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ADVANCING THE SUSTAINABLE ECONOMY:  
**A LOOK INTO CANADA'S  
VENTURE CAPITAL LANDSCAPE**

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**2023**

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## EXECUTIVE SUMMARY

Canada's start-ups have received \$62.5 billion (all figures in Canadian dollars) in venture capital financing from Canadian and foreign funders over the last 10 years. Of this amount, \$17.2 billion, or 27.5%, came from Canada-based venture capital firms; U.S. venture capital firms provided the most funding, with a total of \$21.5 billion.

Over the same period, \$4.3 billion was invested in Canadian start-up companies whose activities were aligned with the sustainable economy as defined by the Corporate Knights Sustainable Economy Taxonomy. Of this amount, \$1.2 billion went to companies involved in telecommunications, \$1.2 billion went to information technologies and media, \$1 billion went to renewable energy, and \$738 million went to water, waste and ecosystem restoration.

On the other side of the spectrum, \$8.4 billion was directed toward fossil-fuel-related activities; 48.4% of the funding came from U.S. venture capital firms, and 17.2% came from their Canadian counterparts. Venture capital investments in this sector declined significantly, dropping 20.2% annually to reach \$114 million in 2022, from a peak of \$2.6 billion in 2014. On the other hand, investments in companies engaged in sustainable-economy-aligned activities rose sharply: to \$752 million in 2022 from \$73 million in 2013, or at an annualized rate of 29.5%, and peaking at \$1.4 billion in 2021, just before the economic slowdown of 2022. Canadian-based venture capital firms contributed \$1.2 billion to companies engaged in sustainable-economy-related activities (28.2%), followed by their U.S. counterparts at \$1.1 billion (24.4%).

Based on the data and trends of the past 10 years, it is projected that in 2030, a total of \$16.1 billion in venture capital funding will be injected into Canadian start-ups, \$6 billion of which will be toward sustainable-economy-aligned activities. The proportion of venture capital funding into sustainable-economy-aligned activities will represent only 59.1% of funding to non-sustainable-economy-aligned activities. Moreover, given that only 33.5% of Canadian venture capital financing was directed toward Canadian firms over the past 10 years, the bulk of venture capital funding into Canada's start-ups will continue to be sourced from foreign firms.

Policy intervention and incentives would therefore be welcome to channel more funding toward sustainable-economy-aligned activities, but also to clear the way for Canadian venture capital funds to reach Canadian start-ups most in need of it and provide Canadian venture capital investors seeking exposure to companies in such activities the means to identify such opportunities in Canada. Proper policies coupled with guidance to steer investors toward sustainable-economy-aligned activities in the form of a sustainable economy taxonomy for financing activities may help to speed up investments in this sector of the Canadian economy.

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## INTRODUCTION

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Welcome to *Advancing the Sustainable Economy: A Look into Canada's Venture Capital Landscape*, a research report reviewing the state and progress of venture capital (VC) investments into Canadian start-ups. While the report examines the size, growth and country sources of VC investments in Canada over the last 10 years, it applies a unique lens to these thousands of transactions and the extent to which these capital transactions are aligned with the sustainable economy.

This report comes at a time when various jurisdictions around the world are attempting to determine which economic activities are in line with the transition to a more sustainable future (and consequently, which ones are not) and should be targeted for development, and as a result be promoted in priority for much-needed investment money. While the most prominent one is the European Union's taxonomy for sustainable activities, in September 2022, Canada's Sustainable Finance Action Council published a report laying down a roadmap for a Canadian version of a classification system of sustainable activities.

In the meanwhile, Corporate Knights has since 2018 developed its own Sustainable Economy Taxonomy, updated over time to be in line with global standards and integrating the latest scientific and economic evidence. This report applies this taxonomy in the analysis of the VC transactions reviewed over the past 10 years in Canada.

This report is aimed at a broad audience, but first and foremost, it is intended to provide insightful information to policy-makers in their efforts to spur the deployment of capital toward activities in support of climate objectives of a net-zero economy by 2050. Secondly, this report may act as a compass for Canadian and foreign VC investors seeking growth opportunities within Canada's entrepreneurial space. And finally, Canadian start-ups and would-be entrepreneurs will find useful information on providers of VC in their respective areas of activities.



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## METHODOLOGY AND DATA SOURCES

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The data source was S&P Capital IQ's transactions database. The following criteria were applied in the retrieval of the data:

- Period: April 1, 2013, to March 31, 2023
- Transaction type: Private Placement – Venture Capital
- Geographic location of funded companies: Canada
- Geographic location of investor companies: global
- Currency of funding amount: Canadian dollars
- Investment type: equity

A total of 6,660 transactions were retrieved from S&P Capital IQ's transactions database for a total of \$62.5 billion of funding. Of these, 1,239 transactions did not disclose the funding amount. Where a transaction has multiple funders and individual funding amounts are not available, the transaction amount is divided equally among all participating funders in that transaction.

VC funding firms and entities were consolidated into their ultimate parent entity using the S&P Capital IQ mapping tool; for example, investments made by "Investissement Québec, Investment Arm" were consolidated with those of the parent entity "Investissement Québec."

The following additional descriptive information was also obtained from the S&P Capital IQ database:

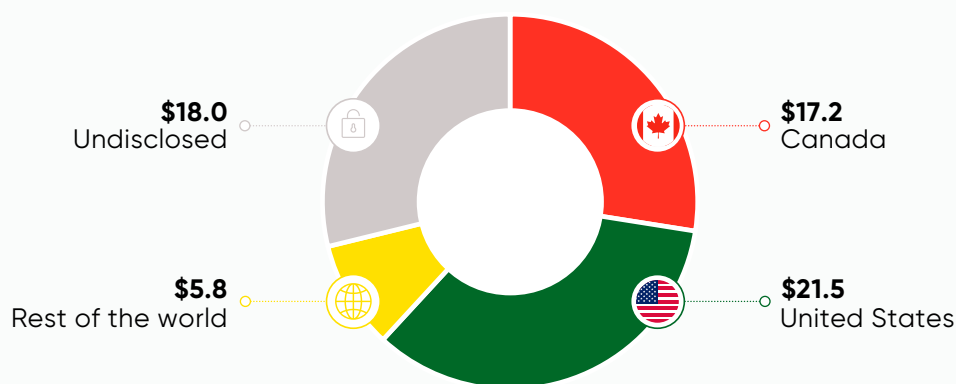
- Name and location of headquarters of investor companies. Note that of the 6,660 transactions inventoried in this study, 2,636 did not disclose the name of the investor(s) firm(s).
- Business description of funded companies

Based on each funded company's business description as obtained from S&P Capital IQ, where it is fully aligned, the company is classified into a Tier 1 and Tier 2 Sustainable Economy Taxonomy category according to the Corporate Knights Sustainable Economy Taxonomy V6.0 (see Appendix A for details).


















## THE CANADIAN VC LANDSCAPE: CURRENT STATE OF PLAY

Over the last 10 years, Canadian start-ups have received VC funding (a total of \$62.5 billion) from more than 3,135 funding entities from 70 countries around the world. As shown below, U.S.-based VC firms contributed the lion's share of funds to Canadian companies between April 1, 2013, and March, 31, 2023: \$21.5 billion, or 34.4%. Canadian VC firms followed, investing \$17.2 billion, or 27.5%, of the total over the same period.



