2021 annual financial statements and management discussion and analysis

Imperial

Annual financial statements and management's discussion and analysis of financial condition and operating results

For the year ended December 31, 2021

The following annual financial statements and management's discussion and analysis should be read in conjunction with the company's annual report on Form 10-K for the year ended December 31, 2021. 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. 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; Imperial's Scope 1 and 2 net zero goal by 2050 and the company's greenhouse gas emissions intensity goals for 2023 and 2030 for its oil sands operations; the impact of participation in the Oil Sands Pathways to Net Zero alliance; market uncertainty and the extent of ongoing effects of the COVID-19 pandemic on economic activity and supply and demand; the impact of measures implemented by the company in response to COVID-19; inflation and uncertainty in global economic recovery, and the company's ability to mitigate related cost impacts; 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 rail shipments and pace of the Aspen project; the impact of Downstream strategies and competitive position; potential impacts from environmental risks, carbon policy, climate related regulations and biofuels mandates; 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 $1.4 billion for 2022; earnings sensitivities; risks associated with use of derivative instruments; and the impact of any pending litigation, accounting standards and unrecognized tax benefits.

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, foreign exchange rates and general market conditions; production rates, growth and mix across various assets; project plans, timing, costs, technical evaluations and capacities, and the company's ability to effectively execute on these plans and operate its assets; production life, resource recoveries and reservoir performance; plans to mitigate climate risk and the resilience of company strategy to a range of pathways for society's energy transition; the adoption and impact of new facilities or technologies on capital efficiency, production and reductions to greenhouse gas emissions intensity, including but not limited to next generation technologies using solvents to replace energy intensive steam at Cold Lake, boiler flue gas technology at Kearl, Strathcona's renewable diesel complex and support for and advancement of carbon capture and storage, and any changes in the scope, terms, or costs of such projects; the amount and timing of emissions reductions; that any required support from policymakers and other stakeholders for various new technologies such as carbon capture and storage will be provided; applicable laws and government policies, including taxation, restrictions in response to COVID-19 and with respect to climate change and greenhouse gas emissions reductions; receipt of regulatory approvals; performance of third-party service providers; refinery utilization and product sales; cash generation, financing sources and capital structure, such as dividends and shareholder returns, including the timing and amounts of share repurchases; capital and environmental expenditures; evolution of COVID-19 and its impacts on Imperial's ability to operate its assets; and the company's ability to effectively execute on its business continuity plans and pandemic response activities 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 or economic conditions 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, 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; 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, including in light of restrictions related to COVID-19; unanticipated technical or operational difficulties; management effectiveness and disaster response preparedness, including business continuity plans in response to COVID-19; 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 pace of regional and global economic recovery from the COVID-19 pandemic and the occurrence and severity of future outbreaks and variants; general economic conditions, including the occurrence and duration of economic recessions; 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 Oil Limited’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 Oil Limited undertakes no obligation to update any forward-looking statements contained herein, except as required by applicable law.

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 IEA describes its NZE 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, but may be secondarily tested for robustness or resiliency against different assumptions, including against various scenarios. 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.

Financial section

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Financial information (U.S. GAAP)

millions of Canadian dollars	**2021**	2020	2019
Revenues	**37,508**	22,284	34,002
Net income (loss):			
Upstream	**1,395**	(2,318)	1,348
Downstream	**895**	553	961
Chemical	**361**	78	108
Corporate and other	**(172)**	(170)	(217)
Net income (loss)	**2,479**	(1,857)	2,200
Cash and cash equivalents at year-end	**2,153**	771	1,718
Total assets at year-end	**40,782**	38,031	42,187
Long-term debt at year-end	**5,054**	4,957	4,961
Total debt at year-end	**5,176**	5,184	5,190
Other long-term obligations at year-end	**3,897**	4,100	3,637
Shareholders’ equity at year-end	**21,735**	21,418	24,276
Cash flow from operating activities	**5,476**	798	4,429
Per share information (Canadian dollars)			
Net income (loss) per common share - basic	**3.48**	(2.53)	2.88
Net income (loss) per common share - diluted	**3.48**	(2.53)	2.88
Dividends per common share - declared	**1.03**	0.88	0.85

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. These measures 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 "specified financial measures" under National Instrument 52-112 Non-GAAP and Other Financial Measures Disclosure of the Canadian Securities Administrators.

