

FOCAL Initiative

Presentation to the AutoMayors/EDOs of Ontario

Friday, November 3, 2023



FOCAL I Project Findings (2019 - 2021)

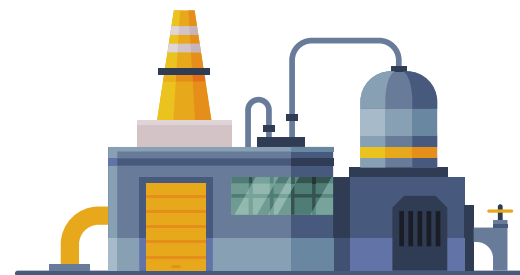
- The automotive sector (including manufacturing, its supply chain and technological research) employs around 210,000 workers across Canada, and is bigger and economically more important than previously considered.
- FOCAL examined the supply and demand for 49 key occupations in ON/QUE and various regions – we project that \approx 45,000 workers need to be hired in ON/QUE (primarily to replace retirees), and a significant shortage in workers over next 10 years if Canada maintains share of NA production.
- FOCAL produced many papers touching on trends in: diversity; immigration; youth participation and attitudes; role of intermediaries in increasing skilled trades; wages; impact of new production technologies; & many other topics.
- The project took preliminary look at labour market impact of shift from ICE to EVs.
- All reports are available at futureautolabourforce.ca

Shift to EVs Production Forecast

- FOCAL has developed a model to forecast the economic and labour market implications of the shift from ICEVs to EVs production.
- The forecast results will be used to project the changes in the demand for manufacturing and other supply chain occupations in the sector.
- The forecast covers the whole battery and EV supply chain including:



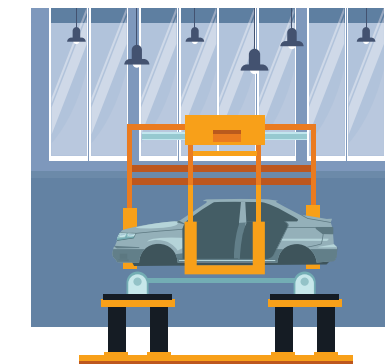
Mining



*Material
Processing*



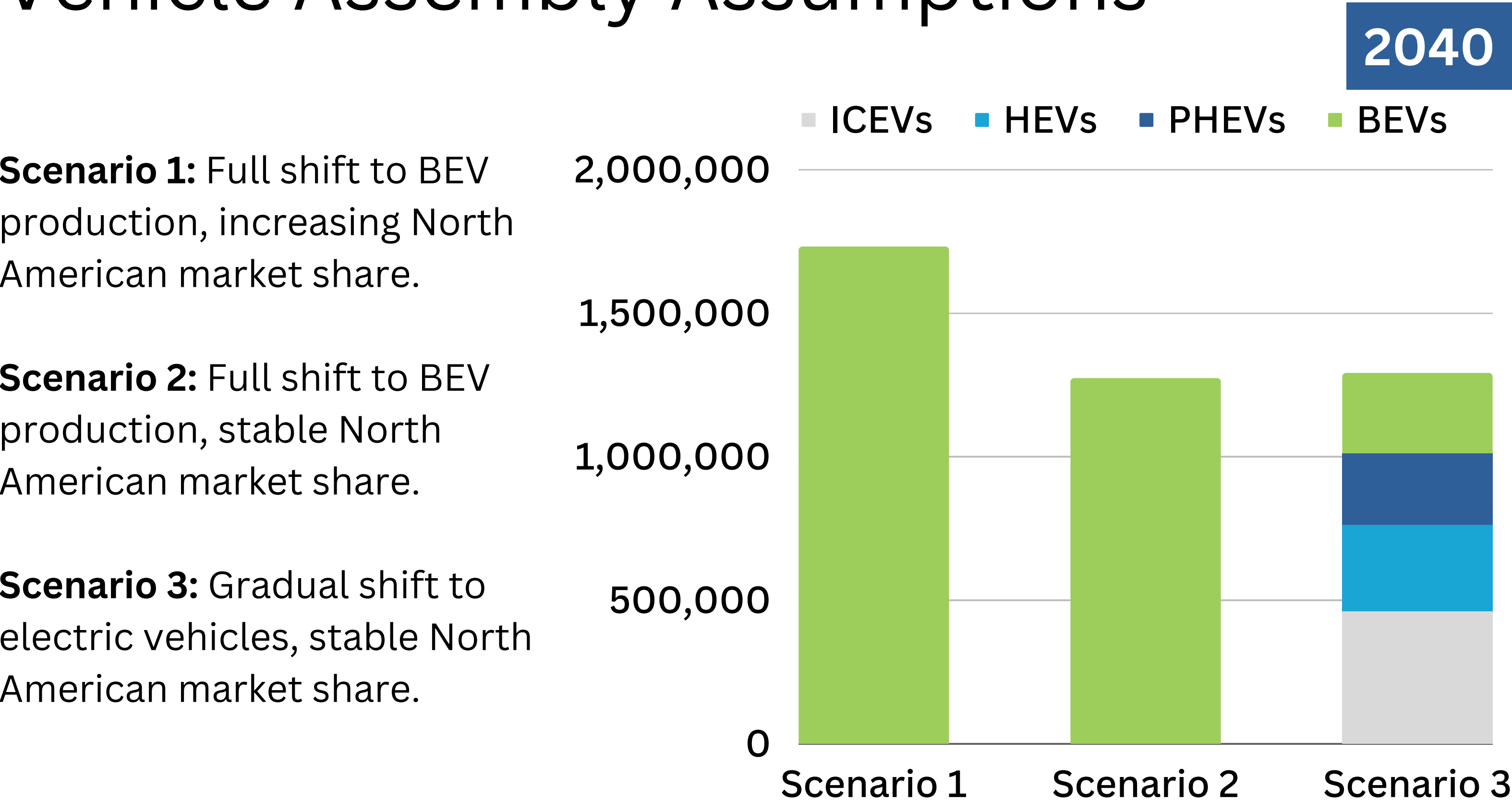
*Cell & Module
Manufacturing*



*Battery Pack &
Vehicle Assembly*

- These forecasts are meant to inform the sector and stakeholders on any potential job gains/losses across the different parts of the sector.

Shift to EVs Production Forecast - Vehicle Assembly Assumptions



Shift to EVs Production Forecast - Battery Supply Chain Assumptions

2040

Scenario 1: Four battery plants operating at 75% capacity. 100% upstream material demand supplied domestically.

Scenario 2: Four battery plants operating at 75% capacity. 55% upstream material demand supplied domestically.

Scenario 3: Three battery plants operating at 30% capacity. 10% upstream material demand supplied domestically.

	Scenario 1	Scenario 2	Scenario 3
Battery Manufacturing	152 GWh	152 GWh	50 GWh
Cathode & Anode Manufacturing*	100%	55%	10%
Material Filtering & Processing*	100%	55%	10%
Mining*	100%	55%	10%