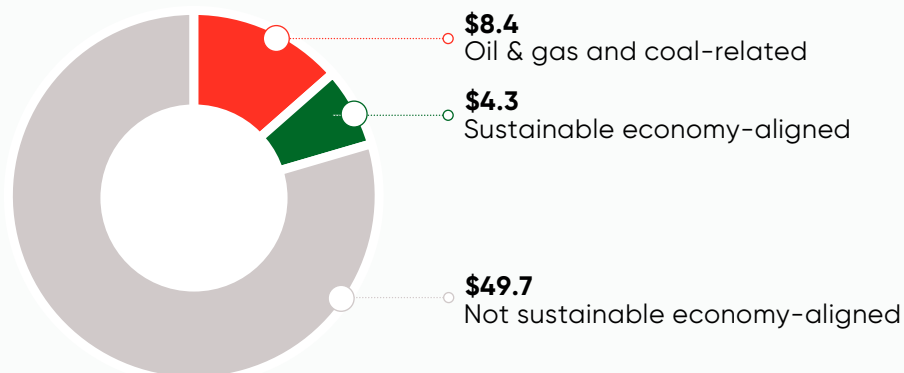
**Figure 1.** VC funding sources by country, \$ billion (April 1, 2013–March 31, 2023)

**Table 1.** Top 15 VC firms, all activities, April 1, 2013–March 31, 2023 (\$ million).

VC firm name	Country	Oil & gas and coal-related	Not sustainable-economy-aligned	Sustainable-economy-aligned	Total
Berkshire Hathaway Inc.	 United States		3,455.4		<b>3,455.4</b>
Business Development Bank of Canada	 Canada	22.0	835.8	162.9	<b>1,020.7</b>
KKR & Co. Inc.	 United States	965.0	6.3		<b>971.3</b>
Energy Transfer LP	 United States	715.0			<b>715.0</b>
Lime Rock Partners, LLC	 United States	625.9			<b>625.9</b>
NGP Energy Capital Management, LLC	 United States	616.5			<b>616.5</b>
Caisse de dépôt et placement du Québec	 Canada		604.4	4.3	<b>608.7</b>
Apollo Global Management, Inc.	 United States	543.2	4.8		<b>548.0</b>
Fengate Capital Management Ltd.	 Canada		487.1		<b>487.1</b>
Fonds de solidarité FTQ	 Canada	7.6	443.7	30.5	<b>481.8</b>
Desmarais Family Residuary Trust	 Canada		402.6		<b>402.6</b>
Inovia Capital, Inc.	 Canada		362.0	34.4	<b>396.4</b>
Riverstone Holdings LLC	 United States	310.0	45.1		<b>355.1</b>
Real Investment Management Inc.	 Canada		322.4	23.9	<b>346.3</b>
Brookfield Renewable Partners L.P.	 Canada			300.0	<b>300.0</b>



## ALIGNMENT OF VC FUNDING TO THE SUSTAINABLE ECONOMY





**Figure 2.** Venture capital funding by category, \$ billion (April 1, 2013 - March 31, 2023)

As shown above, Canadian companies whose activities were aligned to the sustainable economy received \$4.3 billion (6.9%) between April 1, 2013, and March 31, 2023, from VC funders.




















Interestingly, companies involved in brown activities – oil and gas, thermal coal and related activities – attracted \$8.4 billion (13.5%) in funding over the same period. The remaining \$49.7 billion (79.6%) went to companies whose activities were deemed as neither aligned with the sustainable economy nor brown – i.e., not sustainable-economy-aligned activities.


















**Table 2.** 15 most active VC firms – sustainable-economy-related, April 1, 2013–March 31, 2023

VC firm name	Country	Amount invested (\$ million)
Brookfield Renewable Partners L.P.	 Canada	300.0
Business Development Bank of Canada	 Canada	162.9
S2G Ventures	 United States	109.3
Coöperatieve Rabobank U.A.	 Netherlands	84.1
TPG Capital, L.P.	 United States	84.1
ARC Financial Corp.	 Canada	68.7
Export Development Canada	 Canada	67.2
Tengelmann Warenhandelsgesellschaft KG	 Germany	56.2
Fondaction	 France	53.9
Blue Horizon Corporation AG	 Switzerland	49.6
ArcTern Ventures	 Canada	44.5
Shanghai Trust Bridge Partners Management Co., Ltd.	 China	44.3
EQT AB (publ)	 Sweden	44.3
Griffith Foods Worldwide Inc.	 United States	44.3
Sustainable Development Technology Canada	 Canada	43.4

**Table 3.** VC firms with at least \$25 million and at least 50% of total amount invested in sustainable-economy-related activities, April 1, 2013–March 31, 2023

VC firm name	Country	Amount invested in sustainable-economy-related activities (\$ million)	Total amount invested (\$ million)	% invested in sustainable activities (out of total)
Advanced Energy Capital, LLC	 United States	31.2	31.2	<b>100.0%</b>
ArcTern Ventures	 Canada	44.5	44.5	<b>100.0%</b>
Blue Horizon Corporation AG	 Switzerland	49.6	49.6	<b>100.0%</b>
Brookfield Renewable Partners L.P.	 Canada	300.0	300.0	<b>100.0%</b>
Bunge Limited	 United States	30.0	30.0	<b>100.0%</b>
Commonfund Inc.	 United States	25.0	25.0	<b>100.0%</b>
Coöperatieve Rabobank U.A.	 Netherlands	84.1	84.1	<b>100.0%</b>
CS Wind Corporation	 South Korea	25.8	25.8	<b>100.0%</b>
Eat & Beyond Global Holdings Inc.	 Canada	40.2	40.2	<b>100.0%</b>
Griffith Foods Worldwide Inc.	 United States	44.3	44.3	<b>100.0%</b>
Heavybit, Inc.	 United States	33.2	33.2	<b>100.0%</b>
Ontario Power Generation Inc.	 Canada	25.0	25.0	<b>100.0%</b>
Shanghai Trust Bridge Partners Management Co., Ltd.	 China	44.3	44.3	<b>100.0%</b>
Tengelmann Warenhandelsgesellschaft KG	 Germany	56.2	59.0	<b>95.3%</b>
S2G Ventures	 United States	109.3	116.0	<b>94.2%</b>
Charles River Ventures, Inc.	 United States	27.3	29.3	<b>93.3%</b>
EQT AB (publ)	 Sweden	44.3	52.0	<b>85.3%</b>
Province of Ontario	 Canada	40.5	48.5	<b>83.6%</b>
Uncork Capital	 United States	36.4	59.8	<b>60.9%</b>
Manulife Financial Corporation	 Canada	25.0	45.3	<b>55.2%</b>
Sustainable Development Technology Canada	 Canada	43.4	85.2	<b>50.9%</b>
Active Impact Investments	 Canada	35.1	70.1	<b>50.1%</b>

**Table 4.** 15 most active VC firms – oil & gas and coal-related, April 1, 2013–March 31, 2023

VC firm name	Country	Amount invested (\$ million)
KKR & Co. Inc.	 United States	965.0
Energy Transfer LP	 United States	715.0
Lime Rock Partners, LLC	 United States	625.9
NGP Energy Capital Management, LLC	 United States	616.5
Apollo Global Management, Inc.	 United States	543.2
Riverstone Holdings LLC	 United States	310.0
Warburg Pincus LLC	 United States	266.7
Camcor Capital, Inc.	 Canada	157.5
Pine Brook Road Partners, LLC	 United States	157.5
Tiger Eye Capital, LLC	 United States	126.6
Bathurst Resources Limited	 New Zealand	121.5
ARC Financial Corp.	 Canada	108.5
Yantai Jereh Oilfield Services Group Co., Ltd.	 China	101.0
Mitsubishi Gas Chemical Company, Inc.	 Japan	92.0
Instar Asset Management Inc.	 Canada	75.0

