Cassels

Energy Transition Series: Energy Transition for the Canadian Energy Industry

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Welcome to the second of a three-part Energy Transition Series that will examine the changing legal and industry trends behind the emergence of the new renewable energy market.

Canadian companies across all industries are challenged to reduce greenhouse gas (GHG) emissions as the country transitions towards achieving net-zero GHG emissions by the year 2050.[1] Development of additional low carbon energy sources, such as wind, solar, hydrogen, renewable natural gas, and geothermal energy, as well as the supporting infrastructure, will be necessary to achieve these goals.[2]

Decarbonization of the Oil and Gas Industry

The Canadian oil and gas industry has already mobilized towards decarbonization. As mentioned in Article 1 of this series, oilsands producers Canadian Natural Resources, Suncor, Cenovus, Imperial Oil, and MEG Energy have formed an alliance to collectively reach net-zero emissions from their operations by 2050.[3]

Decarbonization also affects electricity generation in Canada. With the phasing out of coal production, electricity is increasingly being generated from low carbon, non-GHG emitting sources such as solar, wind, hydro and nuclear.[4]

Opportunities for the Canadian Energy Industry

Hydrogen Call to Action

Hydrogen is a fuel that produces zero GHG emissions when consumed, which makes it an ideal energy source with respect to the environment. It is released through fuel cells or undergoes combustion to produce electricity. It is estimated that clean hydrogen may account for up to 30% of Canada's end use energy by 2050.[5] In December 2020, the Canadian government introduced the Hydrogen Strategy for Canada with the goal of creating a new hydrogen-based economy in Canada and unlocking Canada's full hydrogen potential by 2050.[6]

Many of the provinces have implemented their own hydrogen strategies. British Columbia's Hydrogen

Strategy[7] mandates that 15% of natural gas consumption in British Columbia must be supplied by renewable gas such as hydrogen by 2030. To help achieve this goal, the province amended the *Greenhouse Gas Reduction (Clean Energy) Regulation*[8] and increased the amount of renewable gas that utilities can acquire and supply from 5% to 15% of their total annual supply of natural gas.

Alberta released its Natural Gas Vision and Strategy in October 2020, which included hydrogen production as a key growth area[9] and the province hopes to have large scale hydrogen production with carbon capture, utilization and storage (CCUS) by 2030, and export clean hydrogen by 2040. In June 2021, Air Products announced a multi-billion-dollar venture with the Government of Canada and Invest Alberta to develop a landmark net-zero energy hydrogen facility in Edmonton, Alberta that is expected to be onstream by 2024.[10]

Ontario released a discussion paper in late 2020 that laid the groundwork for consultations for a low-carbon hydrogen strategy.[11]

Carbon Capture, Utilization and Storage (CCUS)

Traditional (grey) hydrogen production releases CO_2 as a by-product and is not emissions-free. Unlike grey hydrogen, blue hydrogen is considered to be a clean energy source. Natural gas is converted into blue hydrogen through steam methane reforming but the conversion process is considered cleaner because the CO_2 emissions are captured and stored or used for enhanced oil recovery techniques (CO_2 injections).[12] One of the most prominent forms of emissions storage in the blue hydrogen industry is CCUS, whereby CO_2 emissions generated in the production of hydrogen are captured and permanently sequestered.[13] The CO_2 is transported to a storage site and contained rather than released into the atmosphere and may be permanently stored in underground geological formations or used for enhanced oil recovery operations. The legal and regulatory frameworks for CCUS vary by province.

Renewable Natural Gas

Renewable natural gas (RNG), often referred to as biomethane, is produced from biomass or organic matter from animals, plants and micro-organisms. Biogas is a mixture of methane, CO_2 and small quantities of other gases produced by anaerobic digestion of organic matter in an oxygen-free environment. Biogas can be produced from a variety of different feedstocks including crop residues, animal manure, municipal solid waste and wastewater sludge and is captured and cleaned to create carbon neutral RNG or biomethane. The legal and regulatory frameworks for RNG production vary by province. An increasing emphasis on renewable gas sources has created a market for RNG production.