* of upstream domestic demand

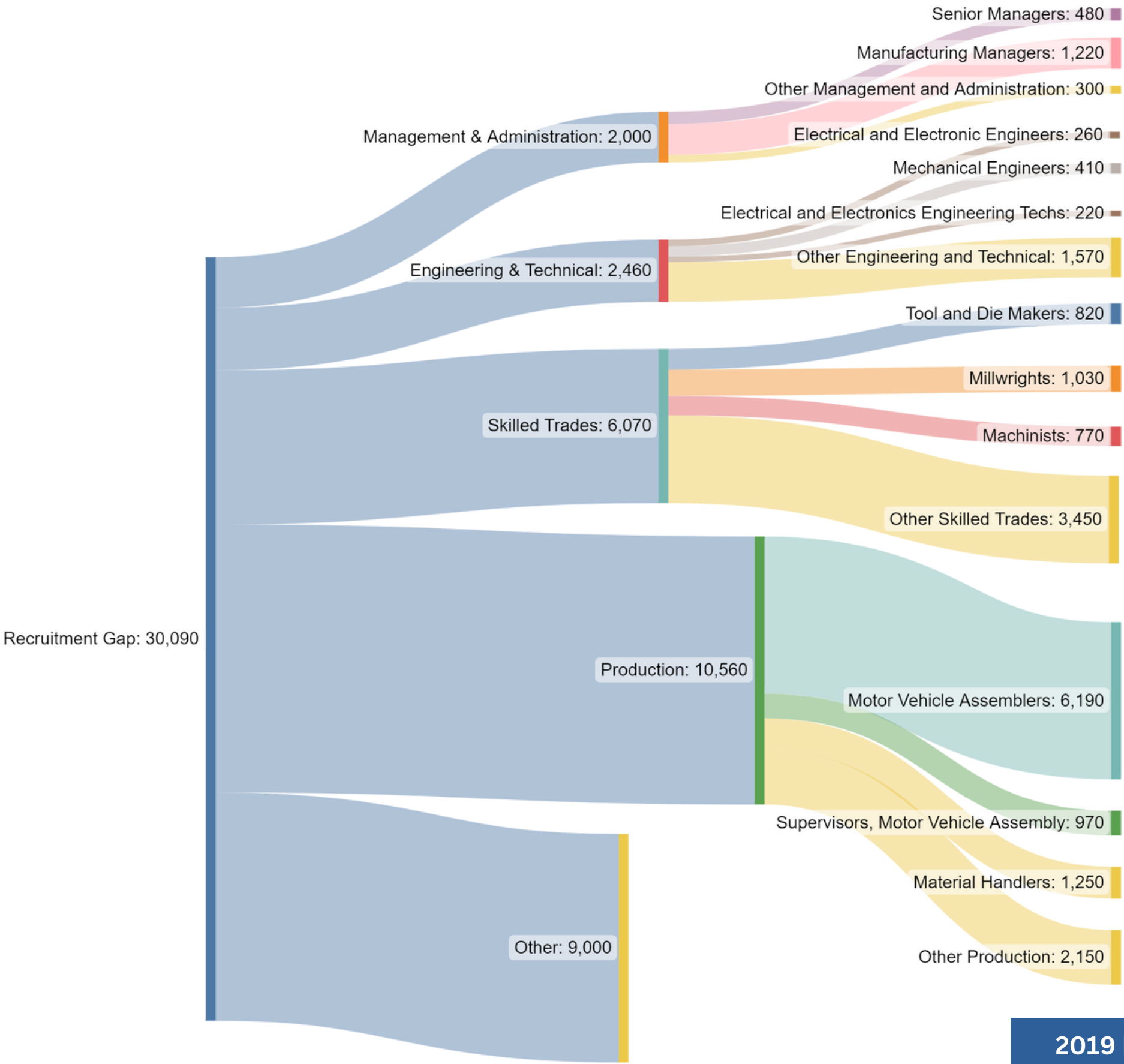
FOCAL Occupational Forecasts



Over the next decade, FOCAL projects continued shortages in the automotive sector.