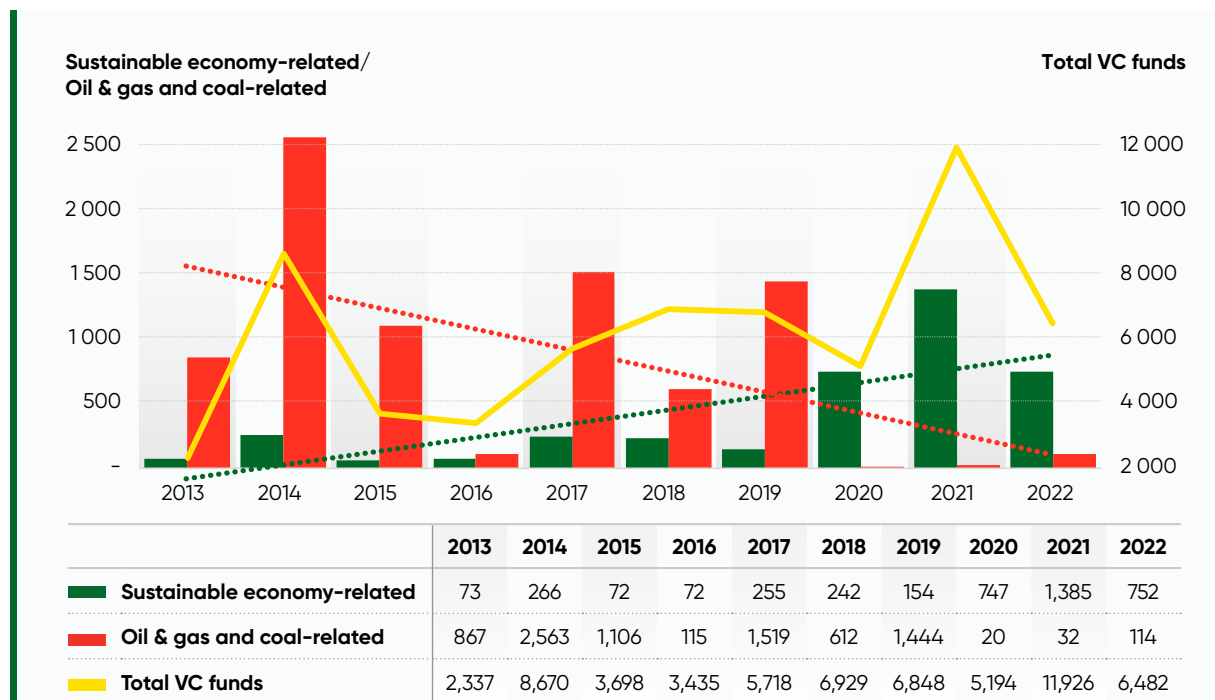


# HISTORICAL TREND IN CANADA'S VC LANDSCAPE

Looking at the past 10 years however, VC investment in oil and gas and coal-related activities has been in decline, while investment in sustainable-economy-related activities has been trending in the opposite direction, as shown below. Over this period, VC financing toward sustainable-economy-related activities grew at an annual rate of 29.5%, while for oil and gas and coal-related activities, it declined at -20.2% annually. This was particularly the case over the last three years (2020, 2021 and 2022), when VC investments into sustainable-economy-aligned activities rose sharply.



The slowing down of the global economy in 2022 along with falling stock markets led to lower activity in VC funding of sustainable-economy-related activities, while the rapid increase in oil prices led to a slight resurgence in VC funding toward oil and gas and coal-related activities. However, it is not expected that this trend will be maintained over the medium to long term.

It must be noted that VC investments in the sustainable economy rose rapidly in the years after 2019; VC investments toward this segment of the economy climbed at a 69.8% annualized rate from 2019 to 2022, while for oil and gas and coal-related activities, the decline was 57.1% annualized despite the oil recovery of 2022.



**Figure 3.** Historical venture capital funding – sustainable economy against oil & gas and coal-related





**Table 5.** 15 fastest-growing VC firms toward sustainable-economy-related activities

VC firm name	Country	2020 (\$ million)	2021 (\$ million)	2022 (\$ million)	Annualized growth rate
Inovia Capital, Inc.	 Canada	1.1		27.3	<b>407.9%</b>
Y Combinator Management LLC	 United States	0.2	0.3	5.3	<b>403.4%</b>
Raven Indigenous Capital Partners	 Canada	0.3		2.5	<b>216.2%</b>
Export Development Canada	 Canada	6.3	6.3	47.4	<b>173.5%</b>
Energy Foundry	 United States	0.9		5.8	<b>161.2%</b>
Accel Partners	 United States	4.8		27.3	<b>137.8%</b>
Uncork Capital	 United States	5.9		30.5	<b>127.6%</b>
Shell plc	 United States	0.8		3.8	<b>122.2%</b>
Heavybit, Inc.	 United States	5.9		27.3	<b>115.4%</b>
Greylock Partners	 United States	6.9		13.8	<b>41.7%</b>
Wing Venture Management, LLC	 United States	6.9		13.8	<b>41.7%</b>
Fonds de solidarité FTQ	 Canada	9.4		16.1	<b>30.7%</b>
Desjardins Group	 Canada	6.0	9.9	8.5	<b>19.1%</b>
Active Impact Investments	 Canada	5.3	21.2	7.0	<b>14.8%</b>
MaRS Innovation Inc.	 Canada	0.9	0.4	0.9	<b>0.1%</b>

It is interesting to note that the majority of VC funding toward Canadian oil and gas and coal-related start-ups came from U.S.-based VC firms, injecting \$4.1 billion over the last 10 years; this represented 48.4% of all VC financing of oil and gas and coal-related companies over the past decade compared to only 17.2% (\$1.5 billion) from Canadian VC firms.

On the other hand, Canadian VC funders contributed the most to companies engaged in sustainable-economy-related activities: \$1.2 billion of the \$4.3 billion (28.2%) invested in such companies over the last 10 years, followed by the United States (\$1.1 billion, 24.4%) and the Netherlands (\$93 million, 2.1%).

**Table 6.** VC firms' investments by country and type of economic activity, April 1, 2013–March 31, 2023 in \$ billion

Country	Sustainable-economy-aligned	Oil & gas and coal-related	Not sustainable-economy-aligned
 <b>Canada</b>	1.2	1.4	14.5
 <b>United States</b>	1.1	4.0	16.4
 <b>Rest of the world</b>	0.8	0.4	4.6
 <b>Undisclosed</b>	1.2	2.6	14.2

It is also interesting to note that larger VC funders tended to invest more in oil and gas and coal-related activities than in sustainable-economy-related activities. Among smaller VC funders, however, it was the opposite. As shown in the table below, among VC funders that invested \$100 million or more into Canadian start-ups between April 1, 2013, and March 31, 2023, 23% of the investment funds (\$4.9 billion) went toward oil and gas and coal-related activities, while only 5.2% (\$1.1 billion) was directed toward companies involved in sustainable-economy-related activities. Among VC funders that invested between \$25 million and \$99 million, the respective figures were \$750 million (6.2%) and \$1.1 billion (8.9%). Among VC funders that invested \$24 million or less, \$232 million<sup>(1)</sup> (2.1%) went to oil and gas and coal-related activities, while \$940 million<sup>(2)</sup> (8.5%) was invested in sustainable-economy-related activities.

