# Management's discussion and analysis of financial condition and operating results

# For the year ended December 31, 2022

The following management's discussion and analysis should be read in conjunction with the company's audited consolidated financial statements and accompanying notes, and the company's annual report on Form 10-K, for the year ended December 31, 2022. Reference to Item 1A. "Risk factors" and specific page numbers in this document indicate the section and page numbers found in the company's annual report on Form 10-K. The company's annual report on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K and amendments to these reports are available online at www.sedar.com, www.sec.gov and the company's website www.imperialoil.ca.

Unless the context otherwise indicates, reference to the "company" or "Imperial" includes Imperial Oil Limited and its subsidiaries, and reference to ExxonMobil includes Exxon Mobil Corporation and its affiliates, as appropriate.

All dollar amounts set forth in this report are in Canadian dollars, except where otherwise indicated.
Note that numbers may not add due to rounding.

# Forward-looking statements

Statements of future events or conditions in this report, including projections, targets, expectations, estimates, and business plans are forward-looking statements. Similarly, discussion of emission-reduction roadmaps or future plans related to carbon capture, biofuel, hydrogen, plastics recycling and other plans to drive towards net -zero emissions are dependent on future market factors, such as continued technological progress and policy support, and represent forward-looking statements. Forward-looking statements can be identified by words such as believe, anticipate, intend, propose, plan, goal, seek, project, predict, target, estimate, expect, strategy, outlook, schedule, future, continue, likely, may, should, will and similar references to future periods. Forward-looking statements in this report include, but are not limited to, references to being well positioned to participate in future investments and reduce commodity price risk; the company's long-term business outlook including demand, supply and energy mix and pathways related to greenhouse gas emissions; the impact of participation in the Pathways alliance; Imperial's company-wide net-zero goal by 2050 (Scope 1 and 2) and the company's greenhouse gas emissions intensity goal for 2030 for its oil sands operations; the extent of ongoing effects of current global economic uncertainty and geopolitical events affecting supply and demand, including inflation, and the company's ability to mitigate cost impacts and offset inflationary pressure; segment growth, competitive strategies and benefits from an integrated business model; the ability of the company's current investment strategy of value and select volume growth to deliver robust returns and support long term growth; continued evaluation of opportunities such as rail shipments and pace of the Aspen project; the impact of Downstream strategies and competitive position and the expected volatility of refining margins; potential impacts from environmental risks, carbon policy, climate related regulations and biofuels mandates; the timing and production from the renewable diesel facility at Strathcona; the benefits to the Chemical business from integration with the Sarnia refinery and relationship with ExxonMobil; capital structure and financial strength as a competitive advantage, for risk mitigation and meeting funding requirements; expected full year capital expenditures of about $1.7 billion for 2023; earnings sensitivities; risks associated with use of derivative instruments; the impact of any pending litigation, accounting standards and unrecognized tax benefits; and standardized measures of discounted future cash flow and estimates, development, timing and recovery of reserves.

Forward-looking statements are based on the company's current expectations, estimates, projections and assumptions at the time the statements are made. Actual future financial and operating results, including expectations and assumptions concerning future energy demand, supply and mix; commodity prices and foreign exchange rates; production rates, growth and mix across various assets; production life, resource recoveries and reservoir performance; project plans, timing, costs, technical evaluations and capacities, and the company's ability to effectively execute on these plans and operate its assets, including its investment in the renewable diesel complex at Strathcona and the Leming, Grand Rapids and LASER projects at Cold Lake; the adoption and impact of new facilities or technologies on reductions to GHG emissions intensity, including technologies using solvents to replace energy intensive steam at Cold Lake, boiler flue gas technology at Kearl, Strathcona renewable diesel, carbon capture and storage including in connection with hydrogen for the renewable diesel project, recovery technologies and efficiency projects and any changes in the scope, terms, or costs of such projects; that any required support from policymakers and other stakeholders for various new technologies such as carbon capture and storage will be provided; for renewable diesel, the availability and cost of locally-sourced and grown feedstock and the supply of renewable diesel to British Columbia in connection with its low-carbon fuel legislation; the amount and timing of emissions reductions, including the impact of lower carbon fuels; performance of third party service providers; receipt of regulatory and third party approvals in a timely manner; applicable laws and government policies, including with respect to climate change, GHG emissions reductions and low carbon fuels; refinery utilization and product sales; the ability to offset any ongoing inflationary pressures; cash generation, financing sources and capital structure, such as dividends and shareholder returns, including the timing and amounts of share repurchases; progression of COVID-19 and its impacts on Imperial's ability to operate its assets; capital and environmental expenditures; the capture of efficiencies within and between business lines and the ability to maintain near-term cost reductions as ongoing efficiencies; and general market conditions could differ materially depending on a number of factors.

These factors include global, regional or local changes in supply and demand for oil, natural gas, petroleum and petrochemical products, feedstocks and other market factors, economic conditions or seasonal fluctuations and resulting demand, price, differential and margin impacts; transportation for accessing markets; political or regulatory events, including changes in law or government policy, applicable royalty rates, tax laws including taxes on share buybacks, and actions in response to COVID-19; environmental risks inherent in oil and gas activities; environmental regulation, including climate change and greenhouse gas regulation and changes to such regulation; government policies supporting lower carbon investment opportunities; failure or delay of supportive policy and market development for emerging lower-emission energy technologies; the receipt, in a timely manner, of regulatory and third-party approvals; third-party opposition to company and service provider operations, projects and infrastructure; availability and allocation of capital; availability and performance of third-party service providers; unanticipated technical or operational difficulties; management effectiveness and disaster response preparedness; commercial negotiations; project management and schedules and timely completion of projects; unexpected technological developments; the results of research programs and new technologies, including with respect to greenhouse gas emissions, and the ability to bring new technologies to commercial scale on a cost-competitive basis; reservoir analysis and performance; the ability to develop or acquire additional reserves; operational hazards and risks; cybersecurity incidents; currency exchange rates; the impacts of COVID-19 or other public health crises, including the effects of government responses on people and economies; general economic conditions, including the occurrence and duration of economic recessions or downturns; and other factors discussed in Item 1A Risk factors and Item 7 Management’s discussion and analysis of financial condition and results of operations in this annual report on Form 10-K.

Forward-looking statements are not guarantees of future performance and involve a number of risks and uncertainties, some that are similar to other oil and gas companies and some that are unique to Imperial Oil Limited. Imperial’s actual results may differ materially from those expressed or implied by its forward-looking statements and readers are cautioned not to place undue reliance on them. Imperial undertakes no obligation to update any forward-looking statements contained herein, except as required by applicable law.

Forward-looking and other statements regarding Imperial's environmental, social and other sustainability efforts and aspirations are not an indication that these statements are necessarily material to investors or requiring disclosure in the company's filings with securities regulators. In addition, historical, current and forward-looking environmental, social and sustainability-related statements may be based on standards for measuring progress that are still developing, internal controls and processes that continue to evolve, and assumptions that are subject to change in the future, including future rule-making.

Energy demand models are forward-looking by nature and aim to replicate system dynamics of the global energy system, requiring simplifications. The reference to any scenario in this report, including any potential net-zero scenarios, does not imply Imperial views any particular scenario as likely to occur. In addition, energy demand scenarios require assumptions on a variety of parameters. As such, the outcome of any given scenario using an energy demand model comes with a high degree of uncertainty. For example, the International Energy Agency (IEA) describes its Net Zero Emissions (NZE) by 2050 scenario as extremely challenging, requiring unprecedented innovation, unprecedented international cooperation and sustained support and participation from consumers. Third-party scenarios discussed in this report reflect the modeling assumptions and outputs of their respective authors, not Imperial, and their use by Imperial is not an endorsement by the company of their underlying assumptions, likelihood or probability. Investment decisions are made on the basis of Imperial’s separate planning process. Any use of the modeling of a third-party organization within this report does not constitute or imply an endorsement by Imperial of any or all of the positions or activities of such organization.

The term “project” as used in this report can refer to a variety of different activities and does not necessarily have the same meaning as in any government payment transparency reports.

# Frequently used terms

Listed below are definitions of several of Imperial's key business and financial performance measures. The definitions are provided to facilitate understanding of the terms and how they are calculated. Certain measures included in this document are not prescribed by U.S. Generally Accepted Accounting Principles (GAAP). These measures constitute "non-GAAP financial measures" under Securities and Exchange Commission Regulation G and Item 10(e) of Regulation S-K, and "specified financial measures" under National Instrument 52-112 Non-GAAP and Other Financial Measures Disclosure of the Canadian Securities Administrators.

Reconciliation of these non-GAAP financial measures to the most comparable GAAP measure, and other information required by these regulations, have been provided. Non-GAAP financial measures and specified financial measures are not standardized financial measures under GAAP and do not have a standardized definition. As such, these measures may not be directly comparable to measures presented by other companies, and should not be considered a substitute for GAAP financial measures.

**Capital employed**
Capital employed is a non-GAAP financial measure that is a measurement of net investment. When viewed from the perspective of how capital is used by the business, it includes the company's property, plant and equipment and other assets, less liabilities, excluding both short-term and long-term debt. When viewed from the perspective of the sources of capital employed in total for the company, it includes total debt and equity. The most directly comparable financial measure that is disclosed in the financial statements is total assets within the company's Consolidated balance sheet. Both of these views include the company's share of amounts applicable to equity companies, which the company believes should be included to provide a more comprehensive measurement of capital employed.

**Reconciliation of capital employed**

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| **From the Consolidated balance sheet** | | | |
| Business uses: asset and liability perspective | | | |
| Total assets | **43,524** | 40,782 | 38,031 |
| Less: Total current liabilities excluding notes and loans payable | **(8,776)** | (5,432) | (3,153) |
| Total long-term liabilities excluding long-term debt | **(8,180)** | (8,439) | (8,276) |
| Add: Imperial's share of equity company debt | **25** | 20 | 26 |
| Total capital employed | **26,593** | 26,931 | 26,628 |
| Total company sources: Debt and equity perspective | | | |
| Notes and loans payable | **122** | 122 | 227 |
| Long-term debt | **4,033** | 5,054 | 4,957 |
| Shareholders' equity | **22,413** | 21,735 | 21,418 |
| Add: Imperial's share of equity company debt | **25** | 20 | 26 |
| Total capital employed | **26,593** | 26,931 | 26,628 |

**Return on average capital employed (ROCE)**
ROCE is a non-GAAP ratio. From the perspective of the business segments, ROCE is annual business segment net income divided by average business segment capital employed (an average of the beginning and end-of-year amounts). Segment net income includes Imperial's share of segment net income of equity companies, consistent with the definition used for capital employed, and excludes the cost of financing. Capital employed is a non-GAAP financial measure and is disclosed and reconciled above. The company's total ROCE is net income excluding the after-tax cost of financing divided by total average capital employed. The company has consistently applied its ROCE definition for many years and views it as one of the best measures of historical capital productivity in a capital-intensive, long-term industry. Additional measures, which are more cash flow based, are used to make investment decisions.

