5 The contribution of FDI to the green transition

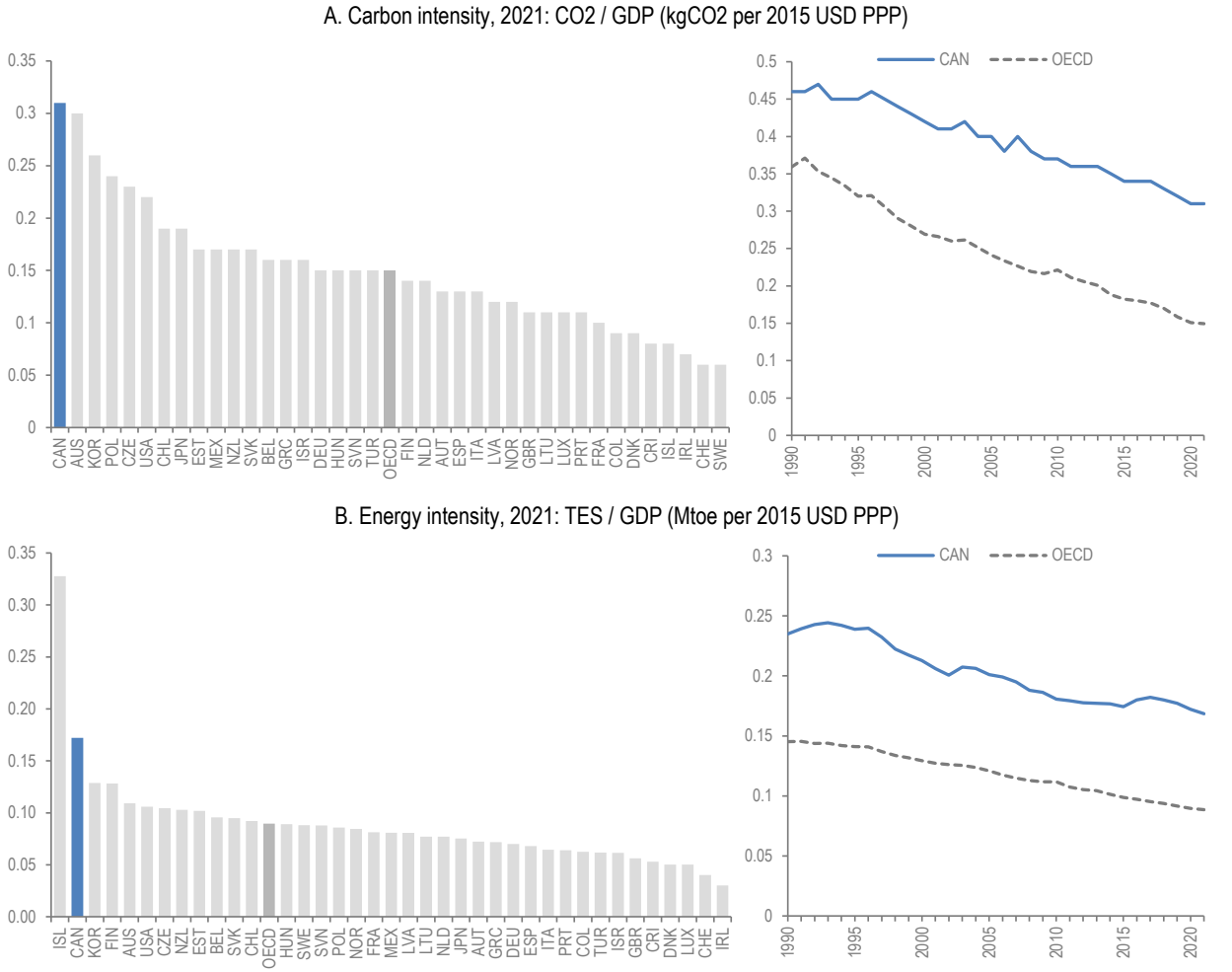
This chapter examines the contribution of FDI to Canada's green transition, using project-level FDI data and the OECD business consultation on sustainability practices of domestic and foreign firms in Canada.

5.1. Green transition in Canada: challenges and opportunities

5.1.1. Economic activity in Canada is carbon- and energy-intensive

As the fourth largest producer of crude oil and the sixth largest producer of natural gas in the world, Canada emits more carbon dioxide (CO_2) relative to its GDP than all other OECD economies (Figure 5.1, Panel A). Its weather and geography contribute to large energy requirements to heat homes in winter and to transport people and goods across large distances, driving up energy intensity of GDP to the second highest in the OECD (Figure 5.1, Panel B). Both carbon- and energy-intensity have declined by around 30% over the last three decades, suggesting that Canada has made progress in decoupling carbon emissions and economic growth. Indeed, replacement of coal-fired power with natural gas and hydroelectric power, and energy-efficiency improvements in homes and some heavy industries helped reduce the emission-intensity of energy in the past two decades. While the emission cuts are impressive in Canada, the speed of emission decline was only around half of the OECD average over the last decade. Moreover, according to recent evidence, reductions in carbon- and energy-intensities were offset by increased emissions from population and economic growth (OECD, 2023[1]).

Figure 5.1. Economic activity in Canada is carbon- and energy-intensive



Source: IEA (2023), GHG from Energy Statistics database (2023[2]), https://www.iea.org/data-and-statistics

Box 5.1. Terminology and concepts

Greenhouse gas (GHG) emissions: total greenhouse gas emissions from fuel combustion including carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). CO_2 is the primary GHG responsible for global warming.

Carbon intensity: The ratio of carbon emissions and gross domestic product (GDP), expressed as kilogrammes of CO_2 per 2015 US$ calculated using purchasing power parities (e.g. $kgCO_2$ per 2015 USD PPP).

Energy intensity: the ratio between total energy supply (TES) and GDP, expressed in megajoules per 2015 USD calculated using purchasing power parities (MJ per 2015 USD PPP). Total energy supply means the overall supply of energy for all activities on the territory of the country, but excluding international marine and aviation bunkers (i.e. TES = production + imports - exports - international marine and international aviation bunkers).

Low-carbon technology: a technology that helps reduce carbon emissions by either (1) reducing energy use (e.g. energy-saving); (2) reducing or eliminating carbon emissions from production or use (e.g. renewable energy, green hydrogen); (3) removing carbon from the atmosphere (e.g. carbon capture); or (4) conserving resources (e.g. recycling). For the purpose of this report, the terms green and low-carbon are used interchangeably.

Renewable energy: energy from sources that are naturally replenishing. It generally is considered to include six renewable-power generation sectors: geothermal, marine/tidal, small hydroelectric, solar, wind, and the combined sector biomass and waste. Clean energy and renewable energy are used interchangeably for the purpose of this report.

Green hydrogen: hydrogen can be burnt to generate energy or combined with water to produce electricity without emitting any pollutants or GHGs. Green hydrogen is produced by splitting water into hydrogen and oxygen using renewable electricity (i.e. electrolysis), while grey hydrogen is produced with fossil fuels and blue hydrogen combines fossil fuels and carbon capture. Possible uses for hydrogen include power generation and electricity grid stabilisation, fuel for heavy manufacturing processes in industries (e.g. steel, cement, chemicals), and fuel cells for electric vehicles and heavy transport (e.g. shipping).

