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Japanese companies and investors wishing to explore opportunities for carbon capture storage (CCS) may want to look to the initiatives that are underway in Canada.

CCS technology involves capturing carbon dioxide (CO<sub>2</sub>) from industrial facilities, or directly from the air, and once captured, the CO<sub>2</sub> is then compressed and transported to be stored permanently in rock formations underground or used in creating products. Currently CCS is mainly used by facilities that produce energy and process fossil fuels, however, there are also opportunities to use CCS in other facilities which emit CO<sub>2</sub>, such as steel, cement and fertilizer production plants.

Canada is a global leader in CCS and considers CCS technology as an important component of a large set of measures Canada is pursuing to reduce greenhouse gas emissions. Several large-scale CCS projects are already operational and more projects are under development. To manage the growth of CCS, federal and provincial regulatory frameworks are being developed with input from industry experts and stakeholders, while projects are being supported through government funding and tax credits.

Canada's commitment to CCS presents an opportunity to companies and investors interested in researching, developing or investing in CCS. The Canadian government said it would allocate C\$2.6 billion over 2022 to 2027 to a tax credit for companies investing in projects that use CCS technology. The government is also investing C\$319 million over seven years into research and development to enhance the commercial viability of CCS, a program which, in April 2022, selected eleven early-stage projects for funding. In parallel to funding, a Carbon Capture and Utilization Strategy is being prepared which will set action areas for the industry. Meanwhile, provincial governments have also been pursuing CCS as a way to attract investment.

Canada boasts a number of CCS projects that have been commercially operating for a number of years. For example, the Weyburn and Midale projects which launched in Saskatchewan in 2000 and 2005 respectively involve capturing CO<sub>2</sub> in North Dakota, and then transporting it from the United States into Canada where it is delivered for enhanced oil recovery operations. In neighboring Alberta, the provincial government has committed C\$1.24 billion to two commercial CCS projects, Quest and the Alberta Carbon Trunk Line. The Quest project, developed by Shell Canada as part of its oil sands operations, started operating in 2015 and captures and injects underground over 1 Mt of CO<sub>2</sub> per year. The Alberta Carbon Trunk Line involves capturing CO<sub>2</sub> from industrial emitters and transporting it by a 240-km pipeline to an injection site. One remarkable offshoot of financing arrangements for the Quest and Alberta Carbon Trunk Line projects is a knowledge sharing program which gives the public access to both projects' technical information so as to help reduce barriers for

implementing large-scale CCS technology. Besides large scale projects, there have been several pilot projects which, if successful, could lead to large scale CCS projects.

The development of CCS projects has come alongside the development of federal and provincial regulatory frameworks for CCS. In Alberta, for example, a regulatory assessment involving global experts on CCS was conducted over 2011-13 and continues to inform the ongoing development of the province's regulations. In relation to CCS, Alberta has enacted funding legislation, clarified rights, responsibilities and liabilities for storage sites, and introduced a plan for a competitive process for carbon storage rights that will enable carbon storage hubs which can achieve greater economies of scale and better management of pore space underground.

To keep pace with the momentum behind CCS, the provinces have tended to re-tool existing legislation for application to CCS. For example, British Columbia amended its oil and gas regulatory framework to accommodate underground CCS projects. As such, in British Columbia currently covered CCS project owners are responsible for the remediation and reclamation of their sites after operations cease. Further, covered CCS operators are liable in perpetuity for any remediation and damages stemming from future CO<sub>2</sub> leakages on their closed sites. While these re-tooled frameworks allow for the development of CCS projects, these are interim solutions and it is expected that we will see further amendments more tailored to CCS in order to provide developers with more certainty and facilitate CCS financing.

Finally, in Canada the importance of establishing a clear and effective communication policy with impacted Indigenous communities cannot be overstated. Consistent with the spirit of Canada's Indigenous Truth and Reconciliation Commission, where a contemplated CCS project occurs on, or may impact, the land of Indigenous communities good faith consultations must be made as to how the project may be developed in a sustainable and mutually beneficial manner. The support of Indigenous communities is critical to ensure, amongst other aspects, the construction and maintenance of the pipelines required by CCS projects.

Japanese companies and investors wishing to better understand CCS technology or invest in CCS projects can consider taking advantage of Canada's lead in this area. Lessons learned in Canadian projects can inform strategies for Japanese to deploy CO<sub>2</sub> capture at home or overseas. Moreover, Canada's commitment to CCS could open up opportunities to invest or to participate in new projects which might advance the technology into new applications.

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