**Components of return on average capital employed**

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| **From the Consolidated statement of income** | | | |
| Net income (loss) | **7,340** | 2,479 | (1,857) |
| Financing (after-tax) including Imperial's share of equity companies | **55** | 40 | 52 |
| Net income (loss) excluding financing | **7,395** | 2,519 | (1,805) |
| Average capital employed | **26,762** | 26,780 | 28,059 |
| Return on average capital employed (percent) – corporate total | **27.6** | 9.4 | (6.4) |

**Cash flows from operating activities and asset sales**
Cash flows from operating activities and asset sales is a non-GAAP financial measure that is the sum of the net cash provided by operating activities and proceeds from asset sales reported in the Consolidated statement of cash flows. This cash flow reflects the total sources of cash both from operating the company's assets and from the divesting of assets. The most directly comparable financial measure that is disclosed in the financial statements is cash flows from (used in) operating activities within the company's Consolidated statement of cash flows. The company employs a long-standing and regular disciplined review process to ensure that assets are contributing to the company's strategic objectives. Assets are divested when they no longer meet these objectives or are worth considerably more to others. Because of the regular nature of this activity, the company believes it is useful for investors to consider sales proceeds together with cash provided by operating activities when evaluating cash available for investment in the business and financing activities, including shareholder distributions.

**Reconciliation of cash flows from (used in) operating activities and asset sales**

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| **From the Consolidated statement of cash flows** | | | |
| Cash flows from (used in) operating activities | **10,482** | 5,476 | 798 |
| Proceeds from asset sales | **904** | 81 | 82 |
| Total cash flows from (used in) operating activities and asset sales | **11,386** | 5,557 | 880 |

**Operating costs**

Operating costs is a non-GAAP financial measure that are the costs during the period to produce, manufacture, and otherwise prepare the company's products for sale – including energy costs, staffing and maintenance costs. It excludes the cost of raw materials, taxes and interest expense and are on a before-tax basis. The most directly comparable financial measure that is disclosed in the financial statements is total expenses within the company's Consolidated statement of income. While the company is responsible for all revenue and expense elements of net income, operating costs represent the expenses most directly under the company's control and therefore, are useful in evaluating the company's performance.

**Reconciliation of operating costs**

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| **From the Consolidated statement of income** | | | |
| Total expenses | **50,186** | 34,307 | 24,796 |
| Less: | | | |
| Purchases of crude oil and products | **37,742** | 23,174 | 13,293 |
| Federal excise tax and fuel charge | **2,179** | 1,928 | 1,736 |
| Financing | **60** | 54 | 64 |
| Subtotal | **39,981** | 25,156 | 15,093 |
| Imperial's share of equity company expenses | **71** | 61 | 64 |
| Total operating costs | **10,276** | 9,212 | 9,767 |

**Components of operating costs**

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| **From the Consolidated statement of income** | | | |
| Production and manufacturing | **7,404** | 6,316 | 5,535 |
| Selling and general | **882** | 784 | 741 |
| Depreciation and depletion (includes impairments) | **1,897** | 1,977 | 3,293 |
| Non-service pension and postretirement benefit | **17** | 42 | 121 |
| Exploration | **5** | 32 | 13 |
| Subtotal | **10,205** | 9,151 | 9,703 |
| Imperial's share of equity company expenses | **71** | 61 | 64 |
| Total operating costs | **10,276** | 9,212 | 9,767 |

**Net income (loss) excluding identified items**

Net income (loss) excluding identified items is a non-GAAP financial measure that is total net income (loss) excluding individually significant non-operational events with an absolute corporate total earnings impact of at least $100 million in a given quarter. The net income (loss) impact of an identified item for an individual segment in a given quarter may be less than $100 million when the item impacts several segments or several periods. The most directly comparable financial measure that is disclosed in the financial statements is net income (loss) within the company's Consolidated statement of income. Management uses these figures to improve comparability of the underlying business across multiple periods by isolating and removing significant non-operational events from business results. The company believes this view provides investors increased transparency into business results and trends, and provides investors with a view of the business as seen through the eyes of management. Net income (loss) excluding identified items is not meant to be viewed in isolation or as a substitute for net income (loss) as prepared in accordance with U.S. GAAP. All identified items are presented on an after-tax basis.

**Reconciliation of net income (loss) excluding identified items**

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| **From the Consolidated statement of income** | | | |
| Net income (loss) (U.S. GAAP) | **7,340** | 2,479 | (1,857) |
| Less identified items included in Net income (loss) | | | |
| Gain/(loss) on sale of assets | **208** | — | — |
| Impairments | **—** | — | (1,171) |
| Subtotal of identified items | **208** | — | (1,171) |
| **Net income (loss) excluding identified items** | **7,132** | 2,479 | (686) |

# Management's discussion and analysis of financial condition and results of operations

## Overview

The following discussion and analysis of Imperial's financial results, as well as the accompanying financial statements and related notes to consolidated financial statements to which they refer, are the responsibility of the management of Imperial Oil Limited.

The company's accounting and financial reporting fairly reflect its integrated business model involving exploration for, and production of, crude oil and natural gas, manufacture, trade, transport and sale of crude oil, natural gas, petroleum products, petrochemicals and a variety of specialty products.

Imperial, with its resource base, financial strength, disciplined investment approach and technology portfolio, is well-positioned to participate in substantial investments to develop new Canadian energy supplies. The company's operating segments are Upstream, Downstream, Chemicals, and Corporate and other. The company's integrated business model generally reduces the company's risk from changes in commodity prices. While commodity prices depend on supply and demand and may be volatile on a short-term basis, Imperial's investment decisions are grounded on fundamentals reflected in its long-term business outlook, and use a disciplined approach in selecting and pursuing the most attractive investment opportunities. The Corporate Plan is a fundamental annual management process that is the basis for setting operating and capital objectives, in addition to providing the economic assumptions used for investment evaluation purposes. The foundation for the assumptions supporting the Corporate Plan is ExxonMobil's *Outlook for Energy*, and Corporate Plan volume projections are based on individual field production profiles, which are also updated annually. Price ranges for crude oil, natural gas, including price differentials, refinery and chemical margins, volumes and operating costs including greenhouse gas emissions pricing, and foreign currency exchange rates are based on Corporate Plan assumptions developed annually and are utilized for investment evaluation purposes. Major investment opportunities are evaluated over a range of potential market conditions. Once the company makes major investments, it completes a reappraisal process to ensure that it learns from the investment decision and incorporates the lessons into future projects.

The term "project" as used in this report can refer to a variety of different activities and does not necessarily have the same meaning as in any government payment transparency reports.

## Business environment

**Long-term business outlook**
The “Long-term business outlook” is based on Exxon Mobil Corporation’s *Outlook for Energy* (the Outlook), which combined with the near-term pathways, is used to help inform the company’s long-term business strategies and investment plans.

The company’s business planning is underpinned by a deep understanding of long-term market fundamentals. These fundamentals include supply and demand trends, the scale and variety of energy needs worldwide; capability, practicality and affordability of energy alternatives including low-carbon solutions; greenhouse gas emission-reduction technologies; and supportive government policies. The Outlook considers these fundamentals to form the basis for the company’s long-term business planning, investment decisions, and research programs. The Outlook reflects the company’s view of global energy demand and supply through 2050. It is a projection based on current trends in technology, government policies, consumer preferences, geopolitics, and economic development.

The Outlook uses projections and scenarios from reputable third parties such as the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC). The IEA describes the Net Zero Emissions by 2050 (NZE) as extremely challenging, requiring all stakeholders - governments, businesses, investors, and citizens - to take immediate, unprecedented action. The IEA acknowledges that society is not currently on the IEA NZE pathway. No single transition pathway can be reasonably predicted, given the wide range of uncertainties. Key unknowns include yet-to-be-developed government policies, market conditions, and advances in technology that may influence the cost, pace, and potential availability of certain pathways. Scenarios that employ a full complement of technology options are likely to provide the most economically efficient pathways.

By 2050, the world’s population is projected at around 9.7 billion people, or about 2 billion more than in 2021. Coincident with this population increase, the Outlook projects worldwide economic growth to average close to 2.5 percent per year, with economic output growing by around 110 percent by 2050 compared to 2021. As economies and populations grow, and as living standards improve for billions of people, the need for energy is expected to continue to rise. Even with significant efficiency gains, global energy demand is projected to rise by almost 15 percent from 2021 to 2050. This increase in energy demand is expected to be driven by developing countries (i.e., those that are not member nations of the Organization for Economic Co-operation and Development (OECD)).

As expanding prosperity drives global energy demand higher, increasing use of energy-efficient technologies and practices, as well as lower-emission products, will continue to help significantly reduce energy consumption and CO2 emissions per unit of economic output over time. Substantial efficiency gains are likely in all key aspects of the world’s economy through 2050, affecting energy requirements for power generation, transportation, industrial applications, and residential and commercial needs.

Under the Outlook, global electricity demand is expected to increase over 75 percent from 2021 to 2050, with developing countries likely to account for about 80 percent of the increase. Consistent with this projection, power generation is expected to remain the largest and fastest growing major segment of global primary energy demand, supported by a wide variety of energy sources. The share of coal-fired generation is expected to decline substantially and approach 15 percent of the world’s electricity in 2050, versus nearly 35 percent in 2021, in part due to policies to improve air quality as well as reduce greenhouse gas emissions to address risks related to climate change. From 2021 to 2050, the amount of electricity supplied using natural gas, nuclear power and renewables is expected to more than double, accounting for the entire growth in electricity supplies and offsetting the reduction of coal. Electricity from wind and solar is expected to increase more than 550 percent, helping total renewables (including other sources, e.g., hydropower) to account for over 80 percent of the increase in electricity supplies worldwide through 2050. Total renewables are expected to reach about 50 percent of global electricity supplies by 2050. Natural gas and nuclear are expected to be about 25 percent and 10 percent, respectively, of global electricity supplies by 2050. Supplies of electricity by energy type will reflect significant differences across regions reflecting a wide range of factors including the cost and availability of various energy supplies and policy developments.

