Cenovus’s Carbon Disclosure: Managing climate-related risks
A MESSAGE FROM AL REID
EXECUTIVE VICE-PRESIDENT, STAKEHOLDER ENGAGEMENT, SAFETY, LEGAL & GENERAL COUNSEL

Cenovus has long recognized the need to assess and manage climate change related risks. We believe that thriving in a highly competitive, lower-carbon economy must be a priority for our industry and for Canada. That requires new solutions to solve the emissions and energy demand challenges our world faces. And it requires engagement in constructive discussions to support the development of effective policies and the advancement of technologies to reduce emissions.

Canada’s oil and gas industry has a demonstrated track record of adapting and thriving in an ever-changing policy environment. Cenovus continues to support the goals of Alberta’s Climate Leadership Plan, which was designed to position Canada as a world leader in responsible oil production while also helping to ensure industry competitiveness. Our support for these measures shows the government and the public we are serious about reducing greenhouse gas (GHG) emissions. We believe our industry’s continued focus on technology development and collaboration will help find solutions to address the GHG emissions challenge of the production and use of oil and gas so our products can continue to play an important role in a lower-carbon future.

At Cenovus, we recognize operating in an ethical and environmentally, socially and fiscally responsible manner is important to the long-term sustainability of our business. We believe our company is well-positioned to thrive in a lower-carbon future. We have a portfolio of top-tier assets with a long average estimated reserve life, and a track record of industry-leading environmental performance. We have a robust approach to risk management. We regularly evaluate the risks, including carbon policy risks, to our business and operations. We deploy capital with a view to financial resilience under a range of future outlook scenarios. We are investing in technology to further enhance our position on both carbon and cost leadership. And we are advocating for efficient energy policy that strikes the right balance between protecting the environment, providing economic benefit to all Canadians, and delivering energy the world needs. These are the building blocks that help position us for long-term value creation in a lower-carbon future.

The format of this report follows the recommendations of the Financial Stability Board’s Task Force on Climate-Related Financial Disclosures. In this report, you’ll read about Cenovus’s perspective on the global transition to a lower-carbon economy, governance and climate change related risks, and opportunities to advance our strategy in a lower-carbon future. Through our assessment, we believe our long-term strategy reflects our focus on creating a business that remains sustainable and financially resilient in a lower-carbon world to the benefit of our shareholders and other stakeholders.

Al Reid
OUR PERSPECTIVE ON ENERGY FUNDAMENTALS AND CLIMATE POLICY

Supply and demand fundamentals
Various international energy companies, government bodies, and intergovernmental organizations have released long-term supply and demand outlooks which help project the future energy landscape. These third-party scenarios draw similar conclusions, such as:

1. Energy demand is expected to grow well into the future.
   Much of this growth will be concentrated in emerging markets, especially in China and India, as improving living standards and rapidly growing economies drive energy consumption in those regions.
2. Oil will remain a significant part of energy supply growth.
3. There will be aggressive growth in demand for natural gas and renewables due to increasing environmental constraints, with this growth largely resulting in a shift away from coal.

Third-party forecasts site numerous risks in their respective outlooks, which could potentially alter base-case conclusions. For example, under some scenarios, stringent environmental legislation combined with accelerated advancements in technology and energy efficiencies could result in peak oil demand sooner than currently expected. Given that forecasted policy assumptions vary widely between scenarios, Cenovus believes that disclosure of climate-related financial metrics are not useful to investors until consistent standards, assumptions and guidance are developed for scenario analysis.

Electric vehicles and oil demand

We monitor the potential impact of disruptive technologies, such as electric vehicles (EVs), that have the potential to displace hydrocarbon demand. While there have been significant advancements in EV technology and battery costs, a recent IEA study concludes that EV technology remains at an early deployment stage, with mass market adoption projected to be about 10 to 20 years away. According to a recent Bloomberg New Energy Finance forecast, EVs will only displace eight million barrels of transport fuel per day by 2040. Even with the displacement of oil from increasing sales of EVs, most major forecasts project 105 to 120 million barrels per day in global liquids demand by 2040.

Low-carbon scenarios

Cenovus’s view is most aligned with the International Energy Agency’s IEA World Economic Outlook (WEO) New Policies Scenario, where nations make efforts toward their climate targets while global oil demand continues to grow out to 2040 (see Figure 1).

