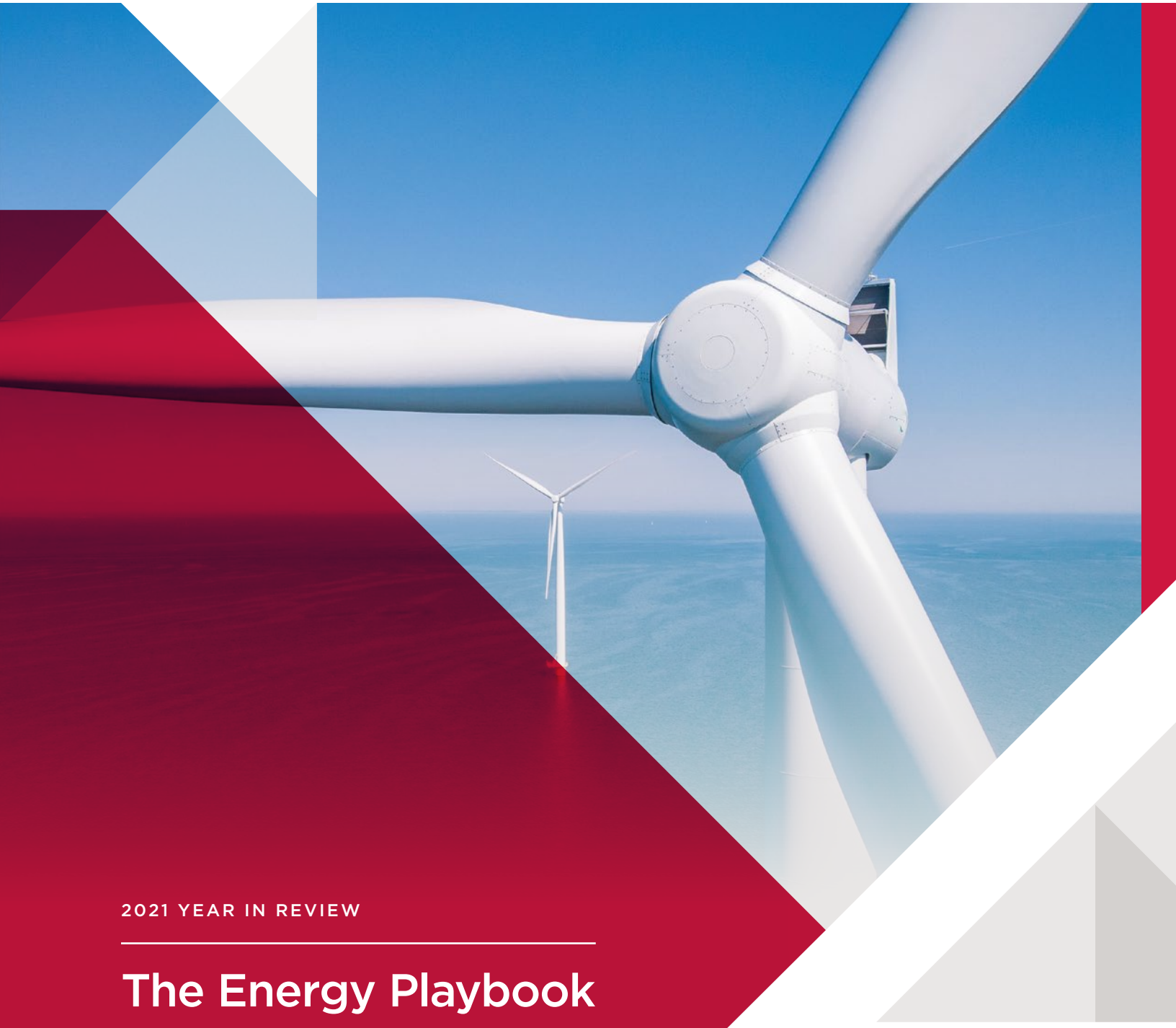


2021 YEAR IN REVIEW

The Energy Playbook

MLT AIKINS

WESTERN CANADA'S LAW FIRM

2021 – A Year of Fast-Paced Change in the Energy Industry

The energy industry saw dramatic changes in 2021 driven by government carbon reduction targets and company ESG objectives. This energy playbook highlights key developments in Western Canada throughout the past year and discusses some of the risks and opportunities for businesses.

The Federal Government set targets to reduce carbon emissions by 40-45% by the year 2030, and to reach net-zero emissions by 2050. These goals are forcing western Canadian energy industry participants to drastically rethink the way they operate. Federal legislation introduced in 2021 substantially tightened carbon reduction targets compared to the previous goal of reducing emissions by 31% by the year 2030.

Governments are not the only ones driving change. Companies are increasingly adopting ESG targets to achieve a net zero energy supply. Banks have also emerged as key players, committing to carbon disclosure requirements at the COP26 conference. This commitment could have immediate consequences for individual businesses.

The transition to a carbon-free future poses opportunities for western Canadian businesses. It is not at all clear which new energy technology will win the race to fill the carbon gap. In 2021, we saw multiple types of renewable energy sources, technologies and projects developed and promoted, many of which we summarize in this paper. Some of these technologies will be more effective than others in meeting short-term carbon reduction targets. We may require all of these technologies to achieve net-zero by 2050.

There were several energy partnerships with Indigenous groups this year. These not only open the door to government funding sources, they may also involve the application of sovereign laws on Indigenous lands. We are seeing the emergence of energy independence as an objective and opportunity for many Indigenous groups. Some First Nations have identified nature-based solutions, such as forest or grassland management projects, as a means for economic development through the sale of offsets to energy participants.

"The Transition" as it is coming to be called, played out differently in each of the four western provinces during 2021. In Alberta, there was particular excitement around hydrogen as a potential large-scale replacement for carbon-based fuels. In B.C. and Manitoba, construction proceeded on the Site C and Keeyask hydroelectric projects. Saskatchewan explored options such as carbon capture, small nuclear and imports as potential solutions to the carbon puzzle.

The scramble to find replacements for carbon fuels is playing out against a backdrop of changing federal and provincial legislative frameworks. In 2021, there were important developments in areas including new federal targets legislation, federal carbon pricing, CSI Oil and Gas Standards, and continued developments in mainline regulatory proceedings before the Canadian Energy Regulator.

The electrical grid continues to experience increased pressure as more industry participants crowd in to use transmission and distribution resources in ways the original designers never contemplated. As an interesting sign of things to come, utilities began to encourage their customers to charge electric vehicles during off-peak hours in 2021 to lessen the stress on the grid.

This comprehensive guide examines the clean energy landscape in Western Canada and identifies the latest developments and key risks and opportunities for industry participants.

Table of Contents

Federal Net-Zero Emissions Accountability Act

Recent changes to federal legislation have strengthened Canada's greenhouse gas (GHG) emissions targets, which are now as follows:

Year 2030	**Reduce GHGs by 40 – 45% below 2005 levels**
Year 2050	**Net-Zero – GHG emissions into the atmosphere are balanced by removals of GHGs from the atmosphere**

2021 Changes

In July 2021, Canada committed to cutting its GHG emissions by 40 – 45% below 2005 levels by the year 2030. The commitment is enshrined in federal legislation called the *Canadian Net-Zero Emissions Accountability Act* (the *"Net-Zero Act"*), which came into effect in January 2022.

The new commitments build on *Canada's Strengthened Climate Plan: A Healthy Environment and Healthy Economy,* which provided specific initiatives that would reduce emissions by 31% below 2005 levels by 2030.

The *Net-Zero Act* also sets a national greenhouse gas emissions target of net-zero emissions by 2050 and establishes a process to set five-year national emissions-reduction targets (in 2030, 2035, 2040, 2045 and 2050). Under the Act, net-zero is achieved when human-influenced GHG emissions into the atmosphere are balanced by removals of human-influenced GHGs from the atmosphere. The government will establish an advisory body to advise the Minister of Environment and Climate Change on meeting Canada's 2050 net-zero emissions goal.

Reduction Targets

The Minister must develop GHG reduction plans to achieve each incremental target, in consultation with the provinces and territories, Indigenous groups, the advisory body and other interested persons. The first plan (for the 2030 target) is due within six months of the legislation receiving royal assent at the end of January 2022.

The Act also provides for progress and assessment reports within specific timeframes, including explanations and measures if Canada is not meeting emissions. The Commissioner of the Environment and Sustainable Development must conduct an independent review of measures aimed at mitigating climate change at least once every five years.

The Commissioner must prepare at least one progress report for each milestone year no later than two years prior to that year. The first progress report is due at the end of 2023 and must contain:

- An update on the progress toward achieving the target
- Greenhouse gas projections for the next milestone year
- A summary of Canada's most recent GHG emissions inventory
- An update on federal measures and strategies

The Commissioner must also complete assessment reports that summarize Canada's GHG emissions after each milestone year. The assessment reports must set out whether Canada met each emissions target and the measures taken to achieve the target, or measures that could be taken to achieve future targets.

Implications for Businesses

Canada's new, more stringent climate commitments will no doubt accelerate emissions reduction commitments for industry and will likely require resource-extraction processes to become less energy-intensive.

ESG Driving Corporate Decisions

ESG considerations are driving major Canadian companies to adopt ambitious targets, such as having a sustainable energy supply for their operations by the year 2030.

What Is ESG?

Environmental, social and corporate governance (ESG) metrics use non-financial criteria to evaluate an organization from an ethical and socially conscious perspective. Numerous factors may be included under each of the "E," "S," and "G" categories. Common examples:

- *Environment (anything your company does that impacts the natural world):* ESG measures a business's carbon footprint, greenhouse gas emissions and other impacts on the environment, and the actions the business is taking in response.
- *Social (people and relationships):* ESG measures an organization's treatment of its own employees and employees throughout its supply chain, as well as equity, diversity and inclusion data, the organization's impacts on individuals and groups in the communities where it does business, and the actions the business is taking to manage social risks.
- *Governance (how well your company is managed):* ESG measures the board's effectiveness in overseeing the organization's ESG performance, as well as the board's effectiveness in undertaking traditional corporate governance activities.

Senior management and boards of directors of major companies across North America have championed ESG. Increasingly, ESG criteria are being used by the investment community to screen and rank potential investments and by the financial community in making decisions regarding the allocation of capital.

What's Changed?

ESG investing has evolved from prior investment approaches such as corporate social responsibility (CSR), sustainable investing and socially responsible investing.

Although these terms are similar and sometimes used interchangeably, the main difference is that earlier approaches often used value judgments and negative screening to filter out companies not to invest in (e.g. tobacco, chemicals, oilsands). On the other hand, **ESG investing and analysis look at finding value** in companies. Even if an industry or company has negative impacts, if they are mitigating their impact and improving their performance, they may be suitable for investment.

Why Is ESG Important?

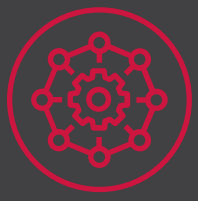
Sustainable investing continues to grow, with sustainable investments currently accounting for more than 50% of assets under management in Canada. That number is expected to rise significantly in the next few years.

ESG allows companies to communicate their sustainability risks and opportunities with stakeholders and investors. Sustainable investors are increasingly considering ESG criteria in their investment analysis and portfolio construction. Investors at every level (institutional, retail, individual) are actively seeking out sustainable investments. Likewise, financial institutions are allocating funds specifically to companies and organizations that have robust ESG programs.

ESG also allows organizations to assess performance and prioritize strategy. It is a key tool for identifying business risk and opportunity.

ESG Frameworks, Standards and Metrics

At the moment there is no single, consistent or globally accepted approach to ESG reporting. That said, below are examples of frameworks, standards and metrics that are commonly used:



ESG FRAMEWORKS

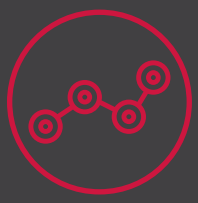
General ESG Principles / Why Report?

UN Sustainable Development Goals, UN Global Compact and International Integrated Reporting Council

ESG STANDARDS

ESG Reporting Guidance / What to Report?

Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), Climate Disclosure Standards Board, Task Force on Climate-Related Financial Disclosures (TCFD) and Carbon Disclosure Project. GRI Sector Standards under development for the most climate-impactful industries



ESG METRICS

Specific Measurement of ESG Performance / How to Report?

Specific aspects of an organization's operations. For example, the number of megatonnes of carbon that a business emits, and the presence/absence of a corporate whistleblower program.

Due to increasing calls from investors and companies for more transparent and comparable ESG reporting, the International Financial Reporting Standards Foundation announced the creation of the International Sustainability Standards Board (ISSB) in November 2021. Over the next few years, the purpose of the ISSB is to set a global baseline for guidance on the provision of comprehensive ESG disclosure to meet investors' and stakeholders' needs.