Under the Outlook, energy for transportation – including cars, trucks, ships, trains and airplanes – is expected to increase by over 30 percent from 2021 to 2050. Transportation energy demand is expected to account for around 65 percent of the growth in liquid fuels demand worldwide over this period. Light-duty vehicle demand for liquid fuels is projected to peak by around 2025, and then decline to levels seen in the early-2000s by 2050, as the impact of better fuel economy and significant growth in electric cars, led by China, Europe, and the United States, work to offset growth in the worldwide car fleet of almost 70 percent. By 2050, light-duty vehicles are expected to account for around 15 percent of global liquid fuels demand. During the same time period, nearly all the world's commercial transportation fleets are expected to continue to run on liquid fuels, including biofuels, which are expected to be widely available and offer practical advantages in providing a large quantity of energy in small volumes.

Almost half of the world's energy use is dedicated to industrial activity. As the global middle class continues to grow, demand for durable products, appliances, and consumable goods will increase. Industry uses energy products both as a fuel and as a feedstock for chemicals, asphalt, lubricants, waxes, and other specialty products. The Outlook anticipates technology advances, as well as the increasing shift toward cleaner forms of energy such as electricity and natural gas, with coal declining. Demand for oil will continue to grow as a feedstock for industry.

As populations grow and prosperity rises, more energy will be needed to power homes, offices, schools, shopping centers, hospitals, etc. Combined residential and commercial energy demand is projected to rise by around 15 percent through 2050. Led by the growing economies of developing nations, average worldwide household electricity use will rise about 75 percent between 2021 and 2050.

Liquid fuels provide the largest share of global energy supplies today reflecting broad-based availability, affordability, ease of transportation, and fitness as a practical solution to meet a wide variety of needs. By 2050, global demand for liquid fuels is projected to grow to approximately 110 million oil-equivalent barrels per day, an increase of about 17 percent from 2021. The non-OECD share of global liquid fuels demand is expected to increase to nearly 70 percent by 2050, as liquid fuels demand in the OECD is expected to decline by around 20 percent. Much of the global liquid fuels demand today is met by crude production from conventional sources; these supplies will remain important, and significant development activity is expected to offset much of the natural declines from these fields. At the same time, a variety of emerging supply sources – including tight oil, deepwater, oil sands, natural gas liquids, and biofuels – are expected to grow to help meet rising demand. The world's resource base is sufficient to meet projected demand through 2050 as technology advances continue to expand the availability of more economic and lower-carbon supply options. However, timely investments will remain critical to meeting global needs with reliable and affordable supplies.

Natural gas is a lower-emission, versatile and practical fuel for a wide variety of applications, and it is expected to grow the most of any primary energy type from 2021 to 2050, meeting about 40 percent of global energy demand growth. Global natural gas demand is expected to rise nearly 25 percent from 2021 to 2050, with around two thirds of that increase coming from the Asia Pacific region. Significant growth in supplies of unconventional gas – the natural gas found in shale and other tight rock formations – will help meet these needs. In total, about 50 percent of the growth in natural gas supplies is expected to be from unconventional sources. At the same time, conventionally-produced natural gas is likely to remain the cornerstone of global supply, meeting around two-thirds of worldwide demand in 2050. Liquefied natural gas (LNG) trade will expand significantly, meeting about 50 percent of the increase in global demand growth, with much of this supply expected to help meet rising demand in Asia Pacific.

The world's energy mix is highly diverse and will remain so through 2050. Oil is expected to remain the largest source of energy with its share remaining close to 30 percent in 2050. Coal and natural gas are the next largest sources of energy today, with the share of natural gas growing to more than 25 percent by 2050, while the share of coal falls to about half that of natural gas. Nuclear power is projected to grow, as many nations are likely to expand nuclear capacity to address rising electricity needs as well as energy security and environmental issues. Total renewable energy is expected to exceed 20 percent of global energy by 2050, with other renewables (e.g., biomass, hydropower, geothermal) contributing a combined share of more than 10 percent. Total energy supplied from wind and solar is expected to increase rapidly, growing over 480 percent from 2021 to 2050, when they are projected to be around 10 percent of the world energy mix.

Decarbonization of industry activities will require a suite of nascent or future lower-carbon technologies and supporting policies. Lower-emission fuels, hydrogen-based fuels, and carbon capture and storage are three key lower-carbon solutions needed to support a lower-emission future, in addition to wind and solar. Along with electrification, lower-emission fuels are expected to play an important role in decarbonization of the transportation sector, particularly in hard-to-decarbonize areas, such as aviation. Low-carbon hydrogen will be a key enabler replacing traditional furnace fuel to decarbonize the industrial sector. Hydrogen and hydrogen-based fuels like ammonia are also expected to make inroads into commercial transportation as technology improves to lower its cost and policy develops to support the needed infrastructure development. Carbon capture and storage on its own, or in combination with hydrogen production, is among the few proven technologies that could enable CO2 emission reductions from high-emitting and hard-to-decarbonize sectors such as power generation and heavy industries, including manufacturing, refining and petrochemicals.

To meet this projected demand under the Outlook and the IEA's Stated Policies Scenario (STEPS), the company anticipates that the world's available oil and gas resource base will grow, not only from new discoveries, but also from increases in previously discovered fields. Technology will underpin these increases. The investments to develop and supply resources to meet global demand through 2050 will be significant, and would be needed to meet even the rapidly declining demand for oil and gas envisioned in the IEA's Net Zero Emissions by 2050 scenario.

International accords and underlying regional and national regulations covering greenhouse gas emissions continue to evolve with uncertain timing and outcome, making it difficult to predict their business impact. Imperial's estimates of potential costs related to greenhouse gas emissions align with applicable provincial and federal regulations. Additionally, Imperial uses the Outlook as a foundation for estimating energy supply and demand requirements from various energy sources and uses, and the Outlook takes into account policies established to reduce energy related greenhouse gas emissions. The climate accord reached at the Conference of the Parties (COP 21) in Paris set many new goals, and many related policies are still emerging. The Outlook reflects an environment with increasingly stringent climate policies and is consistent with the global aggregation of Nationally Determined Contributions (NDCs), submitted by the nations that are signatories to the Paris Agreement, as available at the end of 2021. The Outlook seeks to identify potential impacts of climate related government policies, which often target specific sectors. As people and nations look for ways to reduce risks of global climate change, they will continue to need practical solutions that do not jeopardize the affordability or reliability of the energy they need. The company continues to monitor the updates to the NDCs that nations provided around COP 27 in Egypt in November 2022 as well as other policy developments in light of net-zero ambitions formulated by some nations, including Canada.

The information provided in the Outlook includes ExxonMobil's internal estimates and projections based upon internal data and analyses, as well as publicly available information from external sources including the International Energy Agency.

**Progress reducing emissions**

Practical solutions to the world's energy and climate challenges will benefit from market competition in addition to well-informed, well-designed and transparent policy approaches that carefully weigh costs and benefits. Such policies are likely to help manage the risks of climate change while also enabling societies to pursue other high priority goals around the world – including clean air and water, access to reliable and affordable energy, and economic progress for all people. The company encourages sound policy solutions that reduce climate-related risks across the economy at the lowest societal cost. All practical and economically viable energy sources will need to be pursued to continue meeting global energy demand, recognizing the scale and variety of worldwide energy needs, as well as the importance of expanding access to modern energy to promote better standards of living for billions of people.

Imperial and its industry peers launched the Oil Sands Pathways to Net Zero alliance in 2021, with the goal of working collectively with the federal and Alberta governments to achieve net-zero greenhouse gas emissions from oil sands operations by 2050 to help Canada meet its climate goals.

As part of the company's efforts to provide solutions that lower the greenhouse gas emissions intensity of its operations and provide lower life-cycle emissions products to customers, Imperial has announced a company-wide goal to achieve net zero emissions (Scope 1 and 2) by 2050 in its operated assets through collaboration with government and industry partners. Successful technology development and supportive fiscal and regulatory frameworks will be needed to achieve this goal. This work builds on Imperial's previously announced net-zero goal for operated oil sands as part of the Pathways Alliance initiative, as well as the company's emission intensity reduction goal of 30 percent by 2030 for operated oil sands facilities when compared to 2016 levels. The company plans to achieve its net zero goal by applying oil sands recovery technologies that use less steam, implementing carbon capture and storage and implementing efficiency projects including the use of lower carbon fuels at its operations.

**Recent business environment**
Prior to the COVID-19 pandemic, many companies in the industry invested below the levels needed to maintain or increase production capacity to meet anticipated demand. During the COVID-19 pandemic, this decline in investments accelerated as industry revenue collapsed, resulting in underinvestment and supply tightness as demand for petroleum and petrochemical products recovered. Across late 2021 and the first half of 2022, these reductions, along with supply chain constraints, and a continuation of demand recovery, led to a steady increase in oil and natural gas prices and refining margins.

Demand for petroleum and petrochemical products grew in 2022, with the company's financial results benefiting from stronger prices and margins. Commodity and product prices are expected to remain volatile given the current global economic uncertainty and geopolitical events affecting supply and demand, including Russia's military action in Ukraine that has impacted global crude oil and gas supply levels and prices.

The general rate of inflation in Canada and many other countries experienced a brief decline in the initial stage of the COVID-19 pandemic, before starting to increase steadily in 2021, due to an imbalance in supply and demand, and continued to increase in 2022. The underlying factors include, but are not limited to, time cycle of capacity investments, supply chain disruptions, shipping bottlenecks, labour constraints, and side effects from monetary and fiscal expansions. The company closely monitors market trends and works to mitigate both operating and capital cost impacts in all price environments.

