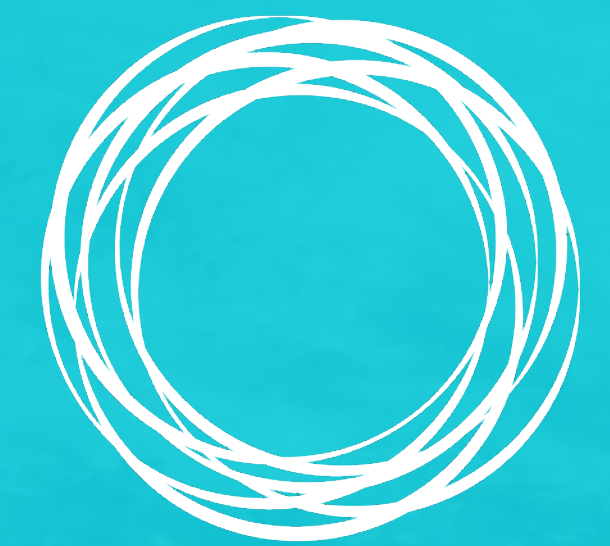


Canada's

# VENTURES TO VALUE CHAINS

C A R B O N   T E C H N O L O G Y

AUGUST 2023



FORESIGHT  
CANADA



# Foresight is Canada's cleantech accelerator.

We bring together innovators, industry, investors, government, and academia to address today's most urgent climate issues and support a global transition to a **green economy**.

## ABOUT



FORESIGHT  
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# ACKNOWLEDGEMENTS



Foresight acknowledges that the lands on which we conducted this work are the traditional, ancestral, and unceded territories of the *xwməθkwəy̓əm* (Musqueam), *Skwxwú7mesh* (Squamish), and *səlilwətał* (Tsleil-Waututh) Nations.

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# INTRODUCTION

## CANADA IS RECOGNIZED AS A GLOBAL LEADER IN THE CARBON CAPTURE, UTILIZATION, AND STORAGE (CCUS) SPACE.

### HOME TO FIVE OUT OF THE 30 INTERNATIONAL CCUS PROJECTS CURRENTLY IN OPERATION,


Canada is well known for its research, knowledge, and expertise in CCUS.<sup>1</sup> This strengthens Canada's position to further develop, commercialize, and export carbon technologies (carbon tech).<sup>2,1</sup>

Decarbonizing a heavy-emitting industrialized nation like Canada is challenging. Environment and Climate Change Canada (ECCC) reported 285 Mt (megatonnes) of greenhouse gases released into the atmosphere in 2021 from the 1,733 facilities that reported, with most emissions coming from the mining, oil and gas, manufacturing, and utility sectors.<sup>3</sup> Transitioning these sectors to net zero emissions is pertinent but challenging and time-consuming. This, coupled with a steady rise in the population's energy needs, only adds to a burgeoning energy crisis. Given this, deploying CCUS technologies is instrumental in reducing emissions produced from hard-to-abate sectors to support achieving provincial and federal net zero goals. The latest projection from Canada's Energy Regulator on the energy outlook of Canada in 2050 notes CCUS as an integral component of a net zero energy system.<sup>4</sup>

The deployment of CCUS has been slow, despite its recognition for decarbonizing the economy.<sup>5</sup> Taking stock of existing carbon technologies and understanding Canada's technology strengths and key opportunities is instrumental to advancing technology deployment and to pave the way for new CCUS technologies to emerge. In doing so, Canada can leverage its leading position globally in carbon technology and continue building on its strengths.

<sup>1</sup> In this report, carbon technology refers to any carbon capture, utilization, storage, removal, measurement, monitoring, and transaction technology.



An aerial photograph of a dense, green forest with a winding road cutting through it. The text is overlaid on the image.

“Canada’s goal is to **position its industries to be green and competitive**, which includes developing a CCUS strategy to incentivise the development and adoption of this technology.<sup>1</sup>”

*– Global Status of CCS 2022*

# RATIONALE

## VENTURES TO VALUE CHAINS

**is a Foresight initiative that leverages data from technology companies and other key stakeholders to map and categorize strategically important industry value chains for Canada in the clean economy.**

This initiative will result in a searchable database which can be used as a tool to inform stakeholders on Canada's competitive strengths, ecosystem gaps, and areas of opportunity and growth. These insights can identify where targeted programming, research and development, or funding will bolster Canada's leadership and economic development as we transition to a clean economy and net zero emissions.



