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ENERGY AND NATURAL RESOURCES

Game On: The Implications of the US *Inflation Reduction Act* for Canadian Competitiveness

by Glen Hodgson

- The reality of climate change and the imperative to sharply reduce greenhouse gas (GHG) emissions is now being addressed by policymakers in many countries, with the potential to transform the underpinnings of the North American and global economy.
- This E-Brief examines US climate policy and industrial policy in the *Inflation Reduction Act*, assesses its coverage and potential impacts, and provides a preliminary assessment of the Canadian federal government's response, most recently through its 2023 budget.
- It makes the argument that Canada has responded in a large-scale but relatively targeted way that maintains a level playing field between the two countries for certain types of clean investment, and for clean finance.
- More policy developments to reduce emissions are likely among Canada's main trading partners, potentially pulling investment away from Canada. Canada will need to be vigilant so its own initiatives and green supply-chain products are treated as equivalent under these emerging policies. But carbon pricing, in preference to matching others' subsidies, should remain the centerpiece of Canada's emissions-reduction strategy.

Overview of the Act

The *Inflation Reduction Act* (IRA) is an exceptionally broad piece of US federal legislation designed to accomplish numerous goals simultaneously. It was signed into law by President Biden in August 2022. Notwithstanding its politically clever name (which reflects other parts of the vast legislation), a centerpiece of the IRA is forming a comprehensive framework for US climate and industrial policy by providing incentives to invest in and produce domestic energy sources with low or no GHG emissions ("clean energy" for short) and to promote clean energy use.

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This Act represents the most significant initiative by the US so far to address climate change. The law has authorized massive spending on low-carbon energy and other activities designed to reduce GHG emissions. As a result, US greenhouse gas emissions in 2030 are projected to be reduced by 40 percent below 2005 levels, in line with US commitments to date.¹

The IRA contains nine broad categories of climate policy action, which include multiple specific policy instruments (Bipartisan Policy Center 2022). They are:

1. Clean Energy Tax Credits.
2. Carbon Management.
3. Residential Energy Efficiency.
4. Energy Innovation.
5. Offshore Wind and Oil & Gas Systems.
6. Community Investment and Energy Justice.
7. Investments in the Permitting Process.
8. Clean Energy Financing.
9. Agriculture & Forestry.

In this study, we focus on specific IRA programs that support investment, production and use of clean energy, which is foundational to reducing GHG emissions. Building federal green financing capacity is also a key enabler under the IRA.²

Clean Energy Investment and Production

The IRA contains numerous tax credit programs targeted at facilitating both investment in and the production of energy with low or no GHG emissions. This includes tax credits for new clean hydrogen, nuclear power, renewable electricity, new “clean” electricity and fuel, sustainable aviation fuel, biofuel, biodiesel, and renewable diesel. Direct fiscal support is also provided for offshore wind production.

Specifically, a new tech-neutral clean electricity investment tax credit was established to replace another existing credit that is phasing out at the end of 2024. A credit of 30 percent is provided for investments in the year a facility is put into service. A bonus of 10 to 20 percent is available for meeting domestic manufacturing requirements for steel, iron, or manufactured components, and for projects located on brownfield sites, in what are often called “energy communities,” or in low-income or disadvantaged communities.

A new tech-neutral tax credit for clean electricity production was also established. The credit is 1.5 cents per kWh of electricity produced with zero or negative GHG emissions that is sold or stored at facilities placed into service

1 The IRA also includes tax reform to address deficit reduction, healthcare subsidies, and prescription drug reform to lower prices.

2 We draw here on the comprehensive summary of specific IRA climate policies from the Bipartisan Policy Center. The summary itself is 21 pages long, which is an indication of the number of initiatives included in the IRA’s energy and climate provisions.

after 2024. Carbon capture, utilization, and storage can be used to reach qualifying emissions levels and bonuses of 10 to 20 percent are available, on the same conditions as those under the clean energy investment tax credit.