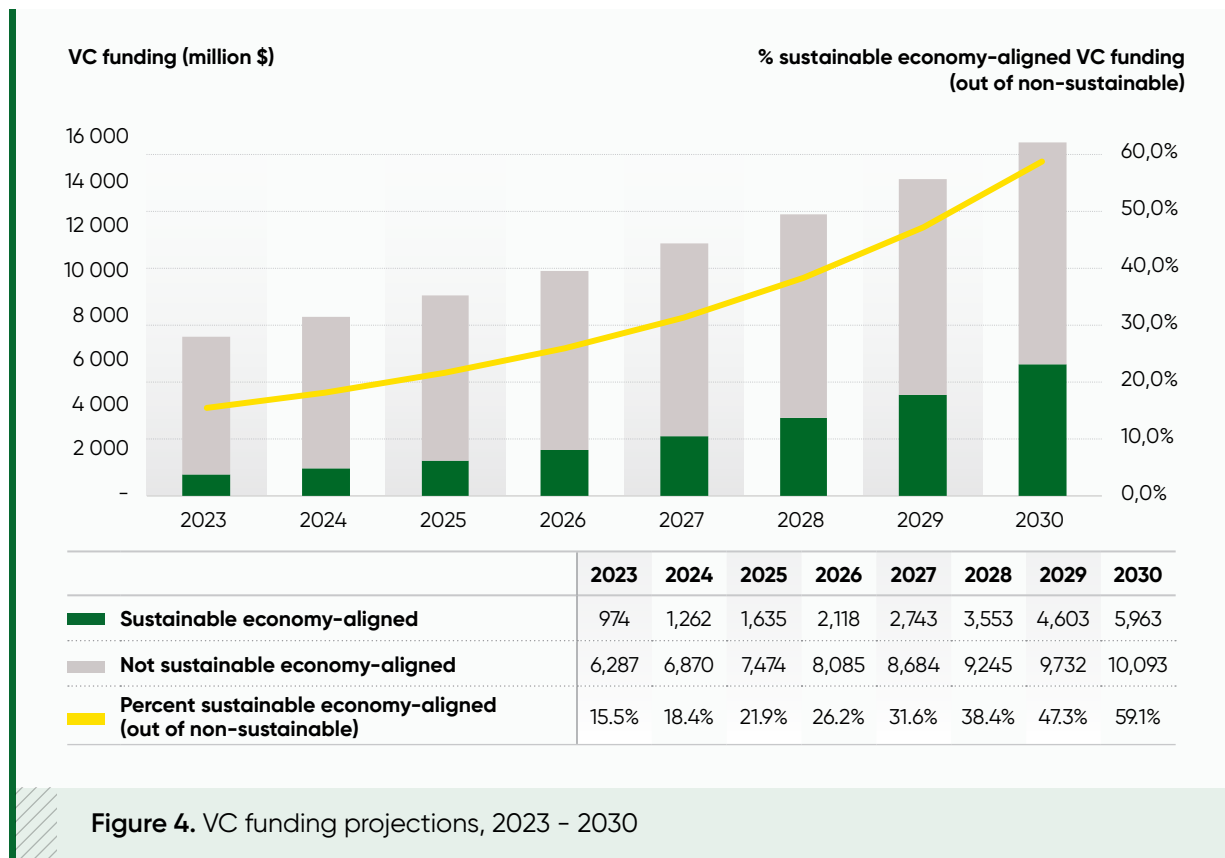
**(1)** Because 2,636 transactions had undisclosed VC funders, \$2.6 billion of VC investments into the oil and gas and coal-related activities and \$1.2 billion into sustainable-economy-related activities could not be broken down in this analysis.

**(2)** See footnote 1.



# VC FUNDING PROJECTIONS IN CANADA

Based on the compound annual growth rate in total VC investments and VC investments toward sustainable-economy-aligned activities over the last 10 years in Canada, it is projected that total VC funding will grow to \$16.1 billion<sup>(3)</sup> in 2030 (from \$6.5 billion in 2022). Of this amount, VC funding toward sustainable-economy-aligned activities is expected to reach \$6 billion in 2030, up from \$752 million in 2022<sup>(4)</sup> as shown below.



**Figure 4.** VC funding projections, 2023 - 2030

In 2030, the percentage of VC funding toward sustainable-economy-aligned activities is expected to represent 59.1% of investments toward non-sustainable-economy-aligned activities, up from 13.1% in 2022.

Given that only 33.5% (\$17.2 billion out of \$51.3 billion<sup>(5)</sup>) of Canadian VC funds were directed toward Canadian firms over the past 10 years, the bulk of VC funding into Canada's start-ups will continue to be sourced from foreign VC funding firms. Policy intervention and incentives will be welcome to encourage a higher level of domestic VC investments, and hence capital returns and reinvestment into the Canadian entrepreneurial space.

<sup>(3)</sup> Based on a 12.0% annualized growth rate from 2013 to 2022.

<sup>(4)</sup> Based on a 29.5% annualized growth rate from 2013 to 2022.

<sup>(5)</sup> Based on VC transactions data obtained from S&P Capital IQ.



# BREAKDOWN OF VC INVESTMENTS IN THE SUSTAINABLE ECONOMY BY TIERS

This section consists of an analysis of VC funding by Tier 1 and Tier 2 according to the Corporate Knights Sustainable Economy Taxonomy. Appendix A provides detailed definitions of products and services that are considered "sustainable-economy-aligned" under each Tier 1/Tier 2 category according to the taxonomy.