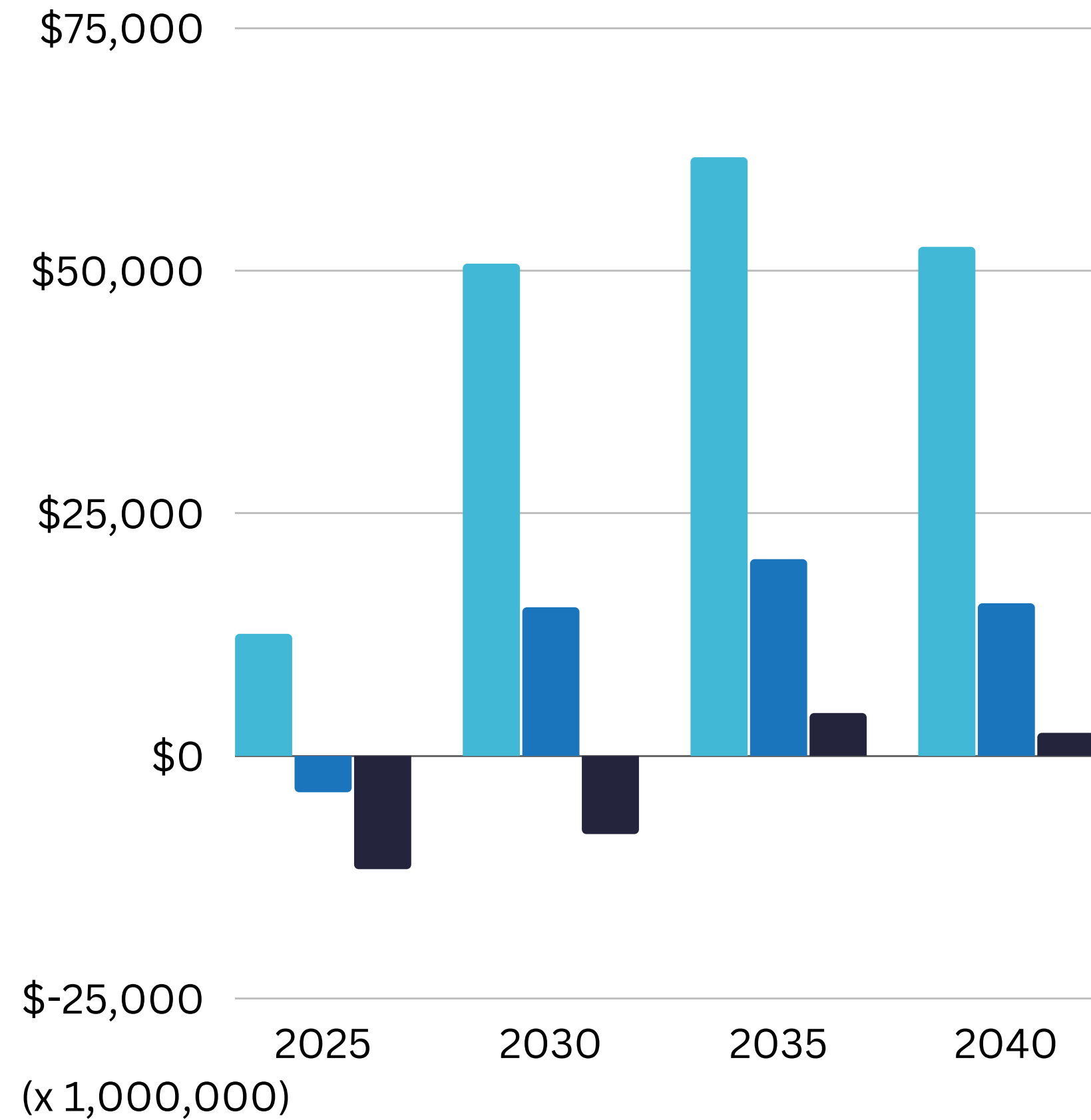
The recruitment gap is projected to be roughly 19% of the Ontario’s 2019 sectoral employment numbers.

FOCAL will use its EV forecast results as an input to update its automotive and battery manufacturing occupational forecasts.



