CANADA'S SEMICONDUCTOR COUNCIL

RECOMMENDATIONS

- **Recommendation 1**: The federal government, in consultation and partnership with Canada's semiconductor industry, **develops and implements a Pan-Canadian Semiconductor Strategy (PCSS), including policies, fiscal incentives and funding opportunities** that are: i) proportionate to other allied competitors; ii) aligned with the evolving objectives of the North American Semiconductor Conference; and, iii) designed to spur Canada's semiconductor industry growth in strategic "niche" subsectors. The PCSS should incorporate incentive frameworks, trade partnerships, and research collaborations to advance manufacturing investments, R&D commercialization, FDI, and programs to fast-track microelectronic engineering and advanced manufacturing talent to Canada. It should build upon the Canada Semiconductor Council's ***Roadmap to 2050: Canada's Semiconductor Action Plan***, a comprehensive action plan that lays out short-term, medium-term, and long-term recommendations to build a strong Canadian semiconductor industry.

- **Recommendation 2**: Create a **Strategic Semiconductor Consortium (SSC)** to support collaboration between Canadian companies and build the human capital to maintain Canada's leadership in R&D, intellectual property (IP) development, and design/assembly/packaging of microchips. The consortium would commit about $1B in total funding with the 50% split between the private sector and government over the next five years, and will be managed jointly by industry leadership with government oversight. The SSC would play a central delivery role in the implementation of the Pan-Canadian Semiconductor Strategy, in collaboration with government departments, allied industrial and provincial partners, and research institutions.

- **Recommendation 3**: Establish a **Semiconductor Supply Resiliency Fund (SSRF)** with a capital of minimum $3B to support strategic capital expenditures that help alleviate bottlenecks in North American semiconductor supply chains such as manufacturing, assembly, packaging, testing facilities and plants. Priority should be placed on securing Canada's competitive advantage in key semiconductor sub-sectors, particularly where there is a strong linkage to other net-zero industrial reforms, with a view to entrenching the position of strategic industries and associated supply chains (eg. EV and parts manufacturing). The SSRF should be designed to encourage matching provincial investments.

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CANADA AND THE GLOBAL SEMICONDUCTOR ECOSYSTEM

There is a massive disruptive change underway in the global semiconductor supply chain, driven by the current geopolitical winds which result in a huge North American trend for onshoring (or reshoring) of this vital sector. This creates a huge opportunity to strengthen Canada's diverse semiconductor industry, driving domestic innovation and productivity while also attracting foreign direct investment that further builds our advanced manufacturing and competitiveness.

With anticipated co-benefits across a range of strategic supply chains and emerging sectors, Canada must seize this moment and augment our national economic resiliency. It is in our national interest that Budget 2024 enables bold and decisive semiconductor investments. Targeted federal funding and fiscal incentives will reinforce Canada's secure access to vital electronic components which underpin so many applications and products: from healthcare, data technologies and cleantech devices, to computers and smartphones, to electric vehicles and the fast-evolving components that drive the automotive sector. In so many ways, Canada's unique pathways toward a net-zero industrial economy are inseparable from the shifting global semiconductor supply chain, so the identification of, and investment in convergent net-zero/semiconductor industry opportunities is crucial for Canada's economy.

Canada's industrial policy and budgetary allocations regarding semiconductors will most likely succeed when the goals are narrowly defined and leverage private sector incentives. With this in mind, the Canada Semiconductor Council is pleased to submit this brief and the following recommendations to the Parliamentary Standing Committee on Finance for Budget 2024:

In effect, by accelerating the establishment of public-private investments through innovative decision-making platforms (a Strategic Semiconductor Consortium), and by fast-tracking a coherent set of policies, incentives and funding mechanisms that encourage unprecedented private sector capital expenditures in Canada's semiconductor sector, Budget 2024 can serve to entrench the competitive position of several core Canadian industries. The employment, R&D, intellectual property (IP), productivity, competitiveness and national security benefits will be unambiguously positive.

BACKGROUND

Recently, the US CHIPS Act apportioned USD $53B to bring semiconductor manufacturing back to the US and North America, with another $24B of tax credits. Combined with state-level subsidies, the CHIPS Act triggered over USD $300B in investment commitments from semiconductor companies and private capital. The impact of the US effort to repatriate so much semiconductor manufacturing will be transformative for the North American economy. Similarly,

the EU CHIPS Act committed over €43B to spur the growth of the semiconductor industry in Europe and secure its industrial supply chains. Even some smaller countries, such as Spain, committed over €10B for its domestic semiconductor sector, while South Korea committed USD $230B. In this context, Canada lags far behind with total sector-specific incentives in the order of CAD $250M and very few new incentives delivered in Budget 2023. **Addressing Canada's gaps in the semiconductor sector in the upcoming 2024 Budget is critical to retaining Canada's credibility as a global player in advanced manufacturing, applied microelectronics, and so many adjacent industrial sectors that are reliant upon semiconductors.**

These investments are essential in ensuring semiconductor production is brought back to the western world. In addition to manufacturing, other parts of the semiconductor ecosystem such as R&D, supply chain security, and industry talent development are crucial areas that need investment from both government and industry to secure a robust future for semiconductors in the West.

Canada has a lot to offer in strengthening the North American semiconductor supply chain: strong engineering talent and a diverse workforce, innovative R&D, land for new facilities, abundant low-carbon energy sources, water, well-developed industrial infrastructure, and proximity to the North American market with privileged trade access to the EU and Indo-Pacific. With the renewed geopolitical focus on the critical role of semiconductors in the global economy, a coordinated national effort is badly needed to deliver and then implement a Pan-Canadian Semiconductor Strategy.