Implications for Companies in Canada

Canadian companies are incentivized to decarbonize their own operations and to invest in the growing

green economy by continuing to develop technology to exploit decarbonized energy production. CCUS and RNG production are just a few of the clean technologies being used by the Canadian energy industry. The federal government is planning on allocating $15 billion in new spending on climate initiatives over the next 10 years.[14] Foreign investment in many of these projects has already begun and is being welcomed by Canadian governments. The escalating carbon tax, government grants, tax incentives and a myriad of other positive and negative incentives will likely continue to be introduced. Canadian companies will need to continue to examine their own internal procedures as well consider investment opportunities in the renewable sector.

Cassels provides strategic legal advice to clients across the country on Canada's transition to a low-carbon economy. Our lawyers have experience advising clients in the financial services, mining, oil & gas, renewable energy, and cleantech industries on energy transition matters. Energy transition opportunities for companies include carbon credits, green loans, building retrofits, battery metals, electric vehicles, carbon capture, use and storage (CCUS), low carbon fuels, and power purchase agreements for renewable energy. Our energy transition team has deep experience with the financing (debt and equity) of these projects and industries.

This is the second of a three-part Energy Transition Series that examines the changing legal and industry trends behind the emergence of the new renewable energy market. Topics include:

- *Energy transition overview*
- *Legal and regulatory trends in the Canadian energy industry*
- *Energy transition in the financial services industry*

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[1] This is mandated by Bill C-12, the proposed *Canadian Net-Zero Emissions Accountability Act*.

[2] Wind and solar energy projects have been historically more prominent in Canada and are not further described in this article. Geothermal energy projects will be described further in a subsequent article on the Landscape of Geothermal Energy as a Renewable Energy Source.

[3] Chris Varcoe, "Varcoe: An energy transition on hyper-speed takes off in Canada", *Calgary Herald* (June 28, 2021), online: <calgaryherald.com/opinion/columnists/varcoe-an-energy-transition-on-hyper-speed-takes-off-in-canada>.

[4] Government of Canada, *Energy and Greenhouse Gas Emissions (GHGs)* (October 6, 2020), online: https://www.nrcan.gc.ca/science-and-data/data-and-analysis/energy-data-and-analysis/energy-facts/energy-and-greenhouse-gas-emissions-ghgs/20063#L3

[5] Natural Resources Canada, *Hydrogen Strategy for Canada: Seizing the Opportunities for Hydrogen* (December 2020), online (pdf): <www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/environment/hydrogen/NRCan_Hydrogen-Strategy-Canada-na-en-v3.pdf> [NRCAN] at 69.

[6] NRCAN, *supra* note 5 at ix.

[7] Government of British Columbia, *B.C. Hydrogen Strategy*, online (pdf): https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/bc_hydrogen_strategy_final.pdf

[8] BC Reg 102/2012.

[9] Alberta Energy, Natural Gas Vision and Strategy (6 October 2020), online: <open.alberta.ca/publications/getting-alberta-back-to-work-natural-gas-vision-and-strategy>.

[10] Air Products, “Air Products Announces Multi-Billion Dollar Net-Zero Hydrogen Energy Complex in Edmonton, Alberta, Canada”, online: <https://www.airproducts.com/news-center/2021/06/0609-air-products-net-zero-hydrogen-energy-complex-in-edmonton-alberta-canada>.

[11] Ontario Ministry of the Environment, Conservation and Parks, *Ontario Low-Carbon Hydrogen Strategy Discussion Paper* (November 2020), online (pdf): <prod-environmental-registry.s3.amazonaws.com/2020-11/Ontario%20Low-Carbon%20Hydrogen%20Strategy%20-%20discussion%20paper%20%28November%202020%29.pdf>

[12] NRCAN, *supra* note 5 at 20.

[13] NRCAN, *supra* note 5 at 25.

[14] John Paul Tasker, “Ottawa to hike federal carbon tax to $170 a tonne by 2030”, *CBC News* (11 December 2020), online: <cbc.ca/news/politics/carbon-tax-hike-new-climate-plan-1.5837709>.

This publication is a general summary of the law. It does not replace legal advice tailored to your specific circumstances.