# Business results

## Consolidated

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| Net income (loss) (U.S. GAAP) | **7,340** | 2,479 | (1,857) |
| Identified items[1] included in Net income (loss) | | | |
| Gain/(loss) on sale of assets | **208** | — | — |
| Impairments | **—** | — | (1,171) |
| Subtotal of identified items[1] | **208** | — | (1,171) |
| Net income (loss) excluding identified items[1] | **7,132** | 2,479 | (686) |

2022
Net income in 2022 was $7,340 million, or $11.44 per share on a diluted basis, up from $2,479 million, or $3.48 per share in 2021. Current year results include favourable identified items[1] of $208 million after tax, related to the company’s gain on the sale of interests in XTO Energy Canada.

2021
Net income in 2021 was $2,479 million, or $3.48 per share on a diluted basis, compared to a net loss of $1,857 million, or $2.53 per share in 2020. Prior year results include unfavourable identified items[1] of $1,171 million after tax, related to the company’s decision to no longer develop a significant portion of its unconventional portfolio.

[1] non-GAAP financial measure - see "Frequently used terms" section on page 43 for definition and reconciliation.

## Upstream

### Overview

Imperial produces crude oil and natural gas for sale predominantly into North American markets. Imperial's Upstream business strategies guide the company's exploration, development, production, research and gas marketing activities. These strategies include improving asset reliability, accelerating development and application of high impact technologies, maximizing value by capturing new business opportunities and managing the existing portfolio, as well as pursuing sustainable improvements in organizational efficiency and effectiveness. These strategies are underpinned by a relentless focus on operations integrity, commitment to innovative technologies, disciplined approach to investing and cost management, development of employees and investment in the communities within which the company operates.

Imperial has a significant oil and gas resource base and a large inventory of potential projects. The company's current investment strategy is to invest for value and select volume growth, with focus on optimization within existing assets, cost reduction opportunities and productivity enhancements that aim to deliver robust returns at a wide range of prices. The company also continues to evaluate opportunities to support long-term growth. Although actual volumes will vary from year to year, the focus is on value-add, long-term growth opportunities within the context of the factors described in Item 1A. "Risk factors". Imperial continually evaluates opportunities, including crude shipments by rail and the pace of the development of its Aspen in-situ oil sands project, as economically justified.

Prices for most of the company's crude oil sold are referenced to Western Canada Select (WCS) and West Texas Intermediate (WTI) oil markets. Additionally, the market price for WCS is typically lower than light and medium grades of oil, and price differentials between WCS and WTI can fluctuate.

Imperial believes prices over the long term will be driven by market supply and demand, with the demand side largely being a function of general economic activity, alternative energy sources, levels of prosperity, technology advancements, consumer preference and government policies. On the supply side, prices may be significantly impacted by political events, logistics constraints, the actions of OPEC, governments, alternative energy sources, and other factors. To manage the risks associated with price, Imperial tests the resiliency of its annual plans and all major investments across a range of price scenarios.

### Key events

Upstream assets demonstrated strong performance in 2022. The company continued to benefit from its actions implemented in prior years to manage the cost structure and improve the reliability of its assets, enabling the Upstream to capture significant value and take advantage of the improving business environment throughout 2022.

Upstream full-year production averaged 416,000 gross oil-equivalent barrels per day.

At Kearl, gross production was about 242,000 barrels per day (172,000 barrels Imperial's share), down 21,000 barrels per day (14,000 barrels Imperial's share) compared to 2021, as a result of extreme cold weather impacts in Q1 2022.

At Cold Lake, annual production averaged 144,000 gross oil-equivalent barrels per day.

At Syncrude, annual production averaged 77,000 gross oil-equivalent barrels per day, supported by the interconnect pipeline.

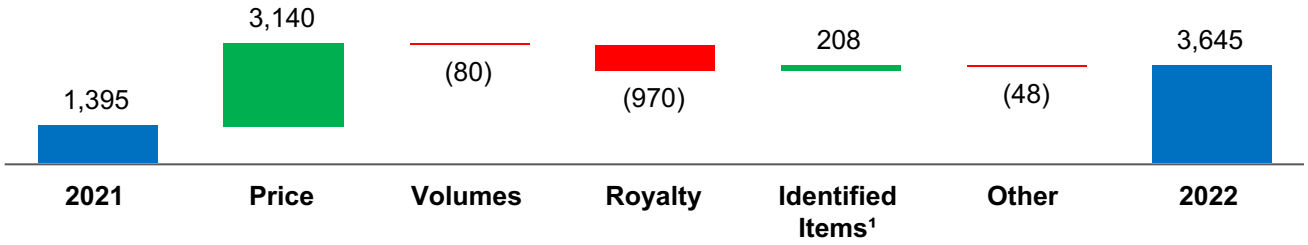
On August 31, 2022, jointly with ExxonMobil Canada, Imperial sold its interests in XTO Energy Canada to Whitecap Resources Inc.

As described in more detail in Item 1A. "Risk factors", environmental risks and climate related regulations could have negative impacts on the upstream business.

## Results of operations

**2022 Net income (loss) factor analysis**

millions of Canadian dollars




Price – Higher realizations were generally in line with increases in marker prices, driven primarily by increased demand. Average bitumen realizations increased by $26.76 per barrel generally in line with WCS, and synthetic crude oil realizations increased by $43.85 per barrel.

Volumes – Lower volumes were primarily the result of downtime at Kearl in the first half of the year, partly offset by higher production at Syncrude and Cold Lake.

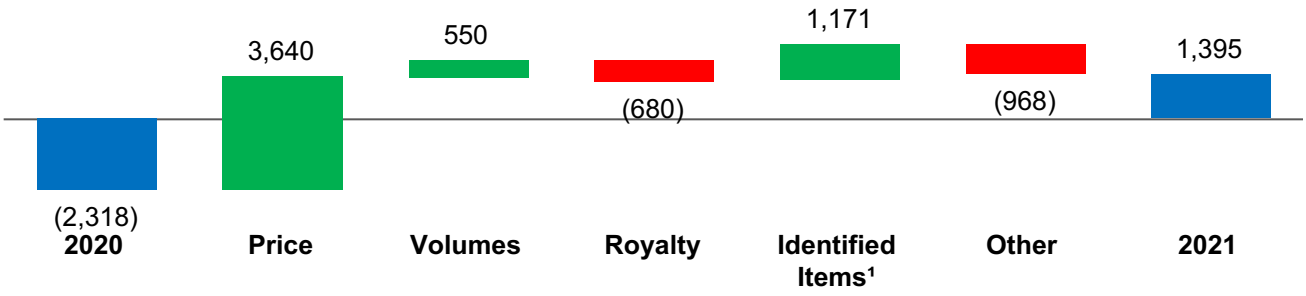
Royalty – Higher royalties primarily driven by improved commodity prices.

Identified items[1] – Current year results include favourable identified items[1] related to the company's gain on the sale of interests in XTO Energy Canada.

Other – Higher operating expenses of about $500 million, primarily from higher energy prices, partially offset by favourable foreign exchange impacts of about $270 million, and higher electricity sales at Cold Lake of about $60 million due to increased prices.

**2021 Net income (loss) factor analysis**

millions of Canadian dollars




Price – Higher realizations were primarily driven by average bitumen realizations increasing by $32.22 per barrel generally in line with WCS, and synthetic crude oil realizations increasing by $31.85 per barrel generally in line with WTI.

Volumes – Higher volumes primarily driven by the absence of production balancing with market demands that occurred in 2020 increased net income by about $550 million.

Royalty – Higher royalties primarily driven by higher commodity prices.

Identified items[1] – Prior year results included unfavourable identified items[1] of $1,171 million related to the company's decision to no longer develop a significant portion of its unconventional portfolio.

Other – Higher operating expenses of about $720 million, unfavourable foreign exchange impacts of about $230 million and lower Canada Emergency Wage Subsidy received by the company compared to prior year of about $60 million, which includes Imperial's proportionate share of a joint venture.

[1] non-GAAP financial measure - see "Frequently used terms" section on page 43 for definition and reconciliation.

**Marker prices and average realizations**

| Canadian dollars, unless otherwise noted | **2022** | 2021 | 2020 |
|---|---|---|---|
| West Texas Intermediate (US$) (per barrel) | **94.36** | 68.05 | 39.26 |
| Western Canada Select (US$) (per barrel) | **76.28** | 54.96 | 26.87 |
| WTI/WCS Spread (US$) (per barrel) | **18.08** | 13.09 | 12.39 |
| Bitumen (per barrel) | **84.67** | 57.91 | 25.69 |
| Synthetic crude oil (per barrel) | **125.46** | 81.61 | 49.76 |
| Conventional crude oil (per barrel) | **97.45** | 59.84 | 29.34 |
| Natural gas liquids (per barrel) | **64.92** | 35.87 | 13.85 |
| Natural gas (per thousand cubic feet) | **5.69** | 3.83 | 1.90 |
| Average foreign exchange rate (US$) | **0.77** | 0.80 | 0.75 |

**Crude oil and natural gas liquids (NGL) - production and sales** (a)

| thousands of barrels per day | **2022** | | 2021 | | 2020 | |
|---|---|---|---|---|---|---|
| | **gross** | **net** | gross | net | gross | net |
| Bitumen | **316** | **263** | 326 | 292 | 290 | 279 |
| Synthetic crude oil (b) | **77** | **63** | 71 | 62 | 69 | 68 |
| Conventional crude oil | **8** | **8** | 10 | 9 | 11 | 10 |
| Total crude oil production | **401** | **334** | 407 | 363 | 370 | 357 |
| NGLs available for sale | **1** | **1** | 1 | 1 | 2 | 2 |
| Total crude oil and NGL production | **402** | **335** | 408 | 364 | 372 | 359 |
| Bitumen sales, including diluent (c) | **424** | | 451 | | 401 | |
| NGL sales (d) | **1** | | — | | 2 | |

**Natural gas - production and production available for sale** (a)

| millions of cubic feet per day | **2022** | | 2021 | | 2020 | |
|---|---|---|---|---|---|---|
| | **gross** | **net** | gross | net | gross | net |
| Production (e) (f) | **85** | **83** | 120 | 115 | 154 | 150 |
| Production available for sale (g) | | **50** | | 81 | | 115 |

(a) Volume per day metrics are calculated by dividing the volume for the period by the number of calendar days in the period. Gross production is the company's share of production (excluding purchases) before deduction of the mineral owners' or governments' share or both.
(b) The company's synthetic crude oil production volumes were from the company's share of production volumes in the Syncrude joint venture and include immaterial amounts of bitumen and other products exported to the operator's facilities using an existing interconnect pipeline.
(c) Diluent is natural gas condensate or other light hydrocarbons added to crude bitumen to facilitate transportation to market by pipeline and rail.
(d) 2021 NGL sales round to 0.
(e) Gross production of natural gas includes amounts used for internal consumption with the exception of the amounts re-injected.
(f) Net production is gross production less the mineral owners' or governments' share or both. Net production reported in the above table is consistent with production quantities in the net proved reserves disclosure.
(g) Includes sales of the company's share of net production and excludes amounts used for internal consumption.

