



GREENING VEHICLE MANUFACTURING:

Reducing the climate impact of producing vehicles in Canada

Canadians are both users and manufacturers of greenhouse gas-emitting passenger vehicles, which connect Canada's climate efforts to thousands of jobs, and form a substantial part of our manufacturing economy.

Vehicle manufacturing employs over 100,000 Canadians and historically has accounted for over 10 per cent of Canada's manufacturing GDP.¹

When it comes to the industry's impact on the climate, researchers John Holmes and Austin Hracs point out, "The major climate change issue associated with the automotive industry is the *use* of motor vehicles, not their manufacture".²

In fact, the production of internal combustion engine (ICE) vehicles only accounts for between $\frac{1}{4}$ and $\frac{1}{3}$ of the life cycle emissions of a vehicle – the rest is associated with the use of the vehicle.³

There are many studies on various technologies being developed and efforts to reduce emissions from internal combustion engines. Little has been written, however, regarding the likely impacts of climate change on future employment and skills requirements for transportation vehicle manufacturing.

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VEHICLE MANUFACTURING IN CANADA

The automotive industry in Canada experienced a significant expansion during the 1980s and 1990s and vehicle production peaked in 1999 at 3.057 million cars and light trucks. After 2000, output and employment began to fall, first in the vehicle assembly sector and then in the automotive parts sector. By 2008, output in Canada had fallen to 2.082 million vehicles; over 30 per cent less than the peak attained in 1999.

In 2015, 2.28 million cars and light trucks were produced in Canada at plants owned by five global automakers: General Motors of Canada (GMC), Ford Canada, and Fiat Chrysler (FCA) are unionized and represented by Unifor (and formerly by the Canadian

Autoworkers Union, CAW), while plants owned by Toyota and Honda have been the target for organizing drives by CAW/Unifor, but remain non-union.

The automotive components and parts industry accounted for over 68,000 of the approximately 108,200 workers employed in the Canadian automotive industry that year. Vehicle assemblers such as Ford Canada have large workforces concentrated in a small number of assembly plants, while the component sector is more fragmented. There are well over 650 part suppliers in Canada, and component firm size and employee numbers range from large international suppliers, such as Magna, to small Canadian-owned producers.⁴

The production of internal combustion engine vehicles accounts for between $\frac{1}{4}$ and $\frac{1}{3}$ of the life cycle emissions – the rest is primarily the burning of fossil fuels while driving them.

Table 1. Vehicle Assembly Plants, Canada, 2016

Company	Location	Vehicles Assembled
FCA Canada (Fiat Chrysler)	Brampton, ON	Chrysler 300; Dodge Challenger; Dodge Charger
	Windsor, ON	Dodge Grand Caravan; Chrysler Town and Country; Cargo Van
GM Canada	Oshawa, ON	Chevrolet Equinox; Chevrolet Impala
	Oshawa, ON	Buick Regal; Chevrolet Camaro; Chevrolet Impala; Cadillac XTS
	Ingersoll, ON	Chevrolet Equinox; GMC Terrain
Ford Canada	Oakville, ON	Ford Edge; Ford Flex; Lincoln MKT; Lincoln MKX
Honda Canada Manufacturing	Plant 1 Alliston, ON	Honda Civic
	Plant 2 Alliston, ON	Honda Civic, Honda CRV

Source: Industry Canada and Unifor

GREENING AUTO ASSEMBLY PLANTS

While most attention is appropriately paid to reducing emissions from driving vehicles, such as through greater fuel efficiency, manufacturers are also reducing emissions that result from building vehicles.⁶ For example:

- GM Canada’s Oshawa and St. Catharines facilities are converting various areas to LED

lighting and upgrading various motors and drives on equipment to be more efficient, while reducing volatile paint shop emissions by over 80% since 2005.

- Toyota Canada launched a \$27 million Combined Heat and Power (CHP) initiative at its Cambridge plant that is projected to save enough energy each year to power more than 7,400 homes. The facility has also introduced water recycling processes to its paint shop to reduce water usage by 400,000 litres annually.