Key Trends

- *ESG Reporting Is Likely to Become Mandatory.* The EU rolled out a mandatory ESG disclosure regime in 2021 to be further refined in 2022. The UK starts in 2025. The US Securities and Exchange Commission is likely moving in this direction soon. In Canada, a June 2019 report from the Expert Panel on Sustainable Finance recommended a "comply or explain" approach to potential adoption of TCFD ESG framework. In October 2021, the Canadian Securities Administrators published proposed disclosure requirements consistent with TCFD requirements. In December, 2021, the Prime Minister issued a Mandate Letter to the Minister of Finance, calling on her to work with the provinces and territories to move toward mandatory climate-related financial disclosures based on TCFD requirements, and requiring federally-regulated institutions to do so. **In Canada, mandatory ESG disclosure is likely not "if" but "when."**
- *Increasing Scrutiny by Investors.* **75% of institutional investors say they may divest from companies with poor ESG performance, according to the 2021 EY Global Institutional Investor Survey.**
- *Most Companies Do Not Understand ESG Risks.* According to PricewaterhouseCooper's 2021 Corporate Director's Survey, nearly 64% of companies are linking sustainability issues to corporate strategy. However, 75% of boards do not understand ESG risks very well, nor do they have a strong understanding of their companies' sustainability messaging.
- *Activist Investors and Social Good Groups.* With companies under increasing scrutiny across many industries, there is the potential for numerous forms of ESG investor activism, which could affect public and private companies of all sizes. In the oil and gas industry there have been several recent examples of successful ESG activist campaigns.

New Legal Risks to Manage

The coming requirement for mandatory disclosure of a business's ESG performance will bring new legal risks to the forefront. Businesses face exposure to potentially significant legal risk if their ESG disclosures are insufficient or misleading. There has been a marked increase in climate-related litigation in recent years from various stakeholders. For example, a business may face activist shareholders who say that there has not been adequate disclosure of the risks the business faces due to climate change over the long term, and that affects their investment.

To mitigate these risks, organizations must have mechanisms in place to **carefully review ESG disclosures for accuracy and consistency,** at the appropriate level of decision-making in the business. Think in terms of the level of effort and diligence that goes into the disclosure of financial statements:

- *Internal controls* are needed to achieve the fine balance of getting ESG disclosures right. These should include annual audits reviewed by senior management and the board, and scheduled reviews and updates of ESG policies.
- *External controls* include third-party auditors to certify any ESG disclosure that investors or financers will rely upon.
- *Communications management* becomes essential. For example, an effective whistleblower program - knowing the ESG risks you face now is better than finding out later, and in a more public manner.

It has never been more important for businesses to have a well-defined ESG strategy that clearly identifies ESG risks and opportunities over short- and long-term horizons.

Learn more about our ESG practice and the services available to assist your company in developing a first-rate ESG strategy.

Toward a Hydrogen Economy?

Imagine if Western Canada's bountiful hydrocarbon resources could be converted into a clean fuel capable of producing electricity and powering motors, all with zero greenhouse gas emissions. That's the promise of hydrogen.

Hydrogen produces only oxygen and water as byproducts when burned in a turbine to produce electricity. Most hydrogen today is made from natural gas or methane in a process that strips out the carbon, which can be sequestered or captured for another use. Prototype hydrogen generation and transmission facilities can be found around the world. Small amounts of hydrogen can be blended into existing natural gas pipelines, but more robust pipelines are needed to carry pure hydrogen.

The assumption is that the cost of hydrogen could become viable in the carbon-pricing environment of the future.

How Big, How Soon?

A big question is whether, and how quickly, the industry can scale up to production at a large scale. This would include industrial-scale hydrogen production, a network of pipelines to transport hydrogen and readily available equipment and personnel for customers to make use of this fuel.

In December 2020, NRCan published a report authored by Zen and the Art of Clean Energy Solutions titled *A Hydrogen Strategy for Canada: Seizing the Opportunities for Hydrogen.* The report states:

> Canada has all the ingredients necessary to develop a competitive and sustainable hydrogen economy. The modernization of Canada's energy systems towards a low-carbon economy presents a unique opportunity to leverage Canadians' expertise to build new infrastructure assets to serve as a backbone for a low-carbon energy ecosystem across Canada **with hydrogen playing an integral role, delivering up to 30% of Canada's end-use energy by 2050**.

Planned actions by NRCan plans to include encouraging early deployment hubs in mature applications, Canadian demonstrations in emerging applications and employing regulations including the forthcoming *Clean Fuel Standard* to drive near-term investments. The report contemplates various roles for hydrogen in the energy system:

> Hydrogen can act as an energy carrier to enable increased penetration of renewables by providing time shifting and energy storage capabilities. Hydrogen adds optionality in a future net-zero mix, complementing other energy vectors such as direct electrification and biofuels, and serving as a bridge between energy grids in an integrated energy system…
>
> Adoption of hydrogen will be focused on energy-intensive applications where it offers advantages over alternative low-carbon options. This includes using hydrogen as a fuel for long-range transportation and power generation, to provide heat for industry and buildings, and as a feedstock for industrial processes.

Developments in 2021

In November 2021, the Province of Alberta published its *Hydrogen Roadmap*, aimed at accelerating the transition to hydrogen and carbon-capture.

In June 2021, Air Products Canada Ltd., in conjunction with the Governments of Canada and Alberta, announced a $1.3 billion net-zero hydrogen production and liquefaction facility to be built in Edmonton, expected onstream in 2024. The announcement states:

> The new facility will capture over 95 percent of the carbon dioxide (CO_2) from the feedstock natural gas and store it safely back underground. Hydrogen-fueled electricity will offset the remaining five percent of emissions. The clean energy complex will help refining and petrochemical customers served by the Air Products *[55-kilometer]* Heartland Hydrogen Pipeline to reduce their carbon intensity. The complex also marks a first in the wider use of hydrogen in Alberta, enabling the production of liquid hydrogen to be an emissions-free fuel in the transportation sector, and to generate clean electricity.

Also in June 2021, AECOM and EllisDon Corp. announced a partnership to move forward on constructing the $9 billion Prairie Link high-speed rail project connecting Edmonton and Calgary. Trains will operate with electric or hydrogen fuel cell propulsion.

ATCO has partnered with Suncor Energy to construct a facility near Fort Saskatchewan to produce more than 300,000 tons per year of hydrogen using advanced technology. The facility could be operational by 2028. In May 2021, Canadian Utilities Ltd., a subsidiary of ATCO, announced plans to blend hydrogen into a subsection of its Fort Saskatchewan natural gas distribution system at a concentration of 5% by volume. Blending hydrogen into the pipeline reduces the greenhouse gas intensity of the natural gas stream.

In September 2021, Mitsubishi Corporation and Shell Canada Limited announced a Memorandum of Understanding for producing low-carbon hydrogen using steam methane reforming technology. A new production facility near the Shell Energy and Chemicals Park Scotford is planned to come online toward the latter half of this decade, and Shell will provide CO_2 storage via the proposed Polaris CCS project. Hydrogen will be produced from a natural gas feedstock and exported mainly to the Japanese market to produce clean energy. The first phase of the project will produce 165,000 tons per year of hydrogen, which will be converted to low-carbon ammonia for export.

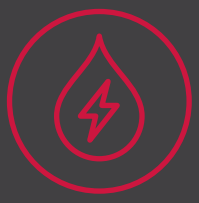
In October 2021, TC Energy announced a strategic collaboration with Nikola Corporation aimed at the development, construction, ownership and operation of critical hydrogen infrastructure for hydrogen-fuelled zero-emission heavy-duty trucks. The announcement states:

> A key objective of the collaboration is to establish hubs producing 150 tons or more of hydrogen per day near highly traveled truck corridors to serve Nikola's planned need for hydrogen to fuel its Class 8 FCEVs within the next five years. TC Energy has significant pipeline, storage and power assets that potentially can be leveraged to lower the cost and increase the speed of delivery of these hydrogen production hubs. This may include exploring the integration of midstream assets to enable hydrogen distribution and storage via pipeline and/or to deliver CO_2 to permanent sequestration sites to decarbonize the hydrogen production process.

All eyes will be watching whether hydrogen develops into a small, medium or very large part of Western Canada's energy future.

Hydrogen Quick Facts:

- Hydrogen can be used as a fuel to produce clean electricity – the only byproducts are oxygen and water
- Electricity can be produced by burning hydrogen as fuel in a turbine
- Electricity can be produced in a fuel cell by breaking down hydrogen using a chemical reaction
- Hydrogen can be produced from hydrocarbons such as natural gas and methane (called ***blue hydrogen***)
- Hydrogen can be produced by electricity and water (called ***green hydrogen***)
- Compressed hydrogen can be transported in a pipeline
- Compressed hydrogen (or ammonia) can be transported by truck
- Hydrogen can generate electricity to back up renewable generation sources such as wind and solar (and wind and solar can be used to make hydrogen)



The Hydrogen Council, a global CEO-led initiative of leading companies, estimates that by 2050, the global hydrogen sector could generate US$2.5 trillion per year and create 30 million jobs.

Western Canada Leads the Way with Carbon Capture Utilization and Storage

Carbon capture utilization and storage ("CCUS") is an important strategy as Canada moves to decarbonize the economy. With Canada taking measures to reach net-zero emissions by 2050, including creating a national backstop that places a price on greenhouse gas ("GHG") emissions, it is critical to find ways to draw down CO2 that is emitted into the atmosphere.

Numerous industrial processes generate CO2. However, this CO2 can be captured at the source of the emissions, such as at power plants and refineries. Once captured, concentrated CO2 can be transported to places where it can be used as an input, for example, for enhanced oil recovery ("EOR") or securely and permanently stored underground in deep geological formations.

Western Canada is a Leader in the Deployment of CCUS

In 2014, SaskPower deployed the world's first carbon capture facility that is fully integrated with a post-combustion coal-fired power plant. BD3 has surpassed four million tonnes of CO2 captured since operational start-up, and offers a proven industrial-scale application for carbon capture.

Alberta has also deployed carbon capture to reduce the province's GHG emissions. The Quest Project retrofitted one of Shell's upgraders for CCS and is the world's first application of the technology at an oil sands upgrader. Further, the Alberta Carbon Trunk Line Project (ACTL) is an example of shared infrastructure for CCUS with a 240-kilometer pipeline that carries CO2 captured from both the Sturgeon Refinery and the Nutrien Redwater fertilizer plant to enhanced oil recovery projects in central Alberta.

Provincial Governments Explore Shared CCUS Infrastructure

To manage the deployment of CCUS, both the Saskatchewan and Alberta Government are exploring the use of shared infrastructure to create CCUS hubs and CO2 pipelines. In Alberta, where the provincial government owns the pore space, a competitive process called the Carbon Sequestration Tenure Management Framework is being used to develop carbon capture hubs as opposed to one-off projects. The Alberta Government recently requested Expressions of Interest from companies interested in building, owning and operating a carbon sequestration hub in Alberta. Requests for Full Project Proposals will be accepted January 4-February 1, 2022 with the selection of successful proponents targeted for the end of March 2022.

Similarly, in Saskatchewan, in September 2021, the Minister of Energy and Resources announced the provincial government's key priorities to advance private sector investment in CCUS. One of the initiatives includes exploring opportunities for CCUS infrastructure hubs and distribution models, including for the Regina-Moose Jaw Industrial Corridor to Southeast Saskatchewan and Greater Lloydminster areas.

Capital Expenditures a Challenge for CCUS Projects

One of the greatest challenges for CCUS is that it requires significant capital expenditure. As a result, government support is critical to the deployment of CCUS, including through mechanisms that defray the costs, such as tax incentives. In its 2021 budget, the federal government proposed the introduction of an investment tax credit for capital invested in CCUS projects with the goal of reducing emissions by at least 15 megatonnes of CO2 annually. The government held an engagement process, seeking input from key stakeholders on the design of the investment tax credit. An important issue for Saskatchewan and Alberta will be whether CCUS projects for EOR will be included in the tax credit when it becomes available in 2022, as the federal government has yet to indicate whether CCUS projects for EOR will be included.

Regulatory Changes Required to Support CCUS

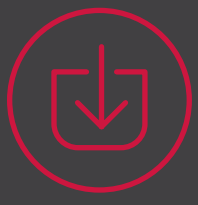
Government support for CCUS is also necessary through the creation of a regulatory environment that provides industry with certainty. While some provinces, such as Alberta, have created a fairly comprehensive CCUS regulatory regime, other provinces and aspects of the *federal government's climate* plan are still in development.

Important issues include:

- the ownership of pore space;
- long-term liability for stored CO2;
- a framework for how the reduction of GHG emissions will factor into the applicable Output Based Pricing System (OBPS); and
- an off-set credit program.

