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Published by the Broadbent Institute
March 2023

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Industrial policy should be designed to achieve Canada’s societally relevant goals – not as a defensive response to American events

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He started studying green industrial policy during his Masters of Environmental Studies from York University. He has a PhD in Public Policy from Carleton University where he used Canadian political economy perspectives to examine sustainability transition pathways involving complementarity interactions between traditional natural resource sectors and emerging low-carbon technologies.

He is the author of the Broadbent Institute’s 2016 report titled “*A Green Entrepreneurial State as Solution to Climate Federalism*” which presented the case looking beyond market based climate policies towards regional and sector specific strategies.

The [next federal budget is expected to provide a response](#) to the Biden Administration’s significant investments in green technology through the Inflation Reduction Act (IRA).

With the US introducing an activist climate agenda, “green industrial policy” is becoming a hot topic. The federal government’s Fall Economic Statement declared that Canada needs a “robust industrial policy” focused on net-zero emissions, private investment, and good paying jobs. This should be welcome and amusing to social democrats who have long argued that Canada’s economic and climate policies were [too dependent on market-based instruments, compared to more direct sectoral and regional strategies](#).

However, the short-term response expected in the 2023 federal budget appears more likely to reveal that Canada currently lacks the capacity to develop and implement a real green industrial policy. The urgency to respond to the IRA appears to be rooted in fears of losing foreign investment and answering to [corporate lobbies](#). The result could be a weak mimicry of American policy, instead of strategies that fit Canada’s specific advantages and aspirations. That’s not an industrial policy—or at least not a good one.

Canada’s apparent need to defensively respond to the US Inflation Reduction Act should spur some hard thinking on the purpose of industrial policy, the policy approach our country needs, and how to successfully implement it.

Steering markets towards achieving societally relevant goals is the reason to have an industrial policy in the first place. While policymakers must monitor international changes and adapt accordingly, an effective green industrial policy must be more than a short-term response to American policy actions. Canadian industrial policy needs to be rooted in democratic aspirations to decarbonize all sectors of the economy, while advancing equality and creating meaningful work in a net-zero emissions future.

What is industrial policy?

Industrial policy is a broad term that relates to governments directing economic evolutions instead of leaving them to market forces. It recognizes that the structure of a nation's economy matters for its citizens, and that the process of innovation requires more sophisticated information sharing and coordination than markets can provide.

However, an industrial policy does not mean direct state control of all economic processes. It recognizes the benefits of private enterprise, and forges coalitions with private sector firms that can deliver on public priorities.

Fundamentally, industrial policy is about [embedding the economy](#) within society. It recognizes that markets are created by us, and thus they should be shaped by public policies to meet democratically determined goals like decarbonization, national sovereignty, economic prosperity, and equality.

When industrial policy goes well, the state and willing private sector firms engage in a process of [experimentation](#), mutual learning, and information exchange. Specialized [public sector organizations](#) continuously monitor shifts in international technology, seek out [bottlenecks](#) that must be removed, and [change the policy mix](#) over time based on lessons learned and the evolving needs of the sectors they seek to promote.

Industrial policy is not synonymous with broad corporate subsidies—especially those meant to [fix market failures](#) rather than reshaping market structures. The strength of industrial policy is its ability to tailor actions to unique national and sectoral contexts, and to learn and adapt in the face of uncertainty.

Why industrial policy matters in Canada

Canada's need to react to economic shifts in the major global economies is certainly not new. The economic problems Canadian industrial policies have been called to manage have a long history.

Canada has always struggled to create an economic structure less dependent on natural resource exploitation. The "[staple trap](#)" presents a warning against over-specialization in extracting and



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exporting natural resource “[staples](#)”, such as beaver pelts, lumber, and oil. In the trap, resource economies fail to develop linkages to other industries that promote diversification and innovation capabilities. Past resource dependencies have left Canada vulnerable to economic changes triggered by market dynamics and decisions in larger economies.