Another new tax credit is provided for the production of clean energy technology components in the US or in a territorial US possession. Eligible items include components of solar, wind turbine and offshore wind equipment, inverters,³ many battery components, and the critical minerals needed to produce these items. The IRA also extends and expands the tax credit for carbon capture and sequestration, including direct air capture, and commits funding for federal investment in low-emission materials and buildings, as well as federal funds for investment in biomass, carbon removal, and forest management.

One facility might conceivably be able to access up to four different tax incentives for producing electricity with net-zero emissions: for investment in a new facility, for the clean technology used in the facility, for including carbon capture technology that reduces emissions to zero, and for ongoing clean electricity production. In practice, however, it is expected that a facility will need to choose between investment and production tax credits, limiting any cascading effect.

Clean Energy Use

The IRA maintains the existing \$7,500 consumer credit⁴ for the purchase of a qualified new clean personal vehicle, which includes electric vehicles, plug-in hybrids, and hydrogen fuel cell vehicles, with no end date. The credit is available to a maximum purchase price of \$80,000 for vans, SUVs and pickups, and \$55,000 for other vehicles. A smaller tax credit is also provided for the purchase of previously owned clean non-commercial vehicles.

The new vehicle tax credit is reduced or eliminated if a specified share of the critical minerals utilized in battery components is not extracted or processed in the US or other member countries of CUSMA (Canada and Mexico), or recycled in North America. The share rises steeply from 40 percent in 2024 to 80 percent in 2026. The credit is also reduced or eliminated if an EV is not assembled in North America, or if battery components are not sourced from North America.

Green commercial vehicles are now eligible for tax credits. A \$7,500 tax credit is available for class 1-3 vehicles (under 14,000 lbs.), increasing to up to \$40,000 for class 4 vehicles and above (over 14,000 lbs.). Furthermore, a \$1 billion subsidy program is available to states and local governments for clean school buses and garbage trucks, presumably because they could not make use of the tax credit program.

To incentivize GHG reduction from private residences, the IRA includes: tax credits for residential clean energy and for energy-efficiency improvements to homes; rebates for whole-house energy saving retrofits; and grants for contractor training in energy efficiency.

Clean Financing

The IRA implicitly assumes that there will be financial market gaps for green energy investment and the low-carbon transformation that, in the absence of policy measures, would mean inadequate market-based financing for the energy and low-carbon industrial transition. These gaps reflect a combination of uncertainty and risks

3 An inverter is a critical component in a photovoltaic or wind power system that converts direct current electricity into alternating current.

4 Available for some electric and hybrid vehicles since 2012.

related to new low-emission technologies and processes, investor and lender inexperience, and a lack of uniform standards for clean financing. To address any market failure, the IRA secures significant new federal government lending authority totalling \$290 billion, as well as budgetary funding of over \$33 billion for credit subsidies and grants. This massive increase in lending authority and subsidies will be made available via various programs administered by the US Department of Energy and the EPA.

Assessment of IRA Climate Policies

Choice of Instruments

The IRA energy and climate provisions are heavily interventionist, guided as much by their perceived ability to secure the IRA's passage in Congress as by economic or climate analysis. Tax credits are provided for both clean energy investment and production, and some facilities might potentially be able to benefit from cascading credits. The IRA also has an important social policy dimension by providing funding to disadvantaged communities in many policy areas.

The IRA relies heavily on fiscal instruments to encourage a shift in consumer behaviour and business decisions. It does not introduce market-based mechanisms, i.e., nationwide carbon pricing. Thirteen US states covering a third of national GDP have some form of carbon pricing (Centre for Climate and Energy Solutions 2021), but the result is in an uneven patchwork with significant coverage gaps and inconsistencies. The available economic literature clearly indicates that price signals, as influenced by a carbon price, are a more economically efficient and transparent way to encourage the transition to a low-carbon economy. Carbon pricing becomes embedded into purchase and production decisions throughout the economy and takes advantage of market forces already at work (Kennedy 2019, p.11). However, it can be politically unpopular and provides a highly visible target for opponents.