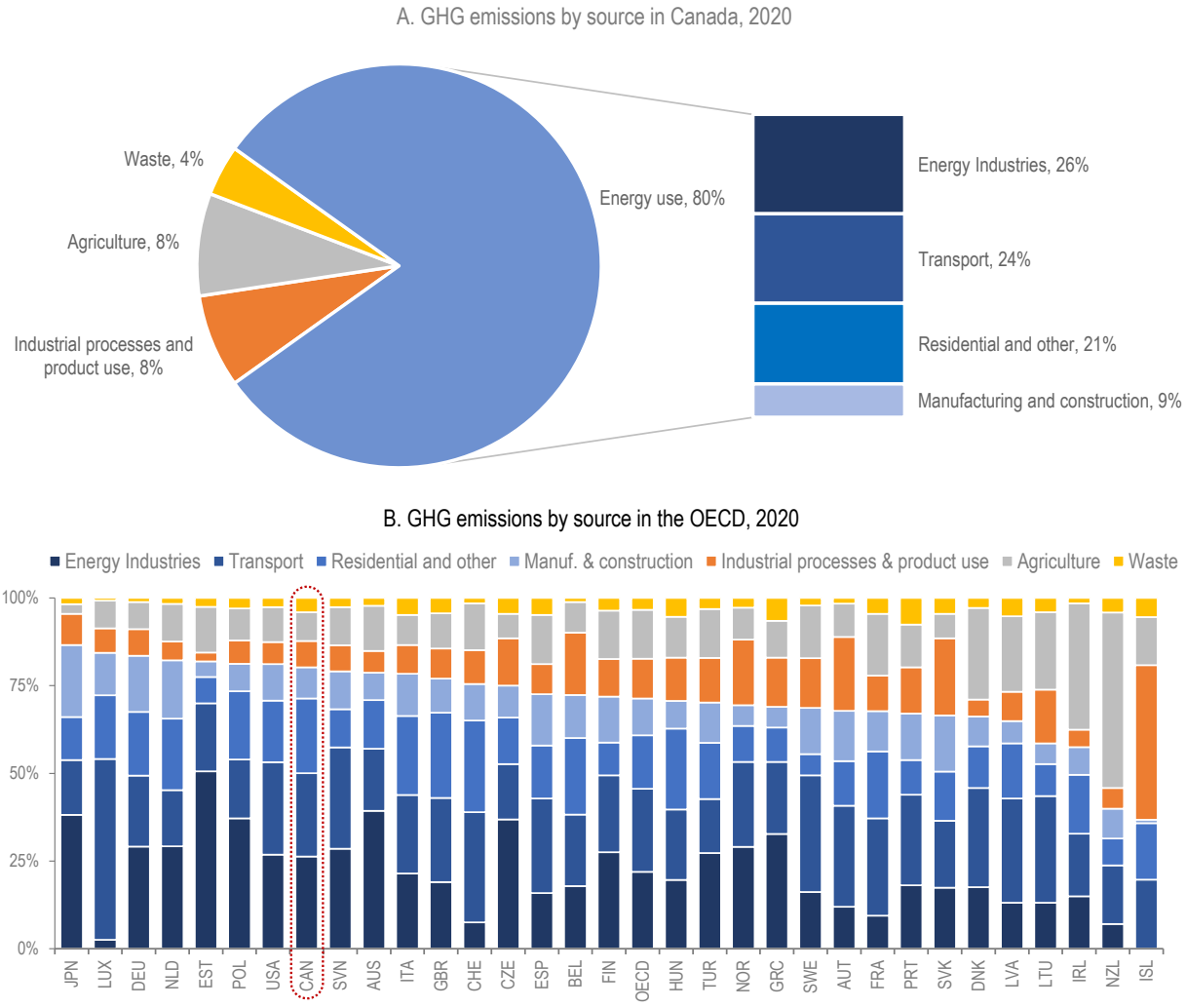
Green FDI: New cross-border investment projects (or expansions of existing projects) in environmental technologies. The definition is assigned on a project basis in the Financial Times FDI Markets database of greenfield investments, and encompasses a wide-range of technologies and solutions (e.g. energy-saving, waste-reducing, zero-emission, sequestration) across all major sectors of the economy. Beyond the renewable energy sector, some examples include energy storage systems, recycling solutions (e.g. packaging, textiles, auto-parts, electronic scrap, etc.), and digital solutions in support of the transition (e.g. platforms for carbon accounting or environmental commodity trading).

5.1.2. The energy sector is key for Canada's green transition

Given its rich endowments of fossil fuel energy resources and its large energy needs, burning fossil fuels for energy use is the main source of Canada's carbon footprint, reaching 80% of its greenhouse gas (GHG) emissions in 2020. Oil and gas extraction alone are responsible for over a quarter of Canada's emissions (26%), but energy consumption by other sectors also contributes heavily to Canada's carbon footprint, with residential and transport use accounting for almost half of Canada's overall GHG emissions (Figure 5.2). Manufacturing and construction account for just under a fifth of GHG emissions, when combining direct

emissions from industrial processes (8%) and indirect emissions from energy use (9%). Compared to other OECD economies, the share of emissions from energy use is relatively high, while industrial processes tend to be relatively cleaner. To further advance Canada's green transition, the shift away from carbon-intensive energy generation to clean energy generation must accelerate significantly, alongside the electrification of key sectors like transport, buildings and industry. Significant investment will be needed to upgrade and adapt grids to accommodate greater demand for clean electricity and more generation from intermittent renewable energy sources (OECD, 2023[1]).

Figure 5.2. Energy use is the main source of Canada's GHG emissions



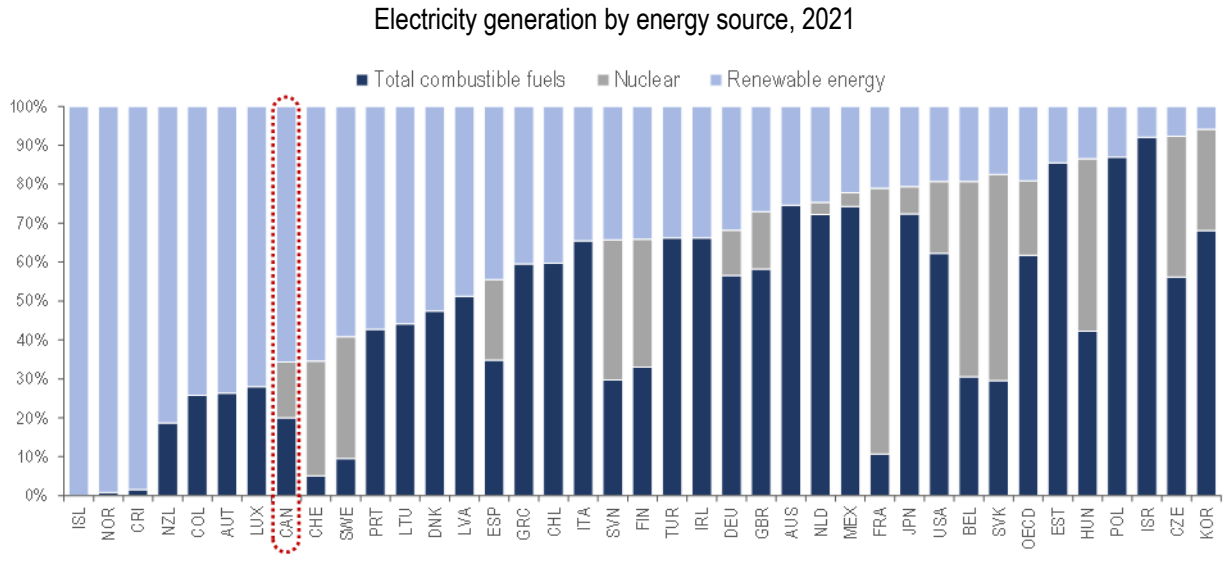
Note: Emissions exclude land use, land use change and forestry (LULUCF). Blue shaded areas represent energy use in related sectors.
Source: Authors' elaboration based on OECD Air and Climate, Environment Statistics database (2023[3]), http://dotstat.oecd.org/

While energy use is responsible for the bulk of Canada's emissions (primarily due to fuel and heat consumption), electricity is greener in Canada than in many other OECD countries, with approximately 82% generated from non-emitting sources (Figure 5.3). Thanks to abundant hydroelectric capacity in British Columbia, Quebec, Manitoba and Ontario, and retirement of coal in Ontario and Alberta (expected by the end of 2023), emissions from the electricity sector declined 41% in the past decade despite a 12% increase in generation (IEA, 2023[4]). Yet, substantial variation remains at the sub-national level

(Figure 5.4). Provinces like Quebec, Manitoba, and Newfoundland and Labrador generate more than 85% of their power from their abundant hydro resources, while Nova Scotia, Saskatchewan and Alberta still rely on fossil fuels for over three-quarters of their electricity, and on coal for over 35%. Ontario and New Brunswick have managed to decarbonise electricity substantially by exploiting nuclear as well as hydro power, and Prince Edward Island generates close to 100% of its electricity from wind power. In the northern territories, the situation is also varied with Yukon benefitting from vast hydroelectric capacity, which accounts for 80% of its power, while the energy mix is evenly split across hydro and fossil fuels in the Northwest Territories, and virtually oil-based in Nunavut.