As new CCUS projects begin, it is important for industry participants to stay up-to-date on the regulatory landscape and government incentives available given the importance of these factors on the overall economic success of the projects.

CCUS involves the removal of carbon from emissions into the air, petroleum-based fuels and industrial processes. The question is, what to do with the carbon after it has been removed?



STORAGE

example: inject excess carbon at high pressure into an underground formation for safe, permanent storage

UTILIZATION

example: incorporate excess carbon into a chemical or building material for re-use

Small Modular Reactors (SMRs)

Small Modular Reactors (SMRs) are a promising new technology that could play an important role in Canada and around the world in the transition to clean energy systems and a low-carbon future. As a Tier 1 nuclear nation, Canada is uniquely positioned to become a global leader in this emerging technology, which could result in significant economic, geopolitical, social and environmental benefits.

What is an SMR?

SMRs are a new class of nuclear fission reactor that are physically smaller in size and power output than conventional nuclear reactors. The modular design also means that SMRs can be factory-constructed, portable, and scalable to suit local needs.

These attributes allow for a collaborative, fleet-based approach to SMRs in Canada, which involves the development and deployment of a large number of standardized units across multiple jurisdictions. With the support of Natural Resources Canada, various provinces, territories, power utilities, and other key stakeholders have taken important steps to securing a first-mover advantage by means of this strategy.

Key Events

In **November 2018**, the Canadian Small Modular Reactor (SMR) Roadmap Steering Committee published "A Call to Action: A Canadian Roadmap for Small Modular Reactors" (the "SMR Roadmap") which identified that Canada has the capabilities necessary for the successful deployment of SMRs in Canada. The SMR Roadmap suggests the following potential applications for SMRs in Canada:

- On-grid power generation, especially in provinces phasing out coal in the near future.
- On- and off-grid combined heat and power for heavy industry, including oilsands producers and remote mines.
- Off-grid power, district heating, and desalination in remote communities, which currently rely almost exclusively on diesel fuel.

The SMR Roadmap calls for the development of a risk sharing mechanism between governments, utilities, and industry to support early deployment in Canada by offsetting first-of-a-kind (FOAK) risk through appropriate financial and funding mechanisms. It also recommends modernization of legislative and regulatory requirements.

In **December 2019,** the Premiers of Saskatchewan, Ontario and New Brunswick signed a Memorandum of Understanding (the "**MOU**"), in which the parties agreed to work collaboratively in support of the development and deployment of SMRs. In 2021, Alberta became an additional signatory to the MOU.

As part of this process, the Government of Alberta announced the potential for SMRs to provide reliable, non-emitting, low-cost energy to remote and rural areas and its heavy industry applications to Alberta's oil sands to reduce carbon emissions in the oil and gas sector. To this end, the *Oil Sands Pathways to Net Zero* initiative, an alliance of Canada's largest oil sands producers operating 95% of oil sands production, is pursuing the accelerated application of SMRs to help achieve net zero greenhouse gas emissions from oil sands operations by 2050.

On **April 14, 2021,** as one of the MOU's deliverables, the Ontario Power Generation ("OPG"), Bruce Power, NB Power and SaskPower released a feasibility report for their respective provincial governments (the Feasibility Report). The Feasibility Report concluded that the development of SMRs would support domestic energy needs, curb greenhouse gas emissions, and position Canada as a global leader in this emerging technology.

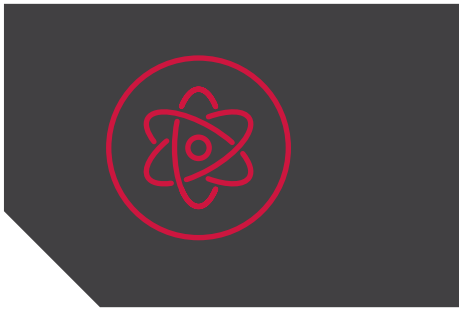
To make this initiative viable, the Feasibility Report noted that a fleet-based deployment would lower the cost of electricity from SMRs by reducing the timeframe and cost of licensing as well as reducing capital and operating costs. It would also support the potential for deployment of additional SMR generation in Saskatchewan and in other provinces.

The Feasibility Report highlighted that OPG plans to build Canada's first utility scale 300 MW SMR at the existing Darlington Nuclear Generating Station. The goal is to have its first SMR in commercial operation by the end of 2028. OPG's experience in licensing, construction and commissioning a first SMR project at Darlington has the potential to reduce the cost and schedule for deployment of a second SMR project in Saskatchewan between 2032 and 2042, with detailed information on the capital and operating costs.

The Selection of SMR Vendors

On December 2, 2021, OPG announced that it selected GE Hitachi Nuclear Energy to deploy an SMR at the Darlington new nuclear site, which is the only site in Canada currently licensed for a new nuclear build.

SaskPower has indicated that it is using OPG's analysis as the foundation for conducting its own vendor assessment, which it is expected to complete by the end of 2021.



Did You Know?

Bill Gates Supports Nuclear Power

In June, 2021, Bill Gates (of Microsoft fame) told the Nuclear Energy Institute's Nuclear Energy Assembly: *"We need more nuclear power to zero out emissions in America and to prevent a climate disaster."*

Gates is the founder and chairman of TerraPower, which has announced plans to build an advanced nuclear power plant in Wyoming.

Regulatory Framework

Regulatory agencies in Canada are already ramping up to address the SMRs. In October 2019, the Canadian Nuclear Safety Commission ("CNSC") and the Impact Assessment Agency of Canada ("IAA") entered into a Memorandum of Understanding to conduct an integrated impact assessment process led by a review panel to ensure that the principle of "one project-one assessment" is followed in reviewing designated projects regulated by the CNSC. It also seeks to ensure that any reviews are conducted in an efficient and effective manner, without unnecessary delays or duplication of effort.

National Indigenous Advisory Council

On December 15, 2021, the Government of Canada announced an investment of $800,000 in the First Nations Power Authority to create a national Indigenous Advisory Council as part of Canada's SMR Action Plan. The new advisory council met for the first time on November 29, 2021 and is composed of individual First Nations, Métis and Inuit members from Saskatchewan, New Brunswick, Ontario, Alberta and the territories. The initiative is funded through Natural Resources Canada's Smart Renewables and Electrification Pathways Program, which encourages Indigenous inclusion in Canada's energy transition.

SaskPower has also partnered with the FNPA to engage with Indigenous peoples and communities across Saskatchewan as it works to achieve net-zero emissions by 2050.

2021 Roundup of Wind and Solar Developments

According to data from the Canada Energy Regulator (CER), the following major wind and solar projects were planned, underway or completed in 2021:

WIND POWER

BRITISH COLUMBIA:

- Okanagan 90 MW

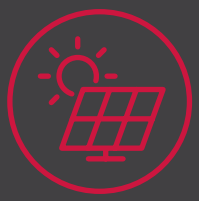
ALBERTA:

- Whitla 2 97 MW
- Castle Rock 30.6 MW
- Riverview 97 MW
- Cypress 202 MW
- Stirling 113 MW
- Buffalo Plains 48 MW
- Windrise 207 MW
- Jenner Expansion 194 MW

SASKATCHEWAN:

- Golden South 200 MW

SOLAR POWER



ALBERTA:

- Claresholm 130 MW
- Travers 465 MW

MANITOBA:

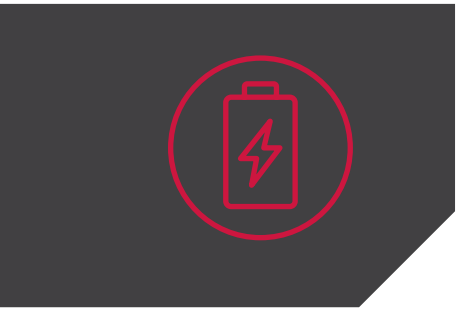
- Fisher River Cree Nation 1 MW

The CER reports total projected wind and solar capacity in the Western Provinces as follows:

	Wind (MW)		Solar (MW)	
	2020	**2023**	**2020**	**2023**
British Columbia	732	817	43	123
Alberta	1,746	2,826	36	1,236
Saskatchewan	221	645	42	102
Manitoba	258	258	48	51

Batteries and Energy Storage — Critical and Strategic Minerals and the Emerging Resource Security

The transition to electric vehicles (EVs) rapidly advanced throughout 2021, with many auto manufacturers releasing details on their EV plans moving forward. Throughout the year, companies continued to look for ways to electrify and upgrade their operations to reach their own net-zero goals and to satisfy increasingly stringent emissions compliance regimes.



These monumental transitions are resulting in changing resource markets. Many countries that have long focused on securing reliable sources of fossil fuels for their energy security have begun shifting their focus to securing reliable sources of critical and strategic minerals (CSMs). CSMs consist of minerals and rare earth elements required for technologies such as lithium-ion batteries and small modular reactors, which are needed for the transition to net-zero economies. They include lithium, cooper, manganese, cobalt and uranium.

Canada's Push

In 2021, Canada pushed into the CSM space. In March 2021, the Federal Government released a list of 31 minerals it considers vital to sustainable economic success. The 2021 Federal Budget proposed to allocate $9.6 million to form a Critical Battery Minerals Centre of Excellence to implement the Canada-U.S. Joint Action Plan on Critical Minerals first announced in 2020. The budget also proposed $36.8 million for "federal research and development to advance critical battery mineral processing and refining expertise." The Federal Government's CSM push was also on display at the Canada-European Union Leader's Summit, where a formal critical mineral alliance was announced between Canada and the EU. The same push was present at the North American Leader summit in November 2021.

Provinces Focusing on CSM Opportunities

Across Western Canada, provincial governments have also begun to focus on emerging CSM opportunities. The theme for the Government of Saskatchewan's Mining Week from May 30 to June 5, 2021, was "Saskatchewan's Critical Minerals Essential to Global Supply Chains," focused on highlighting the province's current CSM operations and future opportunities. The Government of Saskatchewan and the Saskatchewan Research Council also continued the development of Canada's first Rare Earth Processing Facility to establish a Rare Earth Element (REE) supply chain in the province.

Alberta took several steps to support what it has labelled the "next-generation minerals industry" throughout 2021. In November, the province released its Mineral Strategy and Action Plan, highlighting Alberta's untapped CSM resource opportunities – in particular, its lithium and uranium extraction plays. The province also announced Bill 82, the Mineral Resource Development Act, to establish the Alberta Energy Regulator as the lead authority on the province's mineral resource development and to provide clarity for industry looking to extract CSMs in Alberta. At the time of writing this article, Bill 82 has passed third reading and is anticipated to become law.

Opportunities and Challenges Entering 2022

As we enter 2022, the ongoing energy transition will continue to put pressure on CSM markets and new opportunities will undoubtedly open up. Canada has long been known as a mining nation. Western Canada, in particular, is familiar and experienced with the types of projects needed to seize new CSM opportunities.

With new laws come new legal risks and considerations for the CSM industry. New technologies are rapidly advancing for CSM extraction and refining. For instance, the technologies being developed throughout Western Canada to extract lithium from subsurface brines are more akin to oil and gas operations than what some think of as mining operations. Novel issues are also arising for the international trading of CSMs, as companies, investors and countries are increasingly guided by ESG factors and carbon intensity metrics. Moving into 2022, the CSM industry will need to remain alive to these many novel issues and how they may impact their operations or bottom line.

Status of Major Hydroelectric Projects

Keeyask Generating Project

Generation Type:
Hydroelectric

Capacity:
695 MW

Location:
Nelson River in Northern Manitoba

Ownership:
The Keeyask Hydropower Limited Partnership, consisting of Manitoba Hydro, Tataskweyak Cree Nation, War Lake First Nation, York Factor First Nation and Fox Lake Cree Nation, acting through subsidiary/development corporations.

Site C Clean Energy Project

Generation Type:
Hydroelectric

Capacity:
1,100 MW

Location:
Peace River in Northeast B.C.

Ownership:
BC Hydro

During 2021, all major concrete operations on the Keeyask project were completed. The first five of seven generating units were brought online and are now generating power for the grid (and in January, 2022, the sixth unit was released for service). Work is continuing on the balance of the project.

In July, employees conducted a walk to honour missing children from residential schools, followed by a sharing and healing circle and a meal. In August, a forest fire north of Split Lake temporarily limited access to the construction site.

As the project approaches completion, infrastructure is being decommissioned and removed from the site. During 2021, Iron North (a Cree Nation Partner joint venture contractor) planted 217,500 tree seedlings as part of the site re-vegetation program.

For further information see keeyask.com.

In late 2020, a stretch of the Peace River was successfully diverted through two tunnels. This enabled Site C construction to proceed on two cofferdams across the main channel in 2021. There was progress on earthworks at the dam site, as well as the construction of the powerhouse, spillways and transmission line.

Various associated work was undertaken, including road and bridge construction, building wildlife habitat structures and the construction of a 2.6-kilometre shoreline protection berm in Hudson's Hope. A portage program operated during summer months to transport boats around areas of waterway closures.

