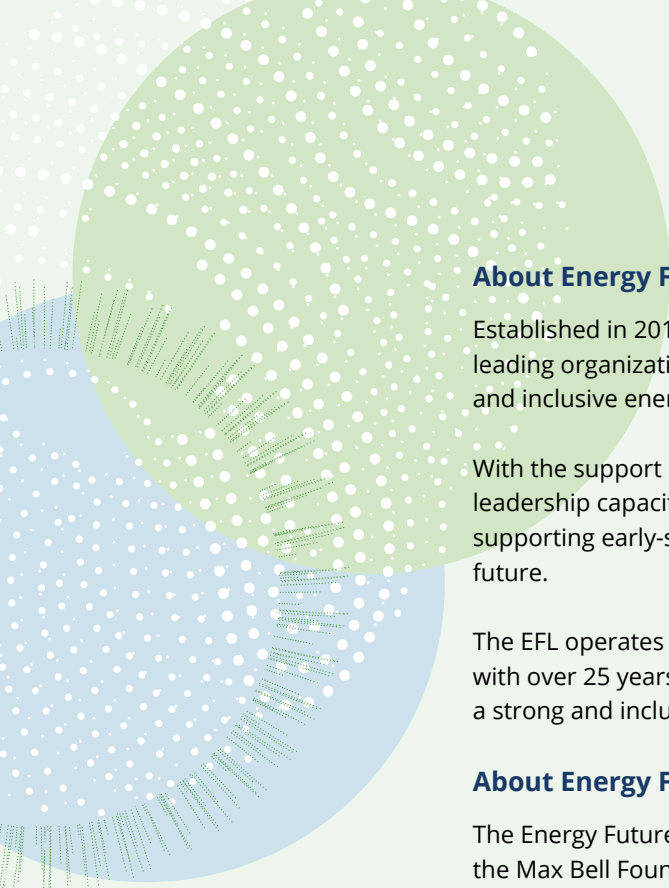




Same game, new rules:

How policy can unlock future-fit innovation
in Alberta's hydrocarbon sectors

APRIL 2022



About Energy Futures Lab

Established in 2014, the Energy Futures Lab (EFL) is a coalition of diverse innovators and leading organizations working to accelerate the transition to a more sustainable, prosperous, and inclusive energy future.

With the support of a dedicated Fellowship and Partners, the EFL offers a forum for building leadership capacity, fostering cross-sectoral collaboration, stimulating new narratives, and supporting early-stage development of new initiatives and innovative solutions for our energy future.

The EFL operates as an independent initiative of The Natural Step Canada, a national charity with over 25 years experience advancing science, innovation and strategic leadership to foster a strong and inclusive economy that thrives within nature's limits.

About Energy Futures Policy Collaborative

The Energy Futures Policy Collaborative (EFPC) is a new and exciting initiative developed by the Max Bell Foundation and the Energy Futures Lab to explore how Alberta and Canada can harness its existing hydrocarbon resources, assets, and expertise to build the clean economy of the future.

Acknowledgements

The EFPC policy framework is based on the collective deliberation and research of contributing members. Alongside the EFL, the partners in this effort are the Business Council of Alberta, the Canada West Foundation, the Cooperators, the Smart Prosperity Institute, The Natural Step Canada, the Max Bell Foundation, and Emissions Reduction Alberta, with support and guidance from members of an Indigenous Advisory Committee.

Suggested citation

Perla, Keren (2022). Same game, new rules: How policy can unlock future-fit innovation in Alberta's hydrocarbon sectors. Energy Futures Policy Collaborative and Energy Futures Lab.

April 2022

Partners



Max Bell Foundation

This report does not necessarily reflect the views of the funder, nor any of the reviewers. Any errors remain the sole responsibility of the authors.

Preface

What is in this report and who is it for?

This report is sponsored by the Energy Futures Lab (EFL). It provides a conceptual framework for the efforts of the EFL's Policy Collaborative (EFPC) that was launched to explore the role of public policy for attracting investment into *'future-fit hydrocarbon'* industries – industries built on the assets and expertise of hydrocarbon sectors that provide new offerings, feed new commodity markets, and are compatible with climate change targets.

As international efforts to reduce emissions and adapt to climate impacts grow in ambition, the energy dialogue is now focused on actions to match the scale of the challenge. This includes the development of quantifiable criteria, tools, and frameworks to guide decision-making for climate-smart investment. This report makes the case for future-fit hydrocarbons as a critical economic path forward for Canada that responds to such pressures now shaping energy investment, with the province of Alberta at the epicenter of this opportunity.

The scaling of future-fit hydrocarbon industries represents a marked change for traditional hydrocarbon development. Businesses, Indigenous Rights and Title Holders (Rights Holders), and communities committed to supporting the province's economy and taking action on climate have an opportunity to benefit from this shift, but to do so, public policy will continue to be instrumental to support emerging transition pathways and build private sector and investor confidence in these new opportunities.

This report provides guidance for policymakers exploring a diverse range of economic proposals that align with the EFPC *definition of future-fit hydrocarbons*. It underscores a new narrative emerging for Alberta and a series of policy proposals that can help create the right conditions for province's hydrocarbon sector to realize these opportunities

at scale, clearly showing that resource development in Canadian energy sectors can align with a net-zero future, Indigenous reconciliation, and a number of other priorities important to Albertans – if it is thoughtful, market-oriented and supported by a common vision of a strong future.

A different way to think about public policy

The EFPC framework identifies *six strategic areas* where governments need to align and accelerate policy development to amplify climate action while the province continues to reap the economic benefits of hydrocarbon activity. Proposals in these six areas offer an approach for policy that can support the sector as a whole – not just companies – to attract investment to projects aligned with net-zero emissions goals, as well as meet evolving expectations for energy development. It is an approach that can provide the policy stability needed to situate future-fit hydrocarbon industries in Alberta as a source of future growth, job creation and community resilience.

Achieving this requires adopting a new mindset for how we think about our energy systems – one that can envision the enabling role of policy to drive the full, integrated potential of our abundant hydrocarbon assets, and remove barriers to an evolution in energy already underway in the province. To cultivate this shift, this framework adopts the following perspectives for energy policy with the hope that it can serve as inspiration for those responsible for developing and supporting solutions.

- **Acknowledge that environment and economics are not at odds:** Economic and environmental strategies can not only be complementary, but can also both help to accelerate progress towards net-zero by midcentury. Alberta's most strategic investments can leverage the province's legacy assets and resources to enable sectors anticipated to grow in a net-zero economy.

- **Understand the sector as an energy cluster in transition:** Alberta's energy sector is more than a series of geographically-concentrated companies and should be viewed as a cluster of linked actors, activities, and institutions across the region. A cluster-view of the sector illuminates the wide array of infrastructure and soft assets that can be repositioned for adaptation, renewal, or transformation.¹
- **Orient towards an emerging consensus of future-fitness:** While there is currently no established definition for a future-fit energy project, what is considered an attractive investment is changing. To build resilience to change, it is important to align policy to the future that key stakeholders and Rights Holders desire, especially where there is emerging agreement on shared objectives and common attributes of future-fit technologies and projects. Surveying these ongoing discussions and initiatives can help bridge local perspectives and the expectations of global investors.²
- **Find 'leverage points' in the system:** Rather than reinvent what is already underway, policy can build, modify, and strengthen momentum towards future-fit hydrocarbon industries by homing in on leverage points in the energy system – areas where overcoming bottlenecks to change can reorient existing strengths in ways that can benefit multiple actors.
- **Consider 'policy' in its broadest sense:** Advancing systems change via public policy requires fulsome consideration of the broad range of levers and tools that can be designed and deployed by policymakers – from harder interventionist actions to softer collaborative approaches to supporting new business models and services.³

Our approach

The relationship between hydrocarbon development and climate action continues to be a highly polarized and divisive topic. As such, this initiative was designed and deployed as a '*Policy Lab*' – a model for facilitating policy research and design on emerging issues that require creative thinking, across and outside traditional siloes of expertise and experiences. Through this format, the EFL convened a mix of perspectives from Alberta-based businesses, Indigenous leaders, finance and investment, environmental groups and think tanks, and the provincial and federal government to engage in open dialogue on future-fit hydrocarbons.

This was a year-long process that consisted of several rounds of structured discussions to consider different points of view, shed light on potential barriers to uptake on future-fit hydrocarbon opportunities, identify and engage with research and evidence, synthesize insights, and undertake external testing of concepts and recommendations.

Of particular importance was the establishment of an Indigenous Advisory Committee to provide much needed perspectives for realizing this project. Their advice, guidance, and storytelling deeply enriched this process and continues to reinforce the need to engage the invaluable expertise of Indigenous Peoples across Canada and work in partnership with Treaty 6, 7, 8 and Métis Nations in Alberta.

"We have to acknowledge there are no boundaries on resource development. Local, provincial, national, Indigenous, public, private, community – it all needs to be considered. All these pieces will make up our balance sheet."

JP GLADU, Mokwateh, Chair, EFPC Indigenous Advisory Committee

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Abbreviations

AIGCC	Asia Investor Group on Climate Change
AOSTRA	Alberta Oil Sands Technology and Research Authority
AUM	Assets under management
BBC	Bitumen Beyond Combustion
BPD	Bitumen per day
CDP	Carbon Disclosure Project
COP26	The 2021 United Nations Climate Change Conference
CSA	Canadian Securities Administrator
CO₂	Carbon Dioxide
CCS/CCUS	Carbon Capture and Storage Carbon Capture, Utilization and Storage
EFL	Energy Futures Lab
EFPC	Energy Futures Policy Collaborative
ERM	Enterprise Risk Management
ESG	Environmental, Social, and Governance criteria
FCM	Federation of Canadian Municipalities
FFH	Future-fit Hydrocarbons
GDP	Gross domestic product
GHG	Greenhouse Gas
IGCC	Investor Group on Climate Change
IIGCC	Institutional Investors Group on Climate Change
ISC	Indigenous Services Canada
ISSB	International Sustainability Standards Boards

KPI	Key performance Indicators
LEAD	Leveraging our Energy Assets for Diversification
LEED Standard	Leadership in Energy and Environmental Design
MT CO₂e	Metric tons of carbon dioxide equivalent
PRI	Principles for Responsible Investment
RD&D	Research, Development and Demonstration
ROI	Return on Investment
Rights Holders	Indigenous Rights and Title Holders
Scope 1, 2, 3 emissions	Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the reporting company. Scope 3 includes all other indirect emissions that occur in a company's value chain.
SAGD	Steam-Assisted Gravity Drainage
SASB	Sustainability Accounting Standards Board
SFAC	Sustainable Finance Action Council
SME	Small and medium-sized enterprise
TCFD	Task Force on Climate-Related Financial Disclosures
TIER	Technology Innovation and Emissions Reduction
TRL	Technical Readiness Level
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
USD	United States Dollar



