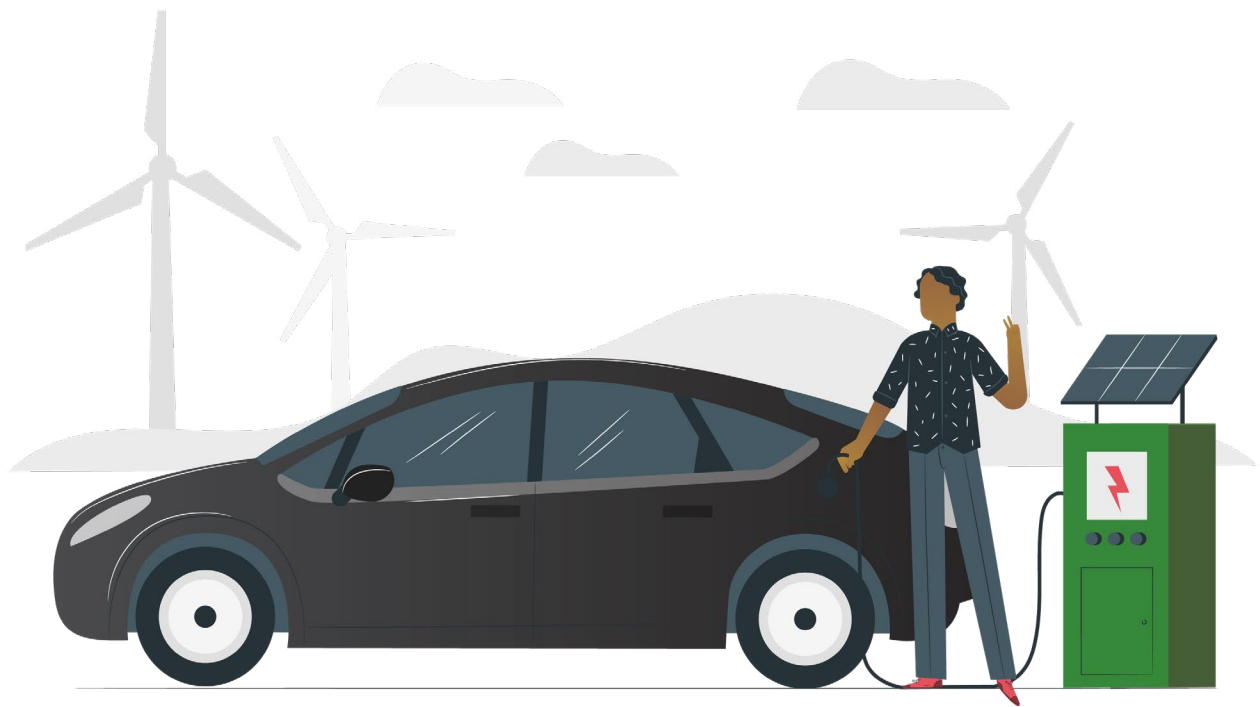


This issue snapshot is excerpted from [Unmasking the Future](#) (2021), a scan of major current socio-economic trends and developments, at local, provincial, national and international scales, authored by James Stauch of the Institute for Community Prosperity, commissioned by the Calgary Foundation.



FULL SPEED **AHEAD:**

The Electric, Eclectic Future of Transportation

The age of the internal combustion engine (ICE) is coming to a close. In fact, we are very close to reaching “peak ICE”, and oil demand from passenger vehicles may have already peaked.²⁴¹ Over 62% of global warming is from carbon dioxide specifically from burning fossil fuels, 80% of which is from the consumption (not production) of fossil fuels. Over three-quarters of Alberta-produced oil and gas is for transport fuels (70% of every barrel of oil). Our gas-guzzling lifestyle is the largest single driver of oil demand AND climate change, and it’s about to come to a crashing halt. We are at the early stages of the biggest revolution in transportation since the horse and buggy were replaced.