2022
Lower production at Kearl was primarily a result of downtime in the first half of the year.

2021
Higher production at Kearl was primarily driven by the absence of prior year production balancing with market demands.

## Downstream

### Overview

Imperial's Downstream serves predominantly Canadian markets with refining, trading, logistics and marketing activities. Imperial's Downstream business strategies competitively position the company across a range of market conditions. These strategies include targeting industry-leading performance in reliability, safety and operations integrity, as well as maximizing value from advanced technologies, capitalizing on integration across Imperial's businesses, selectively investing for resilient and advantaged returns, operating efficiently and effectively, and providing quality, valued and differentiated products and services to customers.

Imperial owns and operates three refineries in Canada with aggregate distillation capacity of 433,000 barrels per day. Refining margins are largely driven by differences in commodity prices and are a function of the difference between what a refinery pays for its raw materials (primarily crude oil) and the market prices for the range of products produced (primarily gasoline, heating oil, diesel oil, jet fuel, fuel oil and asphalt). Crude oil and many products are widely traded with published prices, including those quoted on the New York Mercantile Exchange. Prices for these commodities are determined by the global and regional marketplaces and are influenced by many factors, including global and regional supply / demand balances, inventory levels, industry refinery operations, import / export balances, currency fluctuations, seasonal demand, weather and political considerations. While industry refining margins significantly impact earnings, strong operations performance, product mix optimization, and disciplined cost control are also critical to the company's strong financial performance. Imperial's integration across the value chain, from refining to marketing, enhances overall value across the fuels business.

### Key events

Refining margins increased sharply in 2022 in the face of strengthening demand, low inventory levels, and supply uncertainty. While refining margins are anticipated to remain volatile in the near term, the company continues to closely monitor industry and global economic conditions.

The company progressed the Strathcona renewable diesel project in 2022, culminating in a final investment decision in January 2023 to construct the largest such facility in Canada, designed to produce more than one billion litres of renewable diesel annually.

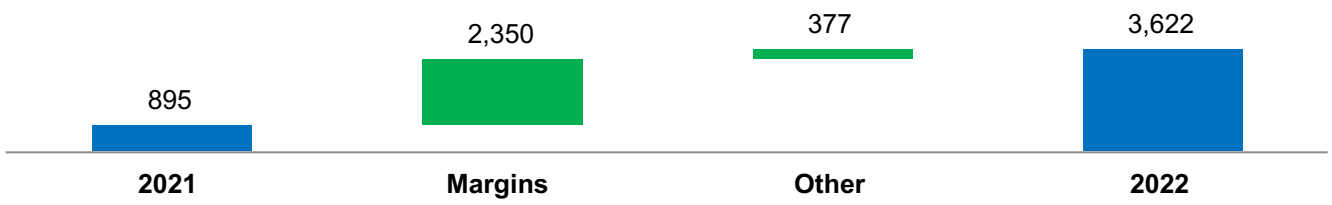
As described in more detail in Item 1A. "Risk factors", proposed carbon policy and other climate related regulations, as well as continued biofuels mandates, could have negative impacts on the downstream business.

Imperial supplies petroleum products through Esso and Mobil-branded sites and independent marketers. At the end of 2022, there were about 2,400 sites operating under a branded wholesaler model, in alignment with Esso and Mobil brand standards, whereby Imperial supplies fuel to independent third parties.

### Results of operations

**2022 Net income (loss) factor analysis**

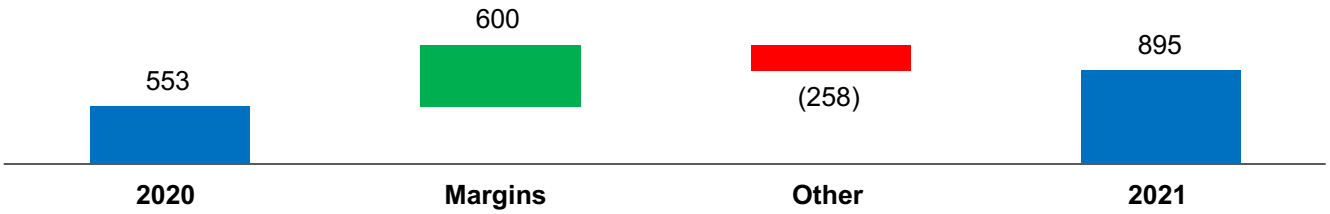
millions of Canadian dollars




Margins – Higher margins primarily reflect improved market conditions.

Other – Lower turnaround impacts of about $140 million, reflecting the absence of turnaround activities at Strathcona refinery, improved volumes of about $130 million, favourable foreign exchange impacts of about $120 million, and absence of the prior year unfavourable out-of-period inventory adjustment of $74 million, partially offset by higher operating expenses of about $190 million.

**2021 Net income (loss) factor analysis**
millions of Canadian dollars




Margins – Higher margins reflect improved product demand.

Other – Unfavourable foreign exchange impacts of about $150 million and an unfavourable inventory adjustment of $74 million[1], partially offset by lower operating expenses of about $50 million.

### Refinery utilization

| thousands of barrels per day (a) | **2022** | 2021 | 2020 |
|---|---|---|---|
| Total refinery throughput (b) | **418** | 379 | 340 |
| Rated capacity at December 31 (c) | **433** | 428 | 428 |
| Utilization of total refinery capacity (percent) | **98** | 89 | 80 |

(a) Volume per day metrics are calculated by dividing the volume for the period by the number of calendar days in the period.
(b) Refinery throughput is the volume of crude oil and feedstocks that is processed in the refinery atmospheric distillation units.
(c) Rated capacities are based on definite specifications as to types of crude oil and feedstocks that are processed in the refinery atmospheric distillation units, the products to be obtained and the refinery process, adjusted to include an estimated allowance for normal maintenance shutdowns. Accordingly, actual capacities may be higher or lower than rated capacities due to changes in refinery operation and the type of crude oil available for processing.

2022
Improved refinery throughput in 2022 was primarily driven by increased demand and reduced turnaround activity.

2021
Improved refinery throughput in 2021 primarily reflects reduced impacts associated with the COVID-19 pandemic, partially offset by a planned turnaround at Strathcona.

### Petroleum product sales

| thousands of barrels per day (a) | **2022** | 2021 | 2020 |
|---|---|---|---|
| Gasolines | **229** | 224 | 215 |
| Heating, diesel and jet fuels | **176** | 160 | 146 |
| Lube oils and other products | **47** | 45 | 40 |
| Heavy fuel oils | **23** | 27 | 20 |
| Net petroleum product sales | **475** | 456 | 421 |

(a) Volume per day metrics are calculated by dividing the volume for the period by the number of calendar days in the period.

2022
Improved petroleum product sales in 2022 primarily reflects increased demand.

2021
Improved petroleum product sales in 2021 primarily reflects reduced impacts associated with the COVID-19 pandemic.

[1] In 2021, the company recorded an unfavourable $74 million ($82 million, before tax) inventory adjustment (including the proportionate share of LIFO changes) related to reconciliations of additives and products inventory at equity and third-party terminals. The out-of-period impact of $57 million ($63 million, before tax) occurred over a number of years, and has been resolved.

## Chemical

### Overview

North America continued to benefit from abundant supplies of natural gas and gas liquids, providing both low cost energy and feedstock for steam crackers.

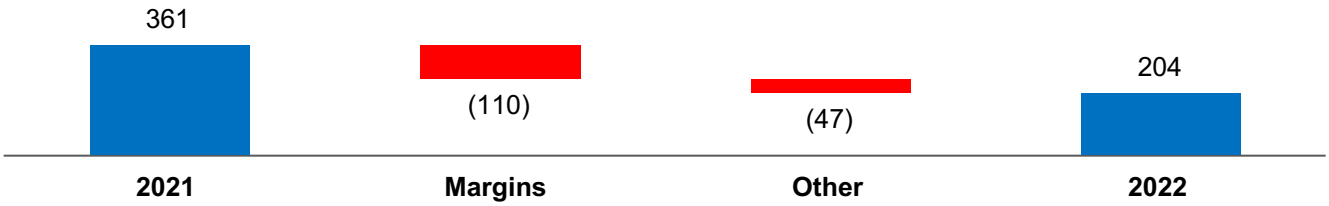
### Key events

In 2022, margins were adversely impacted by increased domestic supply of polyethylene.

Imperial maintains a competitive advantage through continued operational excellence, consistent product quality, investment and cost discipline, and integration of its chemical plant in Sarnia with the refinery. The company also benefits from its relationship with ExxonMobil's North American chemical businesses, enabling Imperial to maintain a leadership position in its key market segments.

### Results of operations

**2022 Net income (loss) factor analysis**
millions of Canadian dollars




Margins – Lower margins primarily reflect weaker industry polyethylene margins.

**2021 Net income (loss) factor analysis**
millions of Canadian dollars


Margins – Improved margins were primarily due to stronger industry polyethylene margins.

### Sales

| thousands of tonnes | **2022** | 2021 | 2020 |
|---|---|---|---|
| Polymers and basic chemicals | **635** | 599 | 574 |
| Intermediates | **207** | 232 | 175 |
| Total petrochemical sales | **842** | 831 | 749 |

## Corporate and other

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| Net income (loss) | **(131)** | (172) | (170) |

## Liquidity and capital resources

**Sources and uses of cash**
The company issues long-term debt from time to time and maintains a commercial paper program. However, internally generated funds cover the majority of its financial requirements. Cash that may be temporarily surplus to the company's immediate needs is carefully managed through counterparty quality and investment guidelines to ensure that it is secure and readily available to meet the company's cash requirements and to optimize returns.