Reconciliation of these financial measures to the most comparable GAAP financial 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	**2021**	2020	2019
From the Consolidated balance sheet			
Business uses: asset and liability perspective			
Total assets	**40,782**	38,031	42,187
Less: Total current liabilities excluding notes and loans payable	**(5,432)**	(3,153)	(4,366)
Total long-term liabilities excluding long-term debt	**(8,439)**	(8,276)	(8,355)
Add: Imperial's share of equity company debt	**20**	26	24
Total capital employed	**26,931**	26,628	29,490
Total company sources: Debt and equity perspective			
Notes and loans payable	**122**	227	229
Long-term debt	**5,054**	4,957	4,961
Shareholders' equity	**21,735**	21,418	24,276
Add: Imperial's share of equity company debt	**20**	26	24
Total capital employed	**26,931**	26,628	29,490

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	**2021**	2020	2019
From the Consolidated statement of income			
Net income (loss)	**2,479**	(1,857)	2,200
Financing (after-tax) including Imperial's share of equity companies	**40**	52	66
Net income (loss) excluding financing	**2,519**	(1,805)	2,266
Average capital employed	**26,780**	28,059	29,591
Return on average capital employed (percent) – corporate total	**9.4**	(6.4)	7.7

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	**2021**	2020	2019
From the Consolidated statement of cash flows			
Cash flows from operating activities	**5,476**	798	4,429
Proceeds from asset sales	**81**	82	82
Total cash flows from operating activities and asset sales	**5,557**	880	4,511

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	**2021**	2020	2019
From the Consolidated statement of income			
Total expenses	**34,307**	24,796	32,055
Less:			
Purchases of crude oil and products	**23,174**	13,293	20,946
Federal excise tax and fuel charge	**1,928**	1,736	1,808
Financing	**54**	64	93
Subtotal	**25,156**	15,093	22,847
Imperial's share of equity company expenses	**61**	64	76
Total operating costs	**9,212**	9,767	9,284

Components of operating costs

millions of Canadian dollars	**2021**	2020	2019
From the Consolidated statement of income			
Production and manufacturing	**6,316**	5,535	6,520
Selling and general	**784**	741	900
Depreciation and depletion (includes impairments)	**1,977**	3,293	1,598
Non-service pension and postretirement benefit	**42**	121	143
Exploration	**32**	13	47
Subtotal	**9,151**	9,703	9,208
Imperial's share of equity company expenses	**61**	64	76
Total operating costs	**9,212**	9,767	9,284

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	**2021**	2020	2019
From the Consolidated statement of income			
Net income (loss) (U.S. GAAP)	**2,479**	(1,857)	2,200
Less identified items included in Net income (loss)			
Impairments	**-**	(1,171)	-
Tax adjustments	**-**	-	662
Subtotal of identified items	**-**	(1,171)	662
Net income (loss) excluding identified items	**2,479**	(686)	1,538

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 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 energy supply and demand 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 emission prices 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 major investments are made, a reappraisal process is completed to ensure relevant lessons are learned and improvements are incorporated 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 energy fundamentals. These fundamentals include energy 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. In addition, the Outlook considers a range of scenarios - including remote scenarios - to help inform perspective of the future and enhance strategic thinking over time. Included in the range of these scenarios are the Intergovernmental Panel on Climate Change Lower 2°C and the International Energy Agency's Net Zero Emissions (IEA NZE) by 2050 scenario. To effectively evaluate the pace of change, ExxonMobil uses many scenarios to help identify signposts to provide leading indicators of future developments and allow for timely adjustments to the Outlook. The IEA describes the IEA NZE as extremely challenging, requiring all stakeholders – governments, businesses, investors and citizens – to take action this year and every year after so that the goal does not slip out of reach. The scenario assumes unprecedented and sustained energy efficiency gains, innovation and technology transfer, lower-emission investments, and globally coordinated greenhouse gas reduction policy. The IEA acknowledges that society is not on the IEA NZE pathway.