A defensive policy reaction to these disruptions can further entrench the resource extraction bias. For example, governments can try to access alternative markets by investing in new infrastructure, like pipelines. Corporate or government decision makers will accelerate resource extraction to pay down debts. The need to semi-regularly react to natural resource market disruptions has held Canada back from developing proactive industrial policies that nurture and grow diverse industries.

This reactionary and defensive economic posture helps explain why Canadian industrialization was largely dependent on foreign-owned branch plants rather than homegrown enterprise. In the information technology age, champions like Nortel and Blackberry developed within Canada, but our policy system proved incapable of helping them adapt to global economic shifts or to capture significant value from their presence. Our country’s excellent research and development (R&D) capabilities are [largely exploited by foreign firms](#), while domestic, knowledge-intensive enterprises fail to [grow to sufficient scale](#) before being bought out by foreign owners.

This high degree of resource and commercial dependence drives concerns about [low productivity and future standards of living](#). It has political and social impacts, as well. Most important is how resource extraction drives [colonization of Indigenous Nations](#), broken treaties, and disrespect for Indigenous rights and title. Uneven resource development patterns have led to [regional political strife](#), as well as class inequalities.

Leaving things to the market also [cedes sovereignty](#) by making Canada dependent on decisions taken by foreign governments and multinational firms, thus forcing the country to react defensively to international changes in technology and policy. These reactions, in turn, often entrench status quo economic structures instead of finding new economic development pathways.

Today’s circumstances call for a green industrial policy to promote Canadian prosperity in a world making the transition to net-zero emissions. Without an effective industrial policy, Canada could be pushed into the role of resource supplier for the energy transition¹, when we could direct Canadian

¹ During a February 1, 2023 fireside chat with Canada’s Minister of Natural Resources, International Energy Agency Executive Director Fatih Birol said he saw Canada’s primary role in the net-zero emission transition involving development of critical minerals and carbon capture and storage (a technology closely linked with fossil fuels). This comment suggests the international community primarily sees Canada’s role as a resource supplier.

ingenuity towards producing more advanced emission reducing technologies. That would be a loss to our economy and the world.

A green industrial policy approach would also offer Canada a set of [direct sectoral, regional, and technology-specific strategies that more effectively transition to net-zero emissions than market-based instruments](#). That's because the right strategies will create structural changes in markets, uncover solutions not yet readily available in markets, and develop regional political coalitions to support decarbonization.

The US Inflation Reduction Act and Canada's response

With the Inflation Reduction Act, US policymakers have embraced public investment over market based policies. The Biden administration is aiming to rebuild economic resilience, gain power within international supply chains, and accelerate the net-zero transition by pushing down clean technology prices through economies of scale.

The IRA relies heavily on tax credits. It is a preferred policy instrument because policies restricted to spending and revenue changes can avoid filibusters in Congress under "budget reconciliation" rules.²

Copying US tax credit policies is not necessarily the best move for Canada. Tax credits can be more targeted and tailored to particular sectors than carbon prices, but they have some of the same drawbacks as market fixing solutions that primarily aim to re-balance presently perceived costs and benefits.

Advanced industrial policies uncover new technological and organizational opportunities, and develop capabilities in domestic firms. They confront uncertainty and technology risk and share more complex information on production frontiers. None of these functions are best advanced through the tax system.

Without the same political constraints faced by the US Congress, Canada can introduce a more sophisticated policy mix than the IRA that couples regulatory strategies with [meaningful public investments](#).³ Industrial policy informed regulations aim to stretch the limits of what is currently perceived possible, and then public

² However it would be wrong to say that tax credits are the primary policy instrument used in the US. Americans have been practicing industrial policy through what Fred Block calls a "[hidden developmental state](#)" for decades, through agencies such as the Defense Advanced Research Projects Agency and the Small Business Innovation Research Program. Energy related agencies include the Department of Energy Loan Programs Office, the Advanced Research Projects Agency - Energy, and the network of National Laboratories. Thus the IRA tax credits can play the role of scaling and accelerating diverse technologies developed within niches created by pre-existing industrial policy institutions in the US.