# CARBON TECH: THE VALUE CHAIN

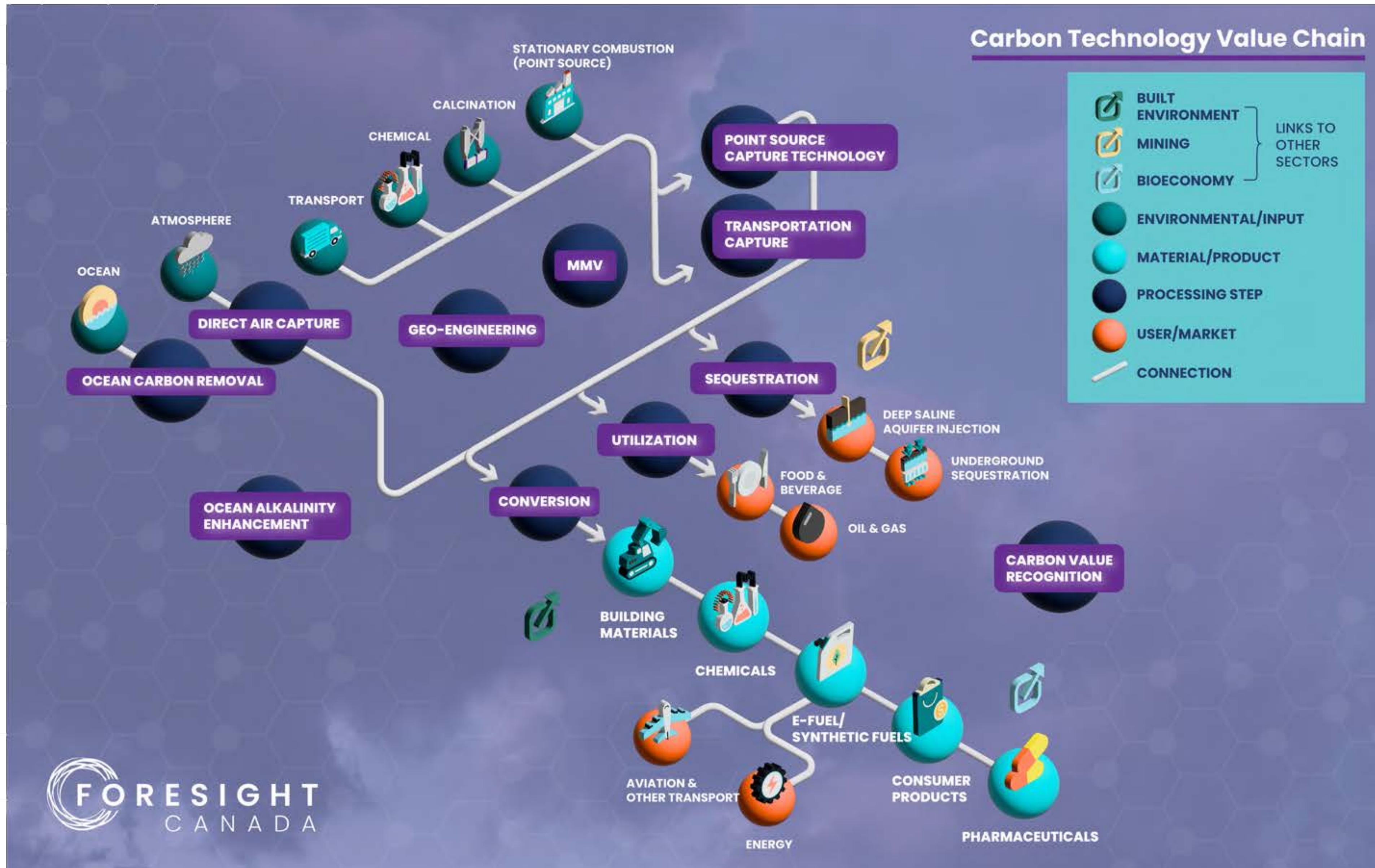


Figure 1

# THE CARBON TECH VALUE CHAIN

(Figure 1)

**describes the journey of carbon from emission source to capture and storage, utilization, or conversion. We identify a series of steps as carbon is processed, and note the ways in which they connect to users, markets, or the environment.**

As indicated in Figure 1, carbon dioxide (CO<sub>2</sub>) is emitted from sources including industrial chemical and calcination processes, stationary combustion, and transportation emissions, among other atmospheric and ocean sources. CO<sub>2</sub> is captured using either direct air capture (DAC), point source capture (PSC), ocean carbon removal, or transportation capture technologies. For definitions of terms in Figure 1, please refer to Appendix A.

The captured CO<sub>2</sub> is then sequestered, utilized, or converted into value-added products. In practice, sequestered CO<sub>2</sub> may be stored underground in favourable geological formations; however, to align with the criteria of the ecosystem mapping process, sequestration in this analysis refers only to technologies that function to store carbon (Appendix A). Utilization is defined as direct use of captured CO<sub>2</sub> in industries like food and beverage or through enhanced oil recovery (EOR). Conversion technologies refer to those which produce value-added products from captured CO<sub>2</sub> such as chemicals, building materials, synthetic fuels, consumer products, and pharmaceuticals.

Measurement, monitoring and verification (MMV), carbon value recognition, and geo-engineering technologies are innovative parts of the value chain that support the core activities of the CCUS process.

Carbon tech is a sector that intersects with many other industries, so the value chain identifies areas that overlap with other sectoral value chains in this initiative, such as mining, construction, and bioeconomy, as multiple companies may appear in other databases. This is not intended to be an exhaustive list of sectors that overlap with carbon.

“The deployment of **carbon dioxide removal (CDR)** to counterbalance hard-to-abate residual emissions is unavoidable if net zero CO<sub>2</sub> or GHG emissions are to be achieved.”<sup>6</sup>

– IPCC, 2022

# METHODOLOGY

**This research was conducted by mapping the carbon tech ecosystem, categorizing companies based on the processing steps outlined in the value chain, and analyzing how the companies were distributed across the value chain.**

The carbon ecosystem database comprises companies, enablers, and knowledge generators within the sectoral ecosystem. The value chain mapping and analysis focused on the companies which were included based on the following criteria:

- Are involved in carbon tech innovation, research, and development in some capacity.
- Are headquartered in Canada or have a strong Canadian presence in carbon tech innovation, research, and development.
- Have either a direct link to carbon or directly support carbon-related industries.

According to this criteria, it can be said that this analysis focuses on “pure-play” carbon technology companies. The Government of Canada defines pure-play cleantech companies as “companies that are predominantly engaged in developing and/or using innovative technologies that provide environmental benefits”.<sup>7</sup> Consulting and engineering companies working on CCUS projects are outside the scope of this research.



# METHODOLOGY



Companies were categorized to up to three value chain steps based on their innovation focus, then analyzed to identify both provincial and national trends.<sup>1</sup>

Keywords, functional categorizations, and secondary research were also used to provide additional context to the trends. Because the data can only indicate clustering and concentrations, and not why trends exist, observations are communicated as:

- **Areas of strength:** Areas where the data and supporting research suggests that the carbon tech sector is doing well and should continue to maintain.
- **Opportunities:** Areas where the data and supporting research suggests that there is an opportunity to grow, either because of minimal or uneven concentrations or because it is an area that can help meet the growing need for climate solutions.

For more detail on the methodology, see Appendix B.