01 Introduction

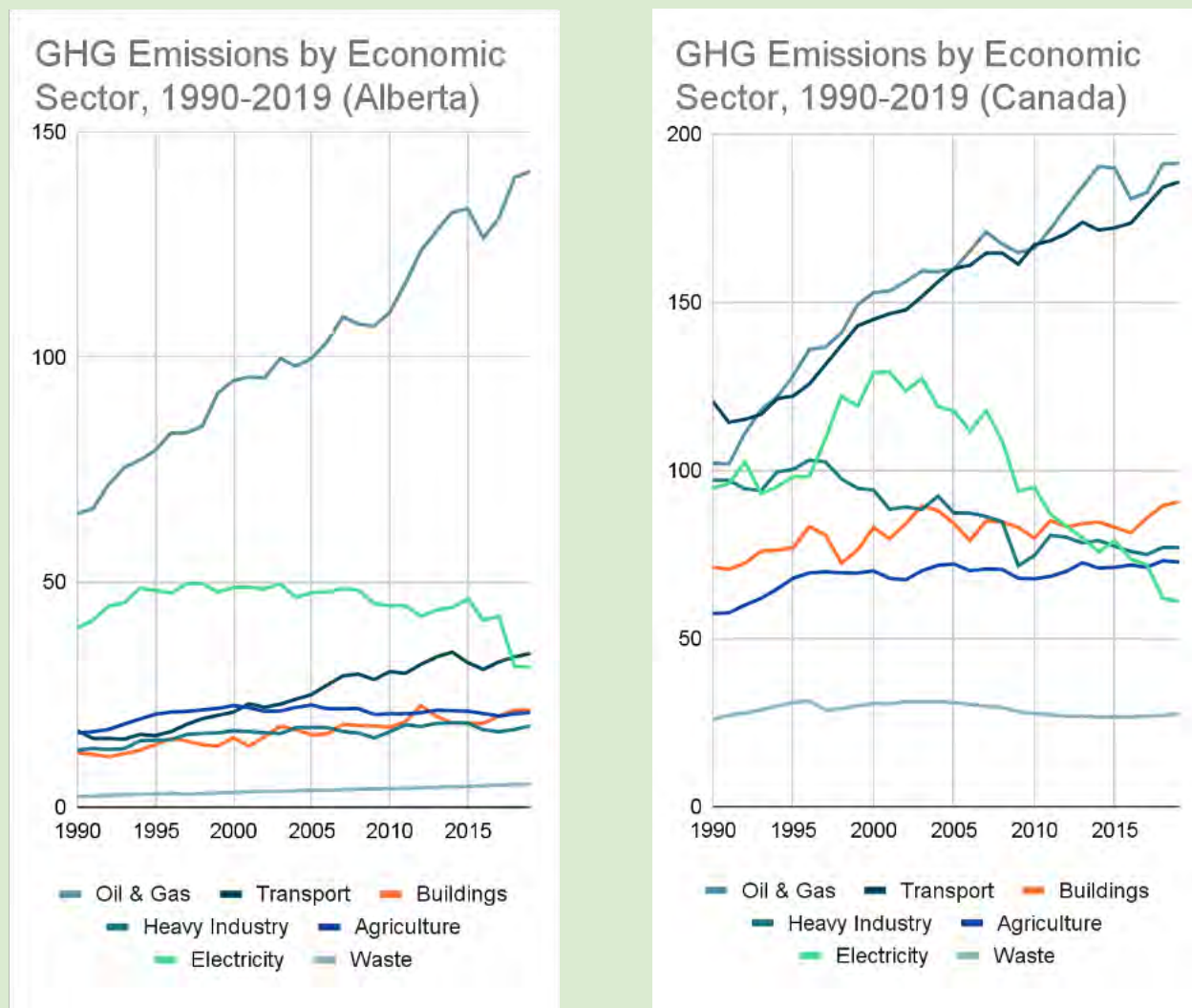
The global sprint to decarbonization is well underway and will define the coming decades for energy production and use. Driven by growing commitments to address climate change across financial, energy, and government sectors, oil and gas developers can no longer separate emissions reductions from strategies to compete in energy and capital markets. Landmark developments, such as the International Energy Agency's *Net-zero by 2050 Roadmap*,⁴ the trillions of dollars pledged at COP26 and mainstreaming climate investments, and Canada's commitment to cap oil and gas emissions, continue to sharpen investors' interest in sustainable, resilient assets and make the case for change in hydrocarbon sectors.

However, even with near consensus on the need for change, oil and gas continue to provide the lion's share of the world's energy requirements and are

likely to have an ongoing – and evolving – role in the international energy mix.^{5,6} This leads to both a challenge and opportunity for oil and gas sectors: to differentiate its activity in ways that contribute to decarbonization and potentially lead these efforts for global energy systems.

For decades, Alberta's oil and gas endowments have been a critical driver for both the provincial and Canadian economy. With the race to decarbonize now front and center for energy producers, it is clear that for Canada to achieve its 2050 climate targets, Alberta's largest economic sector must reduce its absolute emissions. Recent estimates put Alberta's greenhouse gas (GHG) emissions at 276 MT CO₂e in 2019, with over half of those emissions – 141 MT CO₂e – attributable to the oil and gas sector.⁷

Figure 1: GHG Emissions by economic sector, 1990-2019 (Alberta vs rest of Canada)



Despite best intentions, Alberta's GHG emissions have continued to outpace the rest of Canada in virtually all sectors.⁸ The steps that policymakers will set now make several nuanced policy debates – including the mechanisms to address climate change, the implications to economic reconciliation for many Indigenous communities and what all this will bring for the next generation of Albertans – all the more important.

“The question about how our society gets to net-zero is going to be a massive comparative leadership exercise. This will be the moonshot of our generation because the answer isn’t just solar panels. It’s going to require that we – governments, Indigenous Peoples, businesses and society – embrace real creativity to frame the right questions so that we can land on solutions that fit.”

MARK PODLASLY, First Nations Major Project Coalition, EFPC Indigenous Advisory Committee

Several companies operating in the province have already taken notable steps to reposition themselves amidst new market realities, setting ambitious targets of their own and putting in place plans for infrastructure and diversification projects needed to transition to low- or zero-emission business models. Among these are members of the Oil Sands Pathways to Net-zero Alliance, who now represent 95% of Canada's oil sands production.⁹ Furthermore, the provincial government's targeted funding for emission reduction technologies,¹⁰ as well as strategies supporting clean hydrogen, carbon capture and storage, and minerals development are creating much needed inroads for securing the profitability and acceptability of linchpin diversification projects.

These bold, initial moves have planted the seeds of what could become a concerted push to build out

'future-fit hydrocarbons' industries which build on existing oil and gas assets and are compatible with climate change targets. It is a policy direction that can capture the best of both worlds: a bridge to a lower-carbon economy, and an economic path that builds on the expertise and the assets that characterize the sector today (See section 3 for a detailed definition of future-fit hydrocarbons). With alternative energy sources expected to be highly competitive, the concept of future-fit hydrocarbons captures the rich potential for transformation across the oil and gas sector towards low-to-zero-emission opportunities where Alberta already has strategic advantages.

However, significant challenges must still be overcome to bridge potential with reality.

Challenge 1: Transition costs



While some greenhouse gas reductions can be achieved at relatively low costs, most activities will be expensive and require new technologies and capital investment. For example, projections currently peg the overall costs of transitioning Canada's economy at \$60-\$80 billion per year.¹¹ With the pandemic capping off a challenging decade for oil and gas, a number of companies are likely to put some areas of investment, including areas targeted for energy transition, on hold as they repair their balance sheets and address immediate challenges.

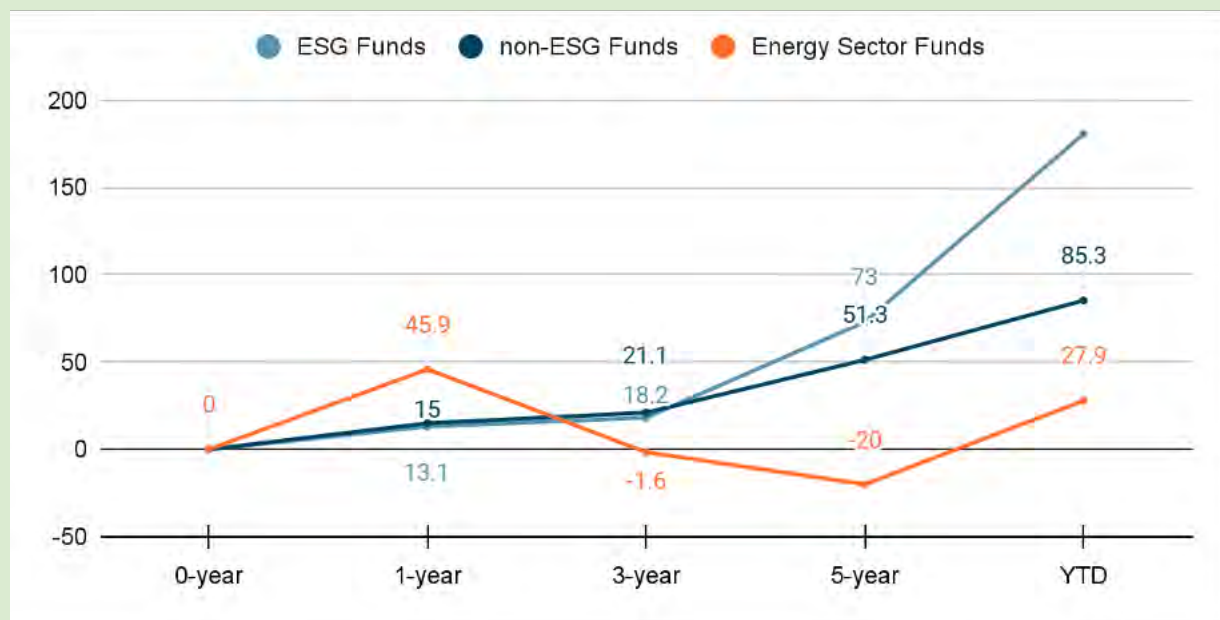
Additionally, despite the recent surge in demand for oil and gas and expectations of another boom cycle, there is good reason to anticipate that any boom may not be a sustained one.¹² In a sector where innovation can be capital-intensive and considered high-risk, it is unlikely that a temporary rise in oil and/or gas prices will create adequate working capital for companies to finance key future-fit hydrocarbon innovations solely on their own. Therefore, accessing additional private capital investment will become all the more important for companies seeking to launch projects to build their resilience in low-emissions markets.

Challenge 2: A changing investment environment

Energy and financial markets are changing to address climate as a competitiveness factor. This reality is likely to destabilize access to capital for companies in Alberta's high-emitting sectors if left unaddressed. For example, investment under the umbrella of sustainable finance continues to witness exponential growth with significant reallocation of capital in the past five years towards funds that integrate environmental, social, and governance (ESG) factors, particularly to the funds that exclude oil and gas companies operating in Alberta and Canada.¹³ Investments in the ESG fund segment already surpass the non-ESG and Energy Sector funds among investors with a 180% increase over the last five years.

While hydrocarbon projects continue to provide risk-adjusted returns for investors, trends such as these reinforce that capital markets increasingly recognize the differences in long-term value between traditional and new energy systems. Even as improving ESG performance continues to be an imperative for many producers, the sector will continue to face scrutiny and exposure to climate-related transition risks. Within the current decade, this dynamic may create a 'chokepoint' discouraging further lending to those companies perceived to be at odds with credible action on climate.

Figure 2: Growth in Assets Under Management (AUM) SA view* of the three retail fund segments by percentage in studied time periods



*AUM overview of a fund's assets that contains fund of funds allocations managed by asset managers

*90% of securities in the Energy Sector Funds represent the top 18 Alberta energy companies.

Source: University of Calgary (commissioned research)

Challenge 3: Fostering an inclusive economy with Indigenous Peoples

In general, the recognition and respect for Aboriginal Rights and Title continue to be poorly understood by the Canadian public, governments, and segments of industry. Despite being located in resource-rich areas and the disproportionate impact of development on communities given their dependence on and connection to the environment, First Nations, Métis, and Inuit communities have only recently been invited to participate in the energy sector in the form of participation in supply chains and consultations through to equity participation. Importantly, the economic opportunities experienced by communities have differed greatly and largely limited to those with energy production on reserve or proximate to major projects. For example, in Alberta some communities such as Fort McKay and Mikisew Cree experience a median income among the highest in Canada, in sharp contrast to other communities in and around energy projects, some of which fall below the poverty line.^{14,15}

As Indigenous Rights become intertwined with almost all major development and infrastructure projects in Canada, the uncertainty that stems from the historic lack of Indigenous inclusion has started to attract the attention of national and international investors, with Indigenous inclusion in ESG investment ratings quickly becoming a critical area of focus. Therefore, as the importance of meaningful inclusion continues to grow and consideration of Indigenous partnerships or Indigenous ownership – from early project inception and planning to operation – becomes a determining factor for energy development, the need to further reconciliation efforts with Indigenous Peoples when pursuing future-fit hydrocarbon opportunities has never been more imperative.

“Here we are in the 21st century and energy development has made millions of dollars for people and Indigenous Peoples are still asking for clean drinking water. Our Nations want to and should be at the forefront of the energy evolution. This means understanding the reality of the situation and channeling it to make change. Energy policy can be a mechanism to do that.”

STEVE SADDLEBACK, Indian Resource Council, EFPC
Indigenous Advisory Committee

Challenge 4: Policy non-alignment



Realizing the continued benefits of Canada's hydrocarbon assets will rely on creating alignment among businesses and policymakers on the role that the oil and gas sector can have in forming a net-zero economy. This is because policy and regulatory barriers still exist that add uncertainty and impede the timely deployment of new hydrocarbon opportunities that align with Canada's climate and economic objectives. This is intensified by regional divisions and a highly polarized debate about how Canada should achieve its emissions reductions targets.