By 2050, the world’s population is projected at around 9.7 billion people, or about 2 billion more than in 2019. Coincident with this population increase, the company expects worldwide economic growth to average close to 2.5 percent per year, with economic output growing by around 125 percent by 2050 compared to 2019. 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 2019 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 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 almost 75 percent from 2019 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 2019, in part as a result of policies to improve air quality as well as reduce greenhouse gas emissions to address risks related to climate change. From 2019 to 2050, the amount of electricity supplied using natural gas, nuclear power, and renewables is likely 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 600 percent, helping total renewables (including other sources, i.e., hydropower) to account for about 80 percent of the increase in electricity supplies worldwide through 2050. Total renewables are expected reach about 50 percent of global electricity supplies by 2050. Natural gas and nuclear are also expected to increase shares over the period to 2050, reaching more than 25 percent and about 10 percent of global electricity supplies, respectively, 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 almost 25 percent from 2019 to 2050. Transportation energy demand is expected to account for over 40 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 about 75 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 widely available and offer practical advantages in providing a large quantity of energy in small volumes.

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 114 million oil-equivalent barrels per day, an increase of about 14 percent from 2019. 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 more than 20 percent. Much of the global liquid fuels demand today is met by crude production from traditional 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 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 2019 to 2050, meeting about 55 percent of global energy demand growth. Global natural gas demand is expected to rise nearly 35 percent from 2019 to 2050, with more than half 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 more than two-thirds of worldwide demand in 2050. Liquefied natural gas (LNG) trade will expand significantly, meeting about 40 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 is currently the second largest source of energy, but it is expected to lose that position to natural gas in the next few years. The share of natural gas is expected to reach more than 25 percent by 2050, while the share of coal falls to about half that. Nuclear power is projected to grow significantly, 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 biomass, hydro and geothermal contributing a combined share of more than 10 percent. Total energy supplied from wind, solar and biofuels is expected to increase rapidly, growing over 420 percent from 2019 to 2050, when they are projected to be about 10 percent of the world energy mix.

To meet this projected demand under the Outlook, 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. This reflects a fundamental aspect of the oil and natural gas business as the International Energy Agency (IEA) describes in its *World Energy Outlook 2021*.

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 ExxonMobil's *Outlook for Energy* as a foundation for estimating energy supply and demand requirements from various energy sources and uses, and the *Outlook for Energy* 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 for Energy* reflects an environment with increasingly stringent climate policies and is consistent with the global aggregation of Nationally Determined Contributions (NDCs), as available at the end of 2020, which were submitted by signatories to the United Nations Framework Convention on Climate Change (UNFCCC) 2015 Paris Agreement. The *Outlook for Energy* seeks to identify potential impacts of climate related policies, which often target specific sectors. It estimates potential impacts of these policies on consumer energy demand by using various assumptions and tools – including, depending on the sector, and as applicable, use of a proxy cost of carbon or assessment of targeted policies (i.e., automotive fuel economy standards). 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 have provided around COP 26 in Glasgow in November 2021 as well as other policy developments in light of net zero ambitions recently formulated by some nations, including Canada.