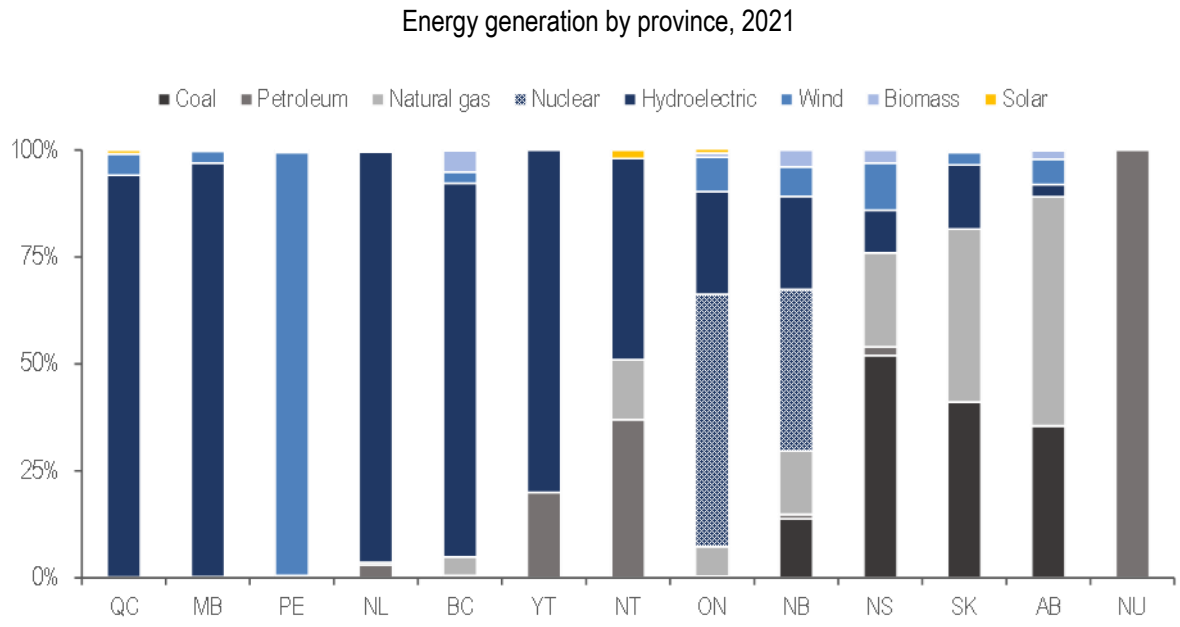
The federal government aims to drive remaining net emissions from electricity generation to zero by 2035 (Environment and Climate Change Canada, 2022[5]). To achieve this objective, new sources of clean electricity will be needed beyond hydropower. It is likely that Canada's provinces and territories will increasingly exploit wind and solar power potential in coming years, given the relatively low capital and operational costs of these technologies. From 5% of total supply in 2019, the Canada Energy Regulator (CER) projects that solar and wind power will together comprise 15% of electricity generated in Canada in 2035.

Figure 5.3. Electricity generation is greener in Canada than in most other OECD countries



Note: Renewable energy includes biomass, geothermal, hydro, solar, tidal and wind. Combustible fuels include coal, oil and natural gas.
Source: Authors' elaboration based on IEA Electricity Information database (2023[4]), https://www.iea.org/data-and-statistics

Figure 5.4. Electricity generation varies considerably across Canadian provinces



Note: Renewable energy includes biomass, geothermal, hydro, solar, tidal and wind. Combustible fuels include coal, oil and natural gas.
Source: Authors' elaboration based on Canada Energy Regulator (2023[6]), https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/index.html

5.1.3. Canada has the potential to be a leader in green innovation

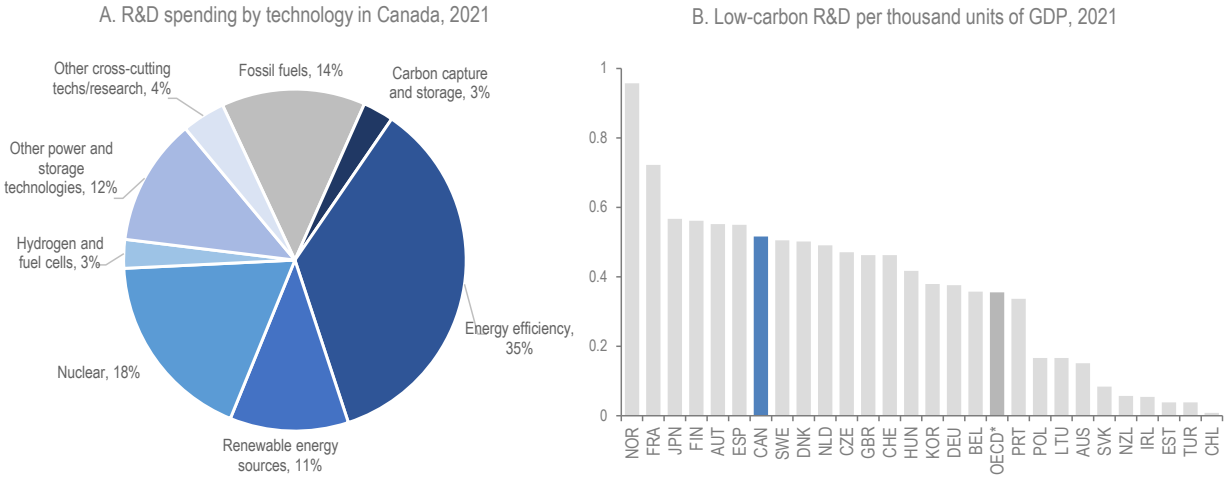
Alongside efforts to decarbonise electricity, achieving Canada's climate targets will require large-scale uptake of existing and new, strategic green technologies. Indeed, as noted above, key opportunities lie in accelerating electrification of key sectors, improvements in energy efficiency, and modernisation of electricity grids. R&D-intensive investments in the development and commercialisation of breakthrough technologies have the potential to further advance decarbonisation of heavy transport and industry, and achieve carbon neutrality.

As a result of early leadership in R&D and clean technology development, Canada has positioned itself as a global leader in the development and deployment of new green technologies, like carbon capture utilisation and storage (CCUS) and hydrogen fuel cell. Canada has the potential to play a critical role in the large-scale adoption of these technologies, and application across an array of sectors that have been most challenging to decarbonise, such as steel, cement and heavy transport (Box 5.2). For example, Canada is home to one-fifth of the world's large-scale CCUS projects in operation, and more than half of fuel cell buses deployed around the world contain Canadian fuel cell powertrain technology (Natural Resources Canada, 2020[7]).

Governments play an important role in reducing barriers to R&D and mitigating risks specific to green R&D. The knowledge and learning benefits of R&D and early deployment of technologies cannot be fully commercially captured by companies who bear the costs of R&D as there are spillover benefits to other developers. This acts as a disincentive to socially optimal levels of investment in these areas. Public spending on green R&D is therefore warranted to address this market failure and can catalyse greater private sector investment in these technologies. Canada is among the OECD countries with highest public spending on R&D in low-carbon technologies, which amounted to around half a percent of GDP in 2021, compared to 0.3% for the OECD average (Figure 5.5). This is in contrast with broader (public and private) spending on R&D across sectors which is low in Canada (1.7% of GDP) relative to OECD peers (2.7% on

average). Among green technologies, energy efficiency, nuclear energy and renewable energy attract the largest shares of public R&D, although fossil fuels still attract a sizeable share of public R&D spending (14%).

Figure 5.5. Public spending on green R&D is high in Canada



Note: Low-carbon includes all categories shown in the pie chart with the exception of fossil fuel technologies. OECD Average includes the 28 countries for which there is data.
Source: Authors' elaboration based on IEA Energy Technology R&D database (2023[8]), https://www.iea.org/data-and-statistics

Box 5.2. Canada is a global leader in hydrogen and fuel cell technologies

Hydrogen is essential to decarbonising the top third of Canada's most energy-intensive and hard-to-abate end-use applications, as the leading candidate to replace coal in steelmaking, oil and gas for industrial heating, and liquid fuels in transport. Fuel cell technologies are being used to enhance the performance of clean energy systems by helping to balance fluctuations in energy loads, and can help grow the renewable energy sector. Paired with carbon capture and sequestration, hydrogen can also help the traditional energy sector transition into low emissions energy.

Canada has played an important role in the development of the growing global hydrogen economy, and been a pioneer in fuel cell technology. Canada continues to be an R&D and technology leader in the sector, with over 100 companies in the sector which generated CAD 527 million in revenues in 2021, CAD 125 million in R&D expenditure, and employed 4291 people in 2021 (CHFCA, 2022[9]).

Early success in small hydrogen projects (such as the Raglan Mine and Bella Coola HARP project) has led to larger, more integrated projects and reduced reliance on diesel in remote locations. In Alberta, carbon is captured during hydrogen production at the North West Sturgeon Refinery, and Suncor Energy has partnered with ATCO to produce more than 300,000 tonnes per year of low-carbon hydrogen. An investment decision for the project is expected by 2024, and it could be operational by 2028. Fort Saskatchewan is also home to a blending pilot project by ATCO, which would allow ATCO to deliver a blend of natural gas containing up to 5% hydrogen into part of Fort Saskatchewan's residential natural gas distribution network. Air Products announced that it plans to build a CAD 1.3 billion facility in Edmonton that will produce hydrogen derived from natural gas, with operations expected to start in 2024. In Ontario, the Enbridge-Cummins energy storage facility can store excess renewable energy as hydrogen. In early 2022, Enbridge Gas and Cummins completed a project to blend

this hydrogen into the Enbridge Gas natural gas network in Ontario. In Quebec, construction has been completed on the world's largest proton-exchange membrane electrolyser. The 20-megawatt (MW) electrolyser will take advantage of Quebec's hydroelectric resources to produce green hydrogen. CF industries provided input to provincial hydrogen strategies in both Ontario and Alberta, while also contributing to public-private feasibility study partnerships, such as for the development of a low-carbon hydrogen hub in Medicine Hat, Alberta.