³ Carbon pricing does not appear to provide a significant advantage. A recent [report by Michael Bernstein and Bentley Allan](#) suggests that carbon prices and Canada's investment tax credits fail to provide the stability required to drive private investment.

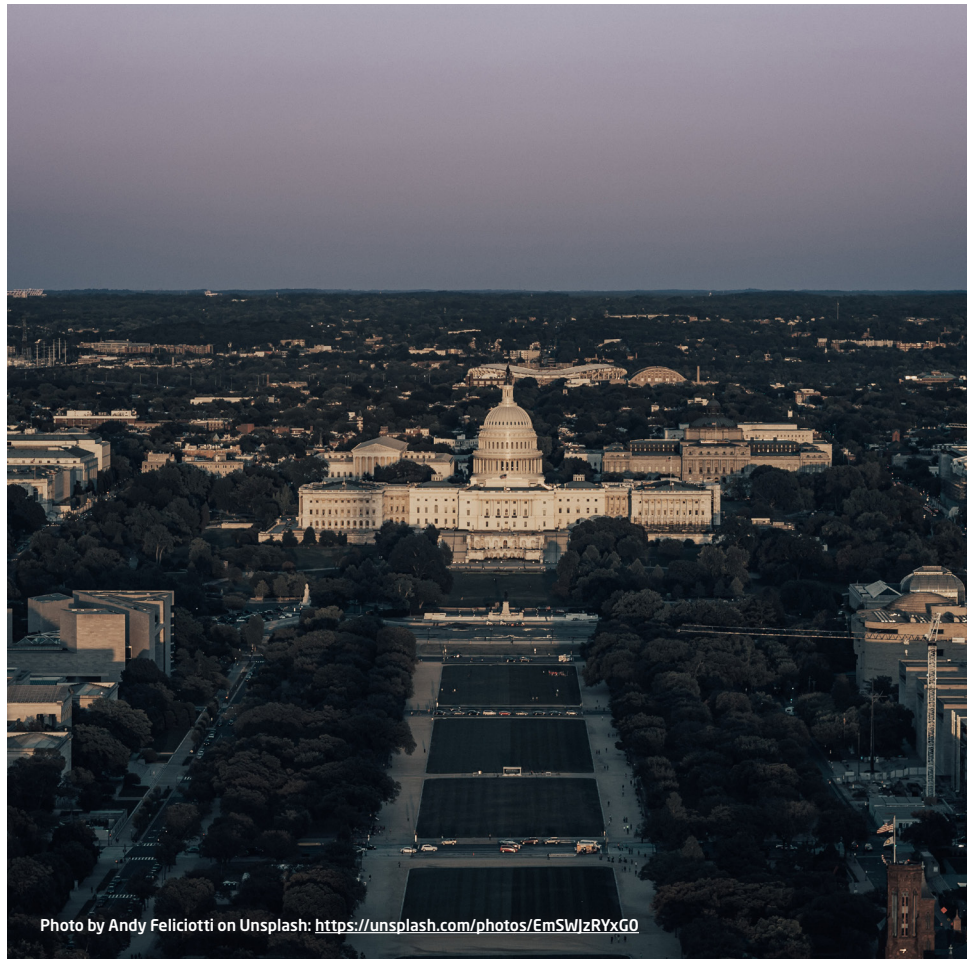


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sector organizations help the advanced companies search for ways to meet demanding standards and help the laggards catch-up.

[Charles Sabel and David Victor](#) show that these experimental regulatory strategies were the secret behind achieving the phase out of ozone depleting substances and developing electric vehicles. Such an approach would currently be useful in areas like designing building codes to reduce upstream emissions and driving Canadian manufacturing expertise in naturally carbon sequestering building materials; reducing the need for fossil fuels to manage peak demands in Clean Electricity Regulations; and promoting hydrogen production that is truly green and directed to the highest value end uses.