The IEA’s WEO Sustainable Development Scenario is a more stringent low-carbon scenario where global temperatures are not expected to exceed two degrees Celsius. Under this scenario, global oil demand is expected to decline moderately out to 2040, but will still meet a significant portion of global energy demand (see Figure 2).

Ultimately, under any IEA WEO scenario, a significant amount of new oil development is still expected to be required in the future to offset the natural decline rates of existing production around the world (see Figure 3).
Signpost tracking
We continue to update and refine our perspective based on our assessment of the overall business, policy, economic, social and technology environment, including the financial implications of climate-related risks. One of the ways we assess future risks to Cenovus is through ongoing monitoring of signposts that are relevant to maintaining our competitiveness under a future lower-carbon scenario. Such signposts include: improved energy efficiencies, disruptive technologies, changes in supply or consumption and consumer behavior. Since commodity price risk is inherently linked to advancements in alternative energy technologies, Cenovus assesses technology signposts including, but not limited to, electric vehicle technology cost and demand, internal combustion engine efficiencies, and drilling and technology improvements.

As part of its governance role, the Board receives regular briefings that address emerging policy risk, regulatory performance and related topics, including climate change related risks.

For more information, please read the corporate governance section of our Corporate Responsibly Report and our Management Information Circular.

Risk management
Cenovus is exposed to a number of risks through the pursuit of our strategic objectives. Some of these risks impact the oil and gas industry as a whole and others are unique to our company. Failure to manage significant risks to our business, including those related to GHG emissions, could have a material adverse effect on our reputation, financial condition, results of operations and cash flows.

Cenovus’s approach to risk management includes the Board-approved Enterprise Risk Management (ERM) Policy, a risk management framework and related risk management processes designed to help ensure compliance with the ERM Policy. It also includes an annual review of Cenovus’s principal and emerging risks, an analysis of the severity and likelihood of each principal risk, consideration of the company’s current mitigation strategy and an evaluation of whether additional mitigation or treatment of the risk is required. In addition, Cenovus monitors its risk profile and provides the Board with quarterly updates.

Mitigating risk
Our ERM program drives the identification, measurement, prioritization and management of risk across Cenovus. Effective risk management is expected to help us maintain financial resilience in a lower-carbon economy. While various climate-related risks are discussed below, we believe that discussion of climate-related risks should not be taken in isolation, but within the context of all other significant risk factors. For more information on Cenovus’s approach to risk management and a discussion of the significant financial, operational and regulatory risks relating to Cenovus, see our Management’s Discussion and Analysis.

Commodity prices – Under certain aggressive low-carbon scenarios, the potential for demand erosion for crude oil and natural gas may contribute to commodity price fluctuations. Crude oil and natural gas prices are also impacted by a number of other factors, including global and regional supply and demand and economic conditions, the actions of the Organization of the Petroleum Exporting Countries (OPEC), government regulation, political stability, transportation constraints, weather conditions and the availability of alternative fuels. All of these factors are beyond our control and can result in a high degree of price volatility which may affect revenues generated from the sale of our products. Our financial performance is also

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**OUR PERSPECTIVE ON CLIMATE-RELATED GOVERNANCE AND RISK MANAGEMENT**

Governance
Strong corporate governance sets the foundation for our strategy to remain financially resilient over the long-term.

The Safety, Environment and Responsibility (SER) Committee of the Board oversees and reviews matters relating to our Corporate Responsibility Policy which includes safety, social, environmental, economic, business conduct and ethical considerations.

To ensure our Board members are effective in their roles as stewards of Cenovus, it’s critical they understand how climate change related risks relate to our company, the industry and our regulatory environment.

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Our view on carbon pricing
Cenovus is supportive of a broad-based and globally consistent price on carbon, with a portion of those revenues going to advance carbon-reduction technologies. We believe an international carbon price is the most fair and equitable way to ensure a global transition to a lower-carbon future. Carbon pricing, applied equally across all jurisdictions, will help avoid “emissions leakage” of energy-intensive activities to jurisdictions with less stringent GHG policy. It also allows emission-reduction activities to be deployed to where they occur most efficiently on a dollar per tonne basis. In the future, we anticipate the majority of regulations impacting our operations will be designed in a way that strikes a balance between improving environmental performance and maintaining the economic competitiveness of energy-intensive and trade-exposed sectors.