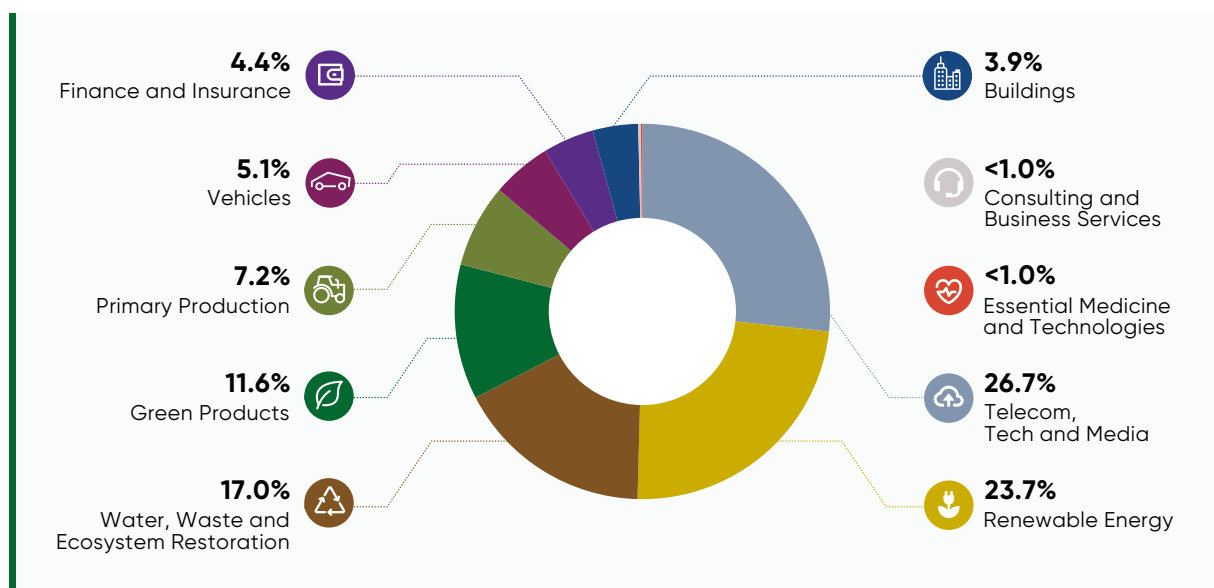


Figure 5. Sustainable investments made by VC firms by Tier 1

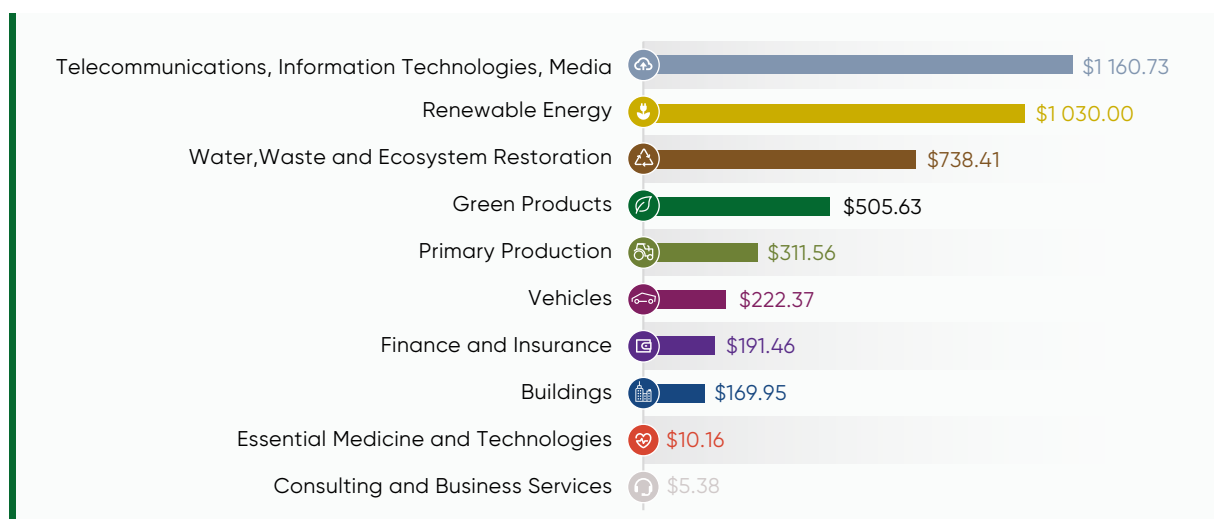
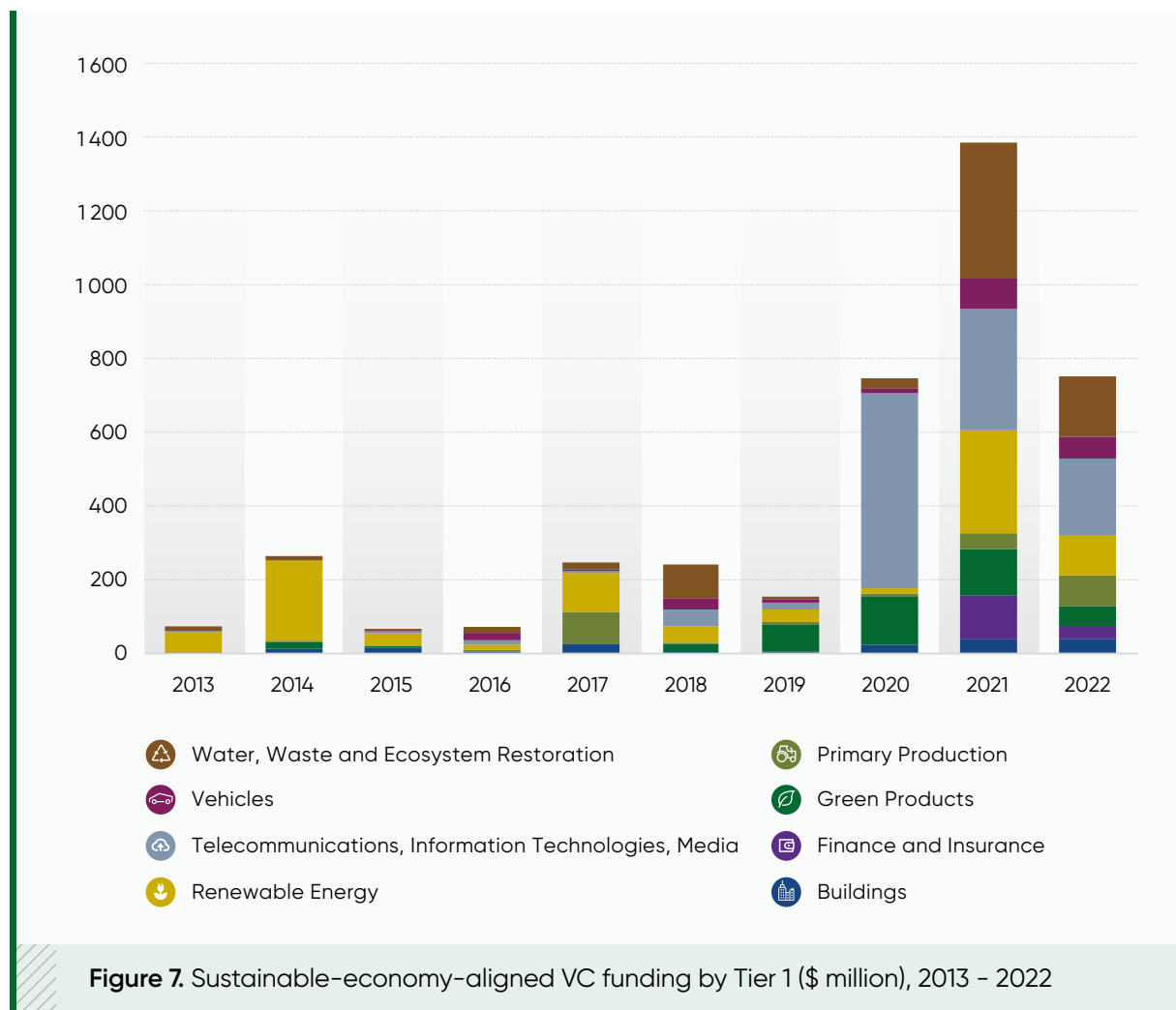










Figure 6. Sustainable investments made by VC firms (\$ million)



The above pie chart and bar graph show the breakdown of VC funding over the 10-year period of Canadian companies whose activities were aligned with the sustainable economy by the Tier 1 classification of the Corporate Knights Sustainable Economy Taxonomy. Most of the sustainable-economy-aligned VC funding went into the telecommunications, information technology and media sector, at 26.7% (\$1.2 billion), followed by renewable energy at 23.7% (\$1 billion), and water, waste and ecosystem restoration at 17% (\$738.4 million). The least funded activities were consulting and business services (\$5.4 million) and essential medicines and technologies (\$10.2 million), with less than 1% of the total funding of sustainable-economy-aligned activities from VC firms.