For further information see sitecproject.com.

Manitoba and British Columbia have substantial hydroelectric resources and offer green, sustainable power as part of their standard offerings to customers.

BC Hydro says that over 97% of its supply is renewable based on hydroelectric and other renewable generation sources. Manitoba Hydro says that over 99% of its supply is renewable.

Manitoba-Saskatchewan Transmission Line Completed

In March 2021, Manitoba Hydro and SaskPower completed and energized the new 230 kV electricity transmission line from Birtle, Manitoba to Tantallon, Saskatchewan. Manitoba Hydro was responsible for constructing the 46 km portion of the line from Birtle station to the Manitoba-Saskatchewan border, and SaskPower was responsible for constructing the 30 km portion of the line from the border to the Tantallon switching station.

A joint venture partnership between the Indigenous community of Birdtail Sioux and Forbes Bros. Inc. constructed the Manitoba line. The project received approval for up to $18.8 million in federal funding under the Investing in Canada Infrastructure Program, Green Infrastructure Stream.

The transmission line was constructed to facilitate a long-term power purchase agreement between Manitoba Hydro and SaskPower that will see up to 215 MW of renewable hydroelectricity flow from Manitoba to Saskatchewan beginning in 2022. The agreement will last a minimum of 18 years with a potential extension up to a total of 30 years. This is the largest of three recent major power deals between the two provinces. By 2022, Manitoba Hydro will be supplying up to 315 MW of hydroelectricity to SaskPower.

It is estimated that imported hydroelectricity from Manitoba will enable SaskPower to achieve emissions reductions of approximately 1.3 megatonnes of CO_2 equivalent per year by displacing fossil-fuel power generation in Saskatchewan. The new transmission line will also improve the reliability of the electrical grid between the two provinces.

"It is estimated that imported hydroelectricity from Manitoba will enable SaskPower to achieve emissions reductions of approximately 1.3 megatonnes of CO2 equivalent per year by displacing fossil-fuel power generation in Saskatchewan."

Fuel-Switching

BC Fuel-Switching Discounts

In February 2021, the Government of British Columbia allocated $84 million of federal green infrastructure funding to create the *CleanBC Facilities Electrification Fund.* The fund incentivizes industrial customers to switch from carbon-based fuels to BC Hydro's clean electricity grid (see: BC Hydro 2020/21 Annual Service Plan Report).

As part of this initiative, BC Hydro is offering two categories of rates to transmission service customers:

- Clean Industry and Innovation Rate (Rate Schedule 1894)
- Fuel Switching Rate (Rate Schedule 1895)

Both rates offer a discount from the standard transmission service rate on both the energy charge and demand charge for a period of seven years:

- First five years: 20%
- Year six: 13%
- Year seven: 7%

The rates will expire on March 31, 2037, at which time customers will be moved to a standard transmission service rate.

There is an energy cap of 5,000 gigawatt hours (GWh) a year for all customers under these rates, of which 1,500 GWh/year is allocated to customers under the Clean Industry and Innovation Rate and 3,500 GWh/year to customers under the Fuel Switching Rate.

The Clean Industry and Innovation Rate is available to two types of new customer plants:

- New customer plants that use a process to remove greenhouse gases from the atmosphere or produce a renewable or low-carbon fuel.
- Data centres with annual energy consumption greater than 70 GWh/year.

The Fuel Switching Rate is designed to encourage existing and new industrial customers to electrify their operations by connecting into BC Hydro's grid, instead of relying on fossil fuels. This rate is available to a range of customers, including:

- New customers who can demonstrate that there was a viable alternative to power operations using fossil fuels, but instead designed their plants to be powered by electricity supplied by BC Hydro.
- Existing distribution service customers who permanently modify their operating plant to take electricity supply from BC Hydro at 60 kilovolt (kV) as an alternative to powering their operations with fossil fuel.
- Existing customers who design an expansion project to take the incremental electricity supply from BC Hydro as an alternative to powering their expansion project with fossil fuel. The fuel switch portion of a customer's project must result in an increase in electrical energy consumption of at least 20 GWh/year.

Manitoba Gasoline Requirements

On January 1, 2021, Manitoba increased the amount of ethanol required in gasoline to 9.25% from 8.5%. That requirement will grow to 10% in 2022. The biodiesel component of gasoline increased to 3.5% from 2% in 2021, and will rise to 5% in 2022.

These increases, first identified in the 2017 *Made-in-Manitoba Climate and Green Plan*, are intended to reduce GHG emissions.

New Federal Carbon Pollution Pricing System Benchmark

In August, 2021, the Federal Government issued a new benchmark under the *Greenhouse Gas Pollution Pricing Act* (the "GHG Act"). The GHG Act imposes a tax on gasoline in any provinces or territory that do not meet the benchmark (often called the ***carbon tax***).

The Legislative Scheme

The GHG Act operates as a backstop piece of legislation: it only applies in provinces and territories that do not meet the federal benchmark. A number of provinces have created their own frameworks to control greenhouse gas emissions, to avoid a carbon tax. Revenues from the carbon tax are returned to the province or territory where they were collected.

In March, 2021, the Supreme Court of Canada in a 6-3 decision ruled that this legislative scheme is constitutional and that Parliament has jurisdiction to enact this law as a matter of national concern under the peace, order and good government (POGG) clause of section 91 of the Constitution Act, 1867 (for detail see: *Reference re Greenhouse Gas Pollution Pricing Act,* 2021 SCC 11).

The GHG Act has two parts: (1) a fuel charge (the carbon tax); and (2) an output-based pricing system for certain industrial sectors. There are a number of exceptions set out in the legislation.

In 2016, the Pan-Canadian Approach to Pricing Carbon Pollution set out the principles on which the federal approach to pricing carbon pollution is based, and established minimum national stringency criteria that all systems must meet to ensure they are comparable and effective (the ***benchmark***). The initial benchmark applied for the period 2018 to 2022.

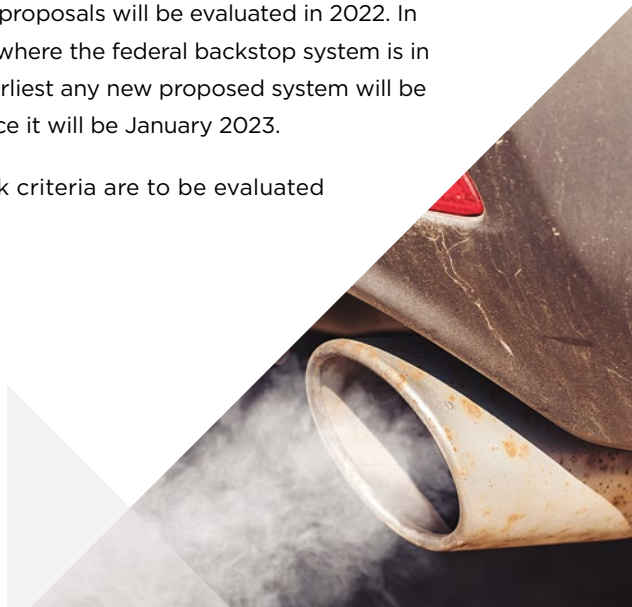
New Benchmark

The new benchmark will be in effect from 2023 to 2030. Provincial and territorial carbon pricing systems will now be required to meet or exceed the new benchmark to avoid the application of a carbon tax.

The following are the key features of the new benchmark:

- The minimum price on carbon pollution (for direct pricing systems) will increase by $15 per tonne per year starting in 2023 through to 2030.
- All provincial and territorial carbon pricing systems will need to cover the same proportion of emissions as would be covered by the federal backstop.
- Reducing fuel taxes to offset the carbon price.
- Output-based pricing systems for industry must be sufficiently stringent to create strong markets that maintain a clear price signal across all covered emissions that is aligned with the minimum carbon price.
- Protections against carbon leakage must be restricted to at-risk sectors.
- Offset credits must meet the best practices identified by the Canadian Council of Ministers of the Environment.
- Provincial and territorial carbon pricing systems must be aligned with the New Benchmark until 2030. Once a system is in place in 2023, it will stay in place until at least 2027.
- All provinces and territories have the opportunity to propose their own carbon pricing systems for 2023-2030. These proposals will be evaluated in 2022. In jurisdictions where the federal backstop system is in effect, the earliest any new proposed system will be able to replace it will be January 2023.

The benchmark criteria are to be evaluated again by 2026.



First Nation Energy Sovereignty

A report by the Pembina Institute suggests B.C.'s generation capacity will have to increase by between 19% and 34% by the year 2030 in order to achieve the province's legislated GHG reduction targets.

The report says satisfying a portion of the forecast growth through First Nation projects presents a significant opportunity to increase support for Indigenous leadership in the energy sector, fulfil the objectives of the Declaration on the Rights of Indigenous Peoples Act and support the self-sufficiency requirement in B.C.'s Clean Energy Act. Creation of a First Nations Power Authority is recommended to bridge new energy policies in which First Nations act as broker and seller, and advocate for energy policies in B.C.

In B.C., First Nations own, operate or co-partner 79 grid-tied renewable energy projects. Combined, these projects deliver 13% of B.C.'s electricity. Most are small-scale hydro, solar, wind or bioenergy projects. The report suggests that at least 13 First Nation grid-tied renewable energy projects, representing 807 MW of capacity, are shovel-ready and could be developed to sell power to the grid. The report is critical of previous analysis that no new energy is required until 2031 to meet B.C. demand, arguing it is inconsistent with requirements for sustainable energy to meet GHG targets under the legislation. A technical appendix to the Pembina report indicates that additional power would be required to achieve GHG goals.

Cole Sayers of the New Relationship Trust said:

> *"First Nations across B.C. are organizing around energy sovereignty and self-determining what our priorities are and how best to achieve them. This includes exploring what a First Nation Power Authority could look like, one that will serve our interests — by First Nations, for First Nations. The establishment of a First Nation Power Authority model in B.C. would build expertise, capacity, and policy advocacy experience among First Nations. All are critical to advancing Indigenous energy sovereignty, economic reconciliation, and providing crucial input to provincial energy policy."*

Throughout 2021, many First Nations also actively pursued land designations specifically for energy projects and as a means for economic development from reserve lands. Land designations allow First Nations to lease portions of reserve lands to third parties for specific development of energy projects.

Nature-Based Solutions and Offsets

Carbon offsets remain important for the energy industry's large emitters, who rely on offsets to comply with emissions regimes or to satisfy ESG requirements. For example, Shell supports several nature-based solutions across Canada.

Throughout 2021, project developers and stakeholders, including First Nations and Métis communities, paid attention to the push for nature-based climate solutions.

Some First Nations have identified nature-based solutions, such as forest or grassland management projects, as a means for economic development through the sale of offsets to energy industry participants. Further, such projects also allow First Nations to take part in conservation efforts and continue in their role as environmental stewards. Coastal First Nations have been producing offsets for sale on the voluntary offset market since 2009 through forest conservation efforts. Fishing Lake Métis Settlement and Elizabeth Métis Settlement in Alberta, and Wuskwi Sipihk First Nation in Manitoba have established similar forest offset projects.

In March 2021, the federal government released information on the development of federal offset protocols. Projects established under a federal offset protocol can produce carbon offsets large emitters can use to comply with the federal GHG emissions reduction compliance regime. Improved Forest Management is one of the offset protocols currently under development. The federal government is also considering the development of Afforestation/ Reforestation and Management and Avoided Conversion of Forests.

Moving into 2022, we anticipate First Nations, Métis communities and energy industry participants will continue seeking nature-based opportunities and closely follow changes to the rules governing compliance and voluntary offset markets. These fast-evolving rules may result in increased opportunities for partnerships between these three groups.

Energy Opportunities and Developments by First Nations

Clean Energy in Northern and Indigenous Communities

The 2021 federal budget announced new funding that will provide opportunities to Indigenous Communities across Canada, including (i) $40.4 million over three years beginning in 2021 for hydroelectricity and grid connectivity projects in Canada's North; and (ii) $36 million over three years beginning in 2021 for clean energy projects in First Nation, Métis and Inuit communities.

BC Indigenous Clean Energy Initiative

Ten First Nations throughout BC will receive nearly $3 million in funding to develop alternative energy projects and advance energy efficiency in their communities through the British Columbia Indigenous Clean Energy Initiative (BCICEI), with provincial support through CleanBC. BCICEI is funded by the Province of British Columbia, Government of Canada and New Relationship Trust.

The alternative energy projects are intended to assist remote communities in replacing diesel power, reducing GHG emissions and increasing energy independence for First Nations. Energy projects range in size and scope, from helping the Penelakut Tribe install a solar photovoltaic system at the community school to equipping the Northern Haida Gwaii Hospital and Health Centre with a biomass system to supply hot water heating. Prior to the 2021 intake, the BCICEI program provided nearly $9 million to support 57 projects, many in remote, off-grid or diesel-dependent communities.