Cash flows from operating activities are highly dependent on crude oil and natural gas prices, as well as petroleum and chemical product margins. In addition, to provide for cash flow in future periods, the company needs to continually find and develop new resources, and continue to develop and apply new technologies to existing fields in order to maintain or increase production.

The company's financial strength enables it to make large, long-term capital expenditures. Imperial's portfolio of development opportunities and the complementary nature of its business segments help mitigate the overall risks for the company and its cash flows. Further, due to its financial strength, debt capacity and portfolio of opportunities, the risk associated with delay of any single project would not have a significant impact on the company's liquidity or ability to generate sufficient cash flows for its operations and fixed commitments.

Funding of registered retirement plans complies with federal and provincial pension regulations, and the company makes contributions to the plans based on an independent actuarial valuation completed at least once every three years depending on funding status. The most recent valuation of the company's registered retirement plans was completed as at December 31, 2019. A valuation of the company's registered retirement plans as at December 31, 2022 is expected to be completed in 2023. The company contributed $174 million to the registered retirement plans in 2022. Future funding requirements are not expected to affect the company's existing capital investment plans or its ability to pursue new investment opportunities.

| millions of Canadian dollars | **2022** | 2021 | 2020 |
|---|---|---|---|
| Cash provided by (used in) | | | |
| Operating activities | **10,482** | 5,476 | 798 |
| Investing activities | **(618)** | (1,012) | (802) |
| Financing activities | **(8,268)** | (3,082) | (943) |
| Increase (decrease) in cash and cash equivalents | **1,596** | 1,382 | (947) |
| Cash and cash equivalents at end of year | **3,749** | 2,153 | 771 |

**Cash flow from operating activities**

2022
Cash flow generated from operating activities primarily reflects higher Upstream realizations, improved Downstream margins, and favourable working capital impacts.

2021
Cash flow generated from operating activities primarily reflects higher Upstream realizations and stronger Downstream margins.

**Cash flow used in investing activities**

2022
Cash flow used in investing activities primarily reflects higher additions to property, plant and equipment, which were partially offset by proceeds from the sale of interests in XTO Energy Canada.

2021
Cash flow used in investing activities primarily reflects higher additions to property, plant and equipment.

**Cash flow used in financing activities**

2022
At the end of 2022, total debt outstanding was $4,155 million, compared with $5,176 million at the end of 2021.

During the third quarter of 2022, the company decreased its long-term debt by $1 billion by partially repaying an existing facility with an affiliated company of ExxonMobil.

During the second quarter of 2022, the company reduced its existing $500 million committed long-term line of credit to $250 million and extended the maturity date to June 30, 2023. Subsequently in the fourth quarter of 2022, this committed long-term line of credit was cancelled in full. The company also extended one of its $250 million committed long-term lines of credit to June 30, 2024.

In November 2022, the company extended the maturity date of an existing $250 million committed short-term line of credit to November 2023.

The company has not drawn on any of its outstanding $500 million of available credit facilities.

2021
At the end of 2021, total debt outstanding was $5,176 million, compared with $5,184 million at the end of 2020.

During the second quarter of 2021, the company extended the maturity date of two of its short-term lines of credit, totalling $750 million, to May 2023, these facilities are now long-term. The company also extended its $300 million committed short-term line of credit to June 2022.

In November 2021, the company extended the maturity date of an existing $250 million committed short-term line of credit to November 2022.

The company has not drawn on these facilities.

**Share repurchases**

| millions of Canadian dollars, unless noted | **2022** | 2021 | 2020 |
|---|---|---|---|
| Share repurchases | **6,395** | 2,245 | 274 |
| Number of shares purchased (millions) (a) | **93.9** | 56.0 | 9.8 |

(a) Share repurchases were made under the company's normal course issuer bid program, and substantial issuer bids that commenced on May 6, 2022 and November 4, 2022, and expired on June 10, 2022 and December 9, 2022, respectively. Includes shares purchased from Exxon Mobil Corporation concurrent with, but outside of, the normal course issuer bid, and by way of a proportionate tender under the company's substantial issuer bids.

2022
On June 27, 2022, the company announced that it had received final approval from the Toronto Stock Exchange for a new normal course issuer bid. The program enabled the company to purchase up to a maximum of 31,833,809 common shares during the period June 29, 2022 to June 28, 2023. The program completed on October 21, 2022 as a result of the company purchasing the maximum allowable number of shares under the program.

On May 6, 2022, the company commenced a substantial issuer bid pursuant to which it offered to purchase for cancellation up to $2.5 billion of its common shares through a modified Dutch auction and proportionate tender offer. The substantial issuer bid was completed on June 15, 2022, with the company taking up and paying for 32,467,532 common shares at a price of $77.00 per share, for an aggregate purchase of $2.5 billion and 4.9 percent of Imperial's issued and outstanding shares at the close of business on May 2, 2022. This included 22,597,379 shares purchased from Exxon Mobil Corporation by way of a proportionate tender to maintain its ownership percentage at approximately 69.6 percent.

On November 4, 2022, the company commenced a substantial issuer bid pursuant to which it offered to purchase for cancellation up to $1.5 billion of its common shares through a modified Dutch auction and proportionate tender offer. The substantial issuer bid was completed on December 14, 2022, with the company taking up and paying for 20,689,655 common shares at a price of $72.50 per share, for an aggregate purchase of $1.5 billion and 3.4 percent of Imperial's issued and outstanding shares at the close of business on October 31, 2022. This included 14,399,985 shares purchased from Exxon Mobil Corporation by way of a proportionate tender to maintain its ownership percentage at approximately 69.6 percent.

2021
On April 30, 2021, the company announced an amendment to its normal course issuer bid to increase the number of common shares that were available to be purchased. Under the amendment, the number of common shares available for purchase increased to a maximum of 29,363,070 common shares during the period June 29, 2020 to June 28, 2021. In 2021, the company purchased 29,356,095 shares under this amended program.

On June 23, 2021, the company announced that it received final approval from the Toronto Stock Exchange for a new normal course issuer bid to continue its existing share purchase program. The program enabled the company to purchase up to a maximum of 35,583,671 common shares during the period June 29, 2021 to June 28, 2022. In accordance with the company's announcement in November 2021 that it intended to accelerate purchases under the normal course issuer bid, the program was subsequently completed on January 31, 2022 as a result of the company purchasing the maximum allowable number of shares under the program.

**Dividends**

| millions of Canadian dollars, unless noted | **2022** | 2021 | 2020 |
|---|---|---|---|
| Dividends paid | **851** | 706 | 649 |
| Per share dividend paid (dollars) | **1.29** | 0.98 | 0.88 |

**Financial strength**

The table below shows Imperial's consolidated debt-to-capital ratio. The data demonstrates the company's creditworthiness:

| percent<br>At December 31 | **2022** | 2021 | 2020 |
|---|---|---|---|
| Debt to capital (a) | **16** | 19 | 19 |

(a) Debt, defined as the sum of "Notes and loans payable" and "Long-term debt" (page 76), divided by capital, defined as the sum of debt and "Total shareholders' equity" (page 76).

Debt-related interest incurred in 2022, before capitalization of interest, was $111 million, up from $63 million in 2021. The weighted-average interest rate on the company's debt was 2.2 percent in 2022, up from 1.2 percent in 2021.

The company's financial strength represents a competitive advantage of strategic importance providing it the opportunity to readily access capital markets across a range of market conditions and enables the company to take on large, long-term capital commitments in the pursuit of maximizing shareholder value.

**Contractual obligations**
The company has contractual obligations involving commitments to third parties that impact its liquidity and capital resource needs. These contractual obligations are primarily for leases, debt, asset retirement obligations, pension and other postretirement benefits, other long-term obligations, and firm capital commitments. Further information on this topic can be found in notes 4, 5, 13 and 14 to the consolidated financial statements.

Other long-term purchase agreements are commitments that are non-cancelable, or cancelable only under certain conditions, as well as long-term commitments, other than unconditional purchase obligations. They include primarily transportation services agreements, raw material supply and community benefits agreements. The total obligation at year-end 2022 was $8.8 billion, of which $783 million is due in 2023, and $670 million is due in 2024.

**Litigation and other contingencies**
As discussed in note 9 to the consolidated financial statements on page 97, a variety of claims have been made against Imperial and its subsidiaries. Based on a consideration of all relevant facts and circumstances, the company does not believe the ultimate outcome of any currently pending lawsuits against the company will have a material adverse effect on the company's operations, financial condition, or financial statements taken as a whole.

Additionally, as discussed in note 9, Imperial was contingently liable at December 31, 2022, for guarantees relating to performance under contracts. These guarantees do not have a material effect on the company's operations, financial condition, or financial statements taken as a whole.

There are no events or uncertainties beyond those already included in reported financial information that would indicate a material change in future operating results or financial condition.

## Capital and exploration expenditures

Capital and exploration expenditures represent the combined total of additions at cost to property, plant and equipment, additions to finance leases, additional investments and acquisitions; exploration expenses on a before-tax basis from the Consolidated statement of income; and the company's share of similar costs for equity companies. Capital and exploration expenditures exclude the purchase of carbon emission credits. While Imperial's management is responsible for all investments and elements of net income, particular focus is placed on managing the controllable aspects of this group of expenditures.

| millions of Canadian dollars | **2022** | 2021 |
|---|---|---|
| Upstream (a) | **1,128** | 632 |
| Downstream | **295** | 476 |
| Chemical | **10** | 8 |
| Corporate and other | **57** | 24 |
| Total | **1,490** | 1,140 |

(a) Exploration expenses included.

For the Upstream segment, capital and exploration expenditures were primarily related to sustaining activity in support of the company's in-situ and oil sands assets.

For the Downstream segment, capital expenditures were primarily for enhancing the company's distribution network as well as refinery projects to improve environmental performance, reliability, feedstock flexibility, and energy efficiency.

Total capital and exploration expenditures are expected to be approximately $1.7 billion in 2023.

Expected capital and exploration expenditures for 2023 includes firm capital commitments of $407 million for the construction and purchase of fixed assets and other permanent investments. An additional $211 million of firm capital commitments have been made for years 2024 and beyond.