**Table 7.** Sustainable-economy-aligned VC funding by Tier 1 (\$ million), 2013 - 2022

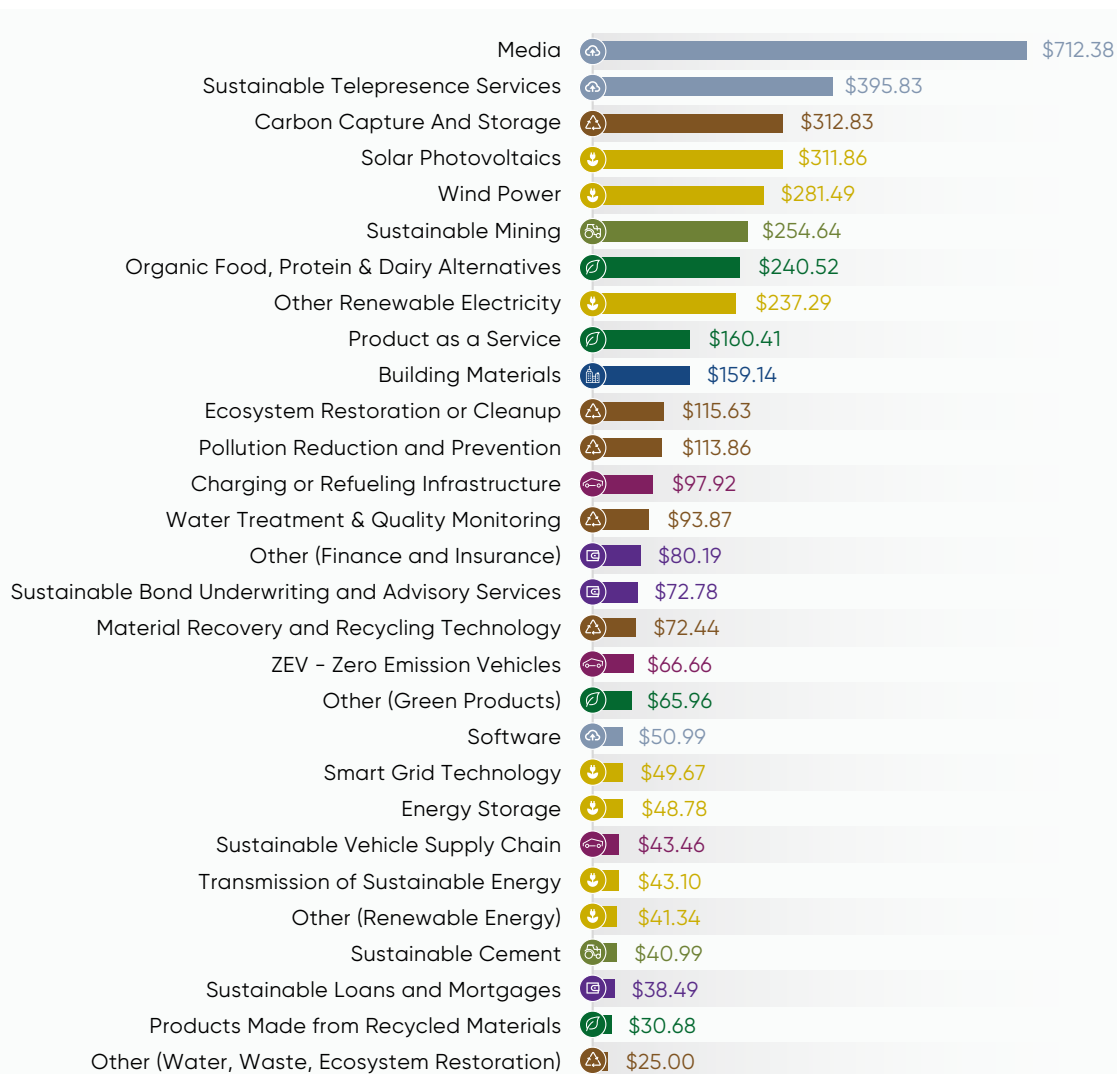
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	Growth rate
 <b>Buildings</b>	0.0	13.3	15.0	3.5	25.9	3.3	2.9	23.6	37.8	39.2	164.5	<b>100.0%</b>
 <b>Finance and Insurance</b>	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	118.8	35.1	155.5	<b>100.0%</b>
 <b>Green Products</b>	0.0	17.0	4.3	1.6	0.0	22.7	72.8	132.0	125.9	53.6	4299	<b>100.0%</b>
 <b>Primary Production</b>	3.7	4.3	2.1	5.0	86.7	3.2	7.6	5.8	42.8	83.4	244.6	<b>41.3%</b>
 <b>Renewable Energy</b>	53.9	217.8	33.1	14.1	106.1	43.4	33.7	15.1	279.3	108.3	905.0	<b>8.1%</b>
 <b>Telecommunications, Information Technologies, and Media</b>	3.8	0.0	4.9	11.1	5.0	46.8	19.5	528.8	330.3	208.5	1,158.7	<b>56.2%</b>
 <b>Vehicles</b>	0.3	0.0	2.4	21.0	3.5	29.8	8.0	13.7	83.6	60.0	222.4	<b>82.1%</b>
 <b>Water, Waste and Ecosystem Restoration</b>	11.5	11.4	4.7	16.1	19.8	92.5	7.5	27.7	366.4	163.9	721.4	<b>34.3%</b>

While VC funding toward companies involved in activities aligned with the sustainable economy rose over the 10-year period, it was observed that VC investment in telecommunications, information technology and media companies increased considerably after 2019; this trend can likely be attributed to the need for more telepresence services to replace personal mobility during the COVID-19 pandemic, particularly through a large number of telehealth start-ups. Overall, VC funding toward this Tier 1 category grew at an annual rate of 56.2%, and in 2022, it received \$208.5 million, up from \$3.8 million in 2013.

VC funding toward the renewable energy Tier 1 category reached a total of \$905 million over the ten-year period. Unlike the other Tier 1 categories, VC investment in renewable energy rose by only 8.1% annualized. This is because in 2013, renewable energy was already receiving \$53.9 million of VC funds, significantly more than any other Tier 1 categories at that time. In 2022, it received \$108.3 million in VC funding.

The water, waste and ecosystem category was the third-largest recipient of VC funds between 2013 and 2022, with a total of \$721.4 million. Again, a sharp increase in funding toward this segment is noted – from \$11.5 million in 2013 to \$163.9 million in 2022, a 34.3% annualized rate of increase.

The breakdown of VC funding to sustainable-economy-aligned activities by Tier 2 classification shows which activities are being funded the most. The two most funded Tier 2 categories of sustainable-economy activities were media and sustainable telepresence services.



**Figure 8.** Sustainable investments made by VC firms, by Tier 2, in millions

The media Tier 2 category received \$712.4 million, which can be primarily attributed to the funding raised by LIVEKINDLY, Inc., a sustainable news and media company.

Companies involved in sustainable telepresence services which include any technology, software or services that substitute telecommunications for personal mobility received a total of \$395.8 million. Most Tier 2 Canadian companies that received VC funding were telehealth companies, receiving a total of \$165.2 million. Carbon capture and storage received \$312.8 million, followed closely by solar photovoltaics (\$311.9 million) and wind (\$281.5 million). Entropy Inc., a company focused on clean technology including carbon capture, received the lion's share of funding for carbon capture, a total of \$300 million from Brookfield Renewable Partners.



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## CONCLUSION

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It was noted that VC investment in sustainable-economy-aligned activities has been climbing slowly, especially over the first seven years of the 10-year period reviewed in this study. The pace of VC injections in the sustainable economy accelerated after 2019, but only time will tell whether this surge will be maintained. The slowing down of the economy in 2022 and the resulting dip in VC investments shows how vulnerable the VC market is.



Based on the observed growth in VC investment in the sustainable economy over the past 10 years, it is projected that these investments will reach only half of all VC funding toward non-sustainable-economy-aligned investments in 2030, and this despite a rapid decline in oil and gas funding. A demand for policy intervention and incentives would be well advised, not only to spur increased VC activity toward sustainable-economy-aligned activities but also to facilitate access to Canadian VC funds for Canadian start-ups and provide Canadian VC investors seeking exposure to any given sector the means to identify such opportunities in Canada's VC space, which is dominated by foreign VC funding.


Policy incentives coupled with proper guidance to steer investors (including VC funders) toward sustainable-economy-aligned start-ups that are most in need of fresh cash would result in more optimal outcomes. This is where the dissemination of a sustainable economy taxonomy for financing activities to participating VC actors may help to speed up investments in this sector of the Canadian economy.