# **CANADA'S** **CARBON TECH COMPANIES**

# DISTRIBUTION OF CANADIAN CARBON TECH ACROSS THE VALUE CHAIN

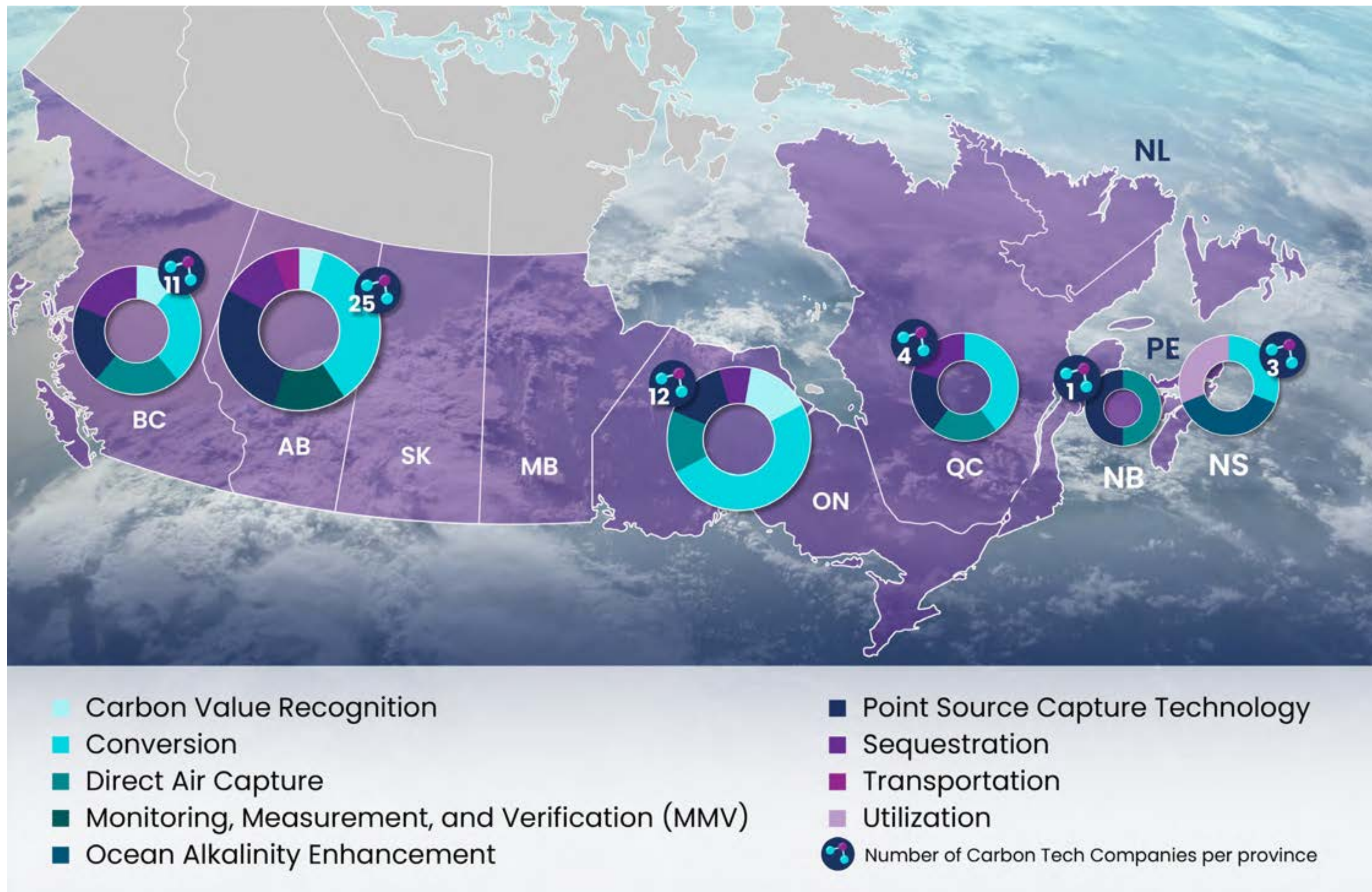


**Figure 2** Distribution of carbon tech companies across the value chain processing steps.

## CARBON TECH IS AN EMERGING INDUSTRY IN CANADA AND CONTINUES TO EVOLVE STEADILY,

particularly as the importance of deploying carbon technologies in hard-to-abate industries like cement and pulp and paper rises in importance to decarbonize the economy. The current distribution in the market is skewed towards conversion and point source capture technologies, with fewer companies in other categories. Given the absence of Canadian companies under these value chain steps, ocean carbon removal and geo-engineering are not reflected in Figure 2 or 3.

- ◆ Canada has **56** pure-play carbon tech companies compared to **699** globally.<sup>2</sup>
- ◆ These **56** companies represent a portion of **2,427** Canadian cleantech companies identified by Natural Resources Canada in 2022.<sup>8</sup> This number suggests that carbon tech is an evolving sector compared to more mature sectors such as water and agriculture.
- ◆ **25** companies were assigned as conversion, the largest category by frequency.
- ◆ **16** companies were assigned as point source capture: the second largest category.



<sup>2</sup>This number is from the Circular Carbon Market Report, 2022, which includes 70 Circular Carbon Market Infrastructure (CCMI) companies. CCMI companies are project developers and verifiers that may not have their own proprietary technologies and are thus excluded from our database.

**Figure 3**  
Canada's carbon tech companies





# DEEP DIVE: PROVINCIAL TRENDS

## THIS SECTION COVERS KEY TAKEAWAYS BASED ON AREAS OF STRENGTH AND CLUSTERING ACROSS THE PROVINCES.

Not every value chain category is represented in all provinces, which is to be expected. Many of the companies serve other provinces and territories. Some value chain categories represent niche or emerging areas that will develop organically where there is need.

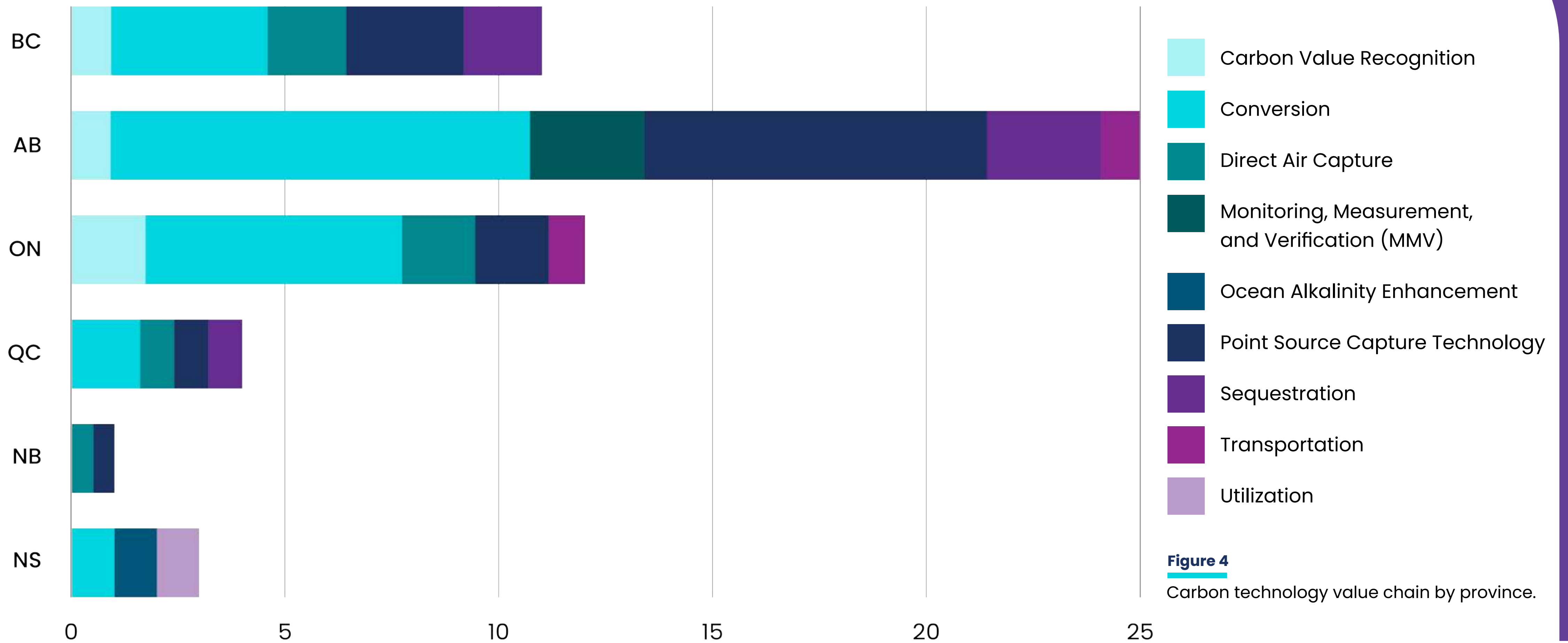
## KEY TAKEAWAYS

- Point source capture and conversion technologies have the most representation across provinces, notably in Alberta, British Columbia, Ontario, Quebec, Nova Scotia, and New Brunswick.
- DAC is spread across four provinces and is the second highest in provincial distribution.
- Ocean carbon removal and geo engineering technologies are not represented in Canada.

