

c) **Expand the functionality of the Clean Growth Hub to:**

- Help cleantech providers navigate inter-jurisdictional regulatory requirements and funding sources; and
- Facilitate easier networking between cleantech innovators and the investor and business ecosystems.

Recommendation 11.5. Create a federal funding program to enable proven cleantech companies to scale up in new foreign markets.

Lead: ISED, with NRCan and Global Affairs Canada (GAC).

Maximizing the value and scale of innovative Canadian intellectual property requires a global footprint. Several of Canada's OECD and G7 counterparts have implemented programs and policies to support demonstration and export to targeted international markets.

ISED and NRCan, through the Clean Growth Hub, should develop a collaborative funding program with Global Affairs Canada (GAC), Sustainable Development Technology Canada (SDTC) and EDC to offer a 'one-stop shop' for funding and support for feasibility studies, pilots and demonstration projects in foreign markets. A steering committee could develop the program's framework and oversee project origination and due diligence. This committee should ensure that demonstration projects align with national priorities and lead to commercial finance becoming available.

Recommendation 12. Support Canada's oil and natural gas industry in building a low-emissions, globally competitive future.

Lead: Natural Resource Canada (NRCan) and Innovation, Science and Economic Development Canada (ISED), in partnership with industry and the financial sector.

Oil and natural gas production and export is a prominent pillar of the Canadian economy.⁸⁰ It is also our largest source of GHG emissions⁸¹ with a significant impact on air, land, and water quality. While this industry will continue to play a role in the global energy transition, its footprint puts high-intensity segments at heightened risk of market displacement in sustainability-conscious markets.

Last year, Canadian exports of petroleum products topped \$125 billion; that is 65% higher than auto exports, and nearly triple that of base metals (the closest resource-based comparable).⁸²

Although there is considerable debate over the pathway and pace, it is clear that the world is embarking on a clean energy transition. In 2018, a *Generation Energy Council* report commissioned by NRCan highlighted four essential pathways to a sustainable energy future in Canada: (i) wasting less energy, (ii) switching to cleaner power, (iii) using more renewable fuels, and (iv) producing cleaner oil and natural gas. The projected growth in global energy demand will require an integrated mix of all of the above, with a growing bias toward clean, responsibly developed and low-cost sources.

The global investment outlook is becoming increasingly clouded by variable forecasts for long-term fossil fuel demand, paired with questions about the oil and natural gas industry's overall commitment to address its emissions footprint. For Canada, conditions are exacerbated by perceptions of regulatory uncertainty, high compliance costs and long lead times. The result is capital flight, public debate over production expansion and market access and risk of price deflation. Canadian capital spending on oil sands in 2018 was one-third of the investment level in 2014.⁸³

⁸⁰ Canada is the fourth-largest exporter of oil and the fifth-largest exporter of natural gas, with the third-largest proven reserves of oil globally. (Natural Resources Canada. (2018). *Crude Oil Facts*)

⁸¹ Emissions from the oil and natural gas industry represented 27% of total domestic GHG emissions in 2017.

⁸² Alberta: *Why Scale and Policy Matter*, Peter Tertzakian, 2019.

⁸³ 2018 CAPP Crude Oil Forecast, Markets & Transportation.

As publicly traded entities, Canada's oil and natural gas companies are competing against major sovereign producers (such as state-owned companies in Russia and Saudi Arabia) that face little pressure for transparency or risk of divestment. Even though independent oil companies only produce about 30%⁴⁴ of the world's oil and natural gas supply, their listed status makes them significantly more vulnerable - and responsive - to societal pressures and changing investor attitudes. Divestment from these public companies essentially transfers market share from the minority producers most obliged to act responsibly and transparently, to monopoly producers without similar obligations.

Progressive companies are beginning to collaborate and invest heavily in transition-related research and development (R&D). However, with uncertainty about policy direction, these efforts have focused primarily on energy and cost reduction, with emissions reductions occurring as a positive by-product. Technological and operational efficiency improvements between 2000 and 2016 have resulted in a 29% decrease in oil sands emissions per barrel.⁴⁵

Based on Environmental Performance Index scores produced by Yale University and Columbia University in collaboration with the World Economic Forum, Canada's oil and natural gas industry performs well in terms of energy security and health and safety, but poorly in terms of ecosystem protection and resource management. This comes despite being subject to stringent environmental regulations. Though some of this arises from structural factors and national circumstances, there is opportunity to do better.

If Canadian oil and natural gas companies are to live up to their leadership potential, the focus must shift to innovations that will directly decouple economic growth from emissions. Meanwhile, governments at every level should support industry innovation, while priming global markets for Canada's new generation of products, services and technologies.