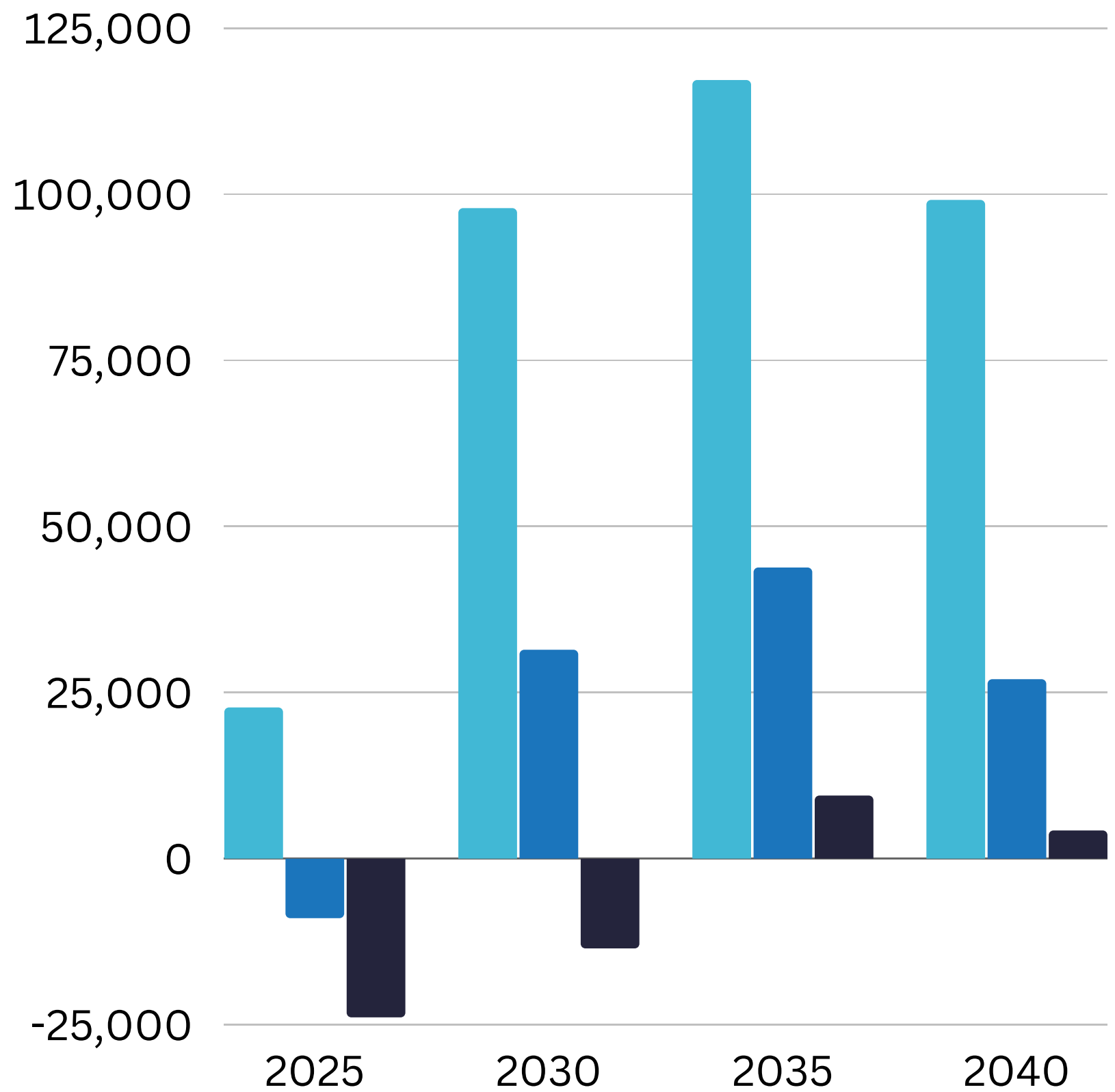
Impact on Output

Scenario 1 Scenario 2 Scenario 3



Impact on Employment

Scenario 1 Scenario 2 Scenario 3



FOCAL Skills Transferability Matrices

- FOCAL has developed Skills Transferability Matrices (STMs) using artificial intelligence (AI) and complex algorithms for occupations in the sector to help identify transferable skills, tasks, technical knowledge and abilities across other occupations and sectors.
- The STMs will assist all stakeholders in engaging in the transitioning of workers to other occupations and sectors in the event of technological changes and economic disruptions.

Welders and Related Machine Operators					
Occupations	Skills	Technical Knowledge	Tasks	Abilities	Total
Other wood processing machine operators	92%	83%	41%	90%	77%
Assemblers, fabricators and inspectors, industrial electrical motors and transformers	93%	83%	39%	89%	76%
Process control and machine operators, food and beverage processing	94%	75%	45%	87%	75%
Machinists and machining and tooling inspectors	81%	83%	43%	86%	73%
Foundry workers	92%	75%	38%	90%	73%
Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing	92%	83%	30%	87%	73%
Glass forming and finishing machine operators and glass cutters	91%	58%	53%	90%	73%
Fabric, fur and leather cutters	94%	67%	25%	90%	69%
Industrial sewing machine operators	92%	58%	31%	87%	67%
Structural metal and platework fabricators and fitters	92%	58%	31%	86%	67%
Tool and die makers	86%	58%	34%	88%	67%
General farm workers	91%	75%	0%	90%	64%
Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations	66%	92%	13%	78%	62%
Supervisors, other products manufacturing and assembly	63%	83%	13%	74%	58%
Construction millwrights and industrial mechanics	69%	83%	0%	75%	57%

FOCAL Occupational Profiles

- FOCAL is working on producing over 40 occupational profiles which include details on earnings, career progression and mobility into management jobs and other sectors, new tech and opportunities to learn.
- The aim is to attract more workers (especially youth and students) to the sector.
- You can find occupational profiles for occupations such as Machinists, Welders, Vehicle Assemblers and Inspectors, and Engineers on our website.