Canada's response appears set to heavily emphasize tax credits for carbon capture and storage (CCS) and hydrogen. However, these policies have potential to act as fossil fuel subsidies and result in [dead end, high-carbon](#) technological pathways. Tax credits can be prone to gaming because the emissions impact of hydrogen production [depends on upstream energy sources](#) and the impact of CCS depends on effective capture and storage.

The ultimate role hydrogen and CCS technologies will play in a net-zero emissions economy is uncertain. For instance, long-haul trucking could follow a hydrogen or an electric drive technological trajectory. These technologies could play their most important role in niche applications, such as CCS in concrete and hydrogen in iron ore reduction for green steel.

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Given this uncertainty, an experimental industrial policy approach with more direct public sector involvement would facilitate richer information exchange with the private sector to find the highest value uses for these technologies, and be able to quickly cut off public support for unpromising technological pathways. Private sector actors truly committed to making these technologies work should want to learn within development networks facilitated by the public sector, while those seeking to extend fossil fuel dependence or to game subsidy programs will be less interested.

Canadian public investments also need to be more tailored and strategic because we cannot compete with the US on scale. [Smaller economies](#) have produced some of the most creative industrial policies focused on producing novel technologies and finding niches in global supply chains. Recent suggestions for sectors where Canada should develop focused and tailored policies include [mid-stream supply chain production of battery active materials](#) building on [research that started at Hydro-Quebec in the 1970s](#), [value-added forestry and natural materials in the building sector, aluminum refining, and alternative proteins](#).

These are examples of policy instruments and target sectors available to a Canadian industrial policy. However, in the short-term, the federal government appears compelled to respond to the US Inflation Reduction Act with similar tax credits. If this is the case, **the more fundamental question is why there is no better option in Canada's basket of policy choices.**

There is no apparent better option because Canada's traditional focus on market-based instruments means we have neglected to create public sector institutions with a comprehensive understanding of particular sectors and technologies. The danger now is that hubristic policymakers think they can create industrial policy on the fly, or that untargeted subsidies give industrial policy a bad name.

Good industrial policy is implemented by [public sector organizations](#) with strong understandings of the economic structures and technological areas they are involved with through constant collaboration with private sector and civil society actors, and the flexibility to try new things and wield various policy instruments at strategic moments. Some industrial strategies should be focused on transforming markets and driving down costs through coordination and scale. Other time-specific strategies should increase technological options by promoting diverse experimentation - a process unlikely to be defined by sector incumbents. Understanding the evolution of sectors, firms, and technologies is the basis for good green industrial policy.

The federal government is now creating new institutions that could improve capabilities to develop and implement better green industrial policies in future years. These include [Regional Energy and Resource Tables](#), [Net Zero Accelerator Initiative](#), The Canada Infrastructure Bank, and the still largely opaque [Canada Growth Fund](#). The latter seems set to follow some [good institutional design principles](#) like the flexibility to make independent investment decisions, secure funding, and transparency; with an ability to take equity stakes in companies, and move beyond demonstration stages to scale projects and firms.⁴

We should not expect any of these new institutions to work magic overnight. They need time to learn, and need some political leeway to fail. However, based on what we know, these new institutions still seem hampered by market-based ideology.

⁴ The [Canada Innovation Corporation's](#) proposed blueprint suggests it will be equipped with the independence, flexibility, in-house expertise, monitoring capacity, and scale of project funding that will enable effective industrial policy implementation. It will likely support green technologies, yet has a primary objective of solving the problem of "low level of business investment in R&D". A green industrial policy organization would be focused on decarbonization.

Chasing private capital or leading it?