According to Canada's 2020 Hydrogen Strategy, the demand for hydrogen in global energy systems is projected to experience a tenfold increase in demand over the next three decades. Canada has unique competitive and comparative advantages that position the country to become a world-leading producer, user, and exporter of clean hydrogen, as well as hydrogen technologies and services. If Canada fully seizes the opportunity presented by hydrogen, it could lead to more than 350,000 sector jobs and direct revenues of over CAD 50 billion per year by 2050 (Government of Canada, 2020[10]).

Source: OECD Business Consultation on Sustainability Practices in Canada (2022[11])

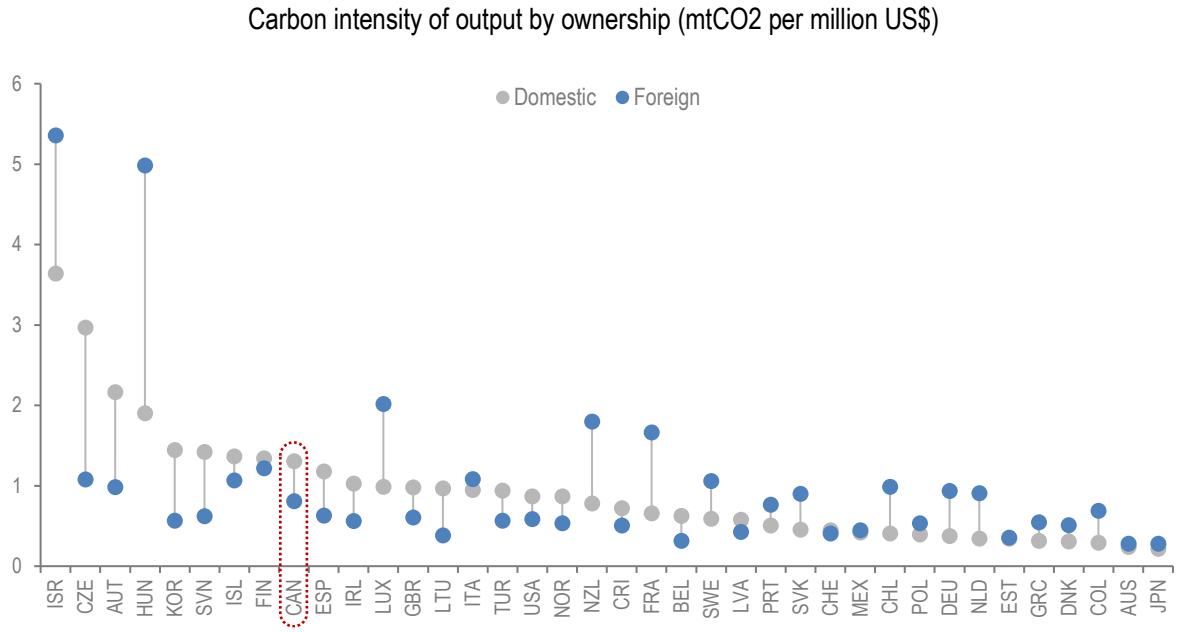
5.2. The contribution of FDI to the green transition

Foreign direct investment (FDI) has the potential to contribute financial and technological resources to accelerate the green transition (OECD, 2022[12]). For example, through research collaborations, joint ventures and by contributing to clean-tech clusters and innovation hubs, FDI can help advance the development and commercialisation of innovative green technologies and solutions across a wide range of applications. The carbon intensity of foreign investments depends on a range of investor characteristics, including the technologies they use, the energy they consume, the products and services they offer, and their corporate cultures and environmental policies and practices. Governments have the potential to influence carbon intensity of FDI by putting in place appropriate policies and incentives that encourage investors to internalise the carbon-related costs of their operations.

5.2.1. There is scope for reducing carbon-intensity of foreign companies in some key sectors

The relationship between foreign firm operations and carbon-intensity in Canada is not clear-cut. When considering the overall economy, output of foreign firms appears less carbon-intensive than domestic output, generating 60% lower emissions per unit of output, on average (Figure 5.6). Carbon-intensity of domestic firms is also on the high side of the distribution relative to other OECD economies. This high domestic carbon-intensity is primarily driven by the coke and refined petroleum sector in which domestic firms emit six times more CO_2 per unit of output than their foreign peers (Figure 5.7, Panel A). In other sectors (except for electricity and gas), foreign firms are at least as carbon-intensive as domestic peers, and significantly more so in mining, transport, chemicals and pharmaceuticals. The low carbon-intensity of foreign firms in the oil sector suggests that foreign firms adopt more energy efficient technologies in refining crude oil and may contribute to emissions reductions in this highly carbon-intensive sector.

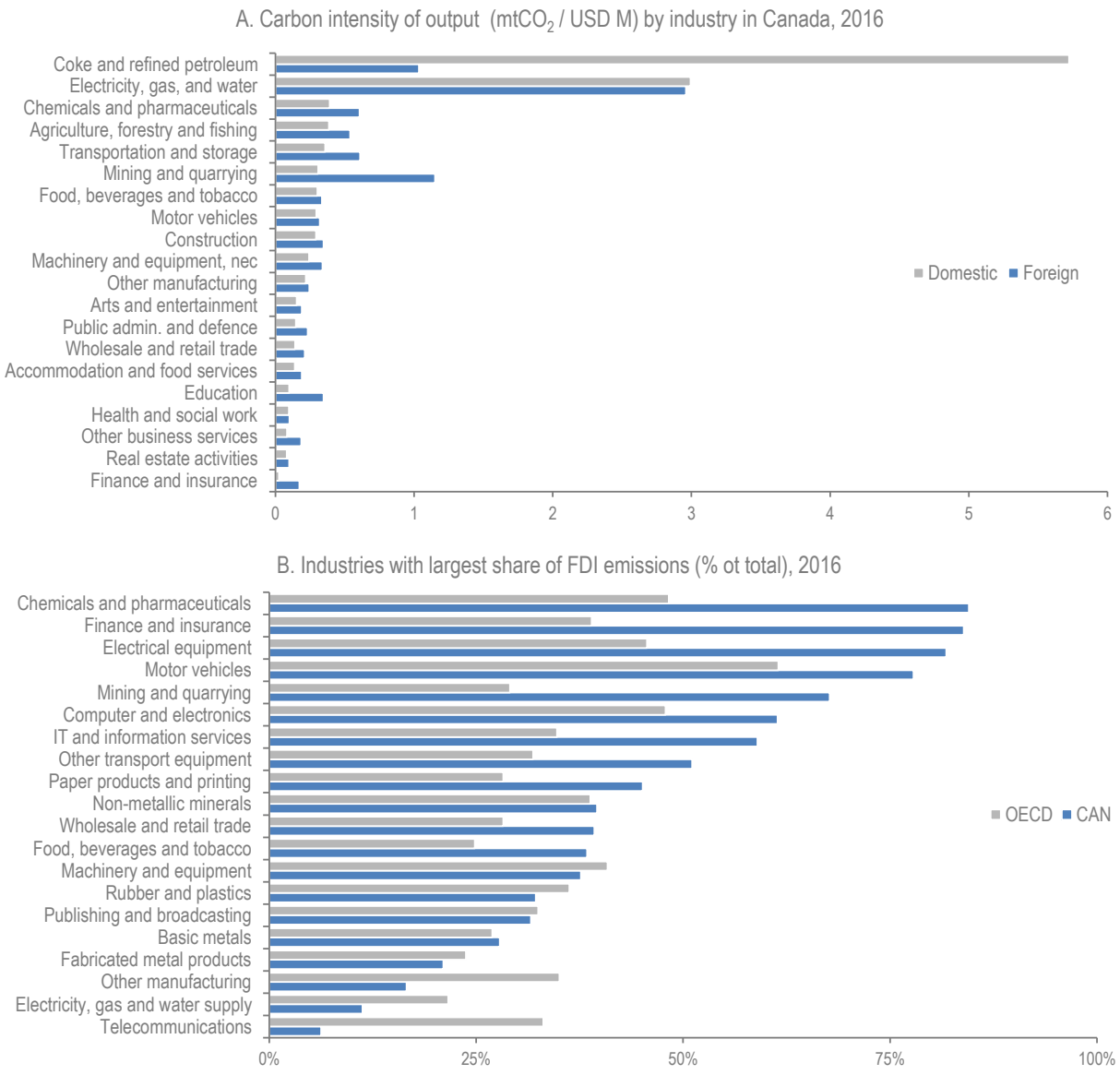
Figure 5.6. Foreign firms are less carbon-intensive than domestic firms on average