Canada's semiconductor industry includes over 100 domestic and multinational companies conducting semiconductor R&D. Our manufacturing base includes several commercial facilities in areas such as compound semiconductors, micro-electro-mechanical systems (MEMS), and advanced packaging. Many global chip companies are conducting R&D and semiconductor chip design across the country. Homegrown Canadian companies are also making their mark. The strong university presence in Ontario, Quebec and BC creates hubs for start-ups in the design space which are poised to add significant value in the sector. Canada is also rich in the minerals critical to manufacturing for the semiconductor industry.

Supply chain resiliency in Canada's emerging net-zero economy, spanning from critical minerals to energy-efficient end products, necessitates coherent investment, governance and labour market strategies (including a Pan-Canadian Semiconductor Strategy) in economic sectors where we hold or seek a competitive edge. This approach is essential to prevent unfavorable patterns of skilled labour migration away from Canada and the departure of our finest Canadian innovators. It also addresses the potential skills gaps and workforce shortages within Canada's contemporary digital and low-carbon manufacturing economy. Moreover, it

positions Canada to avoid substantial disadvantages in attracting future worldwide investments for cutting-edge science, research and development, as well as manufacturing.

Prime Minister Trudeau stated recently that Canada's role with semiconductors could mimic its contributions to the North American auto industry, as in building parts that are assembled elsewhere. "Our focus is on making sure that Canada and Canadians are a part of the semiconductor ecosystem," he stated in January 2023. But to deliver on this opportunity, Canada must be focused and deliberate in making Budget 2024 allocations that open the door to manufacturing components that are fundamental to the fast-evolving low-carbon sectors of North America's economy.

SEMICONDUCTOR INVESTMENTS BENEFIT THE ENTIRE CANADIAN ECONOMY

Severe disruptions in the global supply chains can have catastrophic effects, as recently demonstrated by the COVID-19 pandemic. Similarly, the geopolitical tension between China and the West is driving policymakers to find alternatives to the fragmented global manufacturing system. This is especially true for semiconductors, which are essential for cybersecurity, telecommunications, and defense applications. Canada must avoid becoming a bystander as transformational economic opportunities present themselves, and the CSC's recommendations offer a reasonable, affordable, partnership-driven approach to determining which of these opportunities are worthy of taxpayer support.

Semiconductors contribute significantly to global GDP and they power trillions of dollars of goods and processes. Microchips are essential for further development of electric vehicles, AI, cybersecurity and quantum computing, which are among the most promising areas for Canada's future economic growth. By investing in a **Strategic Semiconductor Consortium (SSC)** and a **Semiconductor Supply Resiliency Fund (SSRF)** in Budget 2024, Canada will be strengthening its competitive advantage in these sectors.

The semiconductor sector is a source of high-quality, well-paid jobs. This includes not only highly skilled electrical engineers but a variety of related skills in chemical engineering, mechanical, and construction engineering in addition to technologists and support staff. According to the US Semiconductor Industry Association (SIA), for every semiconductor job created, 5.7 new jobs are created in other parts of the economy. Canada must thoughtfully prepare its PCSS with a view to maximizing both the well-compensated job opportunities and the spin-off economic benefits for Canada as onshored semiconductor manufacturing impacts all of North America's integrated economy.

The Government of Canada and Canadian companies need to act now to maintain competitiveness within this swiftly evolving environment. We should further enhance Canada's

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expertise in designing microchips that will be produced in North America. This involves both nurturing and retaining talent and the workforce, ensuring that the intellectual property generated benefits Canada. While the ongoing investments in critical minerals and electric vehicle (EV) battery manufacturing are a promising beginning, similar investments are required in the semiconductor industry, specifically in the design and manufacturing of chips for crucial sectors like automotive, defense and aerospace. This is essential to guarantee the continuous expansion of our GDP, Canadian intellectual property, and overall economic advancement through these future-oriented jobs.

Drawing a parallel to the automotive industry, Canada successfully capitalized on an opportunity and cultivated the expertise to become a crucial participant in the North American automotive sector. Now, as the automotive landscape transforms, semiconductors have become the bedrock of technologies propelling the electrification, self-driving capabilities, and connectivity within the automotive domain. There are over 2,000 microchips in any given EV (including parts and charging devices), and there is no reason that Canadian companies and workers cannot secure a leadership role in this innovative, applied technology field. But to get there, Canada needs a coherent strategy and dedicated funds to incentivize investments in priority semiconductor sub-sectors.

Canada needs to convey a clear message about its commitment to investing in domestic suppliers and playing pivotal roles in the semiconductor sector, contributing to the growth and security of all Canadians. **This is an unprecedented economic opportunity and we need to act now.**

ABOUT CSC

Canada's Semiconductor Council (CSC) is a national semiconductor industry association representing a broad ecosystem of Canadian microelectronics companies, microchip manufacturers, R&D organizations, and relevant government labs, agencies, and universities.

CSC is the voice of Canada's semiconductor industry, dedicated to accelerating the growth and development of Canada's semiconductor sector. The organization's goal is to strengthen our domestic supply chain resiliency and future in the digital economy by establishing Canada as a leader for semiconductor research, design and development, and manufacturing at the forefront of commercialization and innovation for the global semiconductor industry.