Actual spending could vary depending on the progress of individual projects.

## Market risks

Crude oil, natural gas, petroleum product and chemical prices have fluctuated in response to changing market forces. The impacts of these price fluctuations on earnings from Upstream, Downstream and Chemical operations have varied.

Imperial's earnings are influenced by North American crude oil benchmark prices as well as changes in the differentials between these benchmarks and western Canadian prices for light and heavy crude oil. Imperial's integrated business model reduces the company's risk from changes in commodity prices. For instance, when differentials between North American crude benchmarks and western Canadian prices widen, Imperial is able to mitigate the impact of widening differentials on the Upstream through integration with Downstream investments in refineries, pipeline commitments and the Edmonton rail terminal.

In the competitive downstream and chemical environments, earnings are primarily determined by margin capture rather than absolute price levels on products sold. Refining margins are a function of the difference between what a refiner pays for its raw materials (primarily crude oil) and the market prices for the range of products produced. These prices, in turn, depend on global and regional supply / demand balances, inventory levels, refinery operations, import / export balances and weather.

Industry crude oil commodity prices and petroleum and chemical product prices are commonly benchmarked in U.S. dollars. The majority of Imperial's sales and purchases are related to these industry U.S. dollar benchmarks. As the company records and reports its financial results in Canadian dollars, to the extent that the Canadian / U.S. dollar exchange rate fluctuates, the company's earnings will be affected.

Imperial is exposed to changes in interest rates, primarily on its debt which carries floating interest rates. The impact of a quarter percent change in interest rates affecting Imperial's debt would not be material to earnings or cash flow. Imperial has access to significant sources of long-term and short-term liquidity. Internally generated funds are expected to cover the majority of financial requirements, supplemented by long-term and short-term debt as needed.

The company's potential exposure to commodity price and margin, and Canadian / U.S. dollar exchange rate fluctuations is summarized in the earnings sensitivities table, which shows the estimated annual effect, under current conditions, on the company's after-tax net income. For any given period, the extent of actual benefit or detriment will be dependent on the price movements of individual types of crude oil and products, production and sales volumes, transportation capacity, costs and egress methods, and other factors. Accordingly, changes in benchmark prices for crude oil and crude oil differentials, and other factors listed in the table following, only provide broad indicators of changes in the earnings experienced in any particular period.

**Earnings sensitivities** (a)

| millions of Canadian dollars, after-tax | | |
|---|---|---|
| One dollar (U.S.) per barrel increase (decrease) in crude oil prices | + (-) | **105** |
| One dollar (U.S.) per barrel increase (decrease) in refining 2-1-1 margins (b) | + (-) | **140** |
| One cent decrease (increase) in the value of the Canadian dollar versus the U.S. dollar | + (-) | **170** |

(a) Each sensitivity calculation shows the annual impact on net income resulting from a change in one factor, after tax and royalties, and holding all other factors constant. These sensitivities have been updated to reflect current market conditions. They may not apply proportionately to larger fluctuations.

(b) The 2-1-1 crack spread is an indicator of the refining margin generated by converting two barrels of crude oil into one barrel of gasoline and one barrel of diesel.

The demand for crude oil, petroleum products and petrochemical products are generally linked closely with economic growth. The occurrence of recessions or other periods of low or negative economic growth will typically have a direct adverse impact on the company's financial results. Although price levels of crude oil may rise and fall significantly over the short to medium-term due to global economic conditions, political events, decisions by OPEC, governments and other factors, industry economics over the long-term will continue to be driven by market supply and demand. The company evaluates investments over a range of prices, including estimated greenhouse gas emission costs.

The global energy markets can give rise to extended periods in which market conditions are adverse to one or more of the company's businesses. Such conditions, along with the capital-intensive nature of the industry and very long lead times associated with many of the company's projects, underscore the importance of maintaining a strong financial position. Management views the company's financial strength as a competitive advantage.

In general, segment results are not dependent on the ability to sell and / or purchase products to / from other segments. Where such intersegment sales take place, they are the result of efficiencies and competitive advantages from integrated business segments and refinery and chemical complexes. The company's intersegment sales include crude oil produced by the Upstream and sold to the Downstream, as well as sales between refineries and the chemical plant related to raw materials, feedstocks and finished products. All intersegment sales are at market based prices. Refer to note 2 for additional information on intersegment revenue.

The company has an active asset management program in which nonstrategic assets are considered for divestment. The asset management program includes a disciplined, regular review to ensure that assets are contributing to the company's strategic objectives.

**Risk management**
The company's size, strong capital structure and the complementary nature of its business segments reduces the company's enterprise-wide risk from changes in commodity prices and currency exchange rates. In addition, the company may use commodity-based contracts, including derivatives, to manage commodity price risk and to generate returns from trading. The company's derivatives are not accounted for under hedge accounting. Credit risk associated with the company's derivative position is mitigated by several factors, including the use of derivative clearing exchanges and the quality of and financial limits placed on derivative counterparties. No material market or credit risks to the company's financial position, results of operations or liquidity exist as a result of the derivatives described in note 6 on page 94. The company maintains a system of controls that includes the authorization, reporting and monitoring of derivative activity.

## Critical accounting estimates

The company's financial statements have been prepared in accordance with United States Generally Accepted Accounting Principles (U.S. GAAP). U.S. GAAP requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and the disclosure of contingent assets and liabilities. The company's accounting and financial reporting fairly reflect its business model involving exploration for, and production of, crude oil and natural gas; manufacture, trade, transport and sale of crude oil, natural gas, petroleum products, petrochemicals and a variety of specialty products; and pursuit of lower-emission business opportunities, including carbon capture and storage, hydrogen and lower-emission fuels. Imperial does not use financing structures for the purpose of altering accounting outcomes or removing debt from the balance sheet. The company's significant accounting policies are summarized in note 1 to the consolidated financial statements on page 79.

**Oil and natural gas reserves**
Evaluations of oil and natural gas reserves are important to the effective management of upstream assets. They are an integral part of investment decisions about oil and gas properties such as whether development should proceed.

The estimation of proved reserve volumes, which is based on the requirement of reasonable certainty, is an ongoing process based on rigorous technical evaluations, commercial and market assessments, detailed analysis of well information such as flow rates and reservoir pressures, and development and production costs, and other factors. The estimation of proved reserves is controlled by the company through long-standing approval guidelines. Reserves changes are made within a well-established, disciplined process driven by qualified geoscience and engineering professionals, assisted by the reserves management group which has significant technical experience, culminating in reviews with and approval by senior management and the company's board of directors. Notably, the company does not use specific quantitative reserves targets to determine compensation. Key features of the reserves estimation process are covered in "Disclosure of reserves" in Item 1.

Oil and natural gas reserves include both proved and unproved reserves.

- Proved oil and natural gas reserves are determined in accordance with U.S. Securities and Exchange Commission (SEC) requirements. Proved reserves are those quantities of oil and natural gas which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be economically producible under existing economic and operating conditions and government regulations. Proved reserves are determined using the average of first-day-of-the-month oil and natural gas prices during the reporting year.

  Proved reserves can be further subdivided into developed and undeveloped reserves. Proved developed reserves include amounts which are expected to be recovered through existing wells, facilities, or mining activities with existing equipment and operating methods. Proved undeveloped reserves include amounts expected to be recovered from new wells, existing wells, facilities, or mining activities, where a relatively major capital expenditure is required. Proved undeveloped reserves are recognized when a development plan has been adopted indicating that the reserves are scheduled to be developed within five years, unless specific circumstances support a longer period of time.

  The company is reasonably certain that proved reserves will be produced. However, the timing and amount recovered can be affected by a number of factors including completion and optimization of development projects, reservoir performance, regulatory approvals, government policies, consumer preferences, royalty frameworks and significant changes in oil and natural gas price levels.

- Unproved reserves are quantities of oil and natural gas with less than reasonable certainty of recoverability and include probable reserves. Probable reserves are reserves that, together with proved reserves, are as likely as not to be recovered.

Revisions in previously estimated volumes of proved reserves for existing fields can occur due to the evaluation or re-evaluation of already available geologic, reservoir or production data; new geologic, reservoir or production data; or changes in the average of first-day-of-the-month oil and natural gas prices and / or costs that are used in the estimation of reserves. Revisions can also result from significant changes in either development strategy or production equipment and facility capacity.

In 2020, downward revisions of proved bitumen reserves were a result of low prices. The 2.2 billion barrels of bitumen at Kearl and 0.6 billion barrels of bitumen at Cold Lake no longer qualified as proved reserves under the SEC definition of proved reserves. Downward revisions to proved synthetic crude oil reserves were a result of lower prices, offset by the addition of proved undeveloped reserves associated with future development at Syncrude. Changes to the liquids and natural gas proved reserves were the result of updated development plans at the Montney and Duvernay unconventional assets and the divestment of conventional properties.

In 2021, upward revisions of proved bitumen reserves were a result of improved prices. The 1.7 billion barrels of bitumen at Kearl and 0.5 billion barrels of bitumen at Cold Lake qualified as proved reserves under the SEC definition of proved reserves. Upward revisions to proved synthetic crude oil reserves were a result of improved prices. Changes to the liquids and natural gas proved reserves were the result of updated development plans and divestments at the Montney and Duvernay unconventional assets.

In 2022, downward revisions of proved bitumen reserves were driven by a decrease of 0.2 billion barrels at Kearl as a result of higher royalty obligations associated with pricing, and a decrease of 0.2 billion barrels at Cold Lake due to an updated development plan. An increase to the bitumen reserves of 0.1 billion barrels is associated with extensions at Cold Lake for the Grand Rapids Phase 1 SA-SAGD and Leming SAGD projects. Downward revisions to proved synthetic crude oil reserves were a result of mine development plan updates and higher royalty obligations at Syncrude associated with pricing. Changes to the liquids and natural gas proved reserves were primarily a result of the sale of the company's interest in the Montney and Duvernay unconventional assets.

Under the terms of certain contractual arrangements or government royalty regimes, lower prices can also increase proved reserves attributable to Imperial. The company's operating decisions and its outlook for future production volumes are not impacted by proved reserves as disclosed under the SEC definition.