Note: Data points are constructed by averaging CO_2 emissions per unit of output of foreign and domestic enterprises across 34 sectors, weighted by the share of CO_2 emissions generated in the corresponding sectors (so that sectors that are more carbon-intensive get more weight).
Source: Authors' elaboration based on IMF Climate Change Indicators Dashboard (2023[13]), https://climatedata.imf.org/pages/go-indicators

A closer look at estimates of the share of direct carbon emissions of foreign companies in each industry, for Canada and the OECD average, helps shed light on the industries in which foreign firms play the most significant role in carbon emissions (Figure 5.7, Panel B). In the case of Canada, foreign firms account for over three quarters of emissions in chemicals and pharmaceuticals, finance and insurance, electrical equipment and motor vehicles, which is significantly higher than the OECD average for these sectors (39-61%). Other sectors in which foreign firms have a large carbon footprint, well above the OECD average, include mining and quarrying (68%), computer and electronics (61%), and IT and information services (59%). This is also the result of foreign firms' large economic footprint in these sectors and does not necessarily imply that Canada performs worse than other OECD countries in these sectors. Nevertheless, particularly for sectors in which carbon intensity of foreign firms is also relatively high like in mining and chemicals, it does suggest that there remains scope for improving energy and carbon performance of foreign firms in Canada, and further increasing its contribution to decarbonisation.

Figure 5.7. FDI remains relatively carbon-intensive in mining, transport and chemicals



Note: Panel A covers 20 sectors that account for 93% of Canada's overall CO_2 emissions. Panel B considers total emissions and total output across all 34 sectors for which there is data.
Source: Authors' elaboration based on IMF Climate Change Indicators Dashboard (2023[13]), https://climatedata.imf.org/pages/go-indicators

5.2.2. Green FDI remains modest relative to peers

Green or low-carbon technologies, by definition, reduce the CO_2 emissions associated with economic activity in any sector and are therefore key drivers of the carbon intensity of investments, including FDI (Box 5.1). As multinationals are leading players in capital- and emissions-intensive activities like energy, mining, industry and transport, they can make an important contribution to furthering electrification and energy efficiency, or developing altogether new breakthrough technologies for emissions reductions (Box 5.3 provides an example for the transport sector). Indeed it is estimated that FDI accounted for 30% of global new investments in renewable energy in 2020, and that it has shifted considerably away from fossil fuels over the last decade (OECD, 2022[14]).

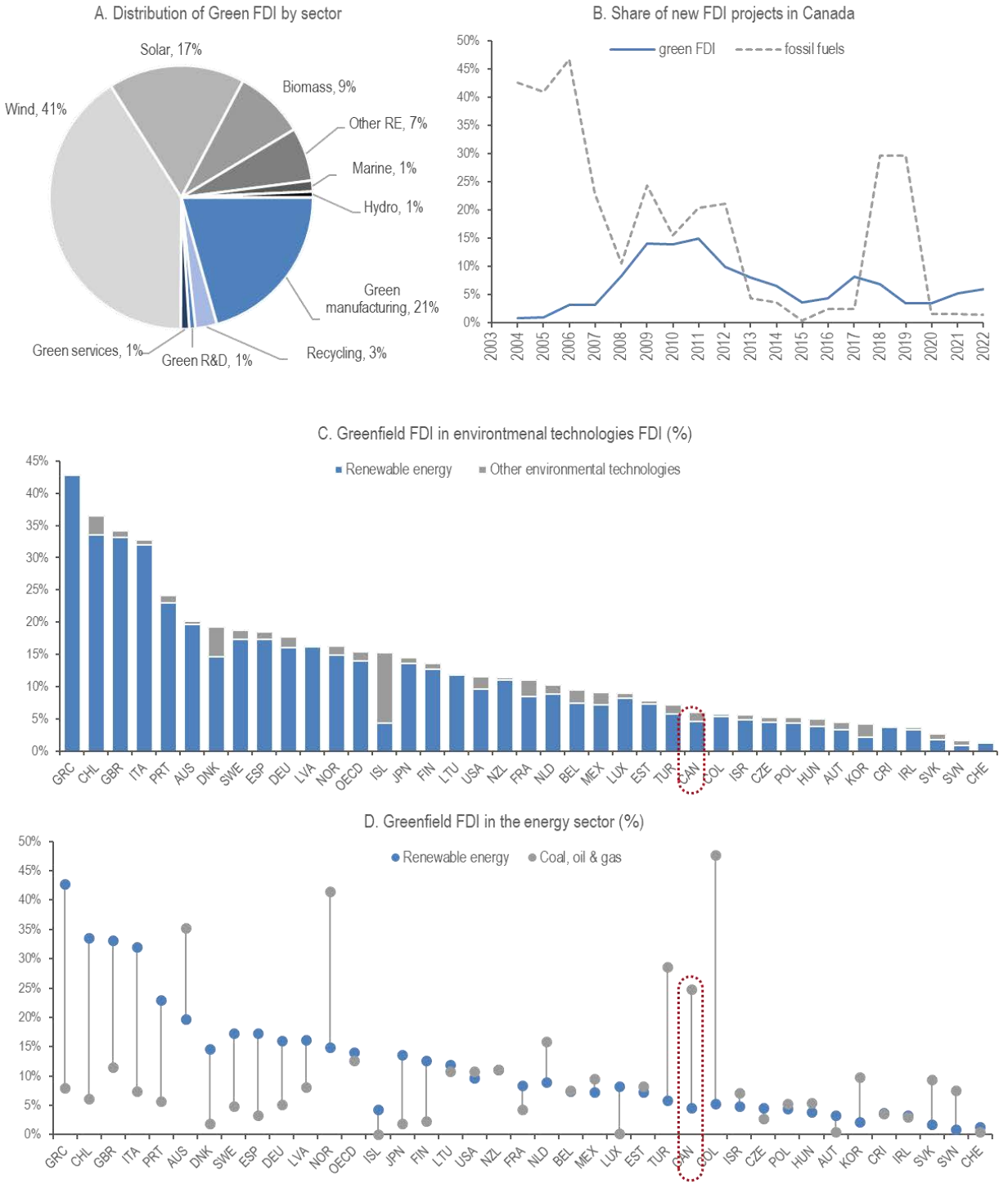
In Canada, FDI in environmental technologies (henceforth, 'green FDI') has been fairly volatile, fluctuating between 1% and 16% of new (or greenfield) FDI project announcements entering the country over the last two decades (Figure 5.8, Panel B). In absolute terms, green FDI project announcements in Canada have also been volatile with a strong increase from 2005-2011 due to large renewable energy projects but lower green FDI inflows in more recent years. In terms of sector distribution, three quarters of green FDI project announcements into Canada have been in renewable energy, and over a fifth have been in manufacturing activities related to green technologies and products, including electronic components (12%), engines and turbines (5%) and metals (3%). Other green activities that have attracted somewhat more limited FDI include recycling (3%) and green R&D (1%) (discussed in greater detail in the next section).

Accumulated green FDI project announcements over the last two decades accounts for around 6% of overall greenfield FDI, compared to 16% for the OECD average (Figure 5.8, Panel C). Comparing accumulated green FDI flows across countries shows that Canada received comparable amounts as an average OECD country such as France or Türkiye. Canada received however less than half as much green FDI as Germany, Italy, Spain, or Chile. The United States, the United Kingdom and Australia are the main green FDI recipients in the OECD, receiving jointly more than 50% of all green FDI in the OECD.

As mentioned above, the majority of this FDI has been in renewable energy (5%), primarily in wind power, followed by solar and biomass, while hydro power attracts less than 1% of green FDI. This suggests that FDI has the potential to support the expansion of solar and wind capacity in Canada, and therefore to help drive remaining net emissions from electricity generation to zero. Yet, when considering the energy sector more generally, fossil fuels still dominate FDI in Canada, accounting for 25% of overall accumulated greenfield investments and 84% of FDI in the energy sector (Figure 5.8, Panel D). In contrast, in the OECD, fossil fuels account for around 13% of greenfield FDI, and 47% of FDI in the energy sector. This evidence suggests that there remains considerable scope for enhancing the direct contribution of FDI to decarbonisation in Canada, by increasing FDI attraction in green technologies.