Greater coordination between provincial and national policymakers is required to build a supportive platform for future-fit hydrocarbon projects that developers want to build and to establish the clear, stable policy environment that investors need.¹⁶

As individual companies explore and deploy strategies to decarbonize operations and improve their economic and reputational resilience, these broader system dynamics provide an unprecedented opportunity for public policy to support restructuring across the sector to encourage investment in future-fit hydrocarbon industries,¹⁷ and by extension support those whose way of life and livelihoods continue to rely on the sector.

Recent provincial actions are important steps, but significantly more must be done, in conjunction with private sector action, to position Alberta as a jurisdiction of choice for low-emissions investment that advance the transformative potential of its hydrocarbon sector. To that end, the question policymakers now face is no longer *'if'* action should be taken, but *'how'* to best target and utilize their full toolkit of **policy levers** to address these challenges, provide needed incentives, and support the sector in navigating the shift. For example, many of these new opportunities for hydrocarbon development will require disruptive – rather than incremental – innovations in technologies, as well as new business and financing models to scale and be cost-competitive in advantaged markets.¹⁸ These opportunities also cannot be separated from the social dimension of setting energy priorities and implications for employment, reconciliation with Indigenous Peoples, and broader conversations around inclusivity.

This report outlines the case for key enabling policies that policymakers can act on to support the success of economic strategies provincial and federal governments are advancing that establish pathways to diversify and transform hydrocarbon development. These policy proposals focus on areas where policy can stimulate the existing ecosystem to support the development and attractiveness of these emerging industries through more indirect, yet equally important means.

Alberta's firms in the hydrocarbon sector are clustered

Energy-related policy should support both companies creating jobs today, and the growth and emergence of companies who will create jobs for tomorrow's workforce. Thinking of Alberta's hydrocarbon sector as a cluster can offer an approach that looks beyond traditional industrial policy and creates an ecosystem wherein new winners arise without knowing exactly who they might be.

Alberta's hydrocarbon sector can be thought of as a cluster because it meets this definition nicely: Within the province, there are a host of companies, institutions and organizations that support oil and gas extraction, refining, and processing directly and indirectly whose success depends on both themselves and others. These include a range of manufacturers and engineering, legal, financial, project management, and environmental services, many of whom have specialized knowledge, and who play a critical role in the overall oil and gas industry.

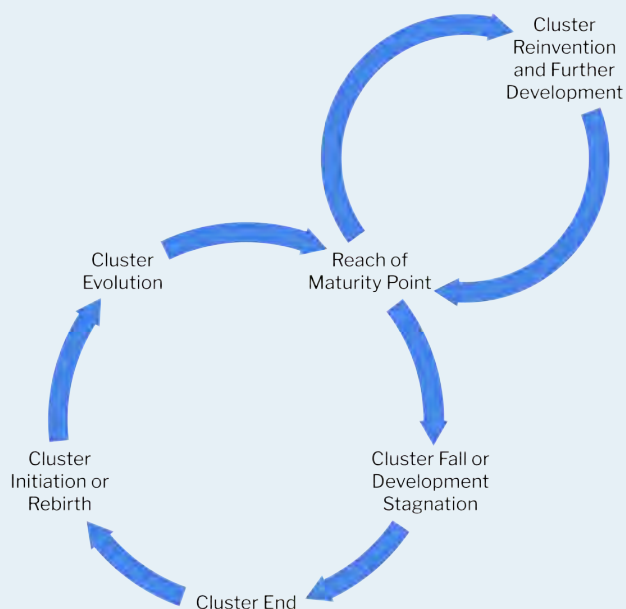
Importantly, clusters are not static. As with other regional examples, including the evolution of Silicon Valley and Philadelphia's manufacturing sectors, clusters cycle through a series of stages including *'initiation,' 'evolution'* as demand grows, and *'maturity,'* eventually reaching a point of inflection where they either die, are reinvented, or are further developed.

Even as Alberta and Canada continue to reap the deep economic benefits of the province's hydrocarbon cluster, for years now this cluster has faced a series of market shocks creating instability in the demand for its products and services. Today, several signs point to the fact that Alberta's hydrocarbon cluster has reached an inflection point where policy can play a pivotal role in navigating further decline or supporting revitalization. The revitalization of a cluster, which can occur either before or after a decline starts, can occur in **three different ways**:

- **Adaptation:** A cluster can adopt frameworks and approaches from elsewhere slowly and integrate them over time.
- **Renewal:** A cluster can suddenly adopt new technologies that open up new, but adjacent, markets immediately.
- **Transformation:** A cluster can take its existing internal skill sets and products and develop its own innovations to drive future growth.

Path dependence, sunk costs, and traditional perspectives (present especially in mature clusters) mean revitalization does not always happen organically. Thinking about Alberta's hydrocarbon sector as a cluster highlights the wealth of assets that have grown up around oil and gas extraction, including infrastructure, skills, intellectual property, supply chains, and social capital. Policymakers should learn from past instances of cluster renewal where policy has been instrumental in stimulating a variety of new activities, supporting companies in the exploration of new technologies, and prioritizing cross-industry innovations.

Figure 3: Cluster evolution of Alberta's hydrocarbon sector



Mike Moffatt, Aline Coutinho, and Una Jefferson (2021).
Renewal and Reinvention of Alberta's Hydrocarbon Cluster.
Smart Prosperity Institute



02 Defining future-fit hydrocarbons

Future-fit hydrocarbons are where the sector's historical resilience meets ambition and future opportunity.

Alberta's building blocks for future-fit hydrocarbon industries

The EFPC uses the term future-fit hydrocarbons to refer to a number of **diversification opportunities that can repurpose oil and gas assets and drive deep emissions reductions** for Alberta and Canada along a pathway to net-zero over the next 30 years. Assets include – but are not limited to – hydrocarbon feedstocks, geography, infrastructure, workforce skills, and intellectual property. While several emissions reduction scenarios exist that examine differing degrees of structural change to Alberta's economy, what is presented here are the prime economic opportunities where Alberta has clear strengths

and specializations that can already be leveraged to produce the commodities, breakthrough technologies and materials that will likely become key industries in global net-zero energy systems.¹⁹

The EFPC conceives of these as '*building blocks*' for future-fit hydrocarbon industries for Alberta as these are well-explored options for transforming production and use, already garnering interest from private and public sectors but are not an exhaustive list of what is possible. It is also feasible that these initial opportunities become platforms for future innovations.

It is important to note that even though all of these have market potential, they are not all of the same scale with some positioned to unlock significant export markets and others representing niche prospects for specialized, localized players.

Table 1: Types of innovations represented by future-fit hydrocarbons ‘building blocks’

	Commercializing new technologies	Developing new commodities	Leveraging existing physical assets
 Carbon removal and management	●	●	●
 Clean Hydrogen		●	●
 Lithium/Battery Minerals		●	●
 Bitumen Beyond Combustion		●	
 Geothermal Power			●

Carbon removal and management: capture and storage of carbon from industrial emissions or from the air will be an important part of meeting climate change objectives, where nearly every 2° scenario entails wide deployment.^{20,21}

- Market projections suggest that the global Carbon Capture and Storage (CCS) market will reach \$4.9 billion USD by 2026, and the Carbon Capture Utilization and Storage (CCUS) market will reach \$7 billion USD by 2030.^{22,23}
- Alberta has developed an early advantage in CCS/CCUS, with the provincial and federal governments as well as hydrocarbon and petrochemical industries catalyzing investments into the removal of carbon dioxide from industrial emissions and use of carbon for enhanced oil recovery.
- Many assets from Alberta’s hydrocarbon cluster – from subsurface data and expertise to engineering know-how – could be repurposed towards a CCS/CCUS industry.
- Direct Air Capture is an advanced CCS technology which envisions removing carbon directly out of the ambient air. While speculative, it can be integrated with nuclear power or geothermal as an emissions ‘backstop.’

- The carbon capture industry could not only support the net-zero ambitions of Alberta’s emissions-intensive sectors but could also enable the growth of sequestration as a service, exported to other jurisdictions which also seek to decarbonize.

Clean hydrogen: hydrogen, produced with no or low greenhouse gas emissions, has enormous potential to decarbonize the global economy.

- The global hydrogen production market is projected to more than double in the next decade, with revenue generation to increase to \$420 billion USD in 2030 and exceed \$2.5 trillion USD by 2050.^{24,25}
- Alberta is the largest hydrogen producer in Canada today, producing approximately 2.4 million tonnes of hydrogen per year. The province can also produce very cheap clean hydrogen through steam methane reforming of natural gas feedstocks with CCS.
- Additionally, Alberta’s engineering expertise and renewable energy resources could give the province an advantage in producing hydrogen from these resources or from biomass gasification.

Lithium/battery minerals: Lithium-ion batteries are currently a frontrunner in electric vehicle technology and lithium may be in short supply if current technological trajectories continue.

- The market for lithium has been projected to reach \$8.24 billion USD by 2027.²⁶
- Alberta has a large, low-concentration lithium resource in subsurface brine with several firms developing extraction techniques.
- A lithium industry in Alberta could repurpose existing assets, including subsurface data and expertise in drilling, subsurface thermodynamics, active or inactive oil wells, transport infrastructure, industrial carbon capture facilities, and supporting industries such as environmental services.

Bitumen Beyond Combustion (BBC): the heavy fraction in bitumen is diverted from fuels production and used to generate a variety of materials such as carbon fibre, asphalt binder, and graphene.

- The markets for BBC products like carbon fibre, asphalt and other high-value carbon materials could grow in the future. If a number of technological innovations materialize, BBC could be a \$2 billion USD industry by 2030 and a \$47-billion USD industry by 2050, utilizing 35,000 and 1,500,000 barrels of heavy fraction bitumen per day (BPD) respectively.^{27*}
- Carbon fibre, for example, could be the material of the future if production costs fall enough to replace or integrate with other materials like steel and concrete. Canada could benefit from this opportunity if carbon fibre can be made from oil-sands-derived pitch or asphaltene, a process which is currently at the proof-of-concept stage. If these breakthroughs occur, global markets could reach 246,500 tons per year by 2030.²⁸ Major technological breakthroughs would also be needed to make oil-sands-derived carbon fibre compatible with net-zero, given the life cycle emissions from bitumen and carbon fibre production.

- The technologies and processes to do this at scale, at a competitive price, and with acceptably low life-cycle emissions have not yet been demonstrated. However, for every million barrels of bitumen used for BBC, Scope 3 GHG emissions can be reduced by 65 million tonnes per year (compared to a base case in which bitumen is combusted).

Geothermal power: natural heat from the subsurface of the earth that can be used for direct heating or produce electricity.

- Despite a relatively small market for geothermal, estimated to be just over \$5 billion USD by 2026, novel cost-effective techniques will have export potential, especially in emerging economies.²⁹
- Alberta's geothermal industry could repurpose many assets from its hydrocarbon cluster to provide emissions-free power and heat to nearby communities and industry facilities.
- Alberta has key strengths in subsurface data, expertise in drilling, subsurface thermodynamics, and 3D mapping, as well as active and inactive wells.
- Most geothermal ventures in Alberta have a prior connection to the oil and gas industry.

A criteria approach

The EFPC also uses the term future-fit hydrocarbons to underscore that the nature of investors and customer demands will continue to evolve, although how specifically or how quickly remains uncertain. To that end, what is future-fit today may not be future-fit tomorrow and attempts to glean the right technologies and value chains that can realize new hydrocarbon growth opportunities bring risk – a fact highlighted by large gaps between low- and high-demand projections of energy majors and industries.³⁰

Amid such economic uncertainties, hydrocarbon sectors will need to advance projects that are executed in a manner increasingly attractive to investors and how investors see the long-term. Public and private investors alike are becoming a strategic driver of decarbonization action, growing increasingly attuned to the demand horizons for traditional hydrocarbon products, the impact of energy projects and changing risk-reward trade-offs.³¹ As such, future-fit hydrocarbons are not only a set of new hydrocarbon applications where actors may choose to compete, but also a matter of how actors do business and how projects are planned and managed in a decarbonizing world.