**"With its early carbon capture and storage project experience and considerable public and private investment in relevant technologies and projects, Canada is positioned to be a leader in the emerging carbontech sector if we move quickly to overcome the current barriers to technology development and commercialization."<sup>9</sup>**

*- The Carbontech Innovation System in Canada, 2020*

# CARBON TECHNOLOGY VALUE CHAIN BY PROVINCE

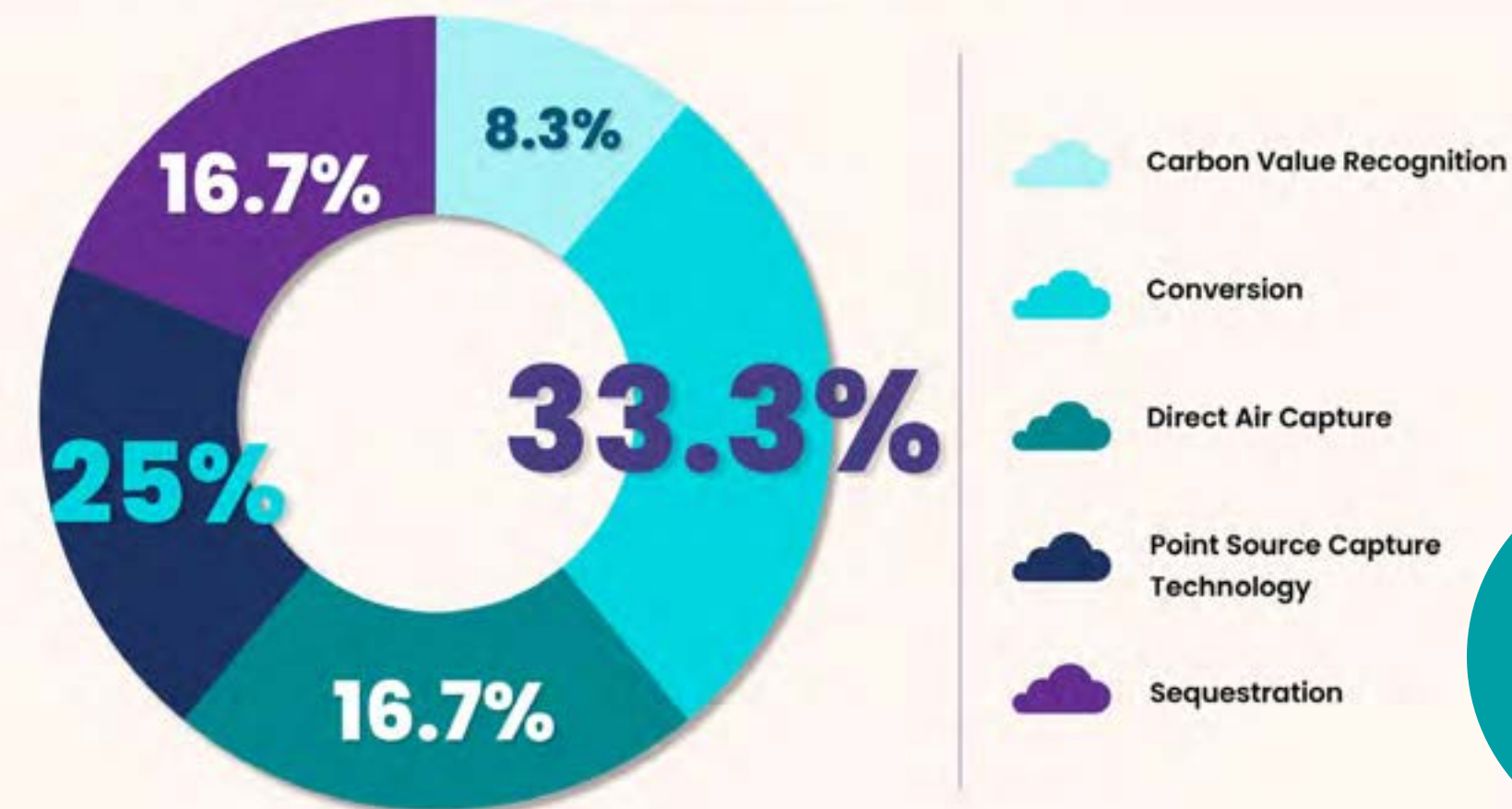


**Figure 4**  
Carbon technology value chain by province.

# BRITISH COLUMBIA

has Canada's **third largest** number of carbon tech companies.

## BRITISH COLUMBIA



# BRITISH COLUMBIA



## OBSERVATION

**BC HAS THE THIRD HIGHEST NUMBER OF CARBON TECH COMPANIES AFTER ON**

## SUPPORTING DATA

- ◆ BC is the third largest province by frequency (**11** companies)
- ◆ **Four** conversion companies, **three** PSC companies, and **two** DAC companies

## DISCUSSION

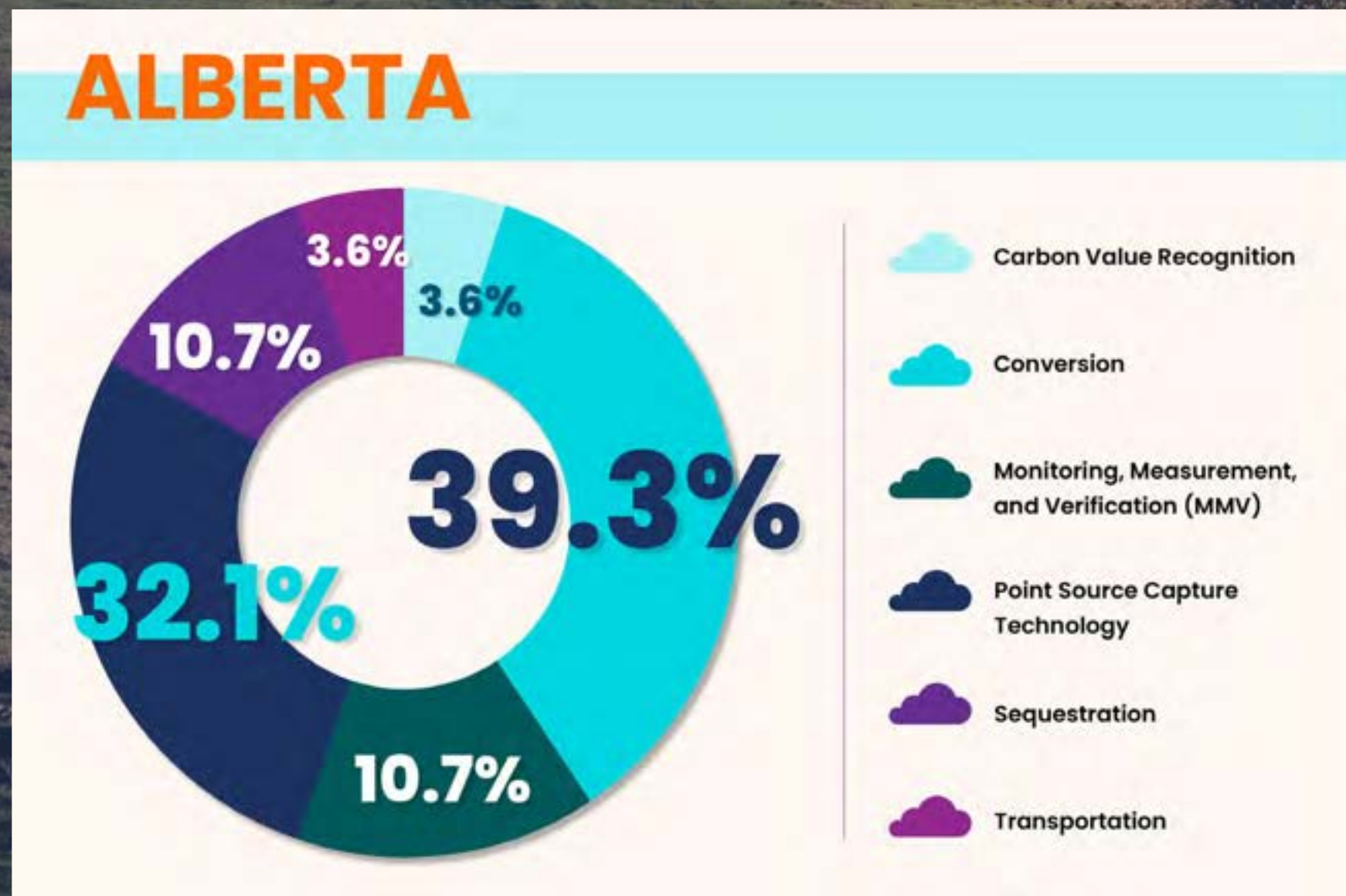
As the third largest provincial CCUS sector, BC has an opportunity to continue expanding its efforts, and the announcement of several projects and funding mechanisms may signal future growth.