A choice was evidently made early in the political process not to include carbon pricing in the IRA framework. It is still possible for the IRA's subsidy-based actions to achieve the overall policy goal of reducing GHG emissions, but with less transparency, a higher fiscal cost, and likely an economic cost as well in terms of forgone GDP due to efficiency losses.

Coverage

The IRA is wide-ranging in terms of taking steps to reduce US GHG emissions across the nine categories covered, but it is not necessarily comprehensive. The necessary low-carbon transition in emissions-intensive sectors, such as petrochemicals, cement, steel, and other areas of emissions-intensive manufacturing, is generally not supported with subsidies, although tax credits are provided for carbon capture and storage that could be used across many sectors. Funding is not provided for nature-based solutions, such as restoring or preserving forests, prairies and wetlands, that could help reduce the overall stock of emissions.

In terms of clean energy consumption and adaptation, reducing emissions from vehicles and housing is addressed but there is only limited subsidy support for investment that would reduce emissions from commercial and institutional buildings. Funding is provided for contractor training in energy efficiency, but not for workforce adjustment. It is also unclear how climate resilience will be built into existing and new infrastructure; funding for infrastructure has been provided under separate legislation and it is not profiled under the IRA.

Fiscal and Economic Impacts

The IRA climate-action package is expensive, estimated at nearly \$400 billion by the Congressional Budget Office (CBO). Many of the specific initiatives under the IRA are uncapped tax credits with no budget limit written into the law. These credits will not expire for a decade or longer in many cases, so the actual potential costs of the IRA climate package are essentially open-ended. Alternative estimates from the private sector suggest IRA climate-action spending will exceed \$800 billion and could be as high as \$1.3 trillion, or over three times the CBO projection.

Analysts have asserted the IRA will have a profound effect across industries over the next decade and could ultimately reshape the direction of the American economy (Mayer 2022). That said, there is no consensus on the Act's growth, jobs or fiscal impacts, although there is general agreement the IRA would likely have a negligible impact on inflation.

Trade Policy

Canada and Mexico feared their exports to the US might not be included under the legislation; those concerns appear to have been addressed in the text by making firms in the CUSMA area eligible to benefit from the various subsidies. However, there remains a competitive threat from arbitrary US trade action, particularly where production supply chains rely heavily on inputs that are imported from beyond the CUSMA area. The EU, Japan, Korea and others have issues with access to the IRA subsidies for their relevant exports to the US. They are advocating for recognition of their exports under the legislation; if not, they could take their case to the World Trade Organization (WTO) or implement retaliatory tariffs (Busch 2021).

If trade conflicts related to climate policy are to be avoided, the US, EU and others ought to collaborate on long-term measures to better define the relationship between climate and trade policy (Jackson 2022, p.2.). Carbon border adjustment is a specific area where discussion and closer alignment is a priority, particularly since the EU has introduced a Carbon Border Adjustment Mechanism under which EU importers will be required to pay a carbon price on imports from countries with less stringent regulations to match the carbon price on comparable EU products, including steel, cement, fertiliser, aluminum and electricity.

Overall Assessment

The IRA is wide-ranging but not necessarily comprehensive in authorizing actions to reduce US GHG emissions. It relies largely on fiscal instruments to shift consumer behaviour and business decisions and reduce emissions, while ignoring market-based mechanisms like carbon pricing. Its fiscal cost will likely be much higher than first estimated, and there could be challenges to the legislation's compliance with the rules of the international trading system.

Nevertheless, the IRA will encourage America to shift energy investment, production and use toward lower emissions. It is expected US competitive positioning will be enhanced in most forms of energy production and technology, including solar and wind, hydrogen, carbon capture and storage, wind turbines, and clean energy storage.

Implications for Canada

The federal government is clearly aware of the potential for competitive threats arising from the IRA. A reasonable policy goal is to seek to level the competitive playing field in priority areas like clean investment and access to clean finance.