To this end, investors are increasingly looking to established criteria to evaluate the **future-fitness** of investment opportunities including investment frameworks, transition taxonomies and pathways. Importantly, these criteria are based on a different set of concerns than those investors have prioritized in previous decades, which include reducing emissions as well as maintaining social license and mitigating the risk of stranded assets.³²

Additional factors shaping new expectations for hydrocarbon-connected activity include standard setting efforts such as the *Net-zero Standard for Oil and Gas*³³ developed by the Institutional Investors Group on Climate Change and the Canadian effort to produce a 'transition taxonomy' as part of a National Standard for Transition Finance – both of which aim to identify credible transition projects and activity for oil and

gas.³⁴ While these initiatives will not single-handedly determine the degree to which activity to reorient hydrocarbon activity will ultimately attract investment, they are much needed tools providing clarity on future-fitness.

To help build a shared view of activity that will differentiate future-fit hydrocarbon industries, the EFPC introduces a set of **five guiding criteria**, as a complementary perspective to the above-mentioned initiatives and informed by global priorities. These criteria illustrate that there is now a floor for future-fit hydrocarbon activity across the following categories and, equally as important, growing ambition being advanced through **business and corporate strategies**:

- **Aligned with net-zero trajectory:** Commitment to net-zero by 2050 and Paris targets have become the minimum expectation for companies/projects to be considered for energy investment.
- **Integrates a forward-looking ESG approach:** ESG integration is now a key risk management and investment norm, and likely to become increasingly critical as factors beyond emissions are likely to become flash-point issues or key differentiators.
- **Economically viable:** Economic viability of hydrocarbon activities is not static, and as climate moves from being a marginal consideration for investors, costs of delays to decarbonize may undermine the viability of products and services.
- **Fosters an inclusive Indigenous economy:** Moving forward in a mutually respectful relationship with Indigenous Peoples on energy development is a necessary condition for acceptance and resilience of future-fit hydrocarbon projects and industries.
- **Builds on current assets and strengths:** Building on something from something – repurposing assets – creates critical bridges to the low-emissions opportunities by capitalizing on existing infrastructure, distribution channels, and human capital to create a path forward.

An opportunity for inclusion of Indigenous Peoples

“As the industry prospered and Canada became a prominent supplier of hydrocarbons to the rest of the world, certain Indigenous Nations began to participate initially as service providers and eventually in some cases, became operators of assets and equity holders.

However, it is difficult to argue that Indigenous Peoples are currently true partners in the industry; from policy development, consultation in the permitting process, through to the abandonment of wells, government and industry’s treatment of Indigenous Peoples has been inconsistent and, some would say, unsatisfactory. However, the impending industry transition provides the country with a very important – and powerful – opportunity to include these Rights Holders.

The implementation of UNDRIP alongside the changing landscape of Alberta’s hydrocarbon industry provides an opportunity for the province to be a leader in the inclusion of Indigenous People in the new landscape. Although the future is uncertain, it is important to acknowledge the value Indigenous Peoples may provide to the industry through meaningful participation. From the insights gained from Traditional Ecological Knowledges; the provision of skilled workforces in remote, hydrocarbon-rich areas; to the potential to be significant *in-country* investors, government and industry cannot afford to ignore the potential for the meaningful participation of Indigenous Peoples in this time of change.”

RAYLENE WHITFORD, Canative Energy
Indigenous Advisory Committee

These criteria represent an inclusive approach for framing how actors in Alberta can continue to be responsive to unexpected developments and innovations (e.g., technologies, business models, and partnerships) that may provide new pathways for economic development, new markets, and new revenue sources between now and 2050. These criteria also work to integrate Canada-specific dimensions of energy transitions highlighting the need to address human and social elements that will be disproportionately impacted by a shift to low-emissions energy and the unique opportunity this presents for energy economies.

The fact that there is a floor but no ceiling for future-fit hydrocarbon activity is critical to understand. Future fitness is not static, and future-fitting of hydrocarbon activity may be, in its execution, a race to the top rather than a race to the bottom (in terms of technological innovation, unlocking new value chains, and emissions reductions). Acknowledging that ambition is likely to keep increasing, both through competitive pressures and evolving customers’ expectations, each criterion proposes an initial set of markers that characterize three levels of ambition against which to assess sector performance.



Meeting: Represents the minimum level of achievement in each criterion required for credible future fitness.



Striving: Represents a level of achievement in each criterion required for signaling ambition and durability when it comes to future fitness.



Leading: Represents a level of achievement in each criterion required for signaling leadership in the market.

Taken together, these criteria are intended to catalyze two key points: First, the road to future-fitness will not be a straight line. Second, there are multiple strategies oil and gas companies can deploy to align with these principles, but differentiation will ultimately require comprehensive action across all parts of a business.

Table 2:

The five EFPC guiding criteria for future-fit hydrocarbon industries

Pathways and expectations for hydrocarbon activity will evolve with time and investors. The following criteria aims to illustrate an initial set of strategic responses that companies in the oil and gas sector may **exhibit today to build resilience and continue to meet energy demand** in the context of energy transition.

Criteria		 Meeting	 Striving	 Leading
1	Aligned with net-zero trajectory Commitment to net-zero by 2050 and Paris targets have become the minimum expectation for companies/projects to be considered for energy investment.	- Adopting a net-zero target grounded in science and short, medium, long-term milestones to drive significant absolute GHG reductions by 2050 for production and operational emissions (scope 1&2). Integrated companies have separate targets in place for upstream operations. - Confirmed investments in immediate decarbonizing technologies.	- Demonstrable, rapid, large-scale reductions in CO₂ emissions, additional deep reductions in non-CO₂ GHG, and ramping up of strategies and investments in technology to remove CO₂ from the air. - Accounting for total emissions (including product use/scope 3), or for materials development.	- Demonstrable reductions across a company's entire supply chain through direct reductions, offset, or use of new technologies to diversify into other forms of energy/materials. - Positioned to address emissions impact beyond individual corporate inventories and generate shared benefit for emissions reductions.
2	Integrates a forward-looking ESG approach ESG integration is now a key risk management and investment norm and increasingly critical as factors beyond emissions are likely to become flash-point issues or key differentiators.	- Climate reporting in line with standards from the Task Force on Climate-Related Financial Disclosures (TCFD)/ International Sustainability Standards Boards (ISSB), including disclosure of interim net-zero targets and related progress, as well as strategies for improving governance and social factors. - Integration of climate risks (physical and reputational) into Enterprise Risk Management systems or strategic planning processes.	- Enhanced ESG disclosure on emerging risk areas such as water management, land use, and biodiversity. - Expansion into energy transition reporting that outlines strategies for business transformation and fossil fuel and price forecasts underpinning accounts and underlying assumptions.	ESG goals and reporting established as a core part of corporate and growth plans linking ESG strategies with financing strategies for credible capital driven ESG progress.
3	Economically viable Economic viability of hydrocarbon activities is not static, and as climate moves from being a marginal consideration for investors, the costs of delays to decarbonize may threaten the financial viability of product offerings and services.	- Resilient to carbon pricing applicable in a producing jurisdiction and price-competitive with alternatives. - Where 'future-fit' activities target new market opportunities, climate-oriented investors can serve as a proxy for future consumers and demand.	- Products, technologies, and services are viable in markets prioritizing life-cycle intensity through fuels standards or border taxes. - Where diversification is a key strategy, customer/export contracts have been confirmed for these products and services.	- Products, technologies, and services have comparative advantages and increasing global market share. - Diversified activities are profitable and represent new revenue streams.
4	Fosters an inclusive Indigenous economy Moving forward in a mutually respectful, equitable partnership with Indigenous Peoples on energy development is a basic requirement for building resilient, future-fit hydrocarbon industries and an opportunity to weave in reconciliation efforts with the development of these industries.	Implementing the articles outlined in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).	- Establishing ambitious, but achievable, targets for Indigenous procurement, employment, and board representation. - Including Indigenous Peoples in every step of the process in developing clean energy policies and projects.	- Improving access to cost effective capital for Indigenous Peoples through equity participation and/or ensuring the availability of payments or backstops to support financial participation and bridge investment interest with communities. - Providing Indigenous Peoples with the opportunity to co-lead the development of future-fit hydrocarbon projects.
5	Builds on current assets and strengths Building on something from something – repurposing assets – creates critical bridges to low-emissions opportunities by capitalizing on existing infrastructure, distribution channels, and human capital to create a path forward.	- Maximizing the efficiency of existing assets and infrastructure and retrofitting with decarbonization technologies to drive low-emissions operating models. - Incorporating reskilling and training programs as safeguards for employees against potential impacts of shifts in operations.	- Retiring high-emitting assets early, and where possible repurposing assets, deploying new technologies, and using retail networks to expand into wider energy sources. - Recognizing that employee transitions also impact families and communities, participating in local community transition dialogues and efforts.	- Leveraging and exporting technical capabilities and expertise into new areas of the emerging clean energy and technology sector. - Engaging and supporting just transition policy and program discussions, including through financial supports for local communities.



03 What can future-fit hydrocarbons offer Alberta?

Worldwide, policymakers are grappling with a challenging investment environment for both public and private interests in energy development. For example, oil and natural gas deposits remain plentiful and the technology to extract them continues to improve, making them ever-more economical to produce and use for a variety of purposes. But the past two years have marked a major turning point for the global energy industry and hydrocarbon economies as – among many things – investors turn their attention to shifting consumer preference, new innovations, and the investment opportunities presented by a net-zero economy.

To this end, the growing pool of funds allocated for sustainable finance could play a critical role in accelerating the creation of future-fit hydrocarbon industries in Alberta, and the province has all the ingredients to capitalize on this as a new financing opportunity. Even as reluctance to connect sustainable financing with hydrocarbon companies will likely persist, orienting capital towards such projects as those focused on clean hydrogen; carbon capture, utilization, and storage; taking advantage of carbon markets as they scale; and establishing minerals to batteries supply chains, continue to be raised as priority investments for inclusion in sustainable finance.³⁵

Table 3: Collaborative investor initiatives addressing climate change

	The UNFCCC-convened Race to Zero is a global campaign to rally leadership and support from businesses, cities, regions, and investors for a healthy, resilient, zero-carbon recovery that prevents future threats, creates decent jobs, and unlocks inclusive, sustainable growth. It brings together a coalition of leading net-zero initiatives, representing 454 cities, 23 regions, 1,397 businesses, 74 of the biggest investors, and 569 universities.
The UN-Convened Net-Zero Asset Owner Alliance	The UN-convened Net-Zero Asset Owner Alliance, launched by UNEP FI and the PRI, requires signatories to commit to moving their portfolios to net-zero by 2050. Thirty-three investors, with \$5.1 trillion in assets, had joined the initiative as of the end of 2020. The UN Secretary-General António Guterres has described The UN-convened Net-Zero Asset Owner Alliance as the 'gold standard' of net-zero commitments. It is an official partner of Race to Zero.
Net-Zero Asset Managers Initiative	The newest platform, the Net-zero Asset Managers initiative, launched by AIGCC, IGCC, IIGCC, Ceres, CDP, and the PRI, brings together 30 investment managers that commit to help their asset owner clients decarbonise by 2050. It is an official partner of Race to Zero.
	Climate Action 100+ is the longest established initiative. It was founded in 2017 to align investor engagement to encourage the world's largest emitting companies to take action on climate change. It is backed by 545 institutional investors with \$52 trillion under management. It also interconnects with the Transition Pathway Initiative (see Frameworks and Tools).
	The Investor Agenda is an alliance of seven global and regional investor groups that provides a platform for investors to show their support for the Paris Agreement. It provides investors with a set of actions they can take, covering investment, engagement, disclosure, and policy advocacy. It counts 1,200 investors as signatories.
	The Initiative Climat International brings together those private equity firms which are actively promoting climate action within their portfolios.
Investor Decarbonisation Initiative	Campaign group ShareAction's Investor Decarbonisation Initiative aims to catalyse corporate climate action.
Paris Aligned Investment Initiative	The Paris Aligned Investment Initiative has drawn up a set of best-practice approaches and actions to enable asset managers and asset owners to align investment portfolios with Paris and net-zero emissions.
	Climate Engagement Canada is a finance-led initiative that drives dialogue between finance and industry to promote a just transition to a net-zero economy. It represents \$3.6+ trillion in assets under management.
Net-Zero Banking Alliance 	Signatories to the Net-zero Banking Alliance commit to "transition all operational and attributable GHG emissions from [their] lending and investment portfolios to align with pathways to net-zero by mid-century, or sooner," among other commitments. The 'Big Six' Canadian banks became signatories in 2021.³⁶

This chart was adapted from The investor guide to climate collaboration: from COP26 to net-zero,³⁷ published by Principles for Responsible Investment and London Stock Exchange Group.

