CANADA'S
NET-ZERO INDUSTRIAL STRATEGY
SUMMIT

TAKING A STRATEGIC APPROACH TO INDUSTRIAL TRANSITION: A VISION FOR CANADIAN NET-ZERO INDUSTRIAL STRATEGY

A White Paper for the 2022 Net-Zero Industrial Strategy Summit

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Executive Summary

The rise of green industrial policies across the world has made it imperative that Canada also develop its own low-carbon industrial strategy.[1] Our major trading partners and competitors are moving fast and the global value chains of the 21st century are forming rapidly. Canada must act now, or risk being left behind.

> *Canada needs a strategic approach to building the industries that will create value in the Canadian economy throughout the energy transition and beyond. Done well, a modern industrial policy can build a coalition to drive deep decarbonization while reducing the costs of new technologies and building geopolitically resilient supply chains.[2]*

This white paper lays out a vision for a Canadian net-zero industrial strategy rooted in the principles of effective modern industrial policy. The core elements are:

- Bold and clear net-zero competitiveness goals in priority opportunity areas.
- Strategic collaborations to bring together indigenous peoples, labour, universities, governments, industry, finance, and civil society.
- Ongoing deliberations to create sectoral strategies, set and revise targets, and identify smart investments.
- Goals to guide policy and focus both public and private investment.

Working together, public and private actors can create the focus and coherence needed to rapidly transition the Canadian economy while seizing economic opportunities.

> *Time is of the essence. The Government of Canada can act now by setting interim competitiveness goals in critical areas and convening competitiveness tables tasked with identifying high priority investment opportunities and necessary policy and regulatory supports.*

What is industrial policy?

An **industrial policy** is any intentional set of measures that a government uses to create, build, or shape industry.[2] It is an effort to stimulate the creation and deployment of technologies in a way that shifts the economy to diversify production, build resilience, create jobs, increase value-added, modernize industry, drive innovation and more.

Canada has a long history of industrial policy, which we discuss below, but that history has been largely forgotten (recent efforts to revive the idea notwithstanding).[3] All of Canada's major export industries are a product of industrial strategy—the automotive sector, oil & gas, mining, and forestry all benefitted from concerted government efforts to build, protect, and maintain these industries.

During the first half of the 20th century, government action catalyzed the development of railways, roads, airlines, housing and other urban infrastructure necessary for economic development.[4] After the Second World War, focused support for automobiles, aerospace and communications built those industries into important pieces of the Canadian economy. The US has done the same.[5]

In the wake of the MacDonald Commission, industrial policies to promote the growth of select innovative industries were largely abandoned, though trade policy continued to be a major instrument of economic strategy in the 1980s and 1990s. One notable exception is the oil and gas industry and public, coordinated support for oil sands development.[6]

So Canada has a long tradition of industrial policy, but Canada need not return to the industrial policy of the past. New, modern forms of industrial policy can catalyze action with smart investments that do not devolve into rent-seeking or protectionism.

Modern, strategic industrial policy is not the old nationalist and protectionist policy of the past. The idea of industrial policy as picking winners and supporting them with illiberal policy is outdated and irrelevant. Countries today employ smart, innovation-focused strategies that seek to position their firms in global value-chains in an ongoing process of action, learning, and adaptation.[7] This modern industrial policy, far from being protectionist, is often focused on positioning firms in global value chains.

Industrial policy today is defined by its goals and processes. Modern industrial policy begins from the premise that any strategy must be smart and flexible in the sense that it is designed to be changed and updated over time. This "requires shifting the focus from *one-time* choice of winners to the *process* of error detection and error correction of the choices."[8] Mistake-proof industrial policy is not possible, but designing a good process informed by best practices is.

But this vision of modern industrial policy, or strategy (which connotes a series of policies and actions to achieve clear objectives), that emerges from studies of international best practices has

to be modified and adapted to the climate domain. A **net-zero industrial strategy** is a set of policies and investments intended to advance the technologies, build the firms, and create the innovation ecosystems needed to decarbonize the economy. Decarbonization presents special, if not unprecedented, challenges for governments and a clear sense of the long-term political challenges is needed to design strategies that will work over the whole transition to net-zero. This means designing a strategy that is robust to uncertainty.[9]

International best practices: the elements of good industrial strategy

Successful industrial strategies in other jurisdictions have four key elements that support this process of strategizing, deploying, and learning in key sectors or opportunity areas:

1. Vision and targets: concrete goals attached to priority actions and specific timelines.
2. Public-private collaboration: deliberative forums where stakeholders can work together to forge supply chain strategies, align investments, and seed projects.
3. Brokers and independent intermediaries: agencies that facilitate good flows of information, provide expertise, support strategy, and enable learning.
4. Policy and investment focus: sector specific policy mixes and fiscal tools calibrated to support the targets by aligning supply and demand.