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affected by price differentials related to the quality and distance from major markets of our upstream production compared with the quality and location of products used to determine benchmark commodity prices quoted on financial exchanges. One of the methods we use to understand the impact of commodity price risk is to stress-test our corporate strategy against a variety of commodity price forecasts, including those that are more conservative than the IEA’s WEO Sustainable Development Scenario.

Market access – Opposition to new and expanded pipeline projects is influenced by public perception, including concerns regarding GHG emissions associated with upstream hydrocarbon development and end-use combustion of fuels. The majority of our oil and natural gas production is transported to market by pipelines. Disruptions in, or restricted availability of, pipeline, rail or marine services could adversely affect our crude oil and natural gas sales, projected production growth, refining operations and cash flows. Insufficient transportation capacity for our production may impact our ability to efficiently access end markets and negatively impact our financial performance by way of higher transportation costs, wider price differentials, lower sales prices at specific locations or for specific grades of crude oil, and, in certain situations, shut-in production.

In order to mitigate market access risk, we are supportive of new pipelines and pipeline expansion projects. We also operate the Bruderheim oil-by-rail terminal which provides long-term optionality in the case of pipeline constraints as well as access to niche markets where we expect we can receive higher prices for our product. Further, our refining assets help to mitigate some of our exposure to wider light-heavy differentials that may arise due to market access constraints.

GHG regulations and compliance – Various federal, provincial and U.S. state governments have announced intentions to regulate GHG emissions. Some of these regulations are in effect while others remain in various phases of review, discussion or implementation. Adverse impacts to our business as a result of comprehensive GHG legislation and regulations may include: increased compliance costs, permitting delays and substantial costs to generate or purchase emission credits or allowances, all of which may increase operating expenses and reduce demand for crude oil and certain refined products.

While Cenovus’s operations are subject to carbon pricing in the provinces where we operate, our assets remain competitive. Under the Alberta Climate Leadership Plan (CLP), Cenovus’s oil sands and Deep Basin operations are subject to the carbon pricing regime for large industrial emitters. Our Deep Basin oil and natural gas operations in British Columbia are subject to a carbon tax. Cenovus expects Alberta and British Columbia’s provincial carbon pricing to meet or exceed the Canadian federal government’s backstop national carbon pricing regime whereby emissions costs will increase to $40 per tonne in 2021 and $50 per tonne in 2022. In addition to GHG emissions pricing, provincial and federal governments are expected to finalize measures to reduce methane emissions from oil and gas activities by 45 percent by 2025.

Under the Alberta CLP, the province has also committed to limiting oil sands emissions to a province-wide total of 100 megatonnes per year. Cenovus does not expect the emissions limit will impede our ability to obtain the necessary environmental and regulatory approvals for new oil sands development, as we have over 800,000 barrels per day of regulatory-approved oil sands production capacity including the current 390,000 barrels per day of installed capacity. Further, we do not expect the emissions limit will impede the continued operation of our existing oil sands projects given our best-in-class reservoir and emissions performance.

ADVANCING OUR STRATEGY IN A LOWER-CARBON FUTURE

In addition to managing climate-related risk through our enterprise risk management framework, Cenovus is also advancing a strategy which leverages our premium asset quality. Advancing our strategy, along with technology and innovation, will position us to thrive in a lower-carbon future.

Premium asset quality
Cenovus has a deep portfolio of premium-quality oil sands, natural gas and natural gas liquids assets that we believe provide us with significant cost and environmental performance advantages. Our in situ oil sands projects and Deep Basin assets in Western Canada offer long and short-cycle opportunities that provide the capital investment flexibility to position us to deliver value growth at various points of the price cycle. In addition to our exploration and production assets, we have complementary interests in refineries and product transportation infrastructure. Our integrated business approach helps provide stability to our cash flow and maximize value for the oil and natural gas we produce.