# APPENDIX A – CORPORATE KNIGHTS SUSTAINABLE ECONOMY TAXONOMY V6.0


TIER 1	DESCRIPTION	TIER 2	DESCRIPTION
 <b>Buildings</b>	<p>A “CK sustainable building” is defined as one that does not use fossil fuels (i.e., zero emission) and in which electric resistance heat represents less than 20% of total building heat supply. In addition to being emission-free, the building must also meet a high standard of energy efficiency, as evidenced by compliance with a third-party certification. This category also includes building construction materials and components and the electrically powered components of HVAC systems.</p>	<b>Design and construction</b>	<p>Investment in or revenue from design and/or construction of CK sustainable buildings, including existing buildings that are retrofit so they conform to the CK sustainable building definition. See the link in Column E for the list of CK-approved certifications, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<b>Own or manage</b>	<p>Investment in or ownership or management and operation of CK sustainable buildings. (Note: Revenue from activity taking place in a CK sustainable building does not qualify as sustainable revenue, with the exception of the hospitality industry.)</p> <p>See the link in Column E for the list of CK-approved certifications, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<b>HVAC equipment</b>	<p>High-performance (energy-efficient), electrically powered fans, pumps, compressors, heat pumps and associated control systems. Excluded: fossil fuel furnaces and boilers, electric resistance heating for space or water.</p> <p>See the link in Column E for the list of CK-approved certifications, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<b>Building materials</b>	<p>High-performance or ecologically certified building construction materials and components, including windows, doors, walls, insulation, LED high-efficiency lighting, daylighting, green roofs, floor coverings, recycled construction materials, building air quality and energy control technologies. See the link in Column E for the list of CK-approved certifications, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>


<p> <b>Renewable energy</b></p> <p>“CK sustainable energy” is defined as zero-carbon, renewable electricity, solar thermal, energy storage, geothermal, sustainable biofuels or green hydrogen. Products and services to support the production of sustainable energy, including the generators.</p> <p>Products and services related to the smart grid and the grid integration of prosumers and distributed generators.</p> <p>Transmission of sustainable energy is also included in this category.</p>		<p><b>Solar photovoltaics</b> Solar photovoltaics, including supply chain.</p> <p><b>Wind power</b> Wind power, including supply chain.</p> <p><b>Other renewable electricity</b> Wave, tidal, geothermal, small hydro (less than 30 megawatts).</p> <p><b>Sustainable biofuels</b> Liquid or gaseous biofuels derived from agricultural residues or municipal waste or waste water.</p> <p><b>Green hydrogen</b> Hydrogen produced via electrolysis from sustainable renewable electricity, as defined in the solar wind and other renewable electricity categories in the Corporate Knights Sustainable Economy Taxonomy.</p> <p><b>Other non-electric renewables</b> Direct use of wind energy for mechanical energy, direct use of solar thermal for heat, direct use of geothermal for heat.</p> <p><b>Energy storage</b> Energy storage of any type of energy – electrical, thermal, chemical, mechanical, hydro-pumped storage</p> <p><b>Transmission of sustainable energy</b> Transmission or distribution of any of the Corporate Knights sustainable energy sources, including renewable electricity, sustainable biofuels, and green hydrogen.</p> <p><b>Smart grid technology</b> Technologies, products and services related to the smart grid, including controls, peak demand management, microgrid technology and software, and other technologies that support the grid integration of prosumers, renewable electricity or distributed generation.</p>
<p> <b>Vehicles</b></p> <p>“CK sustainable vehicles” are powered by electricity, sustainable biofuels, hydrogen or human power.</p> <p>This category includes the vehicles, the components over the entire supply chain, and the supporting refuelling or charging infrastructure.</p>		<p><b>ZEV – zero-emission vehicles</b> Vehicles of any size or type that do not use fossil fuel, but run on electricity, biofuels, hydrogen or other zero-emission fuels, plus pedal-powered vehicles.</p> <p>Note: Revenue that is earned through the use of green vehicles does not qualify as sustainable revenue, except when the provision of people or goods is the primary service being provided. Types of businesses that qualify for sustainable revenue to the extent they are employing sustainable vehicles include freight and parcel delivery (any and all modes are eligible), public and private transit providers, mobility-as-a-service providers, vehicle rental companies, couriers, garbage and recycling collection vehicles.</p> <p><b>Charging or refuelling Infrastructure</b> Manufacture, sales or installation of EV chargers and associated controls and infrastructure.</p> <p>Refuelling stations and associated infrastructure for green hydrogen, green biofuels.</p>



		<p><b>Sustainable vehicle supply chain</b></p>	<p>This includes the provision of speciality components (e.g., batteries for electric vehicles) and also the portion of any other materials or components that a supplier provides for the manufacture of sustainable vehicles.</p>
		<p><b>Active transportation infrastructure</b></p>	<p>Sidewalks, bicycle paths and rights-of-way, and all associated infrastructure and facilities for supporting active transportation modes.</p>
<p> <b>Primary production</b></p>	<p>Best practice in low-emission, sustainable primary production of agriculture, mining, forestry, industrial chemicals, and metal and mineral mining.</p>	<p><b>Regenerative agriculture</b></p>	<p>Regenerative farming, no-till farming, organic farming, as evidenced by compliance with a third-party certification. See the link in Column E for the list of CK-approved certifications, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<p><b>Sustainable cement</b></p>	<p>Cement manufactured where the GHG emissions associated with the production process are lower than CK-approved benchmarks (see Column F).</p>
		<p><b>Sustainable steel</b></p>	<p>Iron and steel manufactured where the GHG emissions associated with the production process are lower than CK-approved benchmarks (see Column F).</p>
		<p><b>Sustainable aluminum</b></p>	<p>Aluminum manufactured with GHG emissions intensity and electricity consumption lower than CK-accepted benchmarks, which align with the EU sustainable energy taxonomy (see Column F).</p>
		<p><b>Sustainable forest products</b></p>	<p>Sustainable forestry and related products that conform with forestry management in which biodiversity, ecosystem health and carbon sinks are maintained or increased, as evidenced by compliance with a third-party certification. See the link in Column E for the list of CK-approved certifications, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p> <p>Sustainable forest products exclude biomass for energy.</p>
		<p><b>Sustainable mining</b></p>	<p>The mining of critical minerals for the low-carbon economy, calculated based on the role a mineral plays in the transition to the low-carbon economy, using the International Energy Agency as a primary source. See the link in Column F for a list of minerals and their sustainable coefficients. Must have credible mining certifications and not mined in countries with a Fund for Peace fragility score of over 100 ("high alert" and "very high alert").</p>


		<p><b>Sustainable inorganic chemicals</b></p> <p>Manufacturing of inorganic industrial chemicals where the GHG emissions associated with the production process are lower than CK-approved benchmarks (see Column F).</p>
		<p><b>Sustainable organic base chemicals</b></p> <p>Manufacturing of organic base chemicals where the GHG emissions associated with the production process are lower than CK-approved benchmarks.</p>
		<p><b>Sustainable plastics</b></p> <p>Manufacturing of recyclable plastics derived from renewable feedstock where at least 90% of the final plastic IS NOT used for single-use consumer products. The carbon footprint must be lower than the carbon footprint of the plastics in primary form manufactured with fossil fuel feedstock. The carbon footprint shall be calculated in accordance with ISO 14067:2018 and validated by a third party.</p>
 <p><b>Green products</b></p>	<p>Equipment, appliances, consumer products, food products, apparel, packaging that conforms to best sustainability practices and has received a third-party verified ecolabel or certification that is accepted by Corporate Knights.</p>	<p><b>Cleaning products, paints</b></p> <p>Household cleaning products and paints that have been produced in a responsible/sustainable manner, third-party certified. Provide name of the certification for the amount being claimed here. See the link in Column E for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<p><b>Sustainable fabrics and apparel</b></p> <p>Textiles, fibres, clothing, footwear and accessories with third-party responsible/sustainable certifications. See the link in Column E for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<p><b>Organic food, protein and dairy alternatives</b></p> <p>Food and beverages that have been independently certified to have been produced in an organic and/or sustainable manner. See the link in Column E for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<p><b>Biodegradable and cradle-to-cradle products</b></p> <p>Biodegradable products and products that are designed for future life cycles and meet multiple attributes designed to improve safety to humans and the environment. See the link in Column E for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<p><b>Products made from recycled materials</b></p> <p>Products made with pre- or post-consumer recycled materials, and refurbished or used products (excluding vehicles or other products using fossil fuels).</p>