Treaty 8 First Nations

In October, 2021, The Treaty 8 Economic Development Corporation, a representing entity of the Sovereign Nations of Treaty No. 8 Chiefs, announced the appointment of Frank Meyer as its new Chief Executive Officer. Mr. Meyer brings a wealth of experience at the CEO and Board levels spanning areas such as international business, clean energy and research. The Development Corporation has a mandate to pursue business opportunities for and by the Treaty 8 Sovereign Nations.

Treaty No. 8 is home to 40 Sovereign Nations, with territory that encompasses Northern Alberta, Northwestern Saskatchewan, Northeastern British Columbia, and the Southwest portion of the Northwest Territories.

Cold Lake First Nation

In July, 2021, Cenovus Energy announced it had agreed to purchase solar power electricity and associated emissions offsets from a partnership between the Cold Lake First Nations (CLFN) and Elemental Energy.

The partnership will help Cenovus advance two of its ESG focus areas by addressing climate and greenhouse gas emissions as well as further supporting Indigenous reconciliation through economic engagement.

The southern Alberta project will add 150 MW of renewable energy to the province's electricity grid once completed and is expected to begin producing electricity in 2023. Cenovus has signed a 15-year PPA for the full output of the facility, providing the offtake contract necessary for the construction of the project and ultimately helping Cenovus mitigate its scope 2 emissions. Scope 2 emissions are those represented by purchased or acquired electricity, steam, heat and/or cooling. In Cenovus's case, these emissions primarily result from purchased electricity.

CLFN is part of the Denesųłiné Nation with 3,000 members and reserve lands around Cold Lake and Primrose Lake near some of Cenovus's oil sands projects in northern Alberta. The First Nation has been a long-time supplier of services at Cenovus's projects. Vancouver-based Elemental Energy is a privately held developer, investor and operator of renewable energy projects, including two existing solar facilities in Alberta.

Wood Buffalo Indigenous Communities

In September, 2021, Suncor announced it had signed agreements with eight Indigenous communities in the Regional Municipality of Wood Buffalo to acquire all of TC Energy's 15% equity interest in the Northern Courier Pipeline Limited Partnership. This historic partnership includes Suncor, three First Nations and five Métis communities whose 15% ownership stake in this pipeline is valued at approximately $1.3 billion.

The purchase will be completed by Astisiy Limited Partnership which comprises Suncor and a partnership of the following communities: Athabasca Chipewyan First Nation; Chipewyan Prairie First Nation; Conklin Métis Local 193; Fort Chipewyan Métis Local #125; Fort McKay Métis Nation; McMurray Métis; Fort McMurray #468 First Nation; and Willow Lake Métis Nation. The Indigenous communities' participation in this transaction is funded by non-recourse financing supported by a loan guarantee of up to $40 million from the Alberta Indigenous Opportunities Corporation. Suncor will operate the pipeline.

The Astisiy partners will benefit from revenues generated through competitive tolls from long-term transportation and terminalling services agreements supporting the pipeline, regardless of the price of crude. The partnership is expected to generate gross revenues of approximately $16 million annually for its partners and provide reliable income that the Indigenous communities can use at their discretion for decades to come.

Three Nations Energy

In late 2020, the Three Nations Energy Solar farm in Fort Chipewyan was launched with a ceremony featuring drummers, prayers and messages from local leadership.

The solar farm is a $7.76 million project consisting of 6,500 solar modules that produce 2.2 MW of electricity. The facility displaces 25% of the diesel-generated electricity in Fort Chipewyan with solar polar. The reduced demand for diesel fuel also reduces the wear and tear on winter roads to the community.

The Athabasca Chipewyan and Mikisew Cree First Nations and the Métis Association of Fort Chipewyan own Three Nations Energy in equal shares. The Governments of Alberta and Canada provided financial support for the project.

Frog Lake First Nation

In August, 2021, Frog Lake First Nation and Kanata Clean Power & Climate Technologies Corp announced the formation of the Frog Lake – Kanata Power Plant Limited Partnership to develop innovative, Indigenous-led net zero infrastructure in Canada. Frog Lake will be the lead investor and 51% majority owner of the LP.

Frog Lake First Nation is a Cree-speaking Treaty 6 Nation situated in northeastern Alberta, and the principal shareholder in Frog Lake Energy Resources Corp. The First Nation is investing funds earned from traditional oil and gas development through its wholly-owned energy company.

This investment will include development of the first net-zero natural gas-powered electricity plant in Canada. The power plant will generate 300 MW of clean electricity 24/7 and produce water for 15,000 households. The technology will use natural gas and pure oxygen to generate electricity with zero CO2 emissions. CO2 is recycled through the combustor, turbine, heat exchanger, and compressor generating power without emissions. Excess CO2 is captured as part of the process and will be pipeline ready.

First Nations Power Authority

The First Nations Power Authority (FNPA) was established in 2011 as a not-for-profit organization to facilitate the development of power projects led by First Nations and promote Indigenous participation in power procurement opportunities first in Saskatchewan and then in Alberta and across Western Canada. The FNPA comprises both industry and Indigenous members. In July, 2021, SaskPower announced a partnership with FNPA to engage with Indigenous peoples and communities across Saskatchewan on the future of the power system as SaskPower works to achieve net-zero emissions by 2050.

Options being considered include natural gas, hydro, wind, solar, large scale battery storage, coal with carbon capture and storage, electricity imports, geothermal, biomass, and nuclear power from small modular reactors.

Ocean Man First Nation

In 2021, the Ocean Man First Nation completed two solar projects that are now contributing 1 MW of clean electricity to the Saskatchewan power grid.

Located on Ocean Man First Nation land, both solar projects recently came online and generate 720 kilowatts and 280 kilowatts respectively.

The projects were part of SaskPower's Power Generation Partnership Program. The two solar power developments are managed by Second Wind Power Inc. which is owned by the Ocean Man First Nation, and was built through a vendor relationship with miEnergy a solar power installation company project developer and installer from based in Saskatoon and active across Western Canada.

Fisher River Cree Nation

Fisher River Cree Nation is operating the largest solar project in Manitoba. The 1 MW facility has almost 3,000 solar panels and was built entirely by Indigenous employees. The project's focus is to generate revenue for the community and inspire other First Nations to pursue renewable energy solutions.

The Fisher River community funded the nearly $2.4 million project, along with $1 million in support from Western Economic Diversification Canada.

Manitoba Hydro partnered with Fisher River Cree Nation to learn more about how utility-scale solar farms can add value to the power system and customers. Electricity from the solar project is being injected into Manitoba's grid, and the project is a source of green electricity for Bullfrog Power, a Spark Power company. W Dusk Energy Group Inc., an Indigenous-owned renewable energy firm, helped design and manage the project. David Isaac, Mi'kmaw owner of W Dusk Energy, noted that the Fisher River solar farm could become a blueprint for other First Nations looking to generate renewable power. Royal Bank of Canada will purchase the green electricity that Bullfrog Power sources from the Fisher River solar farm.

United Nations Declaration on the Rights of Indigenous Peoples Act

Bill C-15, an *Act respecting the United Nations Declaration on the Rights of Indigenous Peoples* (the *"Act"*), received Royal Assent on June 21, 2021. The Act affirms UNDRIP "as a universal international human rights instrument with application in Canadian law" and provides that the federal government must take all necessary measures to ensure Canadian laws are consistent with UNDRIP.

The federal government has two years to develop and implement a national action plan to achieve the objectives of UNDRIP and must publish annual reports on the status of the action plan. The action plan will be developed in consultation with Indigenous groups and must include measures to address racism and systemic racism.

There is still considerable debate regarding the effect of implementing UNDRIP in Canada. A number of UNDRIP articles invoke Indigenous peoples' right to free, prior and informed consent before states take actions or make decisions – including actions and decisions related to resource development – that may affect Indigenous peoples.

The *Act* will likely affect negotiations between Canada and Indigenous peoples across the country and influence discussions at the 80 active tables in Canada's Recognition and Implementation of Indigenous Rights and Self-Determination program.

Further, the *Act* will affect resource developers in Canada.

The Act builds on prior Canadian court decisions; the courts in Canada have long since mandated prior consultations with Indigenous people whose Aboriginal and/or treaty rights could be impacted by any proposed development.

Access to Capital for Indigenous Investment in the Energy Sector

Access to capital funds is enabling increasing Indigenous ownership in the energy sector in Western Canada, and in particular capital funds that are pegged for Indigenous communities' investment in energy projects.

Access to capital has been identified as a limiting factor for Indigenous communities seeking to own a stake in the development of natural resources, and enter into business ventures with global resource developers. The creation of capital funds to support indigenous investment in major projects promotes Indigenous partnership and ownership vertically throughout the value chain, across various sectors.

This model of Indigenous economic development works in conjunction with efforts to build up indigenous-owned businesses with a particular skillset and service offering. For example:

- environmental monitoring and reclamation
- geomatics and engineering
- maintenance and turnarounds
- facility and pipeline management
- industrial cleaning,
- emergency response,
- welding, pipe-fitting and painting
- labour and management services

Although these initiatives have similar objectives there is significant variation between provinces in the amount of funds available to increase Indigenous ownership in the energy sector.

Alberta

The Alberta Indigenous Opportunities Corporation (AIOC) works with Indigenous communities across Alberta to reduce the cost of borrowing for communities to invest in major natural resource projects. The AIOC was established by the *Alberta Indigenous Opportunities Corporation Act* to facilitate investment by Indigenous groups in natural resource projects and related infrastructure. **The AIOC offers up to $1 billion in loan guarantees with a minimum loan guarantee of $20 million and maximum of $250 million per application.** The AIOC also has a limited pool of discretionary funds available to assist Indigenous communities in their efforts to participate in qualified projects. The AIOC offers technical support such as evaluation and due diligence for investment decisions, support ofproject development and risk management planning.

An eligible applicant must be an Alberta-based Indigenous group, or belong to a consortium that includes an Alberta-based Indigenous group with a minimum of 25% of the total proposed Indigenous investment. First Nations, Métis Settlements and other Métis communities, other entities approved by the Minister of Indigenous Relations or entities fully owned by the above may apply. An eligible investment must be made in one of the following: Energy (oil and gas, renewable energy, power, and coal), Mining or Forestry, and be adjudged as commercially viable. The location of the project must benefit the Albert natural resources sector but can be anywhere in Canada. Similarly, Indigenous groups outside of Alberta can participate as long as one Alberta-based Indigenous community has at least 25% of the total proposed investment.

$93 M

LOAN GUARANTEE

- *Cascade Power Project*

In August, 2020, the AIOC provided its first $93 million loan guarantee to facilitate six First Nations becoming equity partners in the Cascade Power Project, a natural gas-fired power facility near Edson, Alberta.

$27 M

LOAN GUARANTEE

- *Lindbergh Cogeneration Facility*

In March 2021, AIOC provided a $27 million loan guarantee to support Frog Lake First Nation in financing its 100% ownership of the Lindbergh Cogeneration Facility.

$40 M

LOAN GUARANTEE

- *Northern Courier Pipeline System*

In September 2021, AIOC provided up to $40 million in guarantees to support eight Indigenous communities in financing a 15% ownership interest in the Northern Courier Pipeline System, including the pipeline and storage facilities.

The assessment criteria for eligible proposals focus on the expected benefits for indigenous communities, the commercial viability of the project, and also integrates ESG considerations into the decision of whether a project is a good fit for the loan guarantee program. Such ESG factors include diversity or inclusiveness and the sustainability of the project.

Saskatchewan

In October 2021, the Saskatchewan Government announced the creation of a new corporation called the Indigenous Investment Finance Corporation (IIFC). The IIFC will provide up to $75 million in financing to Indigenous communities and organizations interested in making equity investments in resource development projects. Further details have not yet been released.

Manitoba

The First Peoples Economic Growth Fund (FPEGF) is a joint economic development initiative between the Manitoba Ministry of Indigenous and Northern Relations and the Assembly of Manitoba Chiefs. The FPEGF has the mandate to provide financing to support Manitoba First Nation business proposals that are economically viable in seven program areas, one of which is resource and energy investment. In February 2014, Manitoba and FPEGF renewed their commitment to the fund with a new, eight-year, $25 million funding agreement, expiring in 2021/22.

The Métis Economic Development Fund (MEDF) stimulates the economic development of Manitoba Metis businesses and entrepreneurs by providing equity and debt financing. MEDF concentrates on businesses and entrepreneurs which are in growth, expansion, or acquisition phases. Up to $500,000 in financing is available to Métis-owned corporations in Manitoba that are economically viable and will provide a positive return on investment to the corporation, community and the fund. EnerPure™ received investment from the fund to develop a small-scale waste oil micro-refinery, providing a profitable and sustainable solution for the processing of waste oil.