First, concrete economic targets are needed to focus the efforts of all parts of society and challenge industry to do more than it would otherwise do. Climate policy has been driven by emissions reductions targets—but these are largely modeling constructs that do not map onto the real economy. By contrast, targets that specify physical actions needed to effect the transition make a strong public statement that adds credibility to government promises of action in a priority area. An example could be installed generating capacity, or production of EVs, or metals for EV batteries. Such targets in turn help create the certainty that drives investment.

These targets should then be used develop sector strategies that will deliver on the goals. Sector strategies seek to build the firms, technologies, and supply chains that a 2050 net-zero world is going to need. Starting from clear targets, they backcast to concrete actions that must be taken today to seize the opportunities in the sector.

Sector strategies have to integrate policies and sub-strategies for innovation, trade, skills development, infrastructure, procurement, and financial mechanisms. It is tempting to start industrial strategy by trying to deal with these issues at the macro level. But they cannot be resolved there. You have to start somewhere, and in the case of industrial strategy it needs to be at the sectoral level with a clear objective on the table.

Deployment and production targets are especially useful when governments have a good idea of what the supply chain is supposed to look like (i.e., when catching up with other countries or

when scaling existing supply chains). When the technological frontier is more open, improvement or performance targets are more suitable.

Second, public-private collaboration is critical The key to successful industrial strategies is good information flows between the government and the private sector.[10] In order to set targets that challenge the sector while remaining realistic, governments have to know what is going in the real economy. In order to make good investment decisions, governments need the kind of high quality information that firms exchange with one another all the time—who has a good team, whose fundamentals are sound, where is the smart capital going, and so on.

There are many ways to achieve this, but most industrial strategies have institutions for discussion and conversation between government, industry, and other stakeholders.[11] This institutionalized deliberation can take many forms. It could be convened and superintended by a government regulator; or, the convener might be an independent intermediary. The key requirement is that the conveyor is capable of facilitating good flows of information between the public and private sectors.

Third, brokers to facilitate the exchange of good quality information are critical. For the government, independent sources of advice and expertise are important.[12] Close collaboration with the private sector can lead to the capture of public agencies by private firms. If all the information and advice comes from the private sector, the strategy can end up serving industry's interests rather than the needs of all society.

Finally, targets can be used to guide policy and focus investment. On the investment side, targets can be used to focus and align public and private finance, and to stimulate the pipeline of projects. Otherwise, investment will be spread too thinly across many opportunity areas.

Industrial strategies need to deploy unique mix of policies in each opportunity area, tweaking and adjusting as things develop. Again, policy has to be set at the sectoral not the macro level. Although each policy mix will be unique, each sector will need a mix of supply-push and demand-pull policies.

- Supply-push tools include innovation policy, skills training, supply chain coordination, infrastructure builds, and public financing.
- Demand tools include procurement policy, local content requirements, trade measures, carbon taxes and other price interventions, and export development.

In areas where new markets need to be created, such as for hydrogen, the key is to align supply-push and demand-pull to kickstart both production and consumption simultaneously.

In the EU's battery strategy, these four elements have combined to generate a battery pipeline with 800 GWh of production by 2030.[13] Here is how the EU strategy is put together:

1. Vision and targets: market share and production targets: "capture a batteries market of up to EUR 250 billion a year, served by at least 10 to 20 Gigafactories" by 2030.[14]

2. Public-private collaboration: the European Battery Alliance, a network of 440 industry stakeholders, takes an active role in strategy design and implementation.
3. Brokers and independent intermediaries: InnoEnergy, a public-private partnership, leads strategy and implementation, working closely with the European Commission, the Alliance, and national institutions.
4. Policy and investment: Multiple tools across the battery strategy aligns innovation supports (supply-push), supply chain coordination (supply-push), subsidy programs and financial support (cost control), and regulations to drive ZEV uptake (demand-pull).

The European battery strategy set ambitious investment and production goals. It forged a broad coalition of firms, governments, economic development agencies, and funding programs to help set strategy and enact the plan. InnoEnergy, a large public-private partnership with both engineering and business expertise, was tasked with supporting the strategy sessions and supporting implementation. Then, the EC bolstered the strategy with a flexible set of tools that operate across the supply chain, integrating trade, innovation, skills development and investment.