The design of [public sector institutions](#) is now important because [corporate lobbying](#) has taken off in Canada since the introduction of the IRA in the US. Private sector demands for stronger climate policies is the type of political economic dynamic that [industrial policy advocates](#) have argued we need to activate. **And now industrial policy gets real!** The danger of capture by private interests simply seeking higher profits through public subsidies is high. Now is exactly the time for an independent and knowledgeable public sector to steer these private interests towards reducing emissions and creating Canadian advantages.

The institutions noted above could create the ingredients for a Canadian green industrial policy, however none appear to be established with a goal to [actively re-shape](#) economic and political environments. This means they are likely to be chasing private capital instead of leading it in new directions, and responding to the most powerful economic actors instead of the most innovative ones.

The Net Zero Accelerator Initiative accepts applications from industry, while it could also be actively defining industrial decarbonization pathways that it will promote. The Regional Energy and Resource Tables are tied to provincial government involvement, which leaves their direction vulnerable to supporting those industries best able to influence their regional policymakers, or [political prestige projects which have been the downfall of previous industrial policies](#). In contrast, the federal government could develop independent analytical capabilities to search for [linkages](#) and [complementarities](#) that define [regional low-carbon pathways](#). Such a policy would actively develop new industrial coalitions of the most willing and innovative participants, and uncover new economic development opportunities.

The Canada Infrastructure Bank and new Growth Fund are given an overarching objective to “[attract private capital](#)”. Of course everyone would like private capital to invest in public priorities, but making it the primary policy objective is more likely to attract companies interested in “corporate welfare” than fostering homegrown Canadian innovation. What economic pathways does Canada want private capital to crowd into is the question left unanswered.

Industrial strategies should create new [platforms for investment and innovation](#) to meet societal goals. Then private firms will crowd into these areas because they see opportunities to develop their products and technologies and/or don't want to be left out!

[Mariana Mazzucato](#) suggests organizing industrial policy around societally relevant “missions” as a way to invite the private sector to contribute to public priorities. Canadian missions could be defined around areas such as [upgrading and decarbonizing buildings](#); an [Indigenous led strategy](#) to mine, upgrade, and recycle [battery materials](#) to power electric mobility; developing the world's cleanest, most



reliable and efficient [electricity grid](#) with expertise in electrifying multiple end-uses in cold climates; [sustainable food systems](#); zero-carbon long-distance [goods transportation](#); as well as creating healthy schools with food programs, [electric buses](#) and good indoor air quality. Defining these missions is a democratic process that encourages us to envision the future we want. Thus, missions present a more inspiring and mobilizing vision than reacting to the fear that we will lose out on international capital flows, which pervades the “reaction to the IRA” discussion.

Thus a green industrial policy should set societally relevant economic directions and move private capital towards these desired end states, and not fall into the trap of chasing private capital. Incremental and broad public investment strategies like investment tax credits and “blended” [public-private finance](#) can more easily slip into an industrial policy serving private agendas. The goal must be to enlist industry to accomplish the public’s agenda, which might be better served by mission oriented approaches.



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What about good jobs and equality?

Canada’s primary concern with losing out on international investments misses the opportunity to implement policies focused on more effectively reducing emissions, promoting equality and political legitimacy.

A concern for justice and equity is baked into the IRA. It includes specific provisions to promote [environmental justice](#) that direct benefits to traditionally under-resourced communities, and to improve affordability through energy efficiency. The Canadian government does not appear to be as concerned with catching up to the justice and affordability elements of the IRA.

This is a mistake. At its core, industrial policy should be about directing markets towards achieving the society we want, rather than defensively reacting to private capital.

Industrial policy has traditionally focused on manufacturing and high-tech sectors. These sectors helped meet multiple societal goals, including provision of good middle-class jobs, technological innovation, as well as competitive exports. However, [leading industrial policy thinkers](#) now argue that technology and globalization mean we can no longer solely depend on these traditional sectors to provide the bulk of good, middle-class jobs.