British Columbia

The First Nations Finance Authority (FNFA) was established under the 2005 *Nations Fiscal Management Act* (FNFMA) and 2011 *Financing Secured by Other Revenues Regulations.* FNFA's mission is "to help First Nation communities build their own futures on their own terms at the best rates." The FNFA provides access to capital for community infrastructure and economic development for First Nations communities. This includes the provision of financing and advisory services to gain shares or any other ownership interest in a corporation whose purpose includes the ownership, operation, management or sale of products of power generating facilities, waste or wastewater treatment facilities or other public service utilities or facilities. FNFA facilitates access to provincial/municipal loan rates for borrowing communities on a schedule that meets a community's priorities.

In 2021, the FNFA issued $554 million in loans through two debentures and multiple interim loans to 35 First Nations located across seven provinces. FNFA provides access to capital for community infrastructure and economic development for First Nation communities. For example, the Henvey Inlet First Nation – through its subsidiary Nigig Power Corporation – partnered with Pattern Canada to jointly develop the 300 MW Henvey Inlet Wind project. The project generates enough clean, renewable energy to power approximately 100,000 Ontario homes. Henvey Inlet First Nation completed the final steps of its 300 MW wind project with financing from the FNFA. The FNFA exceeded the $1 billion mark, with a a loan portfolio of $1.3 billion at fiscal year-end.

FNFA will consider the purposes of a loan in terms of its alignment to ESG categories such as:

- housing (new and remediated)
- green energy (wind & solar farms)
- education and wellness and administration centres
- school additions
- community infrastructure
- roads
- Elders' care complexes
- broadband connectivity.

The B.C. Government has also established a fund to increase equity and capital investment of First Nations communities in clean energy through partnership with the Federal Government. The First Nations Clean Energy Business Fund (FNCEBF) supports the participation of Indigenous communities in the energy sector, specifically in clean energy, within their asserted traditional territories and treaty areas. The FNCEBF was established under the Clean Energy Act and has granted funding for clean energy projects since 2011. The FNCEBF provides funding for approved projects) as well as revenue-sharing between the Ministry of Indigenous Relations and Reconciliation and eligible First Nations. Eligible applicants include First Nation bands and First Nation governing bodies, however established and organized by Indigenous peoples in the province.

FNCEBF capacity development funding supports applicants to engage with stakeholders of clean energy projects or to undertake activities such as feasibility studies. Equity funding supports capital costs related to implementing energy efficiency and management projects in the community. Equity funding also helps applicants to obtain equity positions relating to clean or renewable energy projects. The maximum total amount of funding available is $50,000 for capacity development and $500,000 for equity funding per applicant regardless of the number of potential projects in the applicant's traditional territory. Funding may include a variety of project tasks such as business planning, financing, commissioning or major equipment required for a project.

B.C. made an initial investment of $5 million in the FNCEBF and allocated an additional $1 million in 2014. The FNCEBF is expected to continue to receive additional funds from revenue sharing agreements based on provincial resource rents (land and water). Further information on accessing climate-related funding in BC can be found here.

Canada

Federal funding is available from Indigenous Services Canada through the Lands and Economic Development Services Program (LEDSP) and the Aboriginal Entrepreneurship Program (AEP).

LEDSP has multiple funding streams which provide financial support to First Nation and Inuit Communities to assist with improving economic development, developing land and environmental capacity of Indigenous communities and increasing Indigenous peoples' participation in the economy. LEDSP funding provides up to 100% of eligible project costs, ranging from $250,000 to $325 million.

AEP seeks to increase Indigenous participation in economic benefits from major resource development and energy investments, and enhance access to capital for Indigenous-owned businesses in Canada that have difficulty in obtaining conventional commercial financing. The maximum annual amount payable per recipient is $75 million.

Alignment with UNDRIP and Reconciliation

These efforts to secure access to capital and provide funding for Indigenous communities to increase equity participation and ownership align with the principles of UNDRIP, namely the right to pursue economic, social and cultural development. Increased participation and ownership by indigenous communities in natural resources development supports other rights outlined in UNDRIP.

While the effect of UNDRIP on Indigenous business development and participation in the natural resources industries is far from settled, Mark Podlasly, economic lead for the First Nations Major Projects Coalition offers this opinion. He says UNDRIP is only one part of an evolving landscape in which First Nations are increasingly becoming active partners in major projects, like mines, pipelines and LNG projects.

> *"Many First Nations in the country now are moving towards wanting participation in major projects, be it pipelines, transmission lines, power generation facilities, utilities,"* Podlaskly said. *"If a First Nation is a minority partner in an equity situation with a thing like a pipeline, they effectively become co-proponents. It reduces the risk. It's easier for a First Nation to support a project if they are a partner in the project.*
>
> *"That will make it easier to raise money, not just for the First Nation, but the entire project. UNDRIP is a piece of that, and it will not make things harder. If anything, it will make things easier, depending on how the structure is put together."*

These efforts also align with the Truth & Reconciliation Commission's (TRC) Recommendation #92. Issued in 2015, Recommendation #92 calls on the corporate sector to adopt the UNDRIP as a reconciliation framework, to ensure that Indigenous peoples have equitable access to jobs, training and education opportunities in the corporate sector, and to ensure that Indigenous communities gain long-term sustainable benefits from economic development projects. The TRC further calls for meaningful consultation, long term sustainable opportunities from economic development projects as well as education and training for managers on the history of Indigenous people, intercultural competency, human rights and anti-racism.

Increasing Indigenous equity ownership and partnership in natural resource and energy projects strengthens both economic and social ties between indigenous communities, provincial and federal government ministries and the private sector. Avenues for increased sustainable long-term economic participation and partnership in natural resource development in the energy sector strengthens the opportunity for fostering business relationships between Indigenous communities and resource developers based on mutual interests.

Opportunity for Western Canada's Energy Industry – Cryptocurrency Mining

Cryptocurrency Mining

The world has paid significant attention to the cryptocurrency industry over the past year. Bitcoin, one of the most popular cryptocurrencies, hit multiple all-time highs in 2021. Despite the known volatility of cryptocurrencies, interest from potential investors keeps growing as the institutional adoption of cryptocurrencies continues.

Cryptocurrencies are produced and introduced into the market through cryptomining, a highly complex and energy-intensive process that requires powerful computer processors with high electricity consumption. The growth in cryptomining has resulted in a significant increase in global energy consumption – with some raising concerns about how cryptomining aligns with net-zero targets.

Canadian Prospects

China has long been a hotbed for cryptomining operations. However, in September 2021, China banned all cryptocurrency transactions and cryptomining, citing concerns about the the stability of the country's financial systems and cryptomining's environmental impact. This policy decision caused many cryptominers to look for other, more suitable jurisdictions to conduct their mining operations.

Ranked sixth in the world as a top energy producer, Canada is in a unique position to benefit from cryptominers' exodus from China. Compared to other leading energy nations, Canada offers cheap, clean and reliable energy. In addition, Canadian companies have an easier time getting listed on a stock exchange and Canada offers lower import taxes than the United States. Some predict Canada will likely be one of the top-three cryptomining hubs in the world over the next decade.

Western Canada, in particular, is an attractive option for potential miners. Not only are there fast-growing renewable energy industries that could supply power to cryptomining operations, but the oil and gas industry in Alberta and Saskatchewan also provides creative solutions to cryptominers' growing demand for energy. Miners in Western Canada have begun setting up mobile power generation facilities on natural gas well sites to capture gas, convert it into electricity, and use this electricity to power their cryptomining processors on site.

Regulatory Compliance

In Canada, there is no national or provincial law broadly regulating cryptomining except for the general tax and securities laws as applicable. However, cryptominers seeking to set up operations in Western Canada are still required to navigate several regulatory regimes.

Alberta

The Alberta Utilities Commission (the "AUC") is the main regulatory body that regulates power production and transmission in Alberta. As per the *Hydro and Electric Energy Act*, to operate a power plant, a company must obtain approval from the AUC, unless the power plant meets certain conditions to be exempt from this requirement. Several companies have sought to set up their operations under these exemptions.

Other relevant legislation includes the *Electric Utilities Act* and the associated *Fair, Efficient and Open Competition Regulation*, which require cryptominers to offer any power they produce to the power pool unless they meet certain exemptions. The *Environmental Protection and Enhancement Act* defines further approvals that must be obtained before operating a power plant. The *Alberta Land Stewardship Act* governs land-use plans for several regions in the province and introduces an additional layer of environmental compliance.

On August 19, 2021, the AUC Decision 26379-D02-2021 affirmed and expanded the regulatory requirements for natural gas cryptomining operations that were relying on statutory exemptions to operate by using power from a captured gas operation. The AUC crypto decision provided some welcome clarity to the industry on what would be required to operate under a statutory exemption.

Other Western Provinces

In British Columbia, Saskatchewan and Manitoba, major new electrical loads require approval by the local utility. For example, in 2021, SaskPower spokesperson Scott McGregor stated that a large-scale cryptocurrency miner would need approval from SaskPower, in the same way that any large-usage customer would. He also noted that smaller operations, such as a couple mining computers in someone's garage, may result in higher power bills, but would not necessarily have many other consequences. The *Power Corporation Act* governs SaskPower and has associated regulations that would apply, like the *Power Corporations Regulations*.

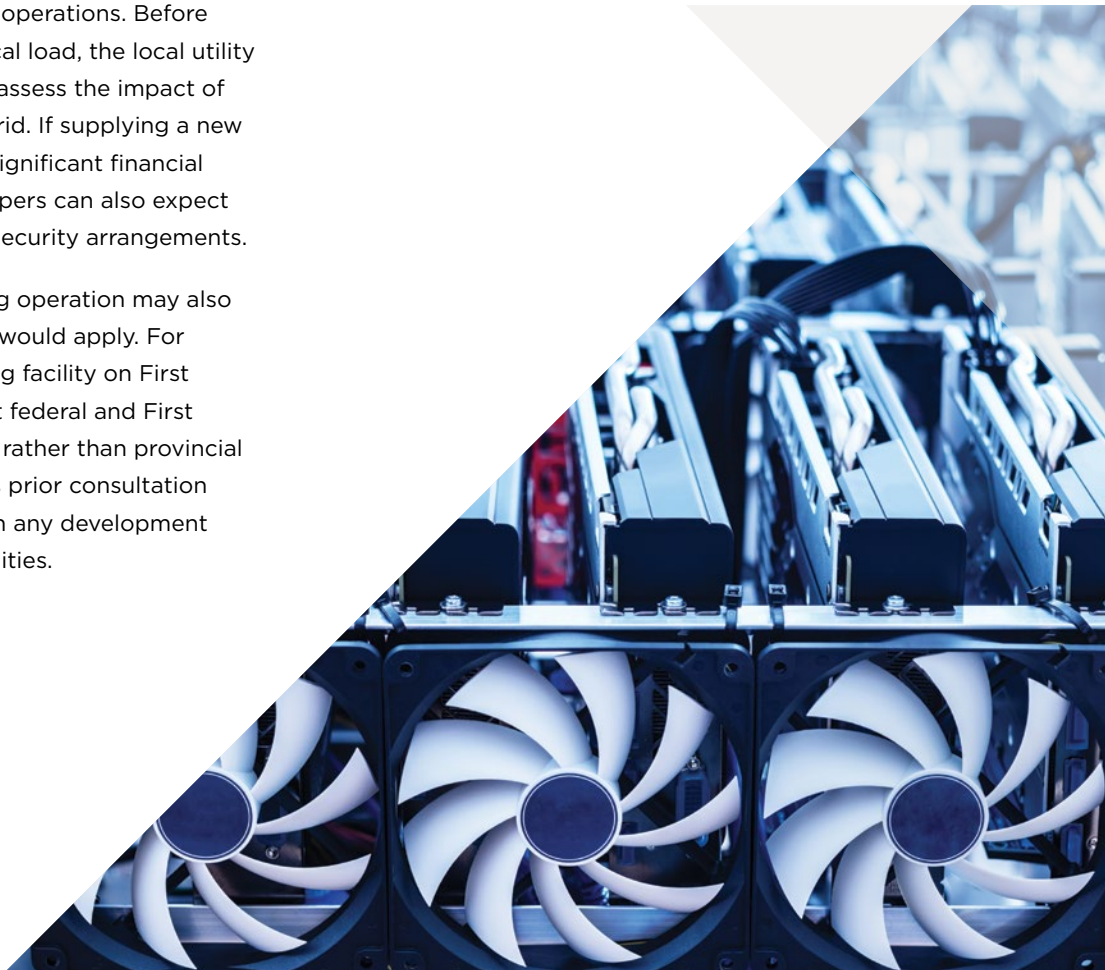
Timing is an important consideration for bitcoin developers when planning their operations. Before hooking up a major new electrical load, the local utility will require technical studies to assess the impact of the new load on the electrical grid. If supplying a new facility with power will entail a significant financial investment by the utility, developers can also expect discussions about funding and security arrangements.