Occupational Profile



Machinists and Machining and Tooling Inspectors



Machinists are skilled manufacturing tradesmen/women who operate machines and tools to shape, cut, drill and turn metals and other alloys to manufacture products and components. Their skills and expertise are indispensable in manufacturing, especially in the fabrication and production of parts for motor vehicles, airplanes and ships. As a skilled trade, Machinists are in demand in the automotive manufacturing sector, with more than 1,100 job openings projected over the upcoming decade.

Where do Machinists and Machining and Tooling Inspectors work?



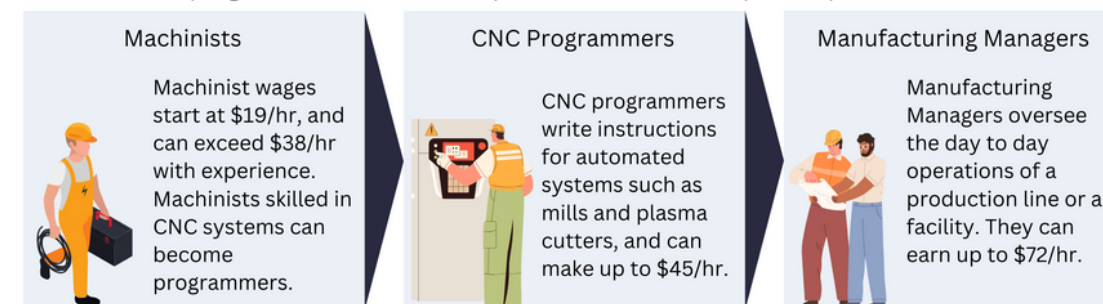
What do Machinists do?

Custom metal fabrication is key in many industries. Machinists shape and cut metals for use in equipment and products. In doing this, Machinists use tools and operate robotic machines such as computer numerically controlled (CNC) machines to create complex components with a high level of accuracy. Below are some of the tasks of Machinists:

- Set up, operate and maintain a variety of tools, equipment and machines to perform precise operations such as cutting, drilling, boring and turning
- Test models under simulated operating conditions for development, standardization, and feasibility of design purposes
- Maintain, repair and calibrate precision measuring instruments
- Collaborate with engineers, supervisors, or manufacturing managers to exchange technical information

Career pathways & potential earnings of Machinists

Machinists can progress to other roles and positions with the adequate experience and skills:



CSTEC's Interaction & Work with Stakeholders

- CSTEC works with employers, job seekers, educators and unions help manufacturers attract and upskill their workforce, as well as providing better labour market information.
- Worked with over 1,000 employers – primarily Southern ON, but also Northern ON and other provinces.
- Facilitated access to government funding, delivered over \$10 million in wage support for new hires.
- Worked with Unifor and USW on labour market analysis, training and labour transition.
- Work with community and private career colleges on customized training.

CSTEC's Employment/Training in Last Three Years

- 1,000 wage incentives to hire youth, newcomers, and apprentices.
- Sponsored/supported over 130 apprentices.
- Provided training support for 970 incumbent workers.
- Helped program participants in the following regions:
 - Over 200 in Niagara/Hamilton
 - Over 181 in Kitchener/Waterloo
 - Over 170 in Peel/Halton
 - Over 160 in London
 - Over 75 in Windsor
- Active in Northern ON and other provinces too.

Potential Future Work

- There is room for more detailed and constructive work to be done on both the provincial and regional levels for the automotive industry, and the manufacturing sector overall.
- FOCAL/CSTEC is open to partner with economic development offices, workforce development boards, and other organizations to build on this work.
- Follow our work and read our reports:



futureautolabourforce.ca



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