In May 2023, the government of BC, as a part of its CleanBC Industry Fund, announced funding of \$5 million to Lafarge, a major cement manufacturer in the region, to develop technology to cut down emissions. Lafarge is implementing point source emissions capture technology, and will utilize the captured emissions as a byproduct in blending cement and manufacturing synthetic fuels.<sup>20</sup>

Additionally, the government of BC, as a part of the Innovative Clean Energy Fund (ICE), announced a \$2 million contribution to set up a DAC facility in Merritt. The Merritt facility will convert the captured carbon emissions into clean fuels.<sup>21</sup>

Innovative project funding and programs in the province could contribute to a growth in BC's carbon tech ecosystem.

# ALBERTA



Alberta has the highest number of carbon tech companies in Canada as well as the widest distribution of companies.

# ALBERTA

## OBSERVATIONS

**AB HAS THE HIGHEST NUMBER OF POINT SOURCE CAPTURE, SEQUESTRATION, AND CONVERSION COMPANIES IN CANADA**

**ALL MMV COMPANIES IN THE DATABASE ARE BASED IN AB**

## SUPPORTING DATA

- ◆ AB is the largest province by frequency (**25** companies)
- ◆ AB has the highest number of conversion companies in Canada (**11** conversion companies)
- ◆ **Nine** point source capture companies, and **three** sequestration companies

- ◆ All three MMV companies in Canada are in Alberta.

## DISCUSSION

The presence of a high number of carbon tech companies is unsurprising for a number of reasons. Alberta is home to 80 per cent of the oil found in Canada, and has the associated well-developed oil and gas infrastructure.<sup>10</sup> Additionally, Alberta's location in the Western Canadian Sedimentary Basin provides an ideal location to sequester carbon for the future, making it an attractive destination for the development of associated carbon technologies.<sup>11, 12</sup>

Additionally, the need to decarbonize Alberta's heavy-emitting industries like oil and gas, can be considered the rationale for developing point source capture technologies and the associated sequestration or conversion technologies in the province.

The high number of conversion companies in Alberta presents an opportunity to continue building on this cluster in the province.

The presence of a large number of carbon storage projects may explain the concentration of MMV technology in Alberta, as it is a safety requirement for carbon sequestration.<sup>13</sup>

It should be noted that this likely underrepresents the true number of MMV technologies in Canada, as this data reflects pure-play companies only, whereas some large project-based CCUS operations may develop MMV processes in-house. An example is the Shell Energy Quest project in Northern Alberta, which would not be captured within the scope of this database (see Appendix B).<sup>14</sup>



# SASKATCHEWAN

## OBSERVATIONS

**SK HAS NO CARBON TECH COMPANIES IN THE PROVINCE**

## SUPPORTING DATA

◆ **Zero** carbon tech companies

## DISCUSSION

Saskatchewan's economy comprises heavy emitting sectors like oil and gas, energy, agriculture, manufacturing, and mining, thus has a need for emissions reduction strategies to meet Canada's net zero goals.<sup>15</sup>

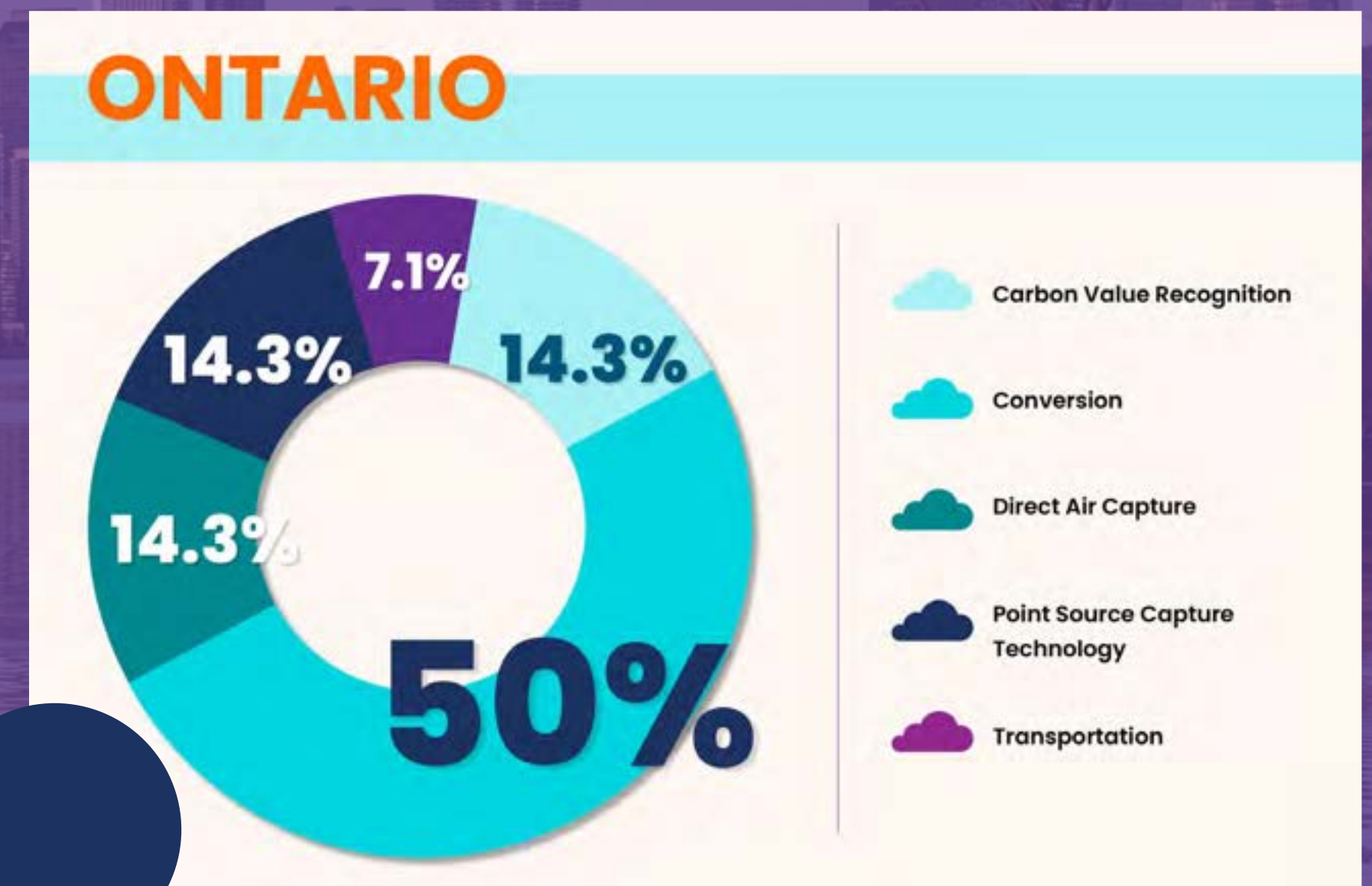
Saskatchewan is home to large-scale and well-established CCS projects, including the Boundary Dam power station. Despite an active CCS sector in the province, the absence of carbon tech companies may be explained by the fact that large-scale projects are often conducted by engineering, consulting, or oil and gas companies, which are outside the scope of this database (see Appendix B).