But to be clear, there is no single formula for industrial strategy. Countries cannot simply look to their peers or their competitors and copy what they see. Instead, successful industrial policies are the product of creatively combining these four core elements into combinations that work in a given economic, political and institutional context.

In short, countries need to design a process that identifies clears goals, backs them with policy and investment, and then updates and adapts as necessary. Strategies must be open to surprises, correct mistakes, and get creative with the tools at hand.

What would Canadian net-zero industrial strategy look like?

Canada has opportunities in energy transition across sectors and in all regions. There have been a number of studies of Canada's top opportunity areas. A review of seven of these reports suggests eight priority areas:[15]

A set of four with a high degree of consensus:

- EVs and the battery supply chain (5 reports identified this as a top opportunity)
- Carbon capture, utilisation, and storage (5)
- Biofuels, especially sustainable aviation fuels (5)
- Hydrogen (4)

Four further opportunity areas were highlighted in at least two reports:

- Alternative proteins (2)
- Mass timber (2)
- Critical minerals (2)
- Agtech (2)

These are not the only opportunities, but beginning with these eight opportunity areas would be an excellent start. Canada also needs a clear strategy for expanding its grid while maintaining its low carbon intensity.

These growth areas all present opportunities to transform Canada's legacy industries in oil & gas, forestry, mining, aerospace, agriculture, and automotive manufacturing into world-leading climate solutions ecosystems.

How can Canada begin taking a more strategic approach?

To simplify, our proposal boils down to two big action items:

1. Set bold and clear economic targets to guide strategy in priority opportunity areas.

- Canada should create "net-zero competitiveness goals." "Goals" here means quantitative economic targets that refer to physical actions: improvement, production, and deployment of technologies. "Net-zero" means indexed to government mandates or net-zero targets. "Competitiveness" means benchmarked to a vision of Canada's place in the global supply chains of 2030 and 2050.
- These targets have to represent a strategic play that is premised on the competitive advantages of Canadian resources, firms, and communities.
- Targets must be supported by a clear supply chain strategy that seeks to build economic value in Canada, while identifying export opportunities.
- Use the targets to focus public funds and guide policy design at the sectoral level.

2. Create inclusive partnerships to foster strategic collaboration

- Canada needs new forms of collaboration between First Nations, government, industry, finance, universities, and civil society.
- Collaborative forums should not be talking shops but active working groups that set and revise targets, create strategy, seed projects, and identify high priority investments.
- Brokers and independent intermediaries are crucial to the success of collaboration. It is important to empower independent voices that can provide expertise and help to develop projects. An independent agency could be in government, so long as it is insulated from politics and free from bureaucratic routines. Or, it could be from civil society. Or, they could be true public-private partnerships—organizations built for the purpose of catalyzing strategic collaboration for net-zero.

Industrial policy may sound complex, but Canada can begin taking a more strategic approach to position its firms in the emerging energy economy by setting clear goals and increasing communication. These, supported by active policy and programs, can catalyze action up and down the supply chain.[16]

In essence, industrial strategy is a process.[17] Target-setting is not an end in itself, but a platform for collaboration amongst all the partners. Goals cannot be rigid. If the strategy is not working,

then both the means and the ends should be revised, and quickly. And the strategy has to adapt to success as well as failure: positive unintended consequences should be leaned into.

Putting all of the pieces of the together, a process for developing a Canadian industrial strategy could look like this:

1. The government chooses to focus on a small number of critical sectors.
2. The government builds a broad collaboration to set net-zero competitiveness goals in the sectors, in consultation with industry, indigenous communities, labour, finance, and experts.
3. A lead department is tasked with delivering on each goal by creating a sector strategy and roadmap.
    - The sector strategies must identify key actions and timelines for achieving the goals.
    - The lead department would convene a small cross-departmental group of government officials for the sector, bringing together as few people as possible.
    - Strategies must be developed and revised with the participation of a competitiveness table comprised of industry, experts, labour, and indigenous representatives.
    - The competitiveness tables would be asked to make periodic recommendations on three things: i) evaluating the effectiveness of the current goals and strategies; ii) identifying the mix of policies needed to achieve the goals; iii) identify priority investments and projects for the sector.
4. PMO/PCO form a working group to oversee and coordinate the sector groups. PCO would need to retain expert capacity to create a system-level strategy and ensure overall coherence.
    - Look across the sectors to identify interdependencies at the system level.
    - Adjust sectoral policies so they roughly align at the system level.
5. Evaluate and adapt goals, strategies, and policy mixes dynamically.

> *Time is of the essence. The Government of Canada can act now by setting interim competitiveness goals in critical areas and convening competitiveness tables tasked with identifying high priority investment opportunities and necessary policy supports.*

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