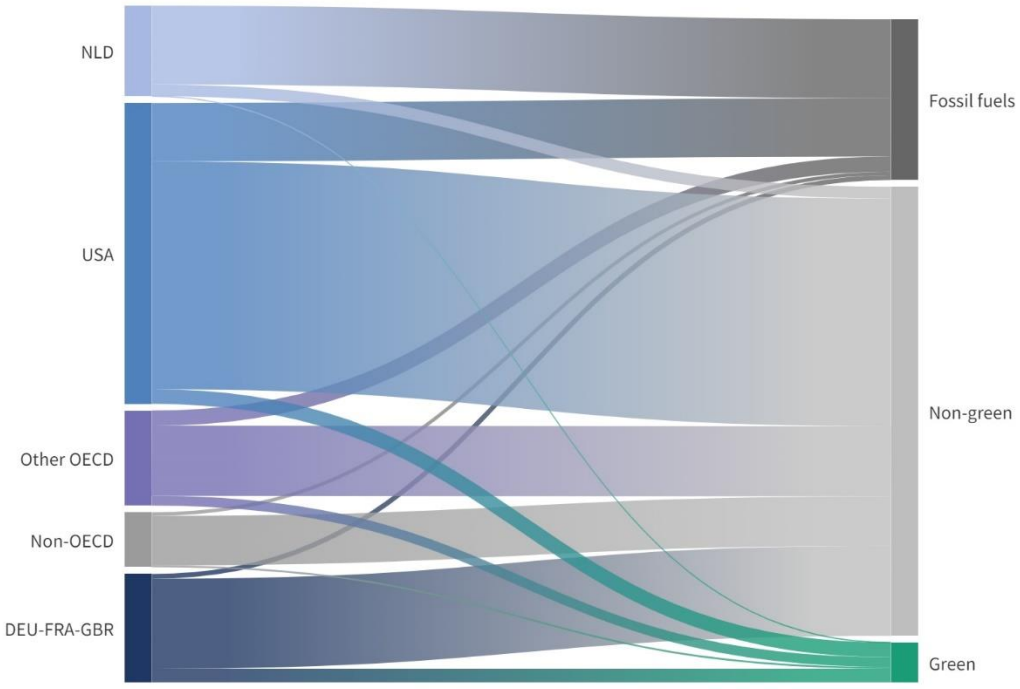
The majority of cross-border investments in green technologies in Canada are made by investors from the USA (37%), France (12%), Germany (11%), and the UK (10%), followed by other OECD economies (25%) like Japan and Australia (Figure 5.9). In contrast 87% of investments originating from the Netherlands are in fossil fuels, compared to less than 1% in green technologies. Moreover, the USA invests disproportionately more in oil and gas (19%) than it does in green technologies (5%), while the reverse is true for the UK, France and Germany, from which 12% of their combined investments are in green technologies, compared to 5% in fossil fuels. Non-OECD countries (primarily China and India) invest primarily in sectors that are neither green nor carbon-intensive (90%).

Figure 5.8. Green FDI remains modest while fossil fuels dominate energy FDI



Note: Figures include all announced and opened investment projects over 2003-2023q1.
Source: Authors' elaboration based on Financial Times FDI Markets database (2023[15]), https://www.fdimarkets.com/

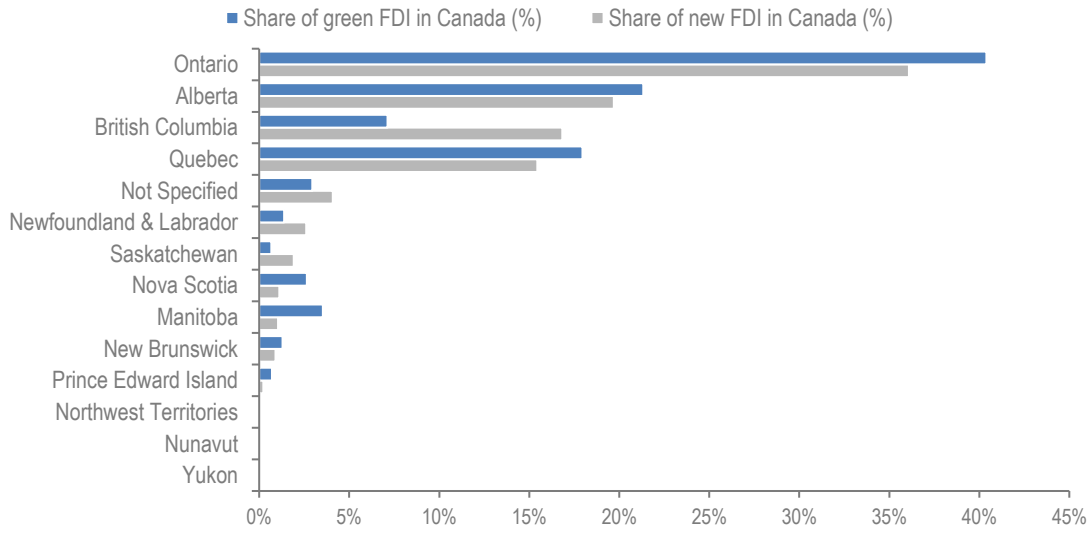
Figure 5.9. Green investors in Canada are mainly from USA, UK, France and Germany



Note: Figures include all announced and opened investment projects over 2003-2023q1.
Source: Authors' elaboration based on Financial Times FDI Markets database (2023[15]), https://www.fdimarkets.com/

Green FDI is unevenly distributed across Canadian provinces (Figure 5.10). Economically larger provinces like Ontario, Alberta, and Quebec jointly account for 70% of new FDI inflows since 2003, and 80% of green FDI inflows. A few economically smaller provinces like Nova Scotia and Manitoba, also attract high shares of green FDI entering Canada. As a result, in these provinces FDI has the potential to make relatively larger contributions to decarbonisation. On the other hand, British Columbia, which alone attracts just under a fifth of greenfield projects in the country, attracts considerably less green FDI (7%), while fossil fuels account for 55% of FDI in the province. This is in stark contrast with the province's highly decarbonised power sector and suggests that green FDI is somewhat below its potential. Newfoundland and Saskatchewan also experience low levels of green FDI, despite considerable investment opportunities in clean energy and plant-based protein, respectively Canada's three territories, attract negligeable levels of greenfield, including in green technologies. Attracting greater FDI in newer clean energy technologies, such as heat pumps and small modular reactors, could help Nunavut address some of its energy-related challenges, and lower emissions generated in the region.

Figure 5.10. Green FDI is unevenly distributed across provinces



Note: Figures include all announced and opened investment projects over 2003-2023q1.
Source: Authors' elaboration based on Financial Times FDI Markets database (2023[15]), https://www.fdimarkets.com/

Box 5.3. Foreign firms contribute to generate innovative solutions to decarbonise Canada's transport sector

One Canadian company is specialised in the design of ultra-high-speed zero-emission transportation technology and vehicles. The vehicles designed by the company would have the potential to travel four times as fast as conventional high-speed rail (over 1000 km/h), providing a clean alternative to road and air travel and freight, and delivering on Canada's emission reduction targets. The company has partnered with a number of foreign and domestic private and public sector actors to develop, test and demonstrate its hyperloop technology. For example, it partnered with a French company for the research, development, and production of new cabin and vehicle thermal systems designed specifically for its hyperloop system to ensure safety, efficiency, and passenger comfort.

One foreign company is a major supporter of the global 10% sustainable aviation fuel (SAF) target by 2030, catalysing various government, air operators and supply chain partners to reach this goal. In 2015, the company launched an aviation biofuel project in collaboration with the Canadian aviation industry, along with several Canadian research institutes. This collaboration aimed to transform waste from the Canadian forest industry into SAF, exploiting the potential of Canada's natural resources.