The location of the cryptomining operation may also have an effect on the rules that would apply. For example, locating a cryptomining facility on First Nations reserve land means that federal and First Nation regulations would apply, rather than provincial laws. Canadian law also requires prior consultation with Indigenous communities on any development that could affect those communities.

An Exciting Opportunity

The growing cryptocurrency industry and China's crackdown on cryptomining operations in 2021 has created exciting opportunities for Western Canada's energy industry moving into 2022. **Canada offers attractive and competitive options to provide cryptominers with cheap, clean and reliable energy.**

This past year has shown that securing the necessary energy for a large scale operation remains complex, even though Western Canadian regulators are attuned to cryptomining opportunities. Cryptominers should seek out legal advice to navigate the process when setting up their operations in 2022 to ensure that their projects proceed smoothly.



Green Rate Offerings

Electricity customers in B.C. and Manitoba receive a largely renewable energy supply as part of their standard utility service. BC Hydro says its supply is 97% renewable based on hydroelectric and other renewable resources. Manitoba Hydro says its supply is 99% renewable.

Utilities in Saskatchewan and Alberta are creating rate offerings to provide equivalent characteristics for their customers.

SaskPower offers a Renewable Prescription Service (see: SaskPower publication *Renewable Prescription Service: Providing Clean Energy Solutions for SaskPower Customers*). This service offers an alternative for commercial customers in Saskatchewan who are considering adopting "100% sustainable energy" as one of their ESG targets. For a premium, customers can secure a clean, renewable generation service from SaskPower. The renewable generation is allocated to customers through a tariff collected in addition to the customer's existing electricity rates. Environmental benefits are transferred to the customers and are not included in SaskPower's own emission reduction calculations. Customers also have the option to source the renewable generation from a generating facility that is incremental to any of SaskPower's existing plants.

EPCOR offers a similar service, Chirp Green, to its customers through Encor Energy. For an additional fee, customers can purchase green power to supply all or a part of their power demand.

ENMAX gives its customers the option of adding Green to their energy plans. The Green option contributes to the purchase of Renewable Energy Certificates that support EcoLogo® certified facilities. Customers can also choose a Green add-on for natural gas that will contribute to the purchase of carbon offsets.

TransAlta offers its customers the ability to purchase Renewable Energy Certificates in set quantities or as a percentage of the customer's overall electricity purchase. These are certified and tracked by independent third parties that verify the source and quantity of Green Energy®. TransAlta recommends this option for businesses that want to "take a leadership role and reduce the environmental impact of doing business" and "differentiate themselves from others without sacrificing their competitive advantage."

A Question of Timing

There are still relatively few electric vehicles on the road in Western Canada, but industry participants expect the market to grow, placing additional stress on electrical grids. In particular, the time of day when electric vehicles are charged is a topic of current debate.

While power demand varies by location and season, it generally peaks in the early evening. People come home from work and start up their ovens to cook dinner, as well as their other applicances and entertainment devices. If everyone plugged in their electric vehicle at the same time, that would place further strain on the energy system.

During Alberta's heat wave in June 2021, the Alberta Electricity System Operator (AESO) put out a call for Albertans to avoid using major appliances and charging electric devices, including electric vehicles, during the period of highest demand from 4–7 p.m. to ensure adequate supply and reduce the possibility of power outages.

In August 2021, SaskPower encouraged its customers to set their electric vehicles to start charging after 9:00 p.m. to reduce stress on the electrical grid, make power plants more efficient and reduce the cost of electricity to everyone.

EPCOR also advises its customers to charge their electric vehicles in the evening or at night. EPCOR offers its customers the option of a ***Time of Use Rate***. Customers who subscribe to the time of use rate pay less for electricity used during evenings and weekends.

In 2021, BC Hydro solicited comments from its customers on a potential electric vehicle time of use rate.

SaskPower offers an optional time of use rate, currently limited to large commercial, farm and industrial customers who own their own transformation facilities.

It remains to be seen whether utilities across Western Canada will more broadly adopt time of use rates to provide financial incentives for users to shift the time of day when they charge their electric vehicles. This could have financial benefits for commercial operators and owners of vehicle fleets, particularly as the market penetration of electric vehicles extends beyond cars to trucks and all forms of transportation vehicles.

Charging electric vehicles poses a challenge, but also a potential opportunity for electrical grids. During the middle of the night, thousands of electric vehicles are sitting idle. In theory, their collective battery storage could supply energy back to the grid. The AESO 2021 Long Term Outlook identifies electric vehicles as a form of distributed generation that could supply energy to the grid. However, the Outlook assumes this would have a very limited impact over the 20-year period of the forecast.

Energy Efficiency

Managing the time of use of energy is an example of *Demand Side Management* (DSM). Encouraging customers to reduce their overall consumption is another well-established DSM practice, which is taking on additional importance in Western Canada's quest to achieve net zero.

In January 2021, the federal government committed $32.3 million from the Low Carbon Economy Leadership Fund to support natural-gas DSM programs offered by Efficiency Manitoba, a Manitoba Crown corporation. The Manitoba government committed a further $32.3 million through Efficiency Manitoba. In addition to programs for residential customers, this investment will support programs for commercial, industrial and agricultural customers including rebates and incentives to support energy savings from reducing natural-gas use through mechanical upgrades of space or process heating systems, building-envelope renovation improvements and upgrades or equipment for new buildings that achieve greater energy savings.

In April 2021, Fortis BC reported 2020 DSM spending of $75.8 million, resulting in savings of 1.033 million GJ of natural gas (see: Natural Gas Demand-Side Management Programs). BC Hydro reported DSM spending of $77 million during fiscal 2021, resulting in electricity savings of 780 GWh/year (see: Report on Demand-Side Management Activities for Fiscal 2021).

Modifications to BC Hydro OATT

In September, 2021, BC Hydro applied to amend Attachment C of its Open Access Transmission Tariff (OATT) to include counterflows in the calculation of firm available transmission capacity (ATC). Additional housekeeping changes to Attachment C are also proposed.

Firm Counterflows

ATC is the amount of capacity on the BC Hydro Transmission System that is available for sale to transmission customers on a particular path. When ATC is determined on a transmission path in one direction, such as North to South, energy scheduled in the opposite direction (counterflows) creates additional ATC on the North to South transmission path. ATC is calculated using a mathematical algorithm, and is subject to the MOD-029-2, a reliability standard that is in effect in BC.

Under existing Attachment C, firm counterflows add capacity to non-firm ATC. Pursuant to the proposed changes, firm counterflows would add firm ATC capacity.

The application seeks BC Utilities Commission approval of changes to the language in Attachment C. Associated changes to BC Hydro business practices and implementation documents are provided as information. BC Hydro says that the changes are not unduly discriminatory and are consistent with MOD-029-2a and the FERC pro forma OATT.

The proposed changes are not expected to create additional ATC between BC and Alberta due to constraints on that transmission interface.

Non-Discriminatory Access

The laws regulating OATTs are provincial. All provinces have undertaken to provide open access transmission access in the Canadian Free Trade Agreement (CFTA), as part of the effort to reduce barriers to the free movement of people, goods, services and investments within Canada. For BC Hydro's subsidiary, Powerex, to engage in wholesale electricity sales in the U.S. at market-based rates, Powerex is required by the U.S. Federal Energy Regulatory Commission (FERC) to demonstrate that its affiliate BC Hydro has adopted an OATT that is consistent with FERC's pro forma OATT.

The addition of new transmission facilities to North America's grid tends to be costly and controversial. Accordingly, limitations on ATC are a perpetual problem for businesses wishing to make use of transmission service. The proposed changes will result in more ATC becoming available over existing transmission facilities. In concept that should be good news for transmission users. Intervenors in the proceeding include Powerex, TransAlta, Brookfield, Evolugen, Capital Power and Commercial Energy Consumers Association of BC.

Enbridge Canadian Mainline Contracting Application

In December 2019, Enbridge Pipelines Inc. applied to the Canada Energy Regulator for a new service and tolling framework for the Canadian Mainline. The Canadian Mainline accounts for over 70% of the oil transportation capacity out of the Western Canadian Sedimentary Basin. For decades, the Canadian Mainline has operated on a wholly uncommitted basis. Shippers nominate the transportation capacity they require on a monthly basis.

Enbridge applied to the Canada Energy Regulator to approve long-term contracts for committed service on 90% of the Canadian Mainline, reserving 10% for uncommitted shipments. The Canada Energy Regulator held an eight-week virtual hearing to consider the Canadian Mainline Contracting Application. Thirty-nine intervenors participated in the hearing including producers, refiners and provincial governments.

The Commission found that the reservation of 10% of the Canadian Mainline's capacity for uncommitted shipments would be inconsistent with Enbridge's common carriage obligations and likely would have diminished overall access to the Canadian Mainline. The Commission also found that Mainline contracting may have resulted in potentially significant disruptions to oil markets. The Mainline Contracting Application did not include sufficient justification for the discriminatory aspects of Mainline contracting with respect to the tolls and terms and conditions of service. Finally, the proposed tolls could have produced unreasonable returns and unreasonably exceeded cost of service tolls.

As a result of the Commission's decision, Enbridge's proposed open season will not proceed and the existing interim tolls and conditions of service will remain in effect.

Federal Clean Fuel Standard

The proposed Clean Fuel Standard, a regulation under the *Canadian Environmental Protection Act,* is expected to come into force in December 2022. The Clean Fuel Standard is aimed at requiring fossil fuel suppliers (producers and importers) to reduce the lifecycle carbon intensity of fuels. The standard contain exemptions for suppliers that produce or import a minimal amount of fuel, and for certain uses of fossil fuels.

A Lifecycle Approach

The Clean Fuel Standard will use a lifecycle approach by setting carbon intensity values and requirements for different classes of fuels, accounting for the amount of greenhouse gas emitted to produce one unit of energy. The carbon intensity values will apply to fuels from raw material extraction through to materials processing, manufacture, distribution and disposal. The initial intent of the Clean Fuel Standard was to achieve annual reductions of 30 Mt of greenhouse gas emissions by 2030 through imposing reduction requirements on liquid, gaseous and solid fossil fuels. However, with the release of the draft regulations, Environment and Climate Change Canada appeared to indicate that the Clean Fuel Standard would only apply to liquid fossil fuels and achieve an estimated 221 Mt of carbon dioxide equivalent (CO2e) reductions by 2040.

The Clean Fuel Standard will set out carbon intensity reduction requirements suppliers will have to meet for each annual compliance period (a calendar year). Each fossil fuel type will have a carbon intensity limit for the annual compliance period, calculated from 2016 baseline data. The carbon intensity limits begin in 2022 and become progressively more stringent. Suppliers' annual reduction requirements will be based on the amount of each fossil fuel they produce and import for use in Canada.

These reduction requirements must be satisfied with credits created by fuel suppliers and other parties for actions that will ultimately contribute to reducing GHG lifecycle emissions. Suppliers may create their own credits or buy credits from other parties. Fuel suppliers and other parties can create credits for actions taken in the following categories: (1) actions throughout the lifecycle of a fossil fuel that reduce its carbon intensity; (2) the supply of low-carbon intensity fuels; and (3) specific end-use fuel switching in transportation. Parties that are not primary fossil fuel suppliers would be able to participate in the credit market as voluntary credit creators. Currently, non-fossil fuel facilities can only create credits through carbon capture and storage projects.

Implications for Industry

Overall, industry participants can reasonably expect fuel costs to increase as a result of the new standard. Industry may also require significant capital investments to achieve ongoing compliance.

Sustainability Reporting and the GRI

The Global Reporting Initiative (GRI) Standards represent one of the most widely accepted guides to current best practices in su stainability reporting.

The GRI Standards allow any organization – large or small, public or private – to assess, understand and report on their impacts on the economy, environment and people. The GRI Standards were designed in a modular fashion with the goal of allowing organizations to develop a picture of their material topics, related impacts and how those impacts are managed.

The GRI *Universal Standards* are the starting point for GRI reporting. These apply to all organizations and consist of foundational elements, general disclosures and material topics. The GRI Sector Standards build on the Universal Standards and include topics that are likely to be material for most organizations in a given sector.

Measuring Sustainability – New GRI Standard Released for the Oil and Gas Sector

ESG has become a key tool for companies to communicate sustainability risks and opportunities with their stakeholders and investors. The oil and gas industry has been the subject of significant investor and activist interest, which is likely to intensify with the recent release of ESG reporting guidance.

The GRI *Topic Standards* contain disclosures for providing information on specific topics (e.g. waste, occupational health and safety, tax, etc.). An organization selects GRI Topic Standards that correspond to its material topics and uses the topic standards as a guide for reporting.