Additionally, carbon tech companies operating in Saskatchewan may be incorporated in other parts of Canada or internationally.

**Saskatchewan currently has no carbon tech companies based in the province by the criteria set in this database. This is notable given the presence of heavy-emitting sectors in the province, as well as several large-scale carbon capture and storage (CCS) projects.**

# ONTARIO

has the **second highest number of carbon tech companies** in Canada, with the majority categorized as conversion technologies.



# ONTARIO

## OBSERVATIONS

**ON HAS THE SECOND HIGHEST NUMBER OF CONVERSION TECH COMPANIES AFTER AB**

**CARBON SEQUESTRATION IS NOT YET ESTABLISHED IN ON**

## SUPPORTING DATA

- ◆ ON is the second largest province by frequency (**12** companies)
- ◆ **Seven** conversion companies
- ◆ **Five out of seven** conversion companies produce chemicals, two produce e-fuels

- ◆ **Zero** sequestration or MMV companies

## DISCUSSION

Ontario has a significantly higher concentration of conversion companies than other carbon technologies. This may stem from universities based in Ontario that have a research focus on innovation and solving complex tech challenges.<sup>9</sup>

The majority of Ontario's conversion companies produce chemicals, with two companies producing e-fuels. Ontario is home to Canada's largest chemical manufacturing hub and a well-established research and development (R&D) and innovation cluster in the sector stretching from Sarnia to Toronto to Kingston.<sup>16</sup> This clustering may have contributed to the development of chemical-focused carbon conversion technologies.

There is an opportunity to continue building on this conversion technology cluster in the province. In addition, the large manufacturing sector may provide demand for the offtake of value-added materials produced from carbon conversion processes.<sup>17</sup>

Ontario is currently testing carbon sequestration options, and the province is in the process of building a legislative framework to enable geologic carbon storage after a previous ban.<sup>18</sup> This will allow testing, demonstration, and eventually, commercial-scale projects.<sup>19</sup> Once this is validated, it may present opportunities for the development of sequestration and other related carbon tech companies; however, sequestration is not yet established in the province.