Cenovus’s oil sands assets have industry-leading emissions performance (see Figure 4) and are comparable to other forms of crude produced globally. Since 2004, we have been able to reduce our emissions intensity by over 30 percent, and our direct oil sands GHG emissions intensity is 45 percent below industry average. Cenovus’s oil sands production has an emissions intensity that is less than the average barrel of oil refined in the U.S.
Incorporating a price on carbon

At our oil sands facilities, we are subject to carbon pricing on the portion of our emissions that exceeds industry-wide benchmarks. We have a strong economic incentive to reduce every tonne of carbon dioxide equivalent (CO₂e). When we consider investments in GHG emissions reduction technology, we make investments based on the marginal carbon price. The marginal price is equal to the regulated carbon price which is currently $30 per tonne CO₂e across most of our operations. The regulated price is expected to increase to $50 per tonne CO₂e by 2022, further incenting investment in emissions mitigation technology.

Taking action through technology and innovation

Technology and innovation are more critical to our success than ever before. Over the past few years, low crude oil and natural gas prices have persisted, while the world has increasingly turned its attention to climate change and reducing GHG emissions. Recognizing that financial performance is critical to corporate resiliency in a future that may be characterized by lower commodity prices and higher carbon prices, we have responded to this dual challenge by working to significantly reduce both our cost structure and emissions intensity at our operations.

In the near term, we have been working on advancing solvent-aided processes at our oil sands operations and focusing on energy efficiency across our portfolio to help us further reduce our GHG emissions intensity while reducing our per-barrel operating costs. We also recognize that collaboration is essential to drive industry-wide change and help solve the emissions challenge. We work with other companies, industry groups, policy leaders and academia to address these challenges together. Cenovus is driving towards a new model of innovation through our involvement in initiatives such as Canada’s Oil Sands Innovation Alliance (COSIA), Evok Innovations and the NRG COSIA Carbon XPRIZE. Cenovus has a strong track record of investing in cleantech, including through Evok Innovations, a $100 million cleantech fund in partnership with Suncor Energy and the BC Cleantech CEO Alliance.

Cleantech investments

The oil sands industry is one of the largest potential markets in the world for clean-energy technology. Many of the clean-energy technologies that our industry is investing in are expected to have global applications with potential to address environmental challenges in other industries e.g. Saltworks, NRG Carbon COSIA XPRIZE. Cenovus has a strong track record of investing in cleantech, including through Evok Innovations, a $100 million cleantech fund in partnership with Suncor Energy and the BC Cleantech CEO Alliance.
OUR CLIMATE METRICS AND TARGETS

GHG emissions metrics
We track both direct and indirect GHG emissions on an absolute and intensity basis (see Figure 5). We also track methane emissions (see Figure 6), energy use and a number of metrics related to innovation and efficiency.

Regulatory emissions target
Recognizing that over 80 percent of the emissions from Cenovus’s operations in 2016 were directly exposed to a price on carbon, we have a strong economic incentive to reduce our GHG emissions. We have consistently outperformed our regulatory emissions requirements under Alberta’s Specified Gas Emitters Regulation across our Foster Creek and Christina Lake oil sands operations. We are also preparing to meet a new target to reduce methane emissions from our oil and gas production by 45 percent by 2025.

Voluntary emission reductions
Beyond meeting our regulatory targets, we have taken a continuous improvement approach to further reducing our total upstream emissions. This is expected to help us reduce GHG compliance costs and fuel gas usage, while positioning us for more stringent GHG regulations in the future. Through our continuous improvement approach, we have reduced our per-barrel oil sands GHG emissions intensity by one-third since 2004 and continue to work on technologies that will reduce our total upstream emissions intensity further.

For more information on metrics please see the emissions, energy use and air quality section of our 2016 Corporate Responsibility Report and associated data table.
Pricing mechanisms support deployment of emissions reduction technology

Since 2007, market-based pricing mechanisms have been used in Alberta to support the development and deployment of emissions reduction technology. We earn Emission Performance Credits, which are used to reduce compliance costs, at our oil sands operations as a result of technology and process improvements we have made over time. At our Deep Basin oil and natural gas operations we have generated offset credits from energy efficiency technologies deployed at compressor stations. We have also been awarded funding under Emissions Reduction Alberta to support deployment of energy efficiency, methane abatement and carbon capture projects. This funding not only helps us to deploy novel emissions reduction technologies but also reduces future GHG compliance costs.

FUTURE REPORTING

Climate disclosure is a rapidly evolving field with a number of bodies providing advice on the subject. We will continue to investigate evolving and maturing best practices to guide the core elements of Cenovus’s future climate-related disclosure. As relevant climate-related metrics and disclosure practices are identified and developed, they may be incorporated into our future reporting.