***Unit-of-production depreciation***
Oil and natural gas reserve volumes are used as the basis to calculate unit-of-production depreciation rates for most upstream assets. Depreciation is calculated by taking the ratio of asset cost to total proved reserves or proved developed reserves applied to actual production. The volumes produced and asset cost are known, while proved reserves are based on estimates that are subject to some variability.

In the event that the unit-of-production method does not result in an equitable allocation of cost over the economic life of an upstream asset, an alternative method is used. The straight-line method is used in limited situations where the expected life of the asset does not reasonably correlate with that of the underlying reserves. For example, certain assets used in the production of oil and natural gas have a shorter life than the reserves, and as such, the company uses straight-line depreciation to ensure the asset is fully depreciated by the end of its useful life.

To the extent that proved reserves for a property are substantially de-booked and that property continues to produce such that the resulting depreciation charge does not result in an equitable allocation of cost over the expected life, assets will be depreciated using a unit-of-production method based on reserves determined at the most recent SEC price which results in a more meaningful quantity of proved reserves, appropriately adjusted for production and technical changes. This approach was applied in 2021, with the corresponding effect on depreciation expense being immaterial compared to prior periods. For 2022 and 2023, all properties have sufficient reserves at current SEC prices which will enable equitable allocation of cost over the economic lives of the Upstream assets.

***Impact of oil and gas reserves and prices and margins on testing for impairment***
The company tests assets or groups of assets for recoverability on an ongoing basis whenever events or changes in circumstances indicate that the carrying amounts may not be recoverable. The company has a robust process to monitor for indicators of potential impairment across its asset groups throughout the year. This process is aligned with the requirements of *ASC 360* and *ASC 932* and relies, in part, on the company's planning and budgeting cycle.

Because the lifespans of the vast majority of the company's major assets are measured in decades, the future cash flows of these assets are predominantly based on long-term oil and natural gas commodity prices, industry margins, and development and production costs. Significant reductions in the company's view of oil or natural gas commodity prices or margin ranges, especially the longer-term prices and margins, and changes in the development plans, including decisions to defer, reduce or eliminate planned capital spending, can be an indicator of potential impairment. Other events or changes in circumstances, including indicators outlined in *ASC 360* can be indicators of potential impairment as well.

In general, Imperial does not view temporarily low prices or margins as an indication of impairment. Management believes that prices over the long term must be sufficient to generate investments in energy supply to meet global demand. Although prices will occasionally drop significantly, industry prices over the long term will continue to be driven by market supply and demand fundamentals. On the supply side, industry production from mature fields is declining. This is being offset by investments to generate production from new discoveries, field developments, and technology and efficiency advancements. OPEC investment activities and production policies also have an impact on world oil supplies. The demand side is largely a function of general economic activities, alternative energy sources and levels of prosperity. During the lifespan of its major assets, the company expects that oil and gas prices and industry margins will experience significant volatility. Consequently, these assets will experience periods of higher earnings and periods of lower earnings, or even losses. In assessing whether events or changes in circumstances indicate the carrying value of an asset may not be recoverable, the company considers recent periods of operating losses in the context of its longer-term view of prices and margins.

*Outlook for Energy and cash flow assessment*
The annual planning and budgeting process, known as the company plan, is the mechanism by which resources (capital, operating expenses and people) are allocated across the company. The foundation for the energy supply and demand assumptions supporting the company plan begins with the Outlook, which contains demand and supply projections based on its assessment of current trends in technology, government policies, consumer preferences, geopolitics, economic development, and other factors.

Reflective of the existing global policy environment, the Outlook does not attempt to project the degree of required future policy and technology advancement and deployment for the world or the company, to meet net zero by 2050. As future policies and technology advancements emerge, they will be incorporated into the Outlook, and consequently, the company's business plans will be updated accordingly.

If events or changes in circumstances indicate that the carrying value of an asset may not be recoverable, the company estimates the future undiscounted cash flows of the affected properties to judge the recoverability of carrying amounts. In performing this assessment, assets are grouped at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other groups of assets. Cash flows used in recoverability assessments are based on the assumptions developed in the company plan, which is reviewed and approved by the board of directors, and are consistent with the criteria management uses to evaluate investment opportunities. These evaluations make use of the company's assumptions of future capital allocations, crude oil and natural gas commodity prices including price differentials, refining and chemical margins, volumes, development and operating costs, including greenhouse gas emissions prices, and foreign currency exchange rates. Volumes are based on projected field and facility production profiles, throughput, or sales. Management's estimate of upstream production volumes used for projected cash flows makes use of proved reserve quantities and may include risk-adjusted unproved reserve quantities. The greenhouse gas emission prices reflect existing or anticipated policy actions of applicable provincial and federal governments. While third-party scenarios, such as the *International Energy Agency Net Zero Emissions by 2050*, may be used to test the resiliency of company's businesses or strategies, they are not used as a basis for developing future cash flows for impairment assessments.

*Fair value of impaired assets*
An asset group is impaired if its estimated future undiscounted cash flows are less than the asset group's carrying value. Impairments are measured by the excess of the carrying value over fair value. The assessment of fair value is based on the views of a likely market participant. The principal parameters used to establish fair value include estimates of acreage values and flowing production metrics from comparable market transactions, market-based estimates of historical cash flow multiples, and discounted cash flows. Inputs and assumptions used in discounted cash flow models include estimates of future production volumes, throughput and product sales volumes, commodity prices which are consistent with the average of third-party industry experts and government agencies, refining and chemical margins, drilling and development costs, operating costs, and discount rates which are reflective of the characteristics of the asset group.

*Other impairment estimates*
Unproved properties are assessed periodically to determine whether they have been impaired. Significant unproved properties are assessed for impairment individually, and valuation allowances against the capitalized costs are recorded based on the company's future development plans, the estimated economic chance of success and the length of time that the company expects to hold the properties. Properties that are not individually significant are aggregated by groups and amortized based on development risk and average holding period.

Long-lived assets that are held for sale are evaluated for possible impairment by comparing the carrying value of the asset with its fair value less the cost to sell. If the net book value exceeds the fair value less cost to sell, the assets are considered impaired and adjusted to the lower value. Judgment is required to determine if assets are held for sale, and to determine the fair value less cost to sell.

Investments accounted for by the equity method are assessed for possible impairment when events or changes in circumstances indicate that the carrying value of an investment may not be recoverable. Examples of key indicators include a history of operating losses, negative earnings and cash flow outlook, significant downward revisions to oil and gas reserves, and the financial condition and prospects for the investee's business segment or geographic region. If the decline in value of the investment is other than temporary, the carrying value of the investment is written down to fair value. In the absence of market prices for the investment, discounted cash flows are used to assess fair value, which requires significant judgment.

*Recent impairments*
In 2020, the company announced its decision to not further develop a significant portion of its unconventional portfolio in Alberta, resulting in a non-cash, after-tax impairment charge of $1,171 million in the company's 2020 Upstream results.

Factors which could put further assets at risk of impairment in the future include reductions in the company's price or margin outlooks, changes in the allocation of capital or development plans, reduced long-term demand for the company's products and operating cost increases which exceed the pace of efficiencies or the pace of oil and natural gas price increases or margins. However, due to the inherent difficulty in predicting future commodity prices or margins, and the relationship between industry prices and costs, it is not practicable to reasonably estimate the existence or range of any potential future impairment charges related to the company's long-lived assets.

Supplemental information regarding oil and gas results of operations, capitalized costs and reserves is provided following the notes to consolidated financial statements.

**Pension benefits**
The company's pension plan is managed in compliance with the requirements of governmental authorities and meets funding levels as determined by independent third-party actuaries. Pension accounting requires explicit assumptions regarding, among others, the discount rate for the benefit obligations, the expected rate of return on plan assets and the long-term rate of future compensation increases. All pension assumptions are reviewed annually by senior management. These assumptions are adjusted only as appropriate to reflect long-term changes in market rates and outlook. The long-term expected rate of return on plan assets of 4.3 percent used in 2022 compares to actual returns of 5.6 percent and 6.5 percent achieved over the last 10- and 20-year periods respectively, ending December 31, 2022. If different assumptions are used, the obligation and expense could increase or decrease as a result. As an indication of the company's potential exposure to changes in the critical assumptions such as the expected rate of return on plan assets and the discount rate for measuring the pension plan benefits obligation, a reduction of 1 percent in the discount rate would increase the benefits obligation by approximately $1 billion. Similarly, a reduction of 1 percent in the long-term rate of return on plan assets would increase the annual pension expense by approximately $95 million before tax. At Imperial, differences between actual returns on plan assets and the long-term expected returns are not recorded in pension expense in the year the differences occur. Such differences are deferred, along with other actuarial gains and losses, and are amortized into pension expense over the expected average remaining service life of employees. Employee benefits expense represented about 1 percent of total expenses in 2022.

**Asset retirement obligations**
The company is subject to retirement obligations for certain assets. The fair values of these obligations are recorded as liabilities on a discounted basis, which is typically at the time the assets are installed. In the estimation of fair value, the company uses assumptions and judgments regarding such factors as the existence of a legal obligation for an asset retirement obligation; technical assessments of the assets; estimated amounts and timing of settlements; discount rates; and inflation rates. On page 93, note 5 to the consolidated financial statements provides a three-year continuity table detailing the changes in asset retirement obligations.

**Suspended exploratory well costs**
The company continues capitalization of exploratory well costs when it has found a sufficient quantity of reserves to justify its completion as a producing well and the company is making sufficient progress assessing the reserves and the economic and operating viability of the project. Exploratory well costs not meeting these criteria are charged to expense. Assessing whether the company is making sufficient progress on a project requires careful consideration of the facts and circumstances. The facts and circumstances that support continued capitalization of suspended wells at year-end are disclosed in note 15 to the consolidated financial statements on page 104.

**Tax contingencies**
The operations of the company are complex, and related tax interpretations, regulations and legislation are continually changing.

The benefits of uncertain tax positions that the company has taken or expects to take in its income tax returns are recognized in the financial statements if management concludes that it is more likely than not that the position will be sustained with the tax authorities. For a position that is likely to be sustained, the benefit recognized in the financial statements is measured at the largest amount that is greater than 50 percent likely of being realized. Significant management judgment is required in the accounting for income tax contingencies and tax disputes because the outcomes are often difficult to predict. The company’s unrecognized tax benefits and a description of open tax years are summarized in note 3 to the consolidated financial statements.