitals are implementing such zoning restrictions; for example, the city of London (UK) has enjoyed significant and positive health, climate, and congestion outcomes from the recent strengthening of its Ultra Low Emission Zone policy.¹⁹
32. **Continue to attract high-growth, advanced manufacturing investment to Ontario**
Review economic development programs to ensure they align with the needs of high-growth, advanced manufacturing companies by addressing issues, such as:
 - i. Opportunity costs of high land prices serving as a disincentive to deploy growth capital, which discourages siting of manufacturing plants in the province;
 - ii. Rapid-growth companies needing to prioritize capital allocation more than established industry players;
 - iii. Existing programs that mostly prioritize retooling in existing plants versus attracting new projects, which in turn can stifle the ability for new parts, tooling, and new OEMs to invest in the province. Long approval timelines suggest the need to set service standards for EV-charging related approvals.
33. **Reduce administrative costs to government by reducing red tape with a 2-week service standard.** Timely responses of approvals or rejection are critical for EV charging proposals when a project is being privately developed but may encroach into an MTO right-of-way. These projects are almost always approved, but only after extensive delays.
34. **Activating Ontario's mineral resources**
Identify roadblocks and provide solutions to the financing challenges that junior mining companies face in Canada.

Sources

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