Both demand for and production of Electric vehicles (EVs) is soaring, and EV costs are dropping. EV annual maintenance costs or less than half of gas-powered cars, and fuel costs in most jurisdictions will be orders of magnitude cheaper. EV will revolutionize automobile design, due to its modularity.²⁴² This is the first part of the revolution.

GM’s recent pledge to manufacture 40% of its U.S. models as battery electric vehicles by the end of 2025, under 20 different models, is only the latest in a string of pledges and commitments by big automakers. Pioneering EV manufacturer Tesla is currently considered the world’s most valuable car company.²⁴³ Volkswagen Group, the world’s largest automaker, still recovering from the diesel fuel efficiency cover-up that seriously damaged public trust in their green *bona fides*, has committed \$66 billion US to an ambitious program of e-mobility and digitalization. Their all-electric retro VW Microbus, set for export to North America starting in 2022, seems already destined for the Museum of Modern Art.²⁴⁴ Even Canada is getting in on the manufacturing act – there are currently four manufacturers of electric buses in the country.²⁴⁵

“Climate change is real, and we want to be part of the solution by putting everyone in an electric vehicle,”

Mary Barra, CEO, General Motors²⁵²

“It took 20 years to sell the first million electric cars. It took 18 months to sell the next million. It took 4 months to sell the fifth million. That is the pace of this change.”

Ramez Naam, technologist and author of *The Infinite Resource: The Power of Ideas on a Finite Planet*

This phenomenon has obvious consequences for the oil and gas sector. EVs already displace the need for 1 million barrels of oil per day, and by 2040 they are projected to displace 17 million barrels per day. EVs sales are just starting to round the corner of a ‘hockey stick’ shaped curve, at 10 million, having grown 2,000% since 2014.²⁴⁶ Sitting at less than 3% global market share, EVs are projected to comprise 10% of global sales in five years, and over 25% by 2030. Canada is currently 8th overall in global EV sales, at 2.7% of all car sales.²⁴⁷ And recent government pledges and incentive programs have catalyzed the transition further. China and Quebec, for example, plan to phase out internal combustion powered cars by 2035, and the UK by 2030.²⁴⁸ Canada’s zero emission targets are softer, but the fall Fiscal Update hinted that zero-emission electric vehicle charging stations will be a likely component of the federal stimulus package. Alberta’s EV sales, though climbing, remain microscopic compared with the other three large provinces, partly because there are no provincial tax rebates or incentives.²⁴⁹ However, there is a Tesla dealership in Calgary as well as Go Electric, a company selling used EVs and hybrids, and there are currently 22 EV charging stations within Calgary and another 17 throughout the Bow Valley corridor, between Calgary and Lake Louise.

The second part of the revolution is autonomous vehicles, and in particular autonomous ride-sharing, which will transform profoundly how we utilize transportation. We might call up a two-tonne truck for Tuesday morning’s move, and a two-person luxury vehicle, champagne included, for the evening celebration. The notion that you would have your own vehicle, alongside the insurance, maintenance, storage and other headaches of ownership, will seem bizarre (enthusiasts excepted). While fully autonomous vehicles are likely as much as a decade from being a mainstream option, the technology is proceeding apace: Alphabet subsidiary Waymo, one of the earlier autonomous vehicle companies, is up to an impressive manual intervention rate of once every (roughly) 15,000 kilometres.²⁵⁰

The implications for work-life patterns, urban form, and industry will be profound. Energy writer Amory Lovins describes the transition as moving from PIGS to SEALS: **P**ersonal **I**nternal-combustion **G**asoline **S**teel to **S**hareable **E**lectric **A**utonomous **L**ightweight, where mobility is less an owned asset than it is a service. We already see a trend among younger populations away from car ownership toward heterogenous mobility options (Uber, car-sharing, public transit, etc.), so this will only intensify. And while public transit is down more than 75% in most Canadian cities, ridership is expected to recover, though not to pre-pandemic levels for some time. Even more important may be capitalizing on the popularity of cycling and active transportation, as an op-ed from the Conference Board of Canada recommends, alongside a national active transportation strategy.²⁵¹