- Honda currently recycles 99% of its production waste, has achieved ISO 14001 certification, and has set process optimization and energy efficiency targets for 2020; however, the details of these targets are not publicly available.
- The Ford Oakville Assembly Plant in Canada was the first Ford North American vehicle assembly plant to achieve zero-waste-to-landfill status, and now all Ford manufacturing operations in Canada have achieved zero-waste-to-landfill.

“Green Clauses” used to reduce GHG emissions

Adapting the way Canadians work will be crucial for Canada to meet its GHG reduction targets. Recent research has found that in terms of CO₂ emissions, it is important to highlight that most emissions (about 80%) stem from the production process and not from the direct energy consumption of households.⁷ The transportation vehicle sector could be a leader in adapting manufacturing processes to reduce the impact of manufacturing on the climate.

The North American automotive industry has been at the forefront of the development of new methods of manufacturing and work organization, as Holmes and Hrac point out. The organization of work, the nature of individual jobs, and skills required on the shop floor continue to evolve rapidly.⁸ Organized labour is seeking a role for itself to ensure that the industry can reduce emissions and create a “greener” workplace with the support and participation of workers.

Based on the data available, CAW/Unifor has sought to include two “green clauses” in enterprise bargaining agreements (EBAs) negotiated with the three major unionized employers.⁹

The first clause seeks to set up a fund, paid for by the employer, for environmental-related training and issues. This fund would also cover other issues such as occupational health and safety.

The second clause focuses on the establishment of a workplace environmental committee consisting of two union representatives and two company representatives. The committee would be tasked with reviewing and discussing environmental programs and related training and educational programs at the plant.

Autoworkers have sought contracts that promote and support ongoing programs in the plants relating to the environment.

Investment in improved technology is key to future jobs

Promoting investment in Canada’s auto industry by major manufacturers was a key demand of Unifor as the union entered the 2016 round of bargaining with the three major unionized auto manufactures.

“Automotive investment is a long game. Key decisions are made years before new products roll off the line,” Unifor President Jerry Dias wrote in *The Globe and Mail*. “The long planning cycle means we urgently need investments for the survival of several major operations.”¹⁰

Unifor lobbied Ford and all levels of government strenuously in 2014 to invest in building smaller, fuel-efficient engines at its plant in Windsor. The effort was unsuccessful, and Ford built the engine plant in Mexico after receiving significant government subsidies.¹¹

More positively, however, in June 2016, GM announced it was substantially boosting the number of research and development workers it employs in Canada to 1,000. They will be tasked with developing the company’s software for self-driving, autonomous connected cars.¹²

With increased investment, a shift to popular lower-emission vehicle production, and a “greener” manufacturing process, Canada’s vehicle manufacturing industry will make significant gains on many fronts.

For instance, perhaps electric cars, for which demand is growing, will be produced in Canada in the near future, securing jobs and investment in a crucial part of the economy while contributing to reducing Canadian greenhouse gas emissions.

Endnotes

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2. John Holmes with Austin Hracs, "The Transportation Equipment Industry" in *Climate@Work*, ed. Carla Lipsig-Mummé (Halifax and Winnipeg, 2013), 106.
3. Caleb Goods, John Holmes and Joanna Robinson, "ACW Manufacturing Working Group: Auto Industry Baseline Report," 8.
4. *Ibid.*, 7.
5. *Ibid.*, 16.
6. *Ibid.*, 12.
7. *Towards a Greener Economy: The Social Dimensions* (Geneva: International Labour Organization, International Institute for Labour Studies, 2011), 7. http://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_168163/lang-en/index.htm
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10. Jerry Dias, "Auto makers and governments must invest in the long game," *The Globe and Mail*, July 25, 2016, <http://www.theglobeandmail.com/report-on-business/rob-commentary/auto-makers-and-governments-must-invest-in-the-long-game/article31092955/>
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Further reading

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