		<p><b>Eco-certified products</b></p>	<p>Products that have been independently certified to be designed in an environmentally and socially responsible manner, or that have been certified to meet a multi-criteria standard developed to help reduce impacts on human health and the environment compared to conventional products of similar function. This includes products and services that significantly increase the energy efficiency with which an end use is provided. See the link in Column E for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<p><b>Product as a service</b></p>	<p>Substitution of services for product purchasing.</p>
		<p><b>Sustainable packaging</b></p>	<p>Sustainable packaging materials and solutions. See the link in Column E for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
<p> <b>Water, waste and ecosystem restoration</b></p>	<p><b>Water</b></p> <p>Technologies and infrastructure for the supply of potable water, provision of sanitation services, treatment of wastewater and recycling of associated residuals.</p>	<p><b>Water supply and distribution</b></p>	<p>The storage, supply, distribution and management of water, including flood reduction and control infrastructure.</p>
		<p><b>Water-efficient technologies</b></p>	<p>Technologies and processes that use water with a high level of efficiency. See the link in Column E for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<p><b>Water treatment and quality monitoring</b></p>	<p>Technologies and services related to the treatment, quality monitoring, separating and purification of water.</p>
	<p><b>Waste</b></p> <p>Technologies and services to support the reuse, reduction or recycling of products and materials or the treatment and sustainable management of waste.</p>	<p><b>Wastewater treatment</b></p>	<p>Products and services related to provision of sanitation infrastructure, wastewater treatment, residuals management.</p>
		<p><b>Organic waste treatment</b></p>	<p>Technologies related to the treatment of organic waste, including composting, anaerobic digesters and landfill gas capture systems.</p>
		<p><b>Material recovery and recycling technology</b></p>	<p>Waste sorting and recycling technologies.</p>
		<p><b>Pollution reduction and prevention</b></p>	<p>Technologies and services related to the reduction, prevention or sustainable cleanup of air, soil or water pollution.</p>

	<p><b>Ecosystem restoration</b></p> <p>Pollution reduction and control technologies, ecosystem restoration and regeneration.</p>	<p><b>Ecosystem restoration or cleanup</b></p> <p>Products and services related to brownfield cleanup, spill cleanup, ecosystem restoration, conservation, afforestation, reforestation and rehabilitation. Includes environmental testing, sensing, measuring and monitoring technologies and services.</p>
		<p><b>Carbon capture and storage</b></p> <p>Technology for the capture and storage or utilization of carbon dioxide, excluding use for enhanced fossil fuel production.</p>
<p> <b>Telecom-munications, information technologies and media</b></p>	<p>Products and infrastructure for providing connectivity, access, telepresence, greening supply chains</p>	<p><b>Sustainable broadband services</b></p> <p>The provision of broadband, wireless and wireline services scaled using the Corporate Knights "revenue adjustment factor" (see column F). Full credit is given for the provision of services at preferential rates for low-income/remote communities (revenue adjustment factor not applied).</p>
		<p><b>Internet infrastructure, cloud-based services and equipment</b></p> <p>The provision of infrastructure and related technologies and services that support cloud-based businesses and service providers. Full credit will be given when third-party certifications of the efficiency and sustainability of the product offerings or investments are provided (see column E). In the absence of such certifications, the total claimed will be scaled down by Corporate Knights based on the evidence provided.</p>
		<p><b>Software</b></p> <p>Revenue from software sales and licensing that are supporting the transition to the low-carbon economy and/or to clients who are using the software to enable any of the activities listed in the CK Sustainable Economy Taxonomy. Revenues from the sales and licensing of software to clients who are using it for activities other than those listed in the CK Sustainable Economy Taxonomy do not count.</p>
		<p><b>Media</b></p> <p>Revenues from products that promote environmental or social sustainability themes.</p>
		<p><b>Sustainable telepresence services</b></p> <p>Technology, software and services for substituting telecommunications for personal mobility. See the link in Column E for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications.</p>
		<p><b>Green logistics</b></p> <p>Technology, software and services for reducing tonne-kilometre of freight movement.</p>

 <b>Essential medicine and technologies</b>	Sustainable medical technologies and essential pharmaceuticals as per the Access to Medicine Index and World Health Organization Model Lists of Essential Medicines.	<b>Essential medicines</b>	Products used to treat any of the 82 Access to Medicine Index Report in scope diseases, conditions and pathogens in least-developed countries (LDCs) that are equitably priced and/or the medicines listed on the World Health Organization Model Lists of Essential Medicines. Revenues from the ATMI medicines count at 100%, while the World Health Organization Model Lists of Essential Medicines are scaled using the Corporate Knights revenue adjustment factor (see column F).
		<b>Medical equipment</b>	Sustainably certified medical equipment and medical equipment made from recycled materials. See CK Sustainable Economy Taxonomy for certifications we have approved, but companies are invited to include other certifications, which we will then assess for inclusion in our list of qualified certifications. If the equipment is not certified, revenues are scaled using the Corporate Knights revenue adjustment factor (see column F).
 <b>Finance and insurance</b>	Interest revenue from environmental and social loans, investments, underwriting and advisory services, and environmental insurance premiums.	<b>Sustainable loans and mortgages</b>	Interest earned from sustainable loans and mortgages related to any categories consistent with the Sustainable Economy Taxonomy, including but not limited to CK-defined sustainable energy, sustainable building, sustainable vehicle, agriculture and forestry projects. This includes interest earned from general credit facilities to green flag companies (CK companies with more than 20% sustainable revenue and no dark red flags). The following social loans qualify if they offer preferred interest rates: affordable housing, community development, low-income, women-only, indigenous, minority specific.
		<b>Sustainable institutional and client investments</b>	Revenue earned from the management of assets is based on the weighted exposure of the investment holdings to green flag companies (CK companies with more than 20% sustainable revenue and no dark red flags). When data is not available that is specific to fees and other revenue earned from the sustainable revenue component of the portfolio, the sustainable revenue estimate will be based on a pro rata calculation of revenue, in accordance with the share of total investments categorized as sustainable investments.
		<b>Sustainable bond underwriting and advisory services</b>	Fees earned from green, social, sustainable, climate and/or impact bonds. Advisory services related to sustainable projects or sustainable business model transformations, underwriting of green IPO/equity placements.

		<b>Environmental and health-benefiting insurance premiums</b>	Insurance premiums related to climate mitigation and adaptation, as well as healthy lifestyle choices.
 <b>Consulting and business services</b>	Consulting and business services supporting or contributing to any of the CK Sustainable Economy Taxonomy categories	<b>Sustainable buildings</b>	See "Buildings."
		<b>Sustainable energy</b>	See "Renewable Energy."
		<b>Sustainable vehicles</b>	See "Vehicles."
		<b>Sustainable primary production</b>	See "Primary production."
		<b>Green products</b>	See "Green products."
		<b>Water and waste</b>	See "Water, waste and ecosystem restoration."
		<b>Telecommunications &amp; IT</b>	See "Telecommunications, information technologies and media."
		<b>Essential medicine &amp; technologies</b>	See "Essential medicine and technologies."
		<b>Sustainable finance &amp; insurance</b>	See "Finance and insurance."