The Panel sees three key themes to this industry's growth path: a clean innovation vision and pathway, enhanced industry commitment and transparency, and improved market access.

⁴⁴ U.S. Energy Information Administration, 2019.

⁴⁵ Energy Fact Book 2018-2019, Natural Resources Canada, 2018.

⁴⁶ Clean Resource Innovation Network (CRIN), Canada's Oil Sands Innovation Alliance (COSIA), and Petroleum Technology Alliance Canada (PTAC).

Note: While geared toward the oil and natural gas industry, these recommendations similarly apply to Canada's other vital resource-based sectors, such as mining, forestry, agriculture and materials production.

Recommendation 12.1. Develop a vision and pathway for clean innovation in the oil and natural gas sector.

a) Convene government and oil and natural gas industry leaders to create a shared vision and strategy for long-term competitive growth in a low carbon economy, underpinned by detailed sectoral innovation roadmaps and capital plans. This vision and strategy should align with the underlying objectives of the proposed Mid-Century Scenario and PCF 2.0.

A long-term industry vision is key to understanding the scope of transformation and capital investment required to align industry growth with Canada's climate commitments. It is also important for building a stronger national consensus on Canada's energy transition, and connecting industry leaders more directly with the emerging cleantech economy.

b) Seed an oil and natural gas clean innovation cluster. Building on the work of existing organizations such as CRIN, COSIA and PTAC, develop a cluster of government representatives, oil and natural gas leaders, innovators, institutional investors, environmental NGOs and researchers, and academic institutions.^{46 47} This cluster would pool capital and expertise, and stimulate the development and commercialization of promising decarbonization and energy conservation solutions, by:

- Bringing patient financing to large-scale and capital-intensive field innovation pilots;
- Jointly addressing critical funding gaps and development hurdles throughout the technology life cycle;
- Accelerating industry-wide adoption of essential solutions, by sharing knowledge⁴⁸; and
- Allowing major oil and natural gas companies to take controlled risks on smaller innovation companies, while giving cleantech innovators their first significant purchase order.

⁴⁷ By the end of 2017, members of Canada's Oil Sands Innovation Alliance had shared 981 technologies and innovations.

⁴⁸ With appropriate user rights

As much as possible, public contributions should be funnelled directly to the innovation provider. This will most often be mid-sized firms offering proprietary solutions, but may include direct emissions reduction, climate resiliency or environmental conservation measures by oil and natural gas companies. Direct support to companies must be contingent upon significant and measurable outcomes to ensure that funding represents a performance-based incentive, not a fossil fuel subsidy.

- c) **Examine whether federal fiscal incentives adequately support innovations aimed at substantial emissions reductions and climate resiliency measures at all stages of the oil and natural gas production and transmission chain.** This examination should involve a review of the Scientific Research and Experimental Development (SR&ED) program and the recently announced Accelerated Capital Cost Allowance provisions, as well as the potential for net new support.
- d) **Ensure that policies and regulations support and reinforce the oil and natural gas industry's vision for clean innovation and market leadership.** Clear performance-based standards and policies - including but not limited to predictable carbon pricing - gives necessary context and certainty to clean innovation priorities. Meanwhile, industry regulations should maintain rigour while promoting agile innovation toward those priorities.

Recommendation 12.2. Promote enhanced industry commitment and transparency.

Global investors are increasingly asking about the commitment to sustainability and transparency by high-emitting industries. Improved reporting by the oil and natural gas industry on the impact of their operations on energy, water and emissions would demonstrate a commitment to sustainability and continuous improvement.

While the Panel fully acknowledges the concerns by companies or sectors on being first movers on disclosure, it is precisely this leadership that investors are seeking from our oil and natural gas industry.

⁸⁹ RISE is the first global policy scorecard of its kind, grading 111 countries in three areas: energy access, energy efficiency, and renewable energy. The report is aimed at helping governments assess whether they have the policy and regulatory framework in place to effectively drive

a) **Secure a formal industry-wide commitment to responsible production and adequate public disclosures,** similar to the Mining Association of Canada's *Towards Sustainable Mining* statement. This statement should outline how Canada's oil and natural gas companies will meet the world's energy needs in a socially, economically and environmentally sustainable manner; and is a key step in building public trust and a unified industry brand.

b) **Encourage Canada's oil and natural gas companies to follow the TCFD implementation approach proposed in Recommendation 5, while the federal government champions similar disclosure standards internationally.** Timelier, more reliable and comparable industry data enables more informed risk analysis, policy, investment and lending decisions, as well as solution innovation and public dialogue. A better cross-industry view helps identify where targeted support is needed to achieve maximum emissions reductions.

c) **Proactively seek avenues for an independent and authoritative ESG performance benchmark for the global oil and natural gas industry.** International benchmarking on environmental, social and governance factors would provide a critical window into Canada's realistic leadership potential in these areas. This work can build on the World Bank's Regulatory Indicators for Sustainable Energy (RISE) initiative⁸⁹, the forthcoming Global Tracking Framework⁹⁰ and NRCan's Energy Fact Book.

d) **Leverage digital tools such as blockchain to enable real-time, auditable tracking of environmental and social performance from production through to retail.** Major companies are increasingly committing to responsible material inputs along their supply chains, suggesting that retail transparency will become a growing competitive edge. If implemented well, performance tracking could lay the groundwork for fuel labeling similar in concept to NRCan's Energy Star ratings for appliances, the Kimberly Process for diamonds or the Forest Stewardship Council.