Canada's financial community is also recognizing the scale of this opportunity for lenders, investors, and borrowers alike. Canada's top six banks alone are tracking towards \$1.2 trillion in sustainable finance by 2025,³⁸ and the potential to connect this type of capital to a future-fit hydrocarbon industry becomes even more striking when considered alongside other national efforts that seek to integrate sustainability and Canadian financial system policies and standards. For example, the Sustainable Finance Action Council (SFAC) will make recommendations on critical market tools needed to scale and attract sustainable finance in Canada, this includes supporting the low carbon transition of oil and gas companies. Building on the dedicated work of a multi-stakeholder group convened under the Canadian Standards Association, SFAC will also finalize the development of a Canadian Transition Finance Taxonomy that would outline investment opportunities and activities that can help decarbonize the Canadian economy. Together these provide a small snapshot of efforts creating needed runway for policymakers to correlate that investment in future-fit hydrocarbons equates to capitalizing on Canadian cleantech and clean innovations.

However, the true game-changer for future-fit hydrocarbons may not be sustainable markets on the precipice of exponential growth but may in fact be Albertans themselves. According to surveys conducted at various points during the current Covid-19 crisis, Albertans are increasingly in line with the rest of the country when it comes to net-zero ambitions by 2050, with over two-thirds of Albertans supportive and optimistic that action can still be taken to reduce the effects of climate change.^{39,40} However, as with any prospect of significant change, internal conflict persists as nearly half of Albertans also hold the view that oil and gas will still be Alberta's most important industry for years to come.

"We want to be part of the front end of energy transition, but we can't just forget that we're an export economy. Many groups and many Indigenous groups are very realistic that their economic prosperity is still going to come from our resources, in particular oil and gas."

RYAN ROBB, CEO Stoney Tribal Administration, EFPC
Indigenous Advisory Committee

While seemingly conflicting, such findings are not surprising. Oil, gas, and mining represent 26% of the provincial GDP – by far the largest proportion of Alberta's total revenues, supporting jobs and significant spin-off economic effects.^{41,42} As the province begins to enjoy an economic resurgence after years of contractions and stalled recoveries, the temptation is there to ride out a rebound led by its biggest industrial sector at the sake of enabling a broader economic transition.⁴³ So as momentum on climate continues to be fueled by expectations for net-zero, divisions continue to be drawn in terms of the measures to get there. The dilemma for Canadian policymakers on both sides of the debate is acute: how best to respond to the lure of higher oil and gas commodity prices and keep an eye to the longer-term picture for oil and gas as global policies – albeit with inevitable compromise – accelerate the speed of climate action.⁴⁴

As nascent sectors in Alberta begin grow and to offer hope of economic diversification,⁴⁵ future-fit hydrocarbons not only illuminate the serious potential for diversification *within* the sector, but – equally as important – represents a path forward that captures the intertwined nature of energy policy and identity in the province. This is because it can provide a way for Alberta communities and businesses to advance climate action that builds on the foundations of the existing cluster (e.g., labour markets, capital investments, physical facilities, or

even institutional structures for supporting energy research, development, and demonstrations) and generate sustaining economic activity.⁴⁶ Vitality, future-fit hydrocarbons represent a multitude of industries, as well as supporting services, expected to see rising demand in a net-zero economy, which offers an alternative to employing a single, or handful, of technology-focused strategies that could be over-relied upon to stave off sectoral decline.

The leadership demonstrated to date by the sector to report on and cut emissions from production and operations is both necessary and admirable. However, the development of a comprehensive suite of policies that can reinforce critical 'building blocks' as the next frontier of Alberta's hydrocarbon cluster *and* further cultivate its evolution is an economic opportunity that must not be missed. Not only are these building blocks positioned to attract expanded risk capital and retrofit finance,⁴⁷ they represent key steps towards securing the long-term profitability and acceptability of Alberta's hydrocarbon sector, where the future-fit hydrocarbons component of that market can realistically surpass the size of the existing 'traditional' hydrocarbons market in the coming decades.⁴⁸

Alberta is already on the path to a transformative future, and future-fit hydrocarbons – as a key pillar of this future – are positioned to take advantage of transitioning markets and a window for change opening up in provincial public sentiment. But there is no guarantee when it comes to realizing any new innovation, and projects, companies, and communities engaging in this space are still at the front end of the risk-curve. Many will be economically challenged unless policy changes are made to establish future-fit hydrocarbons as a regional priority, help make such projects financially attractive, and clarify the policy environment where they can successfully launch.

“Our Nations and technicians are already advancing work that will contribute to these goals and providing services to link the ecological and social components of development properly. This is beyond consultation. It’s about: the growing number of examples that prove that bridging the gap between traditional knowledge and technical expertise delivers better outcomes for projects, how critical this will be in the next emergent phase of a net-zero economy, and the opportunity this presents for Indigenous communities.”

ANNE-MARIE GARBY, BFL Canada, EFPC Indigenous Advisory Committee



04 Alberta recast: a new vision for a new reality

The global energy transition offers a huge opportunity for Alberta but capturing this requires careful coordination and navigation of provincial, federal, Indigenous, municipal, and other stakeholders to ensure the energy system of the future can benefit a wide array of interests.

The ambition of growing future-fit hydrocarbons has the potential to bridge a number of these divides, in that it acknowledges a new reality for oil and gas and stands as an invitation for those interconnected with resource development to imagine new possibilities and collectively build a stronger, brighter, more resilient story for the sector.

To that end, this effort envisions future-fit hydrocarbons as a critical next chapter for Alberta's energy journey. Here is what it could look like: Alberta is a province on the leading edge of decarbonization globally and has become a destination of choice for diversifying energy companies and transformative low-emissions ventures. This is an Alberta that has embraced a vision of renewal and a sector known to the world as a place that looks beyond the safe bets of today to adopt and scale new technologies, processes, and energy sources that tomorrow will need.

For Alberta to complete this journey and come out stronger, policymakers must work together to **create a regulatory, financial, and policy environment that will situate growing future-fit hydrocarbon industries as a highly desirable investment target.**

Effectively achieving this desired change means policies in the service of future-fit hydrocarbons are enabling progress towards multiple outcomes:

Outcomes

- 1** Alberta is making vital contributions to national and global emissions reductions.
- 2** Albertans are benefiting from new revenue streams that provide long-term benefits.
- 3** The sector is attracting new actors and investors to the province, deepening our strength in future-fit hydrocarbon technologies and new services sectors for emissions reduction.
- 4** Alberta is a leader in building inclusive economies with Indigenous Peoples.
- 5** Investors see a clear value proposition for remaining committed to incumbents, who are optimizing assets and monetizing new future-fit lines of business.

“There will always be some people who will always hold onto the dream of how the industry was, and who will refuse to accept the global energy transition. However, Alberta must acknowledge that it has to undergo a massive, systematic change, if it is going to survive. This is about re-baselining what we are known for, not a few performative gestures. I’m really looking forward to spending the next decade of my career working in a sector that is different, more balanced, and more inclusive of a wider range of voices.”

RAYLENE WHITFORD, Canative Energy, Indigenous Advisory Committee



05 Building a policy portfolio for attracting investment

Why a portfolio?

The EFPC criteria for future-fit hydrocarbons is intended to make visible critical guardrails for hydrocarbon-related activity to be attractive amid economic uncertainty and as climate increasingly becomes central to energy investment. While some companies operating in Alberta may already be leading in terms of these criteria, not all companies are.

These dynamics further highlight that public funding for specific technologies alone is not enough. For future-fit hydrocarbon industries to flourish, governments have an important role to create an ecosystem, within which such projects would launch, that can address key aspects of risk for private investment and enable more actors to adopt increasingly ambitious activities on track with these criteria.

“We need to think about how to address the risk. There’s a lot of communities who want projects, but all of this brings risk. And if you can’t handle the risk, you can’t be at the table as an equal partner. I’d like to see the Indigenous world get to this place and we are seeing a lot of good steps, but it will take much more work and assurance that no matter what happens politically we continue to move forward.”

RICHARD PICHE, Cascade Project, EFPC Indigenous Advisory Committee

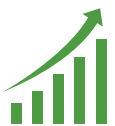
Doing so will require careful design. To understand the *types* of policies needed to establish the right ecosystem for future-fit hydrocarbons, a framework for exploring how policy can address market barriers to clean innovation (known as a ‘**marketplace framework**’) was developed to help inform and assess the EFPC’s policy portfolio. This approach is based on Smart Prosperity Institute’s Clean Innovation Framework, which outlines how public policies can drive clean innovations at various stages of the innovation cycle and consider the social and economic factors that determine an innovation’s success.⁴⁹ It identifies four categories of public policy that need to be present to encourage investment:



PUSH – policies that spur and incentivize new ideas and focus on early stages of innovation



PULL – policies that help create market demand for solutions which might otherwise not appear immediately profitable



GROW – policies that grow ideas into marketable products and help secure financial and non-financial supports



STRENGTHEN – policies that make the whole innovation system more effective and resilient

This approach reflects best practices for designing policies in each category and ensuring policies from different categories work together, with an initial analysis undertaken that used clean hydrogen as an example to explore specific policy levers available to support investment into future-fit hydrocarbon industries.

What is clear is that, as a jurisdiction, Alberta has a powerful track record of PUSH policies to usher in early-stage support for technology projects – the birth of Steam-Assisted Gravity Drainage (SAGD) in the 1970s and 1980s and long history of researching CCUS technology are prime examples. Alberta’s innovation backbone is also supported by multiple organizations focused on commercialization.⁵⁰ However, supporting technology is more than just inventing it. For future-fit hydrocarbons, policy gaps exist when it comes to better defining the market rules that can shape a

competitive space for related opportunities, stimulating demand, providing temporary support when private support is not available, and integrating this with priorities in service of an overarching plan and long-term strategic vision for the province – all critical for attracting private investment into the sector.⁵¹

Structuring the EFPC Portfolio

By enabling the energy sector to grow a range of future-fit hydrocarbon industries, Alberta has an opportunity to play a big part in the escalating push to net-zero by 2050 and capture the greatest commercial opportunity of our age.^{52,53} However, to seize this opportunity, policy is essential to illustrate how future-fit hydrocarbons industries represent a clear step-change in Alberta’s policy agenda and a key feature of Canada’s energy transition that better serves the future of hydrocarbon sectors, Rights Holders, and communities.

With the vision for future-fit hydrocarbons as its anchor, the EFPC identifies six strategic areas of focus where there is already momentum, but where public policy is especially critical for addressing path dependency present in Alberta’s mature hydrocarbon cluster and for creating space in the system for more actors to seize future-fit hydrocarbon opportunities. Specifically, Alberta should prioritize using policy to create the following change in these areas:

1. **Climate reporting:** create a forward-looking, consistent ‘*climate reporting*’ environment to support investor decision-making.
2. **Transition finance:** advance ‘*transition finance*’ tools to accelerate capital investments and support heavy emitters to reduce their emissions and bridge to greener business models.
3. **Next generation technology:** anchor Alberta at the heart of Canada’s ‘*living lab*’ for technologies that can unlock transformative opportunities for future-fit hydrocarbons.
4. **Energy communities:** create ‘*onramps*’ for broader, more local participation to reduce barriers and uncertainty associated with project development.

5. **Aging assets:** create 'offramps' for aging oil and gas asset to repurpose assets to scale new future-fit hydrocarbon fuels and products and/or effectively manage exist.
6. **Net-zero commitment:** establish a provincial commitment to net-zero emissions on an '*absolute basis*' by 2050 (or sooner) to reinforce individual company commitments.

- **Moonshots:** these are ambitious proposals that are high risk but also high reward. The prospect of success for such proposals is dependent on a number of factors, including building new capabilities across multiple actors, which makes them difficult to advance and highly variable in terms of time and effort to implement. However, their importance is heightened in times of serious disruption and change.

The EFPC framework outlines how each of these areas can be activated through a series of policy levers and illustrates how these proposals build out key aspects of the marketplace approach for future-fit hydrocarbons. The EFPC framework also recognizes that commitments to future-fit hydrocarbons are nothing without actions to back them, but individual actions will provide differing degrees of certainty for those looking to advance and invest in these types of projects or activities. Therefore, policymakers must consider where action can happen quickly, where additional time and effort is required to assess the consequences of proposals, and where achieving our common goals means thinking bigger and building alignment on policy that is as bold and inspiring as the underlying challenges are seemingly intractable.