Choice of Instruments

As discussed earlier, the IRA relies heavily on expensive fiscal tools and does not introduce national market-based mechanisms like carbon pricing. In contrast, Canada has a comprehensive carbon pricing framework already in place, which will help to shift consumer and business behaviour and reduce GHG emissions at a much lower fiscal and likely economic cost than using extensive subsidies and grants. Sufficient carbon pricing can be an effective substitute for tax credits in a number of areas, notably for influencing energy consumption by consumers and businesses and reducing emissions from vehicles, built structures, and production processes.

Carbon pricing is generally seen as more economically efficient and less harmful to growth than other climate policy options. Canada's Ecofiscal Commission undertook model-based research that estimated average annual growth in Canada from 2020 to 2030 would be 1.61 percent using carbon pricing to meet Canadian emission goals, slightly lower than most current estimates of the Canadian economy's growth potential of 1.7 percent. In comparison, estimated annual growth was 1.37 percent or lower under climate policy scenarios that combined regulations with subsidies (Ecofiscal, p.32).

Government support for clean finance can address market failure, fill specific market gaps, and help mobilize private capital for priority investments. One caveat: it is important in parallel to ensure there is adequate current or projected demand for a given clean product or service (Popp 2016). The IRA makes significant new clean-finance capacity available from US government entities, which could tilt the playing field for clean investment in North America to its advantage. To restore competitive balance, Canada should take steps to provide its own government-backed green finance, as it committed to do (FES 2022). This is an area where innovation can be applied in Canada to make expanded clean finance available from multiple channels, notably from federal Crown financial institutions such as the Canada Infrastructure Bank (CIB), the Business Development Bank of Canada (BDC) or Export Development Canada (EDC).

Coverage

The IRA is wide-ranging, outlining action across the nine categories covered in the Act. Canadian governments can be more selective and targeted in addressing competitiveness issues. There is no compelling competitive reason to provide subsidies for energy use in vehicles, housing or commercial buildings, especially with a pan-Canadian carbon pricing framework (with revenue recycling) already in place. Instead, the focus could fall on securing clean investment and seeking to ensure Canada gets a share of North American industrial and energy production that is aimed at reducing or eliminating emissions, commensurate with its capabilities.

The IRA provides technology-neutral tax credits for investment in, and production of, an array of energy sources. Investment could shift from Canada to the US for clean energy sources including clean hydrogen, zero-emission electricity, sustainable aviation fuel, biofuel, biodiesel, and renewable diesel, with an impact on long-term Canadian production and exporting capacity. As a core approach, it would make sense to adopt a technology-neutral approach to tax credits and in subsidies in Canada.

There are no guarantees that providing tax credits and other fiscal support will level the investment playing field with the US. Clean investment may still flow south of the border because of the underlying economic system, recurring protectionist pressures, or other uncertainties with respect to the pathway for green policies. Thus, the fiscal cost of tax credits may not produce all the expected economic benefits from innovative clean technologies. Yet without absorbing fiscal costs, it would be hard for Canada to respond to US subsidies contained in the IRA.

Responding to the competitive challenge of the IRA is not just a federal policy issue. Electricity production is largely under provincial jurisdiction and supervision; many provinces (and municipalities in some cases) own some or all of a given province's capacity for electricity production, transmission and distribution. To meet their own emissions targets, provinces are already pursuing investment in electricity and industrial production with low or no GHG emissions and engaging in carbon management. Better dialogue, coordination and shared support for investment across Canadian jurisdictions would help in addressing competitiveness challenges from the US.

The Recent Record of Canadian Climate-related Fiscal Action and Commitments

Certain climate-related fiscal “down payments” were made in Budget 2022 and the 2022 Fall Economic Statement (FES 2022) that have helped to offset some initiatives under the IRA. Budget 2022 measures related to climate policy and reduced emissions included:

- a new refundable investment tax credit for carbon capture, utilization, and storage, with direct air capture also eligible;
- a proposal to create a new tax credit of up to 30 percent for investments in clean technology, focused on net-zero technologies, battery storage solutions, and clean hydrogen;
- extending incentives for zero-emission vehicle purchases until March 2025, and financing to build a national network of electric vehicle charging stations.