Source: OECD Business Consultation on Sustainability Practices in Canada (2022[11])

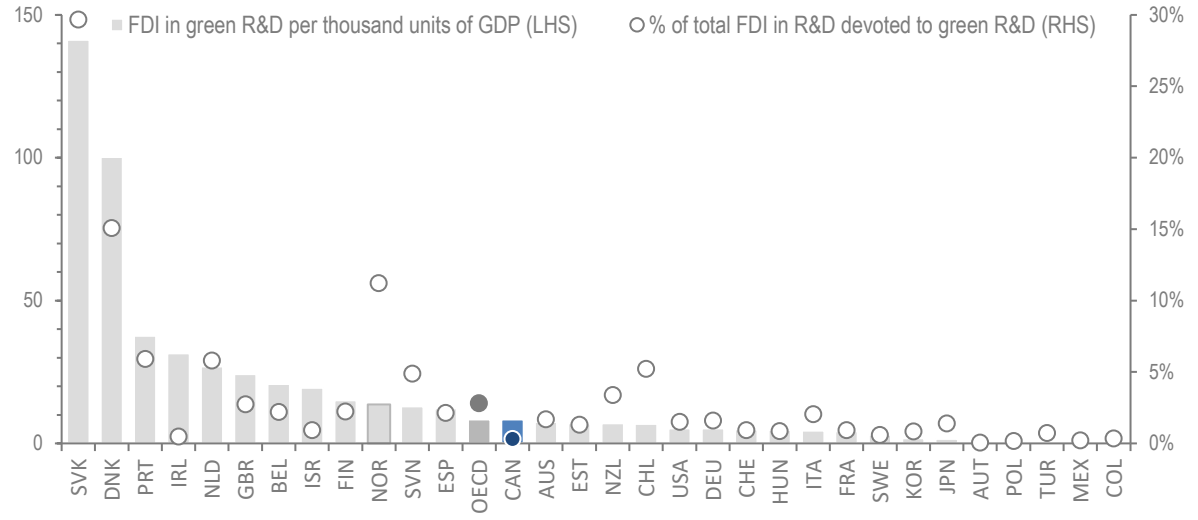
5.2.3. The contribution of FDI to green R&D is below potential

The premise behind FDI spillovers is that multinational firms have access to innovative technologies and operating procedures, which, if applied, could help raise environmental performance overall and induce the broader uptake of low-carbon technologies. The realisation of these spillovers hinges on the transfer

of knowledge from foreign to domestic firms, through their market interactions and through the mobility of workers. The spillover potential varies across technology and spillover channels.

In the case of Canada, domestic innovation potential with respect to green technologies is already very high, with Canada leading innovations and knowhow in a number of breakthrough zero-emission technologies. Nevertheless, FDI can contribute to advancing the development and commercialisation of these technologies across a wide range of applications through research collaborations, joint ventures and by contributing to clean-tech clusters and innovation hubs. Currently, the contribution of FDI to green R&D is in line with the OECD average, with accumulated FDI projects of around USD 170 million (or 8.4 per thousand units of GDP), but much lower than OECD peers like Denmark (100), the Netherlands and (27) the United Kingdom (24), which tend to have higher overall contribution of FDI to GDP (Figure 5.11). When considering total FDI in R&D activities in Canada, the share that is devoted to green R&D is especially low (0.3% compared to 3% for the OECD). This is contrast with the high domestic spending in green R&D relative to other forms of R&D. In other words, the contribution of FDI to green R&D is below its potential.

Figure 5.11. FDI's contribution to green R&D is modest



Note: Figures include all announced and opened investment projects over 2003-2023q1.
Source: Authors' elaboration based on Financial Times FDI Markets database (2023[15]), https://www.fdimarkets.com/

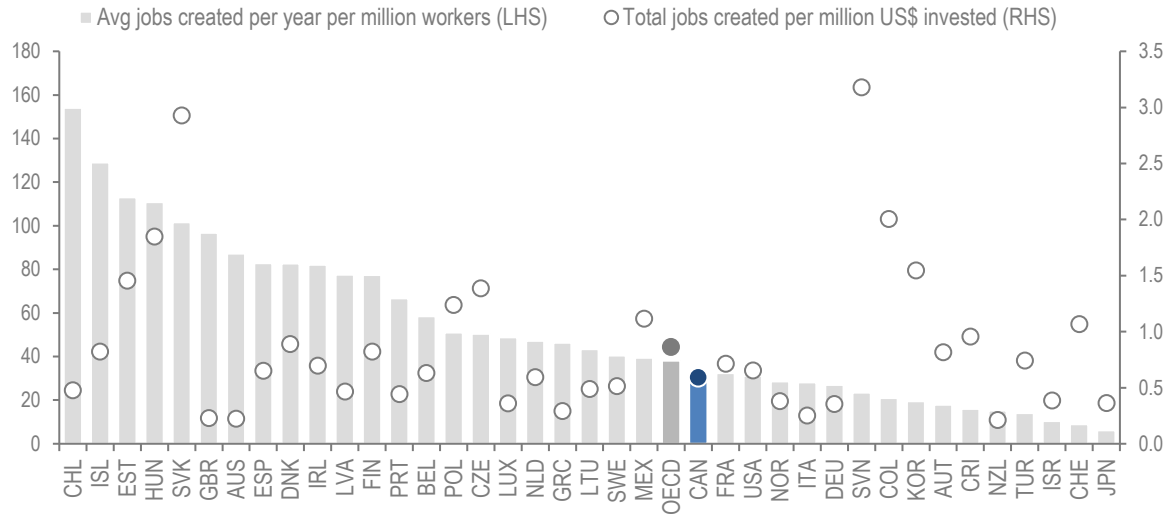
5.2.4. FDI generates a growing number of green jobs

FDI can contribute to the green transition by creating green jobs and helping develop green skills. In Canada, FDI creates approximately 670 green jobs per year on average, or 33 jobs per million workers, which is very close to the OECD average (38) and to peers like the USA (31) and France (32), but considerably lower than OECD peers that attract more FDI in environmental technologies like Chile (154) the UK (97), and Australia (87). Relative to the size of investments, FDI-induced direct job creation in Canada is approximately 0.6 jobs per million USD invested, which reflects the relatively high capital intensity of these investments (Figure 5.12).

A closer look at the FDI-induced job creation over time shows that, while job creation in the renewable energy sector has been modest over the last two decades, averaging around 1% of total jobs created by FDI, there has been a reduction in jobs created by carbon-intensive industries like fossil fuels, which averaged 6% up until 2012, but dropped to 1% over the last decade (Figure 5.13). This reflects a gradual shift in FDI away from fossil fuels. When considering green technologies more generally, the extent of job

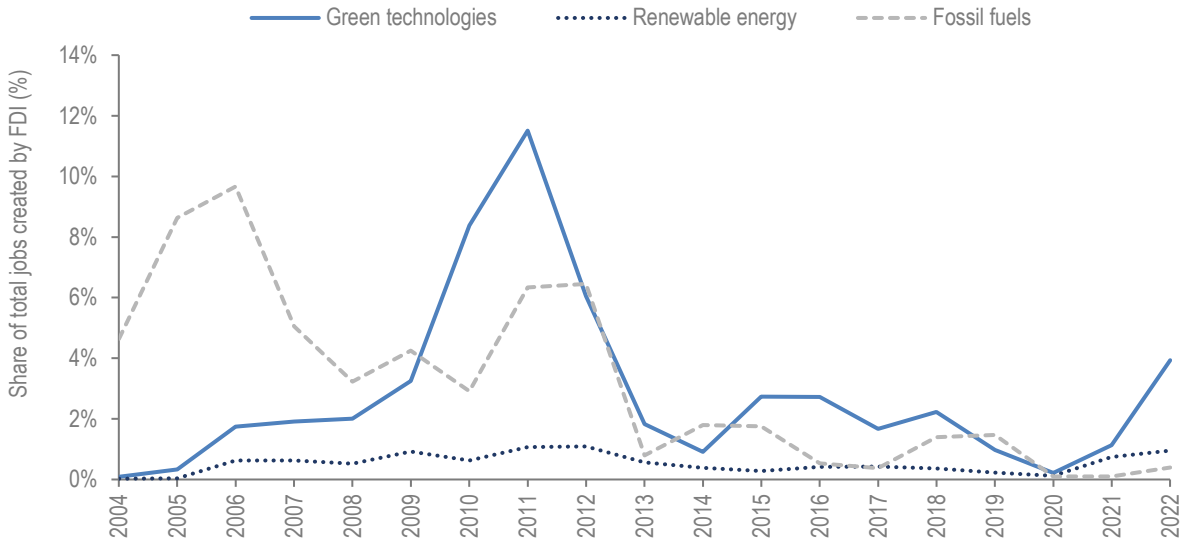
creation has been more volatile, reaching a peak of 13% of overall jobs created by FDI in 2010, and averaging 3% thereafter. The share of green jobs created by FDI appears to be on an upward trend since the outbreak of the COVID-19 pandemic, suggesting that green sectors are resilient to global economic shocks, and that FDI is shifting toward greener industries.