[Israel](#) presents a case of an economy achieving high technology success, only to find that its society became more unequal as a few high wage earners captured the bulk of the benefits, while the majority of the population experienced low-wage and precarious employment. The same dynamic could occur in some green export-oriented industries. For instance, electric vehicle production involves a shift to [software and automation](#) and away from mechanical and electrical engineering, and component parts manufacturing.

An industrial structure that supplies [good mid-wage jobs](#) promotes equality, and most of these jobs will be within domestic service-based sectors like healthcare, education, and skilled trades. Industrial policies in these sectors can link productivity-enhancing services to quality job guarantees, and search for worker friendly innovations that increase job quality.

For example, achieving both good jobs and decarbonization can occur in the building retrofit and heating equipment contractor sector. HVAC contractors earn good middle-class wages, yet this work currently involves quick installation of status quo fossil fuel heating systems and stressful responses to emergency equipment failure problems. Employers and workers receive little policy support to learn about and market new heat pump technologies, nor do they receive public policy support to change business models to consult on home performance solutions that improve energy efficiency and indoor environmental quality. Such a shift could scale home decarbonization, while giving contractors higher revenue earnings per customer, and more rewarding customer interactions. Home energy efficiency services can be further directed to [lower-income Canadians](#), tenants, and seniors that would benefit the most, but face the greatest barriers. The industrial policy mix for this sector could involve targeted business support and technology extension services, training in building science, centrally coordinated recruitment of new workers, government coordination and financial backstop of financing models that provide [energy efficiency as a service](#), as well as incentives that reward contractors for high environmental performance.

When we clarify that industrial policy is about directing markets towards what we want to achieve as a society, we see that unique industrial strategies are relevant to a number of different sectors.

We certainly need a green industrial strategy focused on [earning export revenues in a net-zero emissions world](#), but this should not be the sole objective. We need industrial policy to decarbonize all domestic sectors because market-based policies alone are insufficient. Creating good mid-wage jobs in decarbonization services are also important to achieve equality and foster social solidarity.

A green industrial policy for an equal and independent Canada

This paper argues that Canada's short-term reaction to the US Inflation Reduction Act should serve as more of a warning than a triumph. Canada has been put on a defensive posture because it fears losing out on foreign investment due to a previous lack of sophisticated industrial policy. As other major economies, including China and the European Union, ramp up industrial policies of their own, Canada might need to defensively react again.

Yet, recognizing shortcomings is good because it helps us learn and improve. Canada needs to develop better administrative capabilities to design and implement green industrial policy that:

- Reinforces Canadian sovereignty so policymakers can be less reactive to international policy changes;
- Strengthens public sector sophistication to resist corporate lobbying and threats of capital flight, and instead successfully directs private enterprise towards achieving Canadian decarbonization priorities;
- Leads societally relevant missions that innovative private sector actors join because they see opportunities for productive investment, rather than access to corporate subsidies;
- Enhances equality and supports good, middle-class jobs that will provide the services Canadians need in a net-zero emissions future.

The US Inflation Reduction Act presents an opportunity for Canada and the world to truly confront the climate change emergency. It makes Canada's net-zero emissions goal easier to achieve, and highlights the insufficiency of a sole reliance on market-based policy frameworks.

Yet, largely mimicking recent US policies, and calling that an industrial policy threatens to reproduce old economic dependencies. Canada's green industrial policy must avoid historically relevant traps and the need for defensive reactions. We need to carve out some power and independence over international capital, and decisions taken in other nations, to deliver on democratic aspirations for a green and equal Canada.



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Acknowledgements

This essay has benefited greatly from fruitful debate and discussion by those who reviewed earlier drafts. The author would like to thank Clement Nocos, Sara Hastings-Simon, David Wolfe, Hadrian Mertins-Kirkwood, Caroline Brouillette, Vanessa Corkal, Travis Southin, Mitchell Beer, Scott Vaughan, Jim Stanford, Armine Yalnizyan, Jonathan Gauvin, Keith Stewart, Angella MacEwen, Burgess Langshaw-Power. Views expressed, errors and omissions are the sole responsibility of the author.