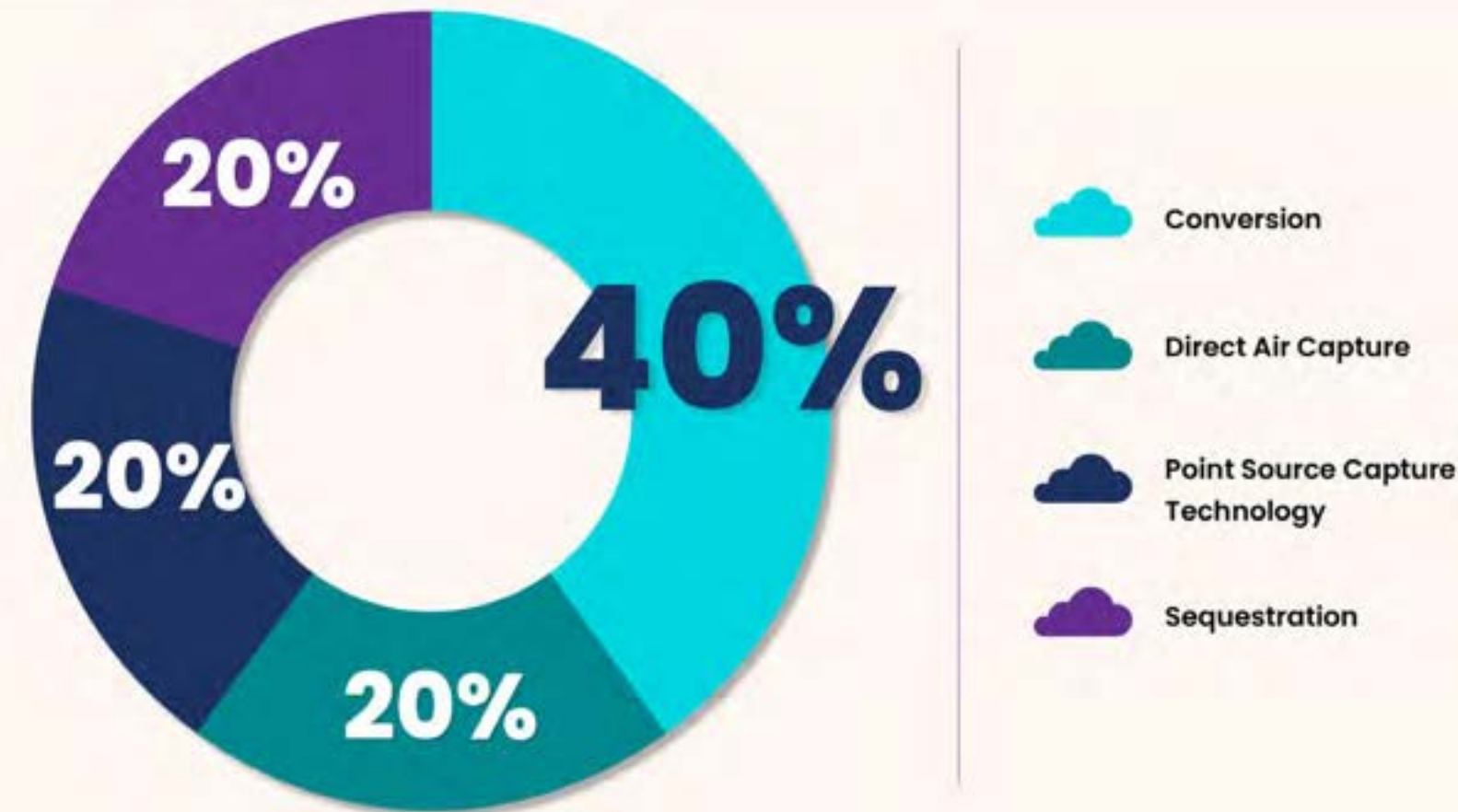
# QUEBEC + ATLANTIC CANADA

**Carbon technology is represented, but it is not an area of focus for Québec and Atlantic Canada.**



# QUEBEC + ATLANTIC CANADA

## QUÉBEC



## OBSERVATION

**CARBON TECHNOLOGY IS NOT AN AREA OF FOCUS FOR QUÉBEC AND ATLANTIC CANADA.**

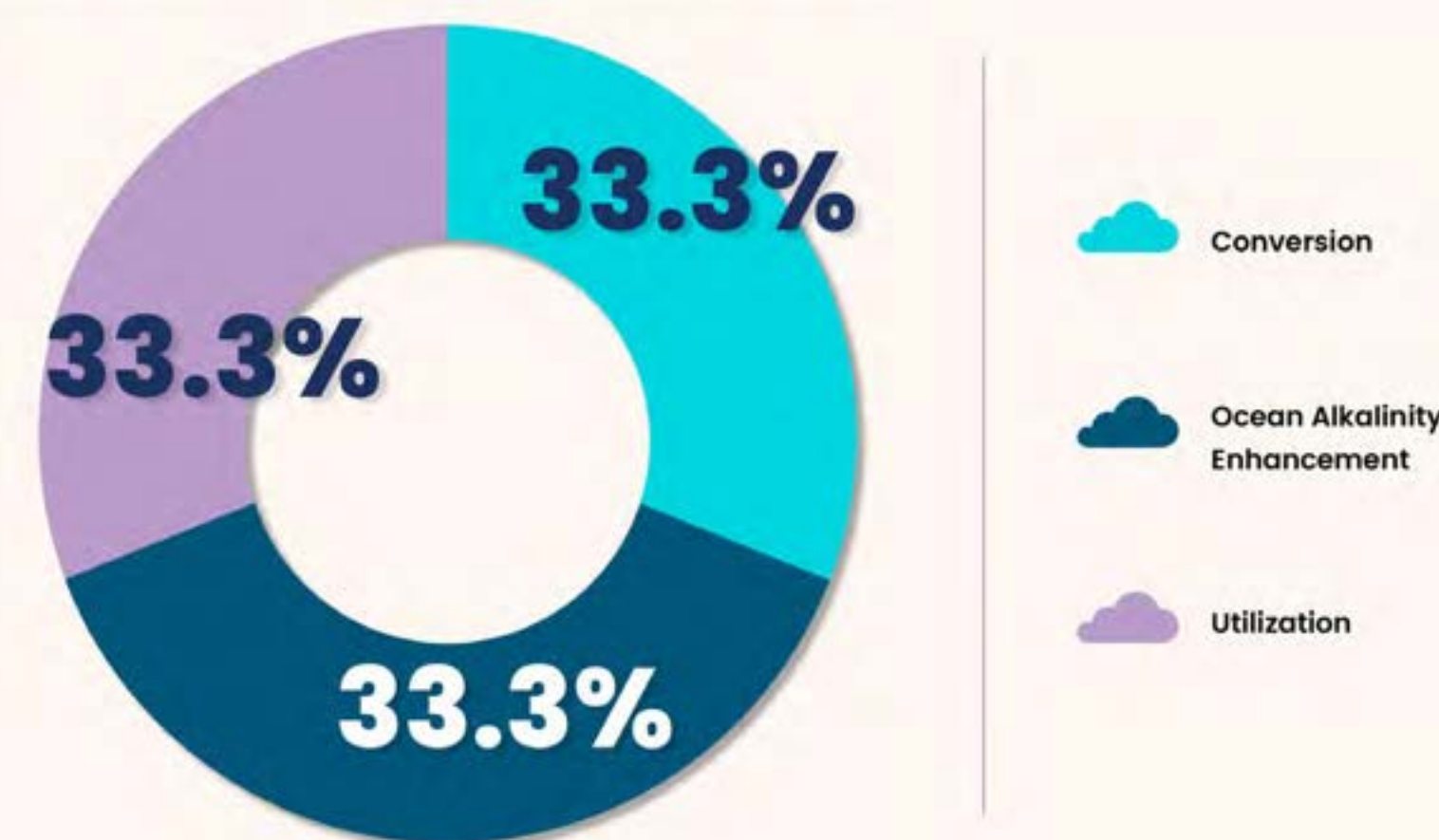
## SUPPORTING DATA

- **One** ocean alkalinity enhancement company in NS
- QC and Atlantic Canada (NS, NB) have **8** carbon technology companies in total

## NEW BRUNSWICK



## NOVA SCOTIA



## DISCUSSION

Carbon technologies are not an area of strength in these provinces. Each province has unique decarbonization needs, which may include future implementation of CCUS. However, the development of carbon technologies in Canada are, to date, concentrated in the western provinces.

Ocean-related carbon technologies may be a better area of focus for the Atlantic provinces, given the coastline.



# **CARBON TECH IN CANADA:** **STRENGTHS + OPPORTUNITIES**

A worker in an orange safety suit and white hard hat is seen from above, reviewing a clipboard on a green industrial floor. The background shows various pipes and machinery. A semi-transparent blue box with white and orange text is overlaid on the right side of the image.

**THIS SECTION OUTLINES  
IDENTIFIED AREAS OF  
STRENGTH + POTENTIAL  
OPPORTUNITIES FOR  
GROWTH  
IN CANADA'S CARBON  
TECH SECTOR**

**CANADA'S  
EXPERTISE IN  
LARGE-SCALE CCS  
PROJECTS IS WELL  
KNOWN GLOBALLY.  
FIVE OF THE 30  
CURRENT GLOBAL  
CCS FACILITIES  
ARE IN CANADA.<sup>1</sup>**

Stemming from experience in the oil and gas sector, these large-scale CCS projects have spurred the development of carbon technologies like PSC, DAC, and conversion, and the associated supporting technologies like MMV and carbon value recognition.

Besides suitable geology, expertise, and experience in large-scale CCS projects, Canada offers a favourable policy and regulatory landscape, R&D resources, and funding opportunities for carbon technologies to support the sector's growth.<sup>2</sup> Canada is also developing a Carbon Management Strategy to streamline the CCUS process and further realize its commercial potential in the carbon policy space.<sup>22</sup> Despite existing support, taking stock of strengths and opportunities in the landscape of carbon tech companies can help identify areas for targeted programming, R&D opportunities, and strategic funding needs to continue to leverage Canada's position in the space.



**Provinces can create and implement their own frameworks.** CCUS policy frameworks are more mature in Alberta and Saskatchewan than in other provinces, grounded in a history of CCUS projects and oil and gas-related experience.<sup>23</sup>

*- CCUS: The case for Canada, 2022*

# MMV TECHNOLOGIES

## OBSERVATIONS

### MMV IS AN AREA OF OPPORTUNITY

## SUPPORTING DATA

**Three** of **64** carbon tech companies were assigned to MMV in Canada

## DISCUSSION

MMV is integral to the *“safe and reliable operation of a CO<sub>2</sub> sequestration project.”*<sup>13</sup> Given that the number of CCUS companies will continue to rise in Canada, and MMV is an integral part of the system, it presents numerous opportunities for the technology.

The CCUS: The Case for Canada report highlights the need for better MMV technologies in the market. More effective technologies help build trust and reduce costs concerning MMV and the associated sequestration process.<sup>23</sup>

Despite the opportunity presented, and as previously noted, it is likely that the number of companies that conduct MMV are underrepresented in this database (see Alberta section for example).

**MMV technologies play an integral role in carbon capture and sequestration. As the deployment of carbon capture and sequestration technologies rises, demand for MMV technologies will also increase.**

# CAPTURE + SEQUESTRATION TECHNOLOGIES

A photograph of an industrial facility, likely a power plant or refinery, with several tall smokestacks emitting thick plumes of white smoke. The scene is set against a hazy, overcast sky, and the overall color palette is muted and industrial.