Figure 5.12. There is potential for increasing direct jobs created by green FDI



Note: Figures include all announced and opened investment projects over 2003-2023q1.
Source: Authors' elaboration based on Financial Times FDI Markets database (2023[15]), https://www.fdimarkets.com/

Figure 5.13. FDI-induced green jobs are resilient to economic shocks, and expected to rise



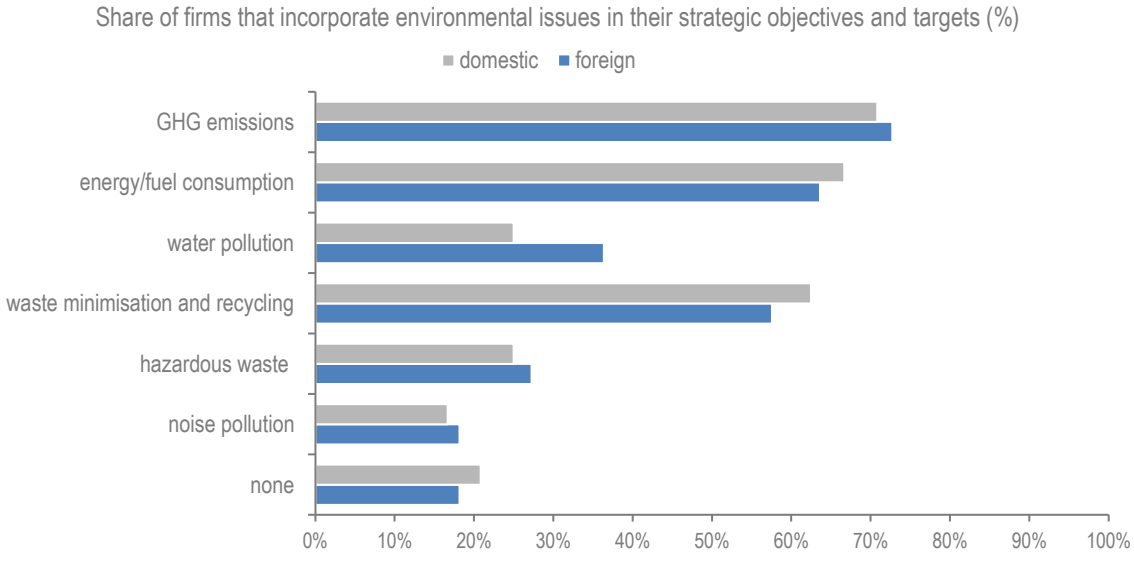
Note: The time series are constructed as two-year moving averages based on all announced and opened greenfield FDI projects.
Source: Authors' elaboration based on Financial Times FDI Markets database (2023[15]), https://www.fdimarkets.com/

5.2.5. Environmental practices do not vary substantially by firm ownership

An OECD business consultation of 24 domestic and 33 foreign-owned companies in Canada offers some insights on the environmental practices of companies operating in Canada (Chapter 1, Annex 1.A). Although the results of the business consultation cannot be generalised, as the sample of companies is not representative, they do provide some novel qualitative information on the green practices of companies in Canada, which is not available from other statistical sources. According to the results, the vast majority of companies, whether foreign or domestic, incorporate some form of environmental or climate considerations in their strategic objectives and performance targets (Figure 5.14). The most commonly cited objectives and targets relate to GHG emissions (71-73%), energy use (64-67%) and waste minimisation (58-63%). In most cases, the difference in likelihood of addressing environmental issues across foreign and domestic firms is relatively small, although the domestic companies surveyed are somewhat more concerned with waste minimisation and recycling, while foreign companies are relatively more concerned with water pollution. However, the water pollution focus of the foreign companies surveyed could reflect their specific industries.

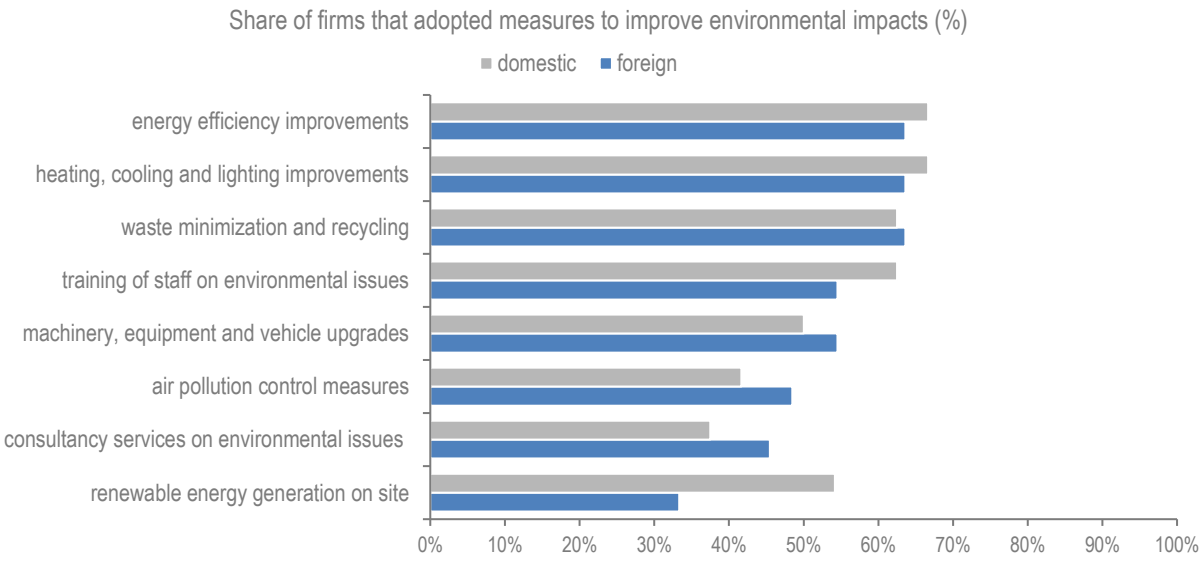
Perhaps motivated by cost concerns, energy saving improvements are the most widespread measures implemented by the surveyed foreign (67%) and domestic companies (64%) in Canada to improve their environmental performance (Figure 5.15). Relative to domestic peers, the foreign companies surveyed are more likely to upgrade machinery and vehicles, and to implement measures to control air pollution, possibly as a result of greater access to more advanced green technologies and equipment. In contrast, the domestic firms are more likely to offer training to employees on environmental issues, and to generate renewable energy for own-use onsite. This may suggest that the potential for FDI-induced knowledge transfer on environmental and energy-saving practices through worker training and mobility remains limited.

Figure 5.14. Surveyed foreign and domestic firms adopt similar approaches to environmental management



Note: A total of 24 domestic and 33 foreign companies participated in the business consultation.
Source: OECD Business Consultation on Sustainability Practices in Canada (2022[11]).

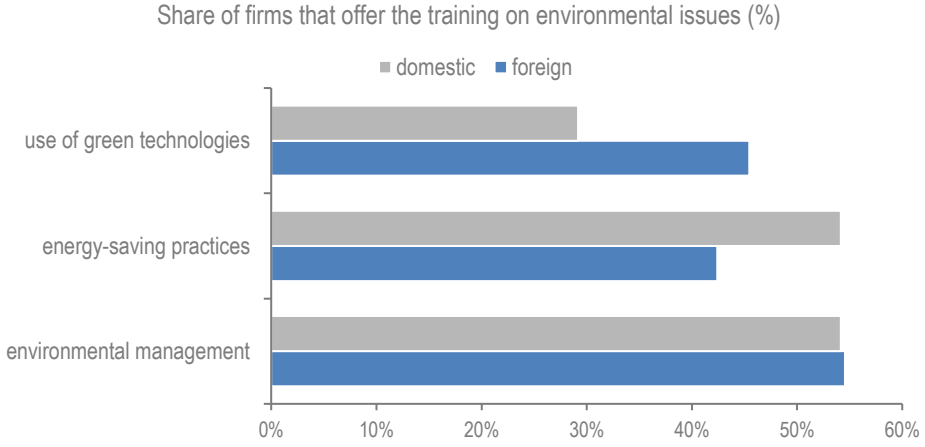
Figure 5.15. Surveyed foreign firms are more likely to upgrade machinery and control air pollution but less likely to train staff or generate renewable energy on-site



Note: A total of 57 companies participated in the survey.
Source: OECD Business Consultation on Sustainability Practices in Canada (2022[11]).

The results also reveal that the majority of both foreign and domestic firms surveyed (55%) offer training on environmental management, including issues relating to mitigating environmental risks. Possibly motivated by cost reasons, domestic firms are more likely to offer training related to energy-saving practices (54% compared to 42%), while foreign firms are significantly more likely to offer training related to the use of green technologies (45% compared to 29%). This seems to suggest that foreign firms may contribute to fostering skills needed for the green transition. However, it is again important to highlight that the industry sample difference between foreign and domestic firms surveyed can explain some of the observed difference.

Figure 5.16. Surveyed foreign firms contribute more to skills needed for green technologies



Note: A total of 57 companies participated in the survey.
Source: OECD Business Consultation on Sustainability Practices in Canada (2022[11]).

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