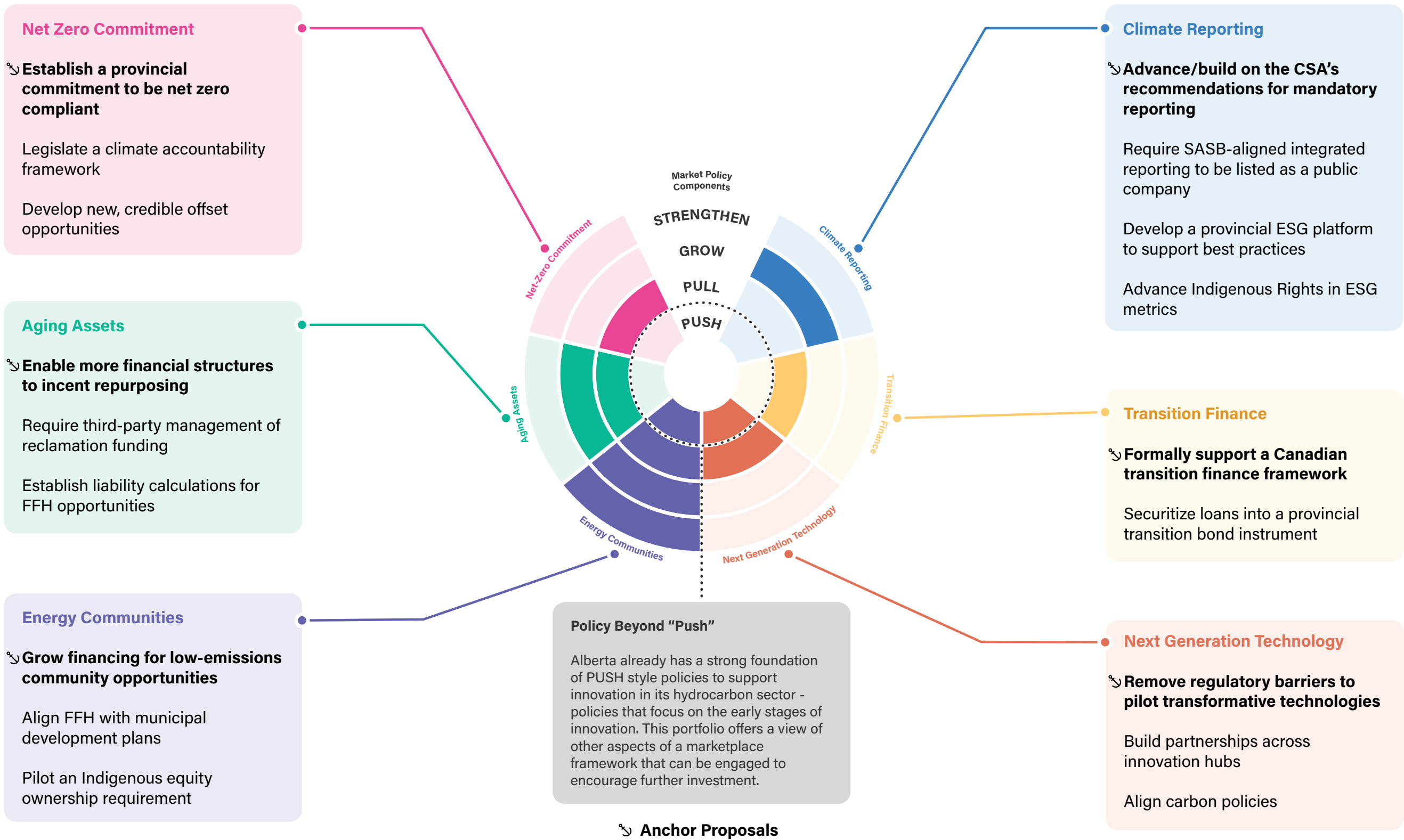
As the energy transition advances, it is inevitable that more will be required to continue to advance progress and address residual uncertainties. Policymakers should consider this as an initial policy portfolio against which to track the performance of policies to attract investment into future-fit hydrocarbon industries. Therefore, as further support to policymakers the EFPC also introduces a **separate set of indicators** for measuring the success of policy action at the level of either markets for future-fit hydrocarbons or the entire economy, rather than at the level of individual projects.

As such, for each strategic area, three categories of policy recommendations are identified to illustrate actions in term of their potential speed to implementation, degree of impact and level of uncertainty they represent for policymakers:

- **Quick wins:** these proposals can be implemented quickly and deliver modest impact. They do not create significant structural change for the sector and can grow initial momentum; however, by themselves, these cannot alleviate key barriers for attracting investment.
- **Goldmines:** these proposals can enable significant changes to the sector with the potential to address barriers to attracting investment. As such, these may take moderate to significant time or effort to assess and implement. While the results of these proposals may not be fully predictable – they are necessary to create sustained, durable change.

06 Policy portfolio

Figure 4: A portfolio view: where policy can further encourage investment



Climate reporting

Objective: create a forward-looking, consistent climate reporting environment to support investor decision-making

Marketplace:



It is clear that access to capital for energy companies and projects will increasingly hinge on the availability of information and data about the climate-related risks they face and the actions they are taking to address these. This imperative is reflected in the rising demand for ESG metrics and reporting, and in Canada growing consideration of how this coincides with Indigenous equity investing. However, the current information landscape in the province lacks coordination mechanisms, presents a steep capacity curve for junior or smaller companies, and overall disclosure can be selective. This unevenness creates a credibility challenge for high emitting sectors. For future-fit hydrocarbon projects and activities to be valued as transitional and sustainable investment opportunities it is critical that associated reporting aligns with international best practices for climate and sustainability reporting. This, coupled with data on Scope 3 emissions and overall emissions reduction strategies are critical for accelerating the market for transition finance, increasingly seen as crucial to achieve climate commitments.

Leading guidance for financial stakeholders is currently outlined by the Task Force on Climate-Related Financial Disclosure (TCFD) and the Sustainability Accounting Standards Board (SASB).⁵⁴ To provide investors with longer-term confidence in future-fit hydrocarbon activity and projects, this data needs to do more than create a snap-shot view or provide backward-looking analysis – it must be forward-looking in its orientation and strategies, particularly for addressing climate-related risks. By building a strong policy foundation for reporting and enabling infrastructure, the province can help increase the business value of

future-fit hydrocarbon projects for investors looking to differentiate in terms of the quality and sustainability of corporate performance. Enabling policies would fall into the 'grow' category, since they serve the goal of helping future-fit hydrocarbon industries obtain the investment they need to grow, given the existing climate change risk landscape.

Quick wins

Quick wins focus on promoting and encouraging disclosure, identifying best practices, and providing supports for small and medium enterprises. Quick wins can include:

- Adopting TCFD and SASB as best practice for ESG and climate disclosure.⁵⁵
- Providing capacity supports to help newly listed companies and small and medium-sized enterprises (SMEs) establish longer-term ESG strategies and report on key performance indicators (KPIs).
- Adopting a Carbon Disclosure Project (CDP) questionnaire approach to encourage the practice of disclosure to government.
- Establishing fiscal incentives tracked to forward-looking targets.

Goldmines

Advance and build on the recommendations of the Canadian Securities Administrator (CSA) for mandatory climate disclosure:

- The TCFD framework is approaching near-universal acceptance as a standard for climate-related disclosure, with the CSA currently consulting on TCFD-aligned mandatory disclosure.
- Alberta-based companies, in particular, are already well-placed when it comes to scenario analysis, GHG accounting, data verification and shadow carbon pricing due to a long history of provincial GHG regulation. As such, to ensure consistency, the provincial government should, in collaboration with the Alberta Securities Commission, establish mandatory disclosure for public companies that aligns with final CSA guidance *as a baseline* and consider additional provisions specific to its sectors.
- Should climate disclosure, and particularly Scope 3 emissions reporting, become mandatory for public companies across all industries, it will in effect become a mandatory requirement for private companies in their value chains. In anticipation, the government should consider revising the *Alberta Business Corporations Act* to include large private companies meeting key thresholds in mandatory disclosures.

Mandate SASB-aligned Integrated Reporting as a requirement to be listed as a public company:⁵⁶

- Integrated reporting brings together the process for annual financial reporting with sustainability reporting. This is a powerful tool helping to address the information needs of investors and other stakeholders by providing regular and consistent disclosure on environment, climate, and social risks of an organization.
- Establishing integrated reporting as a requirement for all publicly listed companies in Canada would reinforce a healthy information environment enabling investors to assess the short, medium, and long-term effects of risk and opportunities considered material by financial markets, as well as the general public and Indigenous Peoples.

Develop a provincial platform to make it easier to report, ensure consistency, and support best practices on ESG metrics:

- A shared ESG platform provides a critical tool not only for enhanced transparency and consistency in ESG disclosures but also for aggregating cohesive, objective data on the climate-competitiveness of emerging future-fit hydrocarbon opportunities.
- A key opportunity here is to work with institutional investors to ensure this approach reflects ESG reporting that meets investor information needs and ensure data collected by regulators is also made publicly available.
- This data would further help to benchmark Alberta's performance against other jurisdictions, measure progress in critical sectors, and set sectoral goals across a number of relevant metrics such as safety, biodiversity, and reclamation rates.
- Alberta could leverage this platform and its data to establish the province as a center for learning for tracking sustainability metrics for companies in transition, as well as connecting this into international initiatives.

Advance the role of Indigenous Rights and Title in global ESG metrics:⁵⁷

- Leading ESG standards, including TCFD and SASB, to date have not been developed in consultation with Indigenous Nations and communities that directly experience the impacts of industry and resource development.
- Over the past 20 years, Alberta's energy sector has witnessed an escalation in private and public efforts to acknowledge Indigenous consultation and participation as foundational to developing energy resources and land management.
- While significant gaps remain, this provides a unique opportunity for the provincial government to work with Indigenous leaders and the private sector to co-create an inclusive interpretation of ESG standards that offers investors, capital markets and Indigenous Peoples certainty about investments in host territories.

Transition finance

Objective: advance transition finance tools to accelerate capital investment and support heavy emitters to reduce their emissions and bridge to greener business models

Marketplace:



As the financial sector retools so that investors can take climate change into account when making financial decisions, the concept of transition finance is gaining traction and is positioned to play a critical role in bridging the ambitions of companies in high-emitting sectors and climate-conscious investors. Transition finance captures an emerging market of sustainable finance where investors aim to offer high emitters financing for projects that can put them on an accelerated path to a low- or zero-emissions business model. Banking partners, having committed trillions in sustainable financing, are also playing a key role by making capital available and attractive to incentivize and reward decarbonization efforts. With the pool of dedicated sustainable finance funds available, this presents a key opportunity for Alberta-based energy companies to access financing for future-fit hydrocarbon projects and establish pathways to adjacent markets. However, realization of a robust transition finance market will not come without challenges, including overcoming the risks of greenwashing – actual or perceived. Additionally, the ability to shape the transition finance space has a limited window as other international jurisdictions also look to underpin and define ‘transitional activities.’⁵⁸

Alberta needs to be intentional if it wants to set the pace here and carve out a space for Alberta-based energy companies to capitalize on this opportunity. To do so, Alberta will need a mix of ‘pull’ and ‘grow’ policies. ‘Pull’ policies are needed to encourage the supply of transition finance and provide certainty about what ‘future-fitness’ means. And ‘grow’ policies are needed to reduce the risk associated with investing in the transition to future-fit hydrocarbons.

Quick wins

Quick wins for transition finance encourage adoption by providing tax benefits, supporting small and medium enterprises (SME) to communicate transition-readiness, and promoting the role of third-party certification. Quick wins can include:

- Providing preferential tax treatment for transition bonds (e.g., tax credits or deductible).
- Funding third party ‘for-purpose’ certifications for SME future-fit hydrocarbon projects.⁵⁹
- Embedding Return on Investment (ROI) metrics for ESG into government fiscal planning and execution.