**CANADA OFFERS EXPERTISE, KNOWLEDGE, AND EXPERIENCE IN LARGE-SCALE CAPTURE AND SEQUESTRATION PROJECTS. THERE IS IMMENSE OPPORTUNITY TO EXPAND ON RELATED TECHNOLOGIES.**

A 3D architectural rendering of an industrial facility, showing a complex network of pipes, walkways, and structural elements. The scene is rendered in a dark, blue-toned environment, suggesting a digital or simulated industrial setting.

# OBSERVATIONS

## DAC IS AN AREA OF OPPORTUNITY

## POINT SOURCE CAPTURE IS AN AREA OF OPPORTUNITY

## SEQUESTRATION IS AN AREA OF OPPORTUNITY

# SUPPORTING DATA

**Six of 64** carbon tech companies were assigned to direct air capture in Canada.

**16 of 64** carbon tech companies were assigned to point source capture in Canada.

**Six of 64** carbon tech companies were assigned to sequestration in Canada.

# DISCUSSION

Engineered carbon dioxide removal (CDR) technologies such as DAC play a key role in Canada reaching its net zero goals.<sup>24</sup> Additionally, there is an increasing need for innovative capture technologies, both point source and DAC, in the market.<sup>23</sup> There is both a market and climate-related need for DAC, and therefore an opportunity to expand our expertise in this area.

Despite some strength in this category, government funding and incentives in Canada are significantly lower than other jurisdictions. This presents the risk of losing innovative companies through relocation to more favourable regions like the US. The Office of Clean Energy Demonstrations in the US has allocated 4.6 billion CAD to develop Regional DAC Hubs, which will further spur the development of the US DAC market.<sup>25</sup> For example, Carbon Engineering, a Canadian DAC company, is developing its first commercial-scale facility in the US.<sup>26, 27</sup> Furthermore, it was announced in August 2023 that Carbon Engineering is to be acquired by US company Occidental Petroleum.

Although many point source capture technologies are now available, the demand for these technologies will continue to rise as an integral component of the CCUS process. Canada has shown expertise in this category, with successful ventures like Svante providing point source capture solutions that are scalable and adaptable across industries.<sup>28</sup> The need for certain types of PSC technologies, such as those relating to low-cost solvents and post-combustion capture from flue gas, also presents an opportunity for innovation.<sup>23</sup>

Heavy carbon-emitting industries that are hard to decarbonize present an opportunity for increased demand for PSC. One such is the cement and concrete manufacturing industry. The recently announced net zero by 2050 pledge and action plan from the Cement Association of Canada mentions CCUS as an integral component, and notes a plan for a precedent-setting commercial deployment of CCS at a cement plant.<sup>29, 30</sup>

There is a need for innovative sequestration technologies, and associated technologies related to sequestration (such as those used to identify location and assess pore space availability) in the market, presenting an opportunity for Canada to build on existing expertise.<sup>23</sup>

Canadian provinces with early project experience, such as Alberta and Saskatchewan, have provided regulatory clarity on sub-surface sequestration. Issues surrounding pore space ownership, long-term liability management, social acceptability, and safety have already been addressed.<sup>23</sup> This early regulatory clarity has the potential to help pave the way for newer sequestration technologies and projects to take off.

# CONVERSION TECHNOLOGIES

## CONVERSION TECHNOLOGY IS A STRONG AREA IN CANADA

and represents most of the carbon tech companies in the value chain database. **Building on this strength can lead to successful innovation and clustering of related technologies.**

## OBSERVATIONS

CONVERSION TECHNOLOGIES ARE AN AREA OF STRENGTH

## SUPPORTING DATA

**25** of **64** carbon tech companies were assigned to conversion technology in Canada.

- ♣ **Six** companies assigned to building materials.
- ♣ **13** companies assigned to chemicals
- ♣ **Seven** companies assigned to consumer products
- ♣ **Six** companies assigned to e-fuels

## DISCUSSION

Canada has a high number of carbon conversion companies compared to any other in the carbon value chain. Of the 274 conversion companies present globally, 25 are Canadian.<sup>31</sup> Innovative companies are converting carbon into valuable products used in the consumer, construction, and transport sectors. Products like building materials, e-fuels, consumer products, and chemicals are being produced from carbon emissions.

The early growth of a large number of conversion technology companies in Canada may be linked to the original 2015 call for innovation in the Carbon XPRIZE competition, which focused on carbon conversion.<sup>32,33</sup>

Another factor for the growth of conversion technologies is Canada's academic research institutions, which have provided a demonstrated focus on R&D and technological innovation in recent years.<sup>9</sup>



# RECOMMENDATIONS

## **VENTURES, INVESTORS, GOVERNMENT, AND INDUSTRY CAN ALL BENEFIT FROM THIS DATA AND THE INSIGHTS IT PROVIDES ABOUT THE SECTOR AS WE TRANSITION TO A NET ZERO ECONOMY.**

**VENTURES ARE RECOMMENDED TO USE THIS DATABASE TO GLEAN VALUABLE INSIGHTS ON GAPS AND OPPORTUNITIES WITHIN THE ECOSYSTEM TO:**

- Identify innovation opportunities, potential partnerships, and competitors segmented both by geography and position in the value chain.
- Apply a broader understanding of where technologies fit on the value chain, and take stock of what other companies fit around them to better promote their existing strengths and make informed business decisions.

**INVESTORS AND INDUSTRY WILL ALSO FIND THIS DATA TO BE AN INVALUABLE TOOL TO USE WHEN EVALUATING INVESTMENT AND/OR ACQUISITION OPPORTUNITIES IN ORDER TO:**

- Understand the value-add prospective ventures provide by identifying their role in the value chain.
- Determine what competitors might exist for any given company.
- Identify strengths, opportunities, and trends in the Canadian market to inform business decisions.





**ADDITIONALLY, **GOVERNMENTS** CAN CONSIDER THE KEY INSIGHTS DERIVED FROM THIS DATA TO IDENTIFY TARGETED AREAS FOR SUPPORT IN A MORE COORDINATED AND INTENTIONAL WAY. KEY RECOMMENDATIONS FOR GOVERNMENT INCLUDE:**

- Leverage and build on regional strengths and clusters to support a thriving innovation landscape. These strengths and clusters include conversion technology in Alberta and Ontario, with a small cluster beginning to form in British Columbia. There is an opportunity to build on conversion technology clustering in these provinces with supportive policies and funding.
- Opportunity to support the advancement of MMV technologies, which can be deployed to support other carbon technologies across the CCUS value chain.
- Continue to build on funding and policy support for DAC technologies.
- Provide more coordinated effort across different industries for better funding and policy outcomes to support development and deployment of PSC technologies.



# CONCLUSION

**THE CANADIAN CARBON TECH ECOSYSTEM ACROSS THE VALUE CHAIN DEMONSTRATES THE SECTOR'S **STRONG TRACK RECORD OF INNOVATION AND EXPERTISE.****

Though carbon tech is a new sector with a long way to widespread deployment, this presents many opportunities for Canada to grow and lead as CCUS becomes more critical in the global race to net zero emissions.

Interested in learning more about Canada's carbon technology value chain?



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