The GRI *Sector Standards* are currently being developed for 40 sectors, starting with those that have the highest impact such as oil and gas, coal, agriculture, aquaculture and fishing.

Release of the First Sector Standard

In October 2021, the GRI published its first GRI Sector Standard: *GRI 11: Oil and Gas Sector*. GRI 11 applies to upstream, midstream and downstream oil and gas organizations that engage in any of the following:

- Exploration and production of oil and gas;
- Supply of equipment and services to oil fields such as drilling, exploration, seismic information services, etc.;
- Transportation and storage of oil and gas (e.g. pipeline operators); and
- Refining of oil into petroleum products for use as fuels and as feedstocks for chemicals.

GRI 11 focuses on the sector's most pressing challenges for sustainable development, with guides on reporting across the following 22 material topics: GHG emissions; climate adaptation, resilience and transition; air emissions; biodiversity; waste; water and effluents; closure and rehabilitation; asset integrity and critical incident management; occupational health and safety; employment practices; non-discrimination and equal opportunity; forced labor and modern slavery; freedom of association and collective bargaining; economic impacts; local communities; land and resource rights; rights of Indigenous peoples; conflict and security; anti-competitive behaviour; anti-corruption; payments to governments; and public policy.

After identifying significant impacts, GRI 11 assists companies in identifying necessary disclosures to report information about impacts relating to one of the material topics. For example, GRI 11 suggests that the oil and gas sector may have a significant impact on water and effluent. If a company determines that water and effluent is a material issue, then specific disclosure recommendations include:

- Reporting volume of produced water and processed wastewater discharged;
- Reporting the concentration of hydrocarbons discharged in produced water and process water; and
- Reporting on how water discharge-related impacts are managed.

Implications for the Oil and Gas Sector

GRI 11 was the first of the 40 Sector Standards to be released as a result of the oil and gas industry having the highest perceived ESG impact. There has also been a significant rise in activist investor groups targeting companies that fail to address ESG issues in a meaningful way.

Sustainable investing continues to grow, accounting for more than 50% of total Canadian assets under management. Sustainable investors consider ESG criteria in investment analysis and portfolio construction. Consistent and credible reporting of ESG matters provides an opportunity for businesses to identify, manage and communicate sustainability information to their stakeholders and investors.

As the world currently consumes about 100 million barrels of oil a day, and the global demand for natural gas is expected to rise by 29% by 2040, the oil and gas sector will play a fundamental role in providing the world's energy. As the world transitions to a low-carbon future, oil and gas companies will need to develop robust ESG strategies that demonstrate active assessment, reporting and improvement upon their ESG performance.

The Takeaway for All of Us from 2021 – New Disclosure Requirements

Of all the fast-paced developments this past year, we chose this item as the Takeaway of 2021 because it could have the most immediate impact for many businesses and organizations in Western Canada, regardless of whether or not they are part of the energy industry.

Businesses and organizations face potential new disclosure requirements from banks and other lenders, as well as securities regulators.

Voluntary Carbon Disclosure

To date, many businesses and organizations in Canada have chosen to disclose their performance in areas such as sustainability, the environment and carbon emissions, as an element of sound corporate governance, to enhance their public image and to achieve their ESG objectives. These disclosures are commonly seen in reports to boards of directors, annual reports and company websites.

Until now, this has been seen as a largely voluntary effort on the part of individual companies and the form of disclosure has been discretionary.

COP26 and Carbon Disclosure

The 26th meeting of the Council of Parties to the UN climate convention (COP26) took place in Glasgow in November 2021, with unprecedented participation from the private sector. Mark Carney, the UN Special Envoy on Climate Action and Finance (and former Governor of the Bank of Canada), announced that more than 450 firms — including Canada's big five chartered banks — have committed to supporting what's become known as the Glasgow Financial Alliance for Net Zero (GFANZ) goals. Firms that sign on to the GFANZ agreement commit to abide by 24 financial initiatives that will signal to their customers, shareholders and investors that they are making green investments a priority.

GFANZ does not require a bank or financial institution to achieve any particular emission target or reduction. However, GFANZ requires the transparent disclosure of climate-related investments and financial risks. As Mark Carney explained:

> *"It's about what their clients are doing — what are the emissions of their clients, the people they lend to, the people they invest in."*

> *"What's going to happen for RBC, JP Morgan … is they're going to publish every year — 'These are the emissions of my clients, and this is my plan to get them down.' And then people are going to be able to see whether or not they're going to come down."*

"The implication is that in the near future, a business seeking financing may be required to disclose its climate-related investments and financial risks."

The GFANZ November 2021 Progress Report calls on participating banks and financial institutions to "actively engage with their clients and investee companies on their net-zero transition journeys." Areas where banks have committed to make inquiries include the following:

- Disclosure of Scope 1 and Scope 2 greenhouse gas (GHG) emissions
- Disclosure of Scope 3 portfolio or financed emissions, covering Scope 1, Scope 2, and Scope 3 greenhouse gas (GHG) emissions of the clients/assets that are financed and/or invested in (including on- and off-balance-sheet activities where appropriate)
- Disclosure of the key actions the organization is taking to support the real economy to transition and the impact of these actions
- Disclosure of how the organization is integrating net-zero targets into the core business processes
- Disclosure of the financial impact of climate on the organization considering different scenario pathways including a 1.5 degrees C low or no-overshoot scenario
- Disclosure of the policies, metrics and methodology used by the organization to set and manage to net-zero portfolio emissions targets
- The frequency and conditions under which targets are revisited

The implication is that in the near future, a business seeking financing may be required to disclose its climate-related investments and financial risks. The scope and timing of carbon disclosure requirements remains to be seen, but many energy industry participants are already receiving related inquiries from lenders. All commercial borrowers potentially face enhanced carbon disclosure requirements in due course, given that the energy sector is just one source of climate emissions.

Carbon Disclosure by Listed Companies

Public companies are facing new carbon disclosure requirements from another source.

In October 2021, the Canadian Securities Administrators solicited comments on proposed disclosure requirements for public companies consistent with the Task Force on Climate-related Financial Disclosures (TCFD) requirements. The TCFD publishes a set of consistent standards to measure the risks that businesses face from climate change.

Your Company's Energy Transition

To get ahead of new disclosure requirements, complete this energy transition checklist to evaluate the success of your carbon transition to date.

About the Authors

Bob Black, Partner

Bob is an experienced litigator with an extensive background in development and construction and a long and accomplished history of managing a broad range of high profile and complex matters. He has appeared before all levels of court, including the Supreme Court of Canada.

Bob has extensive experience in municipal planning, public private partnerships, economic development and tourism.

Bob is actively engaged in of a wide variety of Indigenous areas, including nation building initiatives, economic development, experiential tourism; major infrastructure projects, Indigenous gaming, rights based claims, and litigation.

Jessica Buhler, Partner

Jessica advises clients on a variety of regulatory matters. She represents clients at all stages of permitting and environmental assessment processes, including related consultation processes. She has advised clients with respect to their liability for remediation obligations and contaminated sites. Jessica has also advised regulators and administrative tribunals on jurisdictional and constitutional matters.

Jessica has experience with constitutional challenges, judicial reviews, injunctions and appeals. She has appeared before the Federal Court, the Saskatchewan Court of Queen's Bench, the Alberta Court of Queen's Bench and the Alberta Court of Appeal. She has also appeared before the Canada Energy Regulator, the Alberta Utilities Commission, the Alberta Energy Regulator, the Alberta Gaming and Liquor Commission and other administrative bodies.

Brady Chapman, Associate

Brady maintains a general corporate/ commercial law practice, with a focus on energy, mining and natural resources, environmental matters and commercial transactions.

Brady has an interest in, and experience advising on, traditional and emerging energy and natural resource opportunities across Canada, including lithium, critical and strategic minerals, innovative alternative energy technologies and carbon emission compliance and trading regimes. Prior to attending law school, he worked in a science communications role for Natural Resources Canada where he developed an in-depth understanding of Canada's broad energy and natural resource sectors.

Conor Chell, Counsel

Conor is a seasoned energy lawyer with particular focus on ESG. He has extensive experience in environmental and regulatory compliance, litigation and obtaining project approvals for oil and gas, renewable, mining, pipeline and oil sands clients.

Conor has acted for a number of major oil and gas, renewable, mining, pipeline, and oil sands companies on a variety of matters, from hearings before energy regulators and administrative tribunals to project approvals and company reorganizations. He has extensive experience drafting applications and preparing witnesses for appearances at permitting and energy development hearings.

Conor has also assisted clients on Indigenous matters, including the duty to consult and accommodate and the development of impact/benefit, joint venture and relationship agreements.

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Chad is a qualified lawyer in Saskatchewan and Alberta and a certified Project Management Professional (PMP), who advises on matters relating to real estate, construction (including procurement and contracts), environmental, financing and Indigenous. In addition to maintaining a general corporate/commercial practice, Chad advises clients in a variety of industries with a particular focus on energy, infrastructure and natural resource projects.

Rangi Jeerakathil, Partner

Rangi practises in the areas of environmental, energy and Aboriginal law, including corporate social responsibility. He has advised proponents extensively on permitting for industrial projects, including mining projects, and in project decommissioning.

Rangi advises clients on regulatory issues in de-regulated and regulated natural gas and electricity industries. He has also acted in general rate applications and hearings for the approval of power plants, market rule objections, transmission lines, oil facilities and other regulatory matters.

He has advised both resource companies and Aboriginal communities extensively on impact benefit and related agreements. He has also advised clients on large commercial transactions with respect to environmental and Aboriginal related matters.

Billie Fortier, Associate

Billie represents First Nations and Métis communities in negotiations with resource companies to establish joint ventures and other business relationships. She has advised the leadership of Indigenous communities on a variety of matters, including corporate structuring of Indigenous-owned businesses, financial administration and governance. She also advises clients across a number of industries on general commercial matters and in connection with M&A and corporate reorganizations.

Erica Klassen, Associate

Erica Klassen is a member of the MLT Aikins litigation team and maintains a general litigation practice. Erica has experience with a variety of regulatory matters, including occupational health and safety, permitting and environmental matters. She also has experience with matters related to the duty to consult.

Erica has appeared before the Saskatchewan Court of Queen's Bench and Provincial Court of Saskatchewan.

Esha Saxena, Articling Student

Esha obtained her combined Juris Doctor and Master of Business Administration from the University of Calgary in 2021. She brings a wealth of experience in project management in the energy sector to MLT Aikins, where she is now completing her articles after summering with the firm for the past three years.

Before entering law, Esha completed a Bachelor of Science, majoring in mechanical engineering with a minor in petroleum engineering. She went on to work at an ESG consulting firm, where she advised a number of clients in the energy sector on minimizing their environmental impact.

Ken Tennenhouse, Counsel

With decades of legal experience in the energy sector, Ken Tennenhouse provides strategic advice on major capital projects, and power transactions and contracts. Ken brings insights on energy sector matters across Western Canada such as the interplay between generation projects and open access transmission tariffs, transmission system reliability, and the application of NERC Electricity Reliability Standards. Ken has experience with cross-border trade in electricity with the U.S., and how Canadian players may be affected by U.S. requirements and by U.S. decision-making bodies such as independent system operators. Ken also practices in the areas of construction and procurement, corporate governance and compliance.

Samina Ullah, Associate

Samina maintains a practice in the Saskatoon corporate/commercial group with a focus on natural resources development and ESG. Prior to joining MLT Aikins Samina served as in-house counsel in an international energy and mining company and was a consultant on business ethics and integrity with a particular focus on conflict minerals.

Jodi Wildeman, Partner

Jodi works with owners on all aspects of the lifecycle of energy and infrastructure projects, from project development through to construction and dispute resolution. Her representative work includes major public infrastructure and energy projects in Saskatchewan, including ones implementing novel technology at a commercial scale.

Jodi has a proven track record advising clients on how to strategically manage risk and avoid claims on large-scale infrastructure projects. She helps clients assess contract options and identify strategies that align interests of multiple stakeholders on large projects. Jodi is also working as the legal project lead on a major energy project, coordinating the work of various lawyers in different practice areas, including commercial planning, regulatory, and Indigenous consultation.

Kylee Wilyman, Associate

Kylee obtained her Juris Doctor from the University of Saskatchewan. Prior to joining the firm, she completed a clerkship at the Saskatchewan Court of Queen's Bench. During law school she worked as a teaching and research assistant at the College of Law, was an editor of the Saskatchewan Law Review, and volunteered for the Community Legal Assistance Services for Saskatoon Inner City (CLASSIC).

Prior to law school, she completed a Master of Science in Community Health and Epidemiology. She also worked for the Saskatchewan Population Health and Evaluation Research Unit where she conducted population health research to develop policy and community interventions.