Goldmines

Province of Alberta to formally support a Canadian transition finance framework to accelerate the issuance of transition-labeled instruments:

- The development of a Canadian Taxonomy for Transition Finance will be an opportunity for the province not only to help create a common-agreed-to understanding of activities and projects that represent significant emissions reductions opportunities aligned with net-zero, but also strategically connect future-fit hydrocarbon projects to demonstrate proof of concept.
- For the effort to be more than an academic exercise it will need tangible application of its outcomes. Utilizing any transition taxonomy will be a case of learning by doing, and Alberta is well-positioned to kickstart this process and ensure that transition finance gains broader market acceptance.
- To activate this role, the government should establish a provincial transition bond framework, as a specific asset class to channel funds to transition-focused projects.
- As transition finance scales, it is important that it incorporates the opportunities for Indigenous reconciliation in transition or low-emission activities and investments. Government can demonstrate leadership in prioritizing projects that incorporate social impacts, in addition GHG emissions reduction, and promote community resiliency, prosperity, and inclusion.

Securitize transition-focused loans into a bond instrument:

- The challenge with many opportunities for transition finance is that they involve projects that individually are too small to attract the attention of major investors. In such instances, the Government of Alberta has the opportunity to bring these discrete projects together to create a greater value proposition for investors by securitizing transition-focused loans into a bond instrument and issuing these under a transition label.
- The government can directly or in collaboration with other financial institutions offer loans (including micro-lending), collateralize these loans, and provide the financial backstop for transition bond issuances. The involvement of the provincial government in this manner would help to de-risk these investments and ultimately make them more attractive to investors.

Next generation technology

Objective: anchor Alberta at the heart of Canada's 'living lab' for technologies that can unlock transformative opportunities for future-fit hydrocarbons

Marketplace:



PUSH



PULL



GROW



STRENGTHEN

Alberta represents approximately 40% of Canada's GHG footprint – with industrial activity emitting 70% of that. This makes the province a critical solution space in Canada to target priorities and funding for decarbonizing technologies.⁶⁰ Between now and 2030, current environmental and economic investment can largely be met through scale-up and deployment of later Technical Readiness Level (TRL) or 'commercially available' technologies. Even as businesses and governments increasingly commit to net-zero ambitions, Alberta will need to deploy early TRL or 'next generation' technologies through this decade, many of which are foundational for scaling future-fit hydrocarbon industries. However, all too often, priorities and funding are skewed towards near-term certainty and longer-term investment is delayed.

Given the need to proactively support emissions reductions pathways past 2030 national targets, next generation technologies open up significant leadership and partnership opportunities to enhance certainty for future-fit hydrocarbons. As such, there is a need to strike a better balance and collaboration across technology investments. To do this, governments can use a mix of 'push' and 'pull' policies. 'Push' policies are needed to drive more funding – public and private – towards research, development, and demonstration (RD&D) of future-fit hydrocarbon technologies; to align funding decisions with strategic objectives for future-fit hydrocarbon industries; and to encourage collaboration and the sharing of ideas. And 'pull' policies are needed to send a strong, stable signal that these technologies are valuable and that investments in developing them will be rewarded accordingly.

Quick wins

Quick wins aim to enable greater visibility on transformative technologies, reinforce linchpin technologies, and promote full value chain thinking. Quick wins can include:

- Developing a financial framework to solidify the priority for technologies to support provincial strategies aligned with future-fit hydrocarbons.
- Creating a venture capital fund focused exclusively on energy transition initiatives to provide the necessary capital to scale.
- Connecting a growing portion of technology and innovation funding to a proponent's commitment/ability to address scope 3 emissions.
- Ensure all compliance payments under Alberta's Technology Innovation and Emissions Reduction (TIER) system support investment in technology and innovation to drive emissions reduction.

Goldmines

Remove regulatory barriers for businesses to pilot and de-risk transformative technologies:

- Regulatory inefficiency continues to be identified as the single most important issue weighing on Canadian competitiveness. A difficult-to-navigate system further influences international perceptions of Canada as a place to do business and undermines provincially centered efforts to attract foreign direct investment.
- To unlock transformative technologies in the energy sector, governments should place particular focus on removing regulatory barriers to private RD&D. For example, regulations in Alberta currently limit utilities' ability to recover the cost of innovation for the purpose of decarbonization from ratepayers, at a time where innovation by utilities is critical to the early diffusion of clean hydrogen across several applications including transportation and storage.

Build out partnerships across regional innovation hubs to identify priorities for transformative technologies:

- Relying on 'later TRL' or 'commercially available technologies' would fail to realize the substantial potential that transformative technologies have for establishing future-fit hydrocarbon projects as cost- and emissions-competitive.
- Alberta should continue to lead by example in the innovation space by advancing a multilateral approach for transformative technology through existing hubs. Such an approach would not only center on identifying priorities – including specialized infrastructure – but would work to attract and enable mission-oriented research and site testing.

- Given the regional nature of future-fit hydrocarbon project development, multilateral engagement on new technologies should be an inclusive space to initiate new relationships with Indigenous communities and offer transparency and participation in the priority setting process. This would have the potential to help alleviate future project uncertainty.

Align new and emerging carbon policies across all levels of government:

- Over the coming decade, regulations and standards to drive emissions reductions will continue to launch at all levels of government. These include tools such as carbon credits, carbon pricing, and the Clean Fuel Standard – all of which will facilitate an industry-wide transformation. Multi-level collaboration will be imperative to ensure the layering and stacking of such policies does not create duplicative costs, work at cross purposes, or create financial risk for decarbonizing technologies.
- In many ways, these tools are intended to act as a starting gun for increased investment in transformative technologies. However, it will take time for these investments to result in facilities and transmission mechanisms being built. As such, regulation should establish a coordinated, predictable, and stable environment to nurture private investment in such technologies.

Energy communities

Objective: create 'onramps' for broader, more local participation to reduce barriers and uncertainty associated with project development

Marketplace:



Alberta's municipalities and Indigenous Nations not only have the ability to accelerate commercialization of infrastructure and services that affect energy demand, but they will also be some of the hardest hit by energy disruption. As the shadow of declining uptake on fossil fuel grows across public and private arenas in Canada, many not only face the possibility of direct job losses but also an outward flow of people and a knock-on effect on municipal and community finances. This issue is particularly acute for Indigenous Nations, strongly connected to resource development but where infrastructure represents a glaring gap between Indigenous and non-Indigenous communities.⁶¹

This and more make Alberta's communities the first customers, as well as potential investors, for future-fit hydrocarbon projects and infrastructure that can translate into higher labour demand and build economic resilience. However, it is important to recognize that the risk profiles of communities are different from those of private sector investors. For example, unlike companies with several projects in development, most communities are unable to spread financial risks across a portfolio of projects.

Policy can create 'onramps' for local participation in future-fit hydrocarbons by alleviating financial barriers to community ownership, driving place-based innovation, and engaging communities in decisions about the future and where things need to start diversifying. This would require integrating community participation into every category of policy from the marketplace framework. This comprehensive

integration would mean considering communities as loci of potential innovation when designing 'push' policies, integrating 'pull' policies with the incentives created by Municipal Development Plans, considering community organizations as both potential investors and as entities requiring investment when designing 'grow' policies, and using 'strengthen' policies that ensure community participation in strategy development and resource allocation decisions.

Quick wins

Quick wins for growing local participation aim to inform and involve citizens, increase collaboration across organizations, and simplify or improve flexibility for low-emissions funding. Quick wins can include:

- Working with municipalities and Indigenous communities to convene conversations on future-fit hydrocarbon opportunities and alignment with just and equitable transition principles.
- Allowing for the ability to partner with a greater diversity of organizations on matching funding.
- Launching future-fit hydrocarbon innovation prizes at local levels to target fit-for-purpose projects, build new networks and help grow the base of innovators working with communities.⁶²

Goldmines

Grow low-emissions financing opportunities for local communities that connect future-fit hydrocarbon projects to achieving sustainable milestones:

- Alberta's urban centers have a strong reputation and brand for innovation, and in recent years have made strong inroads to address climate change and reduce GHG emissions in sectors that could create significant economic stimulus. Nonetheless, closing the gap on needed projects and developments will undoubtedly need to come from a wide array of investors.⁶³
- Innovations in low-emissions financing – such as municipal green bonds and revolving funds – show early promise for growing and securing longer-term funding for local infrastructure projects,⁶⁴ many of which could support future-fit hydrocarbon opportunities.
- Governments should collaborate with key funders and partners – such as the Federation of Canadian Municipalities (FCM) and Indigenous Services Canada (ISC) – to support more local communities to participate in the green bond market to finance qualifying infrastructure.

Align future-fit hydrocarbon opportunities with Municipal Development Plans:

- Realizing the full potential of future-fit hydrocarbons will require substantial buildout of public and private infrastructure. This presents a key opportunity for aligning and integrating municipal priorities for the retrofitting or repurposing of existing assets, procurement of goods and services, and overall economic development.
- Municipal Development Plans identify priorities and provide guidance on how municipalities will evolve over time and foster local economies. Municipalities can work through this process with citizens and industry to explore the economic benefits of future-fit hydrocarbon opportunities and strategies for community investment.

- To help scale potential projects, adjacent Indigenous communities with similar needs should be engaged in the exploration of future-fit hydrocarbon opportunities and potential partnerships.
- Growing interest in asset management and energy resilience planning for communities represent additional opportunities to integrate consideration of future-fit hydrocarbon projects into local-decision making.⁶⁵

Pilot an Indigenous equity ownership or participation requirement associated with new energy infrastructure in Alberta:

- Indigenous communities are positioned to play a critical role in working with public and private sectors to advance future-fit hydrocarbon development. To support this, the Government of Alberta should pilot a program to require new, related infrastructure and projects to ensure a minimum level of Indigenous equity ownership and/or participation provided to local communities.
- To create meaningful opportunities for Indigenous communities, such measures should be competitive with other Indigenous commercial endeavors. Measures should also evolve to reflect the growing or changing desire of Indigenous communities to have a financial stake in specific projects, such as giving first priority to engage.⁶⁶
- Communities could also explore other options for revenue generation, including a wide variety of agreements for services provided by the community. For example, this could involve integrating traditional ecological knowledge or providing development, operations, or maintenance services.

Aging assets

Objective: create ‘offramps’ for legacy oil and gas asset to repurpose assets to scale new future-fit hydrocarbon fuels and products, monetize adjacent sectors or effectively manage exits

Marketplace:



As energy price forecasts continue to evolve and investors increasingly hedge against transitions risk,^{67,68} physical infrastructure devoted to the extraction, processing, storage, and transport of fossil fuels that is reaching the end of its life and is unable to recoup investment value may be written-off. The impact of this is of special concern to SMEs who may not have the needed resources to survive high levels of write-offs. However, the potential of declining value does not need to be a story of abandonment and liability, but rather one of realizing emerging opportunities by pivoting the use and focus of these assets and situating this as an option for companies of all scales operating in the province. For example, natural gas infrastructure can unlock hydrogen supply and drive carbon capture, combining wells with new technologies that can tap geothermal and extract other substances, and exhausted fields that can be used for storage. In short, a successful energy transition must contend with infrastructure, and even though a vast portion of existing assets in Alberta may be reaching the later stages of their life cycle, this in fact may be an early-mover advantage.

While repurposing is key, extending the market resilience of these assets can also include attracting investments into decommissioning or reclamation opportunities, as platforms to address environmental impacts and job creation. To this end, the Leveraging our Energy Assets for Diversification (LEAD) project by EFL outlines existing roadblocks for enabling entrepreneurs to utilize existing infrastructure and sites, as well as the benefits for landowners, local communities, and the public. Critically, realizing these benefits will depend on clarifying how offramps integrate into Alberta’s current oil and gas liabilities system.

Policies to support new uses for legacy hydrocarbon assets will primarily consist of ‘pull’ and ‘grow’ policies. ‘Pull’ policies are needed to ensure that oil and gas companies are held responsible for decommissioning and cleaning up assets that are at the end of their lives and to create incentives for this to be done in a way that advances future-fit hydrocarbon industries. ‘Grow’ policies are needed to drive investment towards initiatives to repurpose legacy assets for future-fit activities.

Quick wins

Quick wins for establishing aging assets as new sources of value aim to clarify existing opportunities, enhance coordination and planning across relevant decision-makers, and support full life cycle planning. Quick wins can include:

- Conducting regular reviews of assessment management plans submitted for projects, including expectations and planning for future liabilities.
- Including oil and gas liabilities as part of scenarios for provincial budget analysis.
- Including legacy hydrocarbon assets as part of municipal asset management plans.
- Establishing provincial repurposing guidelines for existing offramps, outlining key factors such as types of sites, appropriate uses (surface and subsurface) and allowable technologies.