The subsequent 2022 Fall Economic Statement (FES) emphasized the government is committed to taking action to provide a level playing field between Canada and the United States. The FES announced:

- The launch of the Canada Growth Fund, which is intended to help attract new private capital to support Canada's low-carbon economic transformation. The Fund would offset risks to unlock private capital, using tools like debt financing, equity and contracts to help provide a more predictable environment for decision-making on long-term investments.
- Confirmation that a refundable tax credit will be made available in Budget 2023 equal to 30 percent of the capital cost of clean-tech investments.
- An investment tax credit to support investments in clean hydrogen production based on the lifecycle carbon intensity of hydrogen.
- A commitment to announce new measures to maintain competitiveness in clean technology manufacturing.

Setting Priorities for Additional Tax Credits and Subsidies

Canada does not need to match the IRA across the board. Canada should continue to apply a selective strategy to simultaneously reduce emissions, address competitiveness issues and support low- or zero-emission economic growth – including areas like clean energy investment, the development of clean tech and related supply chains, and key enablers like green finance. Fiscal resources can be focused, matching the IRA subsidy approach where required.

To help determine what measures to pursue, I propose six key objectives for the Canadian low-carbon transition aimed at maximizing economic benefits by utilizing the right policy tools in the right place.

Objective 1: Promote clean investment. As a top priority, Canada should focus on measures that foster investment in clean energy, clean tech and strategic inputs commensurate with Canada's comparative advantages, minimizing any deflection of such investment to the US.

Objective 2: Maintain US market access for clean exports. Canadian efforts to maintain US market access for clean exports have so far been successful.

Objective 3: Secure Canada's place in regional (and global) supply and value chains that eliminate or reduce emissions. Commercially viable opportunities for key clean inputs include batteries, strategic minerals, clean tech, vehicle and aircraft parts, and supply-chain management innovation.

Objective 4: Use the best policy option. The IRA does not implement US carbon pricing, even though it is more economically efficient, more transparent and much less costly than subsidies. A detailed pan-Canadian carbon pricing framework is already in place, which should continue to be a centrepiece of Canadian climate policy.

Objective 5: Engage with the provinces. Provinces have primacy in electricity production and in-province transmission and distribution; there are areas of federal primacy or leadership, such as trans-border energy transmission; and responsibility is shared in some areas, such as specific industrial sectors.

Objective 6: Fill market gaps for clean finance. The Canada Growth Fund and Crown financial institutions (notably CIB, BDC and EDC) can be used to build clean finance capacity (Hodgson 2023a).

Drawing on these objectives, I proposed that Budget 2023 should focus on three key elements (Hodgson 2023b):

First, broaden tax credits to promote technology-neutral investment in clean fuels and clean tech. They should be available across the value chain, notably for key inputs such as vehicle batteries and components. Since electricity production is largely under provincial jurisdiction, Ottawa should be ready to engage with provinces on sharing the cost of tax credits for investment in innovative zero-emission electricity.

Second, double to \$30 billion the clean finance capacity from the Canada Growth Fund and enhance clean finance from Crown financial institutions. The merits of a federal green bank could also be considered.

Third, spend selectively to reduce emissions and position Canadian suppliers. Through smart procurement and other spending, the federal government can use its purchasing power to both reduce emissions and position domestic suppliers for growth (Hodgson, March 2023).

Climate and Industrial Policy Action in Budget 2023

Budget 2023, released on March 28, contains selective initiatives aimed at ensuring competitive balance with the IRA in certain areas while promoting the low-carbon transition. Federal action is broadly aligned with our advice, although with important differences in the detail. Highlights include:

- a 15 percent refundable tax credit for eligible investments in non-emitting electricity generation systems, abated natural gas-fired electricity generation, stationary electricity storage systems, and equipment for interprovincial electricity transmission. Provinces and territories will be engaged on the design of the tax credit and the credit's level will depend on meeting labour requirements, which is a new feature in Canadian tax policy and mirrors an approach used in the IRA. This tax credit will accelerate the electrification of the Canadian economy and creates the potential for expanded exports of zero-emission

electricity to the US. This means federal intervention in a space that has been largely provincial – but we expect the provinces and utilities will be happy to take the tax credit. To our knowledge, this is the first time that tax credits of this sort have been extended to public utilities, setting another precedent. The overall fiscal cost is significant, projected at \$25.7 billion to 2034-35.