As it progresses, industry data and analysis should be assimilated into the proposed C3IA,⁹¹ to inform financial and business insights.

progress on sustainable energy, and pinpoints where more can be done to attract private capital.

⁹⁰ This is a joint initiative between the World Bank and International Energy Agency (IEA) to track how countries are performing on sustainable energy goals.

⁹¹ Introduced in Recommendation 4

As discussed in Recommendation 9, the Panel heard wide interest in how a market for transition-linked financial products could help bridge the gap between sustainability-focused investors and firms in emissions-intensive industries that are making transition efforts. Transition-linked covenants help assure investors that their capital is contributing to constructive outcomes, while giving progressive companies access to competitively priced capital.

Recommendation 12.3. Improve Canada's ability to supply global markets with cleaner, more responsibly produced oil and natural gas.

Even in relatively rapid transition scenarios, oil and natural gas will remain core components of the energy mix for decades to come. The potential to minimize emissions in the extraction, refinement and processing of these commodities would extend their longevity and market access substantially, and is necessary if we are to limit global warming to less than 2°C above pre-industrial levels.

The Panel understands that pipelines are contentious. But Canadian producers can only invest in clean innovation if they are able to sell their products. Without access to markets, i.e., pipelines, our industry will be challenged to convert profits into better options for the future. Therefore, resolution on Canada's strategy for global connectivity will be necessary if our oil and natural gas industry is to position itself as the responsible supplier of choice.

The imperative for resolution is pressing. Canada's abundance of natural gas has great potential today to displace higher-polluting sources of energy worldwide, but this cannot happen without channels to global demand.⁹²

For oil producers, a commitment to clean leadership (as discussed in 12.2) and a decisive, coordinated strategy to fulfill that commitment (as discussed in 12.1) is critical to retaining and growing long-term market share. Investors and policymakers need transparency to drive capital investment and market advocacy. With a clear pledge from industry, the federal government has an active role to play in promoting Canada as a supplier of choice among global markets, by:

- a) Working with provincial governments and the private sector to establish the conditions for Canada's oil and natural gas sector to prosper as a leading responsible supplier to the world.
- b) Using Canada's diplomatic voice to champion consistent international environmental and social operating standards and disclosure practices. This advocacy will help level-set and advance global clean energy standards.
- c) Proactively participating in negotiating the rules and technical scope of Article 6⁹³ of the Paris Agreement, and support Canadian activities that are likely to qualify. Article 6 is the part of the Paris Agreement that sets the framework for international cooperation to mitigate carbon pollution. It could set the stage for Canada to provide leading clean solutions to international markets.

Recommendation 13. Accelerate the development of a vibrant private building retrofit market.

Canadian buildings represent 11% of domestic GHG emissions, and are more energy-intensive than those of other developed countries with similar climates. A high percentage of this stock will remain operational beyond 2030. Thus, while Canada's climate objectives call for higher standards for new builds, deep improvements to the energy consumption and emissions profile of our existing large-building stock are also an important priority. The federal government has signalled its intent to adopt best-in-class model energy codes for both new and existing buildings. While adoption of the codes themselves is a provincial responsibility, the federal government can support rapid implementation.

Deep retrofit activities are one of the most economical means to improve Canada's carbon footprint and climate resiliency. Efficiency upgrades in buildings tend to focus on marginal measures such as smart thermostats or more efficient windows. While these are useful, more transformative projects targeting large-scale emissions

⁹² Activity is beginning to take place. LNG Canada, a joint venture led by Shell Canada, recently announced a \$40 billion project to build a pipeline across B.C. and a port and terminal that liquefies the gas for overseas export. The B.C. ministries of Finance and Energy estimate that the project will generate \$22 billion in direct government revenue over the next 40 years, and will employ as many as 10,000 people in its construction and up to 950 full-time jobs. According to

estimates, LNG Canada would be the least GHG-intensive large LNG facility in the world.

⁹³ Article 6 enables abatement measures taken in one country to be counted toward the achievement of another country's targets through the concept of the "internationally transferred mitigation outcome".