Goldmines

Enable more creative business models, corporate arrangements, and financial structures to further incentivize repurposing efforts:

- In addition to enabling the site transfer (e.g., clarifying liabilities, licenses, etc.) of oil and gas projects for alternative use, paramount to repurposing will be allocating sufficient capital to support future-fit hydrocarbon opportunities, particularly for smaller firms still facing obstacles in capital growth.
- Income trusts are an example of financial structures that have historically played a role in Canada's energy sector by enabling capital-intensive work to proceed while minimizing corporate taxes. While these arrangements were drastically reduced by a change in federal tax policy in 2006, similar structures could be used to make declining – but still producing – assets attractive opportunities for forward-looking investors, enabling greater investment in such assets as companies look to evolve and transition to revenue generating businesses.
- The need for such structures could be reassessed after 30 years, or at key milestones towards a net-zero carbon economy, ensuring the long-term stability needed to attract private investment.

Require that reclamation funding be established and managed by an independent publicly accountable third party:

- There is significant potential for oil and gas reclamation activity to support the transition of skills from the sector, result in the creation of new jobs, as well as grow Indigenous community and business participation. However, it is critical that the oil and gas companies – not Canadian governments or Rights Holders – fund the decommissioning of projects or reclamation of respective sites.⁶⁹

- In addition to more stringent up-front requirements before development, tightened liability rules, ensuring funds are a) committed against the cost of clean-up and b) well managed through the life cycle of a project are key. As such, independent third-party oversight of such funding and fiscal planning can encourage more responsible approaches to these assets.
- Any government assistance that is provided should have a clear link to scale up low-emission technologies or create tangible benefits to adjacent municipalities and Indigenous communities through reclamation or repurposing activity.

Establish liability planning and calculations for new future-fit hydrocarbon opportunities:

- The growing 'orphan well' situation in Alberta is partly founded on a liabilities system that assumed companies would be in a healthy financial situation as their assets wound down. Instead, the long lifetimes of these assets and changing global markets have left costly gaps that may increasingly fall to taxpayers rather than companies to address.⁷⁰
- While work is underway to enhance the inactive well regime, repeating the same mistakes should be avoided as opportunities open-up for future-fit hydrocarbon projects. There is now a clear window to build on Alberta's *Liability Management Framework*⁷¹ and ensure supporting architecture and programming effectively address the wide variety of scenarios that may represent end-of-life implications for these transition-focused projects.
- In particular, liabilities for future-fit hydrocarbon projects should take into account that many of these projects may constitute repurposed assets from a broad range of operations, as well as further brownfield rather than greenfield development.

Net-zero commitment

Objective: establish a provincial commitment to net-zero emissions on an absolute basis by 2050 (or sooner) to reinforce individual company commitments

Marketplace:



Absolute emissions reduction remains the dominant metric used to assess environmental performance for high-emitting sectors. Additionally, to align with evolving investor considerations, projects will need to demonstrate resilience across a range of climate scenarios, with minimal risk of stranded assets if the world decarbonizes faster than expected. This means that the more aligned with a net-zero future an investment is, the less risk it offers and the more future fitness it is attributed.

But even as companies operating in Alberta set out targets and plans for net-zero, these plans will continue to contend with scrutiny. A provincial commitment that Alberta will be net-zero compliant by 2050 is necessary to: reinforce private sector action; build global investors' confidence that companies in Alberta are operating in a jurisdiction aligned with international policy; and validate future-fit hydrocarbon projects are substantive emissions reduction projects that will continue to be viable investments in an emissions-constrained future. This would also position the province to establish a fair and even playing field for all sizes of operators.

This commitment needs to be robust, provide assurance of follow through, and acknowledge that oil and gas are only part of the emissions picture in the province. These policies would fall under the 'pull' category in the marketplace framework, since they would create stable, predictable, long-term signals that future fitness is valuable.

Quick Wins

Quick wins for net-zero build on existing tools to drive immediate, significant reduction, while helping reign in the scale of the net-zero challenge and creating visibility to connect net-zero emissions with future-fit hydrocarbon opportunities. Quick wins can include:

- Establishing climate as a principal risk factor for internal government Enterprise Risk Management (ERM).
- In absence of other sources of funding (e.g., carbon tax on transport and heating fuels), increasing a portion of TIER funding to support energy efficiency for participating facilities.
- Adapting government procurement criteria for fleets and infrastructure to boost demand for low-emissions goods and future-fit hydrocarbon services and technologies where feasible.
- Raise existing targets for decarbonizing the electricity system above the legislated 30% by 2030.

Goldmines

Establish a provincial commitment to contribute to national net-zero targets for scope 1 and 2 GHG emissions, and plan for scope 3:

- The absence of a provincial net-zero commitment ultimately minimizes the credibility of individual companies' targets operating in Alberta, where long-term company targets continue to face scrutiny and risk being seen as detracting from the immediate action needed to reduce emissions. As international alignment grows around net-zero commitments, this can create confusion as to the priority for clean innovations supporting future-fit hydrocarbon opportunities, as well as bring additional risks to future investment in energy projects.
- An economy-wide provincial commitment to support national targets would help drive further emissions reduction in Alberta's highest-emitting sector while allowing for an integrated approach that can drive economic opportunities and growth of other sectors through direct reductions and offsets (e.g., electricity generation, agriculture, and forestry offsets).
- Whereas inclusion of scope 1 and 2 emissions are vital for a provincial commitment to be considered meaningful, scope 3 will be a critical differentiating factor for shareholders investing in hydrocarbon activity in the longer-term. Decision-making should anticipate and begin planning for calls to disclose the full scope of emissions including scope 3, or for change/decline in demand for traditional fuels.

Legislate a climate accountability framework outlining economy-wide targets and sector roadmaps:

- To send an unequivocal signal to businesses and investors, net-zero targets must be supported by robust plans, with interim targets, clarity on use of offsets, and governance/reporting mechanisms. The existence of these features is among the key details that can give credibility to a net-zero target and, if designed well, can support flexibility, and minimize costs impacts to businesses.

- One of those most cost-effective approaches would be to complement this framework with a 'Made-in-Alberta' price scheme and schedule applied to a broad range of emissions – notably from retail fuel and heavy industry. With the federal benchmark now in place, a provincial scheme would enable Alberta to control over revenues from the retail fuel charge, including directing revenues towards supporting Alberta companies, industry, and households as they reduce their emissions, as well as develop, invest in, and adopt new technologies.

Collaborate with industry and the offset community to develop new, credible offset opportunities:

- Alberta's current offset system continues to provide important incentives to drive innovative technology, business practices, and emissions reductions. However, as a greater portion of the economy falls under the regulatory system, it will become increasingly difficult to find and develop new offset opportunities that are additional to current regulations.
- There is a key opportunity for the Government of Alberta to work with industry, the offset community, and Rights Holders to explore new protocol areas. This should include nature-based solutions which will be key for Alberta's ability to contribute to and benefit from Canadian and global net-zero ambitions, as well as support local Indigenous economic development.
- For example, if tied to the creation of new Indigenous Protected Conservation Areas, new offsets could underpin a provincial pilot for Indigenous Green Bonds, support participation in carbon markets and further monetize nature-based solutions.⁷²
- Unlocking nature-based solutions will also require further research and policy development and investment towards enabling technologies and innovation (e.g., remote sensing, artificial intelligence, and big data).



07 Extending the ambition: FFH moonshots

If we imagine the global energy economy of the future as a game board, the recommendations outlined above are the initial moves that might keep Alberta at the table with a strong hand to play in future-fit hydrocarbons. But what might it look like to not only play the game today, but create a new one? Throughout this report, the case has been made that future-fitness represents an ever-rising floor for hydrocarbon activity rather than a ceiling, and while strategic policy levers need to focus on what is relevant and achievable in today's environment, there also needs to be an eye on the next peak that will likely drive future-fitness. As such, Alberta's vision for its hydrocarbons should look beyond opportunities in a net-zero economy towards a later push to net negative emissions – a strategy that most global assessments say will be necessary in the latter part of this century to avoid severe climate impacts⁷³ – and what this could look like with Alberta at the forefront.

“The time has come to use our resources in a different way. To use them in a way that we’re not burning our resources but using alternative cleaner options. Much more needs to be done sooner and quicker. Already in the North the changes being experienced are having a tremendous effect on the landscape, but people don’t necessarily realize this because the climate impact is not immediately in front of them.”

DESIREE NORWEGIAN, Atunda, Indigenous Advisory Committee

Building the foundation for this ambition can start today but will require identifying policy moonshots that – while realistic – mean accepting complex execution and high risk. Foundational to this is a policy approach that acknowledges achieving this objective and minimizing potential harms will need to account for factors beyond energy-specific policy. As a first step the provincial policy should adopt a ‘*climate-in-all-policies*’ strategy to consider climate implications across all sectors that influence resource development and break down existing siloed approaches.⁷⁴ In addition to this, the EFPC has identified three areas where the Alberta government, incumbents, Indigenous Peoples, and entrepreneurs could come together to achieve audacious goals for the future of its hydrocarbons assets and how to get there. First, reinforce the role of municipalities as ground zero for future-fit hydrocarbons and GHG emissions; second, drive national and international standards for hydrocarbon activity in the age of climate; and finally, aggressively integrate negative emissions technologies and solutions.

Maintain future-fitness from the ground up

If the provincial government wants to pursue a bold push towards future-fit hydrocarbons, it cannot do so without support from Alberta cities and municipalities, as these are powerful sources of resourcefulness and reputational capital. On the other hand, cities cannot truly capture this opportunity without support and more capacity. Although hard-hit by Covid-19 and the recent economic downturn, Alberta’s urban centers are already punching above their weight on solutions connecting climate and future economic prosperity. Engaging other communities in this ambition is an inevitable next step but getting there will require supporting a radical rethink of how communities assess development opportunities and risk. Recommendations to jumpstart this ambitious direction include:

- Working with municipalities seeking to partner on future-fit hydrocarbon opportunities to differentiate as ‘climate-friendly’ cities.
- Enabling and empowering municipalities to adopt, design, and implement carbon budgets.
- Establishing independent, legal entities to work with municipalities in a local context to share risk in advancing future-fit hydrocarbons as a pathway to net-zero.

Drive cutting-edge standards

With the need to provide assurance against greenwashing and demonstrate results in benefits to all communities, the demand for independent certification systems for transformational hydrocarbon activity will inevitably grow. The E0100 Standard for Responsible Energy Development is an innovative example gaining traction for fossil fuel industries to qualify as responsibly-sourced and -developed,⁷⁵ much in the way the Leadership in Energy and Environmental Design (LEED) standard has pushed efficiency measures in buildings. Additionally, the growing adoption of reconciliation action plans in Canada further reinforce the link between achieving climate commitments and growing the indigenous economy. Given Alberta’s deep and diverse expertise across extractive sectors, Alberta has the opportunity to advocate for and shape efforts to bring a similar approach to future-fit hydrocarbon projects and development. Recommendations to jumpstart this ambitious direction include:

- Developing voluntary ‘step-codes’ for projects to go beyond the base requirement of net-zero commitments and interim targets.
- Advocating and participating in establishing a North American standard for future-fit hydrocarbon development.
- Establishing an Alberta sustainability and disclosure board to advise on ESG requirements for listed companies.

Accelerate net negative technologies

While there is some disagreement over the exact level of negative emissions that will be needed, policy to form and support net negative technologies would open up a strategic and differentiating factor for Alberta as a destination for international energy investment. Alberta already has strengths that it can realistically build on to achieve net negative emissions. For example, in addition to an established priority to expand the CCUS industry, the province has abundant pore space critical for geological storage of emissions, a burgeoning interest in the agriculture sector to enhance carbon sequestration, and the natural infrastructure upon which to grow

nature-based capture solutions. The key to crystallizing this opportunity will be to accelerate carbon removal approaches in the near term that can neutralize or offset emissions that are currently technically challenging or prohibitively expensive to address.⁷⁶ Recommendations to jump start this ambitious direction include:

- Establishing an arms-length oversight agency to accelerate the review of specialized infrastructure for future-fit hydrocarbon development.
- Initiating a broad-based intergovernmental strategy and planning for negative emissions technologies and specialized infrastructure.
- Launching a Center of Excellence for future-fit hydrocarbon sectors and net negative technologies at leading research and technical institutions.
- Investing in the exploration and application of Indigenous Traditional Ecological Knowledge to drive innovations in the design of net negative technology pathways.

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