- a 30 percent refundable tax credit for investments in new machinery and equipment used to manufacture or process key clean technologies, and extract, process, or recycle key critical minerals. This tax credit will position Canadian manufacturers and suppliers for success in the zero-emission economy, but it comes with a healthy fiscal price tag of \$11.1 billion to 2034-35.
- detail on the refundable investment tax credit for clean hydrogen. The level of support will vary between 15 and 40 percent of eligible costs, with the highest levels of support going to projects that produce the cleanest hydrogen. A 15 percent tax credit will be extended to equipment needed to convert hydrogen into ammonia, in order to transport the hydrogen. The projected fiscal cost is considerable at \$17.8 billion to 2034-35.
- the Canada Growth Fund is to be managed by the Public Sector Pension Investment Board, separate from pension assets, and an enhanced mandate was given to the Canada Infrastructure Bank (CIB) to invest at least \$20 billion to support major clean electricity and clean growth infrastructure projects. *De facto*, CIB has been given a mandate to be the federal green bank.
- consultations are planned on the development of “carbon contracts for difference”, which uses a contract between the federal government and individual affected firms to guarantee a fixed carbon price over a defined period therefore making carbon pricing and carbon credits more predictable.
- no tax credits were offered for other clean fuels covered in the IRA, such as biofuels.
- no additional subsidies were provided for personal or commercial electric vehicles, or for home and other building retrofits, which is a clear signal that carbon pricing will be used to nudge consumer and business behaviour.

Overall, the climate and industrial policy package in Budget 2023 is both selective and expensive. Canada has not matched the IRA's overall coverage. The initiatives are selective, concentrating on providing fiscal support for investment in many types of clean electricity, hydrogen, and clean-tech manufacturing. This focus reflects priority setting in the Budget. There is no specific fiscal incentive for investment in clean fuels or clean tech, which may suggest the government is waiting to see if there is pressure from investors for additional clean investment tax credits. The Budget also does not increase subsidies for green vehicles, relying on carbon pricing to provide a nudge.

The Budget essentially doubles federal support for green finance. The CIB has been chosen as the prime instrument for that additional support, rather than increasing commitments to the Canada Growth Fund. Unlike our prior advice, there is no federal commitment to expand the use of green procurement, such as purchases of direct air capture, meaning there are no measures addressing hard-to-reduce federal emissions such as from military activity.

The package is expensive, with total announced tax credits of over \$80 billion, although this amount is comparable in relative terms to private sector estimates of the US IRA costs. Overall, Ottawa has made a big bet on zero-emission electricity and hydrogen as the energy sources of the future, and on clean technology manufacturing. In those areas, Canada should be able to maintain and perhaps even strengthen its competitive position.

Conclusion

Faced with the competitive threat from sweeping US climate and industrial policy, a Canadian federal government response was unavoidable. Various Budget initiatives focused on “clean” investment and finance will help Canada compete for these activities within North America, while steadily shifting the locus of Canadian energy and economic growth toward zero emissions activities. Providing refundable tax credits for clean investment comes at a high fiscal cost, but there could be upside potential – and there was also an economic cost of not acting to level the playing field vis-à-vis the US, potentially resulting in lost investment, production, jobs and export opportunities.

These are still early days in climate-related industrial policy. It should be anticipated that further policy will be implemented in the US, the EU, China and elsewhere to reduce emissions and set a course toward net zero. There could also be policy pull backs and deviations. Canadian climate and fiscal policy will therefore need to take fully into account the competitive threat posed by ongoing policy developments in the US and elsewhere, while seeking to have Canada’s own initiatives and green supply-chain products treated as equivalent under the various policies adopted by important trading partners. Delivering a coherent, integrated climate and economic development policy at reasonable cost to Canadians will require vigilance and constant adaptation to international and domestic forces.

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