We plan to provide ongoing disclosure on how we are assessing and working to ensure our long-term resilience in a lower-carbon future through our annual corporate responsibility report, beginning with the 2018 report. Through that report, we plan to continue to disclose emissions metrics and performance. Future reporting on financial metrics and progress made against financial targets will continue to be included in relevant financial disclosures, such as our Annual Information Form, Management’s Discussion and Analysis and corporate presentations.

Advisories

All financial figures in this document are in Canadian dollars, unless otherwise noted.

Forward-Looking Information – This document contains certain forward-looking information and forward-looking statements (collectively referred to herein as “forward-looking statements”) within the meaning of applicable Canadian and U.S. securities laws.

Forward-looking information in this document is identified by words such as “anticipate”, “believe”, “expect”, “estimate”, “plan”, “forecast”, “future”, “target”, “position”, “project”, “committed”, “can be”, “capacity”, “could”, “should”, “focus”, “on track”, “outlook”, “potential”, “priority”, “may”, “strategy”, “forward”, “will”, “upside”, “aim”, “implication”, “commit”, “commitment”, “would”, “intend”, “confident”, “poised” or similar expressions and includes suggestions of future outcomes, including statements about: the development of new technology by the oil and gas industry, either by individual companies or in collaboration, or by Cenovus to lower greenhouse gas emissions and costs; advancements in alternative energy technologies, including those related to electric vehicles; our ability to remain financially resilient, create value for shareholders and thrive in a lower-carbon future; the future demand for energy; demand for oil, natural gas, gasoline, diesel and other energy sources; decline rates for existing production of oil and gas; price fluctuations of oil and gas and fluctuations of key price differentials related to quality and distance from major markets; the sufficiency of pipeline and other transportation capacity for oil; laws and government policy, including those relating to climate change, and the impact thereof; effective risk management; Cenovus’s ability to lower costs and the sustainability thereof; our ability to maintain low steam to oil ratios; and our ability to lower greenhouse gas emissions, including methane emissions, on both an absolute basis and in terms of intensity in our operations.

Forward-looking statements are based on Cenovus’s current expectations, estimates, projections and assumptions that were made by the corporation in light of information available at the time the statement was made and consider Cenovus’s experience and its perception of historical trends, including expectations and assumptions concerning: the accuracy of reserves and resources estimates; commodity prices; the performance of assets and equipment; capital efficiencies and cost savings, including the sustainability thereof; applicable laws and government policies, including royalty rates, and laws and policies relating to climate change; future production rates; the sufficiency of budgeted capital expenditures in carrying out planned activities; the availability and cost of labour and services; the receipt, in a timely manner, of regulatory approvals; assumptions relating to demand for oil, natural gas, gasoline, diesel and other energy sources; the development and performance of technology; assumptions relating to future energy use and consumption of oil and gas; and Cenovus’s carbon price outlook.

Forward-looking statements are not guarantees of future performance and involve a number of risks and uncertainties, some that are common to the oil and gas industry and some that are unique to Cenovus. Cenovus’s actual results may differ materially from those expressed or implied by its forward-looking statements, so readers are cautioned not to place undue reliance on them.

Readers are cautioned that the foregoing lists are not exhaustive and are made as at the date hereof. Events or circumstances could cause our actual results to differ materially from those estimated or projected and expressed in, or implied by, the forward-looking information. For a full discussion of Cenovus’s material risk factors, see “Risk Management and Risk Factors” in our 2017 Annual Management’s Discussion and Analysis available on SEDAR at sedar.com, on EDGAR at sec.gov and on Cenovus’s website at cenovus.com.
Cenovus Energy Inc.

Cenovus Energy Inc. is a Canadian integrated oil and natural gas company. It is committed to maximizing value by responsibly developing its assets in a safe, innovative and efficient way. Operations include oil sands projects in northern Alberta, which use specialized methods to drill and pump the oil to the surface, and established natural gas and oil production in Alberta and British Columbia. The company also has 50% ownership in two U.S. refineries. Cenovus shares trade under the symbol CVE, and are listed on the Toronto and New York stock exchanges. For more information, visit cenovus.com.

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