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

Advancing climate solutions

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 has a goal to achieve net zero Scope 1 and 2 greenhouse gas emissions in the company's oil sands operations by 2050 in support of Canada's commitment to move towards net zero emissions. To support this net-zero ambition, by the end of 2030 Imperial anticipates to reduce Scope 1 and 2 greenhouse gas emissions intensity of its operated oil sands facilities by 30 percent, compared with 2016 levels. The company plans to achieve this through implementation of lower greenhouse gas next generation technologies at its Cold Lake operation, efficiency improvements at its facilities, and the use of carbon capture and storage. In the near term, the company remains on track to meet its previous Scope 1 and Scope 2 greenhouse gas emissions intensity goal of a 10 percent reduction for operated oil sands facilities by the end of 2023, compared to 2016 levels. In June, Imperial and its industry peers announced the launch of the Oil Sands Pathways to Net Zero alliance. The goal of this unique alliance, working collectively with the federal and Alberta governments, is to achieve net zero greenhouse gas emissions from oil sands operations by 2050 to help Canada meet its climate goals.

Current business environment
In early 2020, the balance of supply and demand for petroleum and petrochemical products experienced two significant disruptive effects. On the demand side, the COVID-19 pandemic spread rapidly through most areas of the world resulting in substantial reductions in consumer and business activity and significantly reduced demand for crude oil, natural gas and petroleum products. This reduction in demand coincided with announcements of increased production in certain key oil-producing countries which led to increases in inventory levels and sharp declines in prices for crude oil, natural gas and petroleum products.

Through 2021, demand for petroleum and petrochemical products has continued to recover, with the company's financial results benefiting from stronger prices and margins, notably prices for crude oil and natural gas as well as Chemical product margins. The company continues to closely monitor industry and global economic conditions amid this uneven global recovery from the COVID-19 pandemic which has brought unprecedented uncertainties to near-term economic outlooks, including recovery from the COVID-19 pandemic.

The general rate of inflation in Canada and many other countries experienced a brief decline in the initial stage of the COVID-19 pandemic. However inflation rates increased in 2021 across major economies, with some regions experiencing multi-decade highs, largely reflecting overall imbalances between supply and demand recoveries from the pandemic. The underlying factors include, but are not limited to, global supply chain disruptions, shipping bottlenecks, labor market constraints and side effects from monetary and fiscal expansions. The global economic recovery remains uneven with significant uncertainty. Prices for services and materials continue to evolve in response to fast-changing commodity markets, industry activities, as well as government policies, impacting operating and capital costs. The company closely monitors market trends and works to mitigate cost impacts in all price environments through its economies of scale in global procurement, efficient project management practices, and general productivity improvements.

Business results

Consolidated

millions of Canadian dollars	**2021**	2020	2019
Net income (loss) (U.S. GAAP)	**2,479**	(1,857)	2,200
Identified items included in Net income (loss) (a)			
Impairments	**-**	(1,171)	-
Tax adjustments	**-**	-	662
Subtotal of identified items	**-**	(1,171)	662
Net income (loss) excluding identified items (a)	**2,479**	(686)	1,538

(a) Net income (loss) excluding identified items is a non-GAAP financial measure - see “Frequently used terms” section (page 44)

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.

2020
Net loss in 2020 was $1,857 million, or $2.53 per share on a diluted basis, compared to net income of $2,200 million or $2.88 per share in 2019. Current year results reflect a non-cash impairment charge of $1,171 million after tax, related to the company's decision to no longer develop a significant portion of its unconventional portfolio. Full-year 2019 results included a favourable impact of $662 million associated with the Alberta corporate income tax rate decrease.

[1]non-GAAP financial measure – see “Frequently used terms” section on page 44 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.

The upstream industry environment has a history of significant price volatility. Market demand and prices experienced a sharp decline in the first half of 2020 largely driven by the COVID-19 pandemic. Following this decline, prices improved in the second half of 2020 and throughout 2021, as supply and demand began to rebalance. 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. Volatility in differentials can lead to government action, such as in 2019 when the Government of Alberta imposed temporary mandatory production curtailment regulations on large producers. Mandatory curtailment was eliminated in December 2020 and the regulatory authority to impose curtailment was repealed at the end of 2021.

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 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

In 2021, demand for petroleum and petrochemical products continued to recover, with the company's financial results benefiting from stronger prices compared to the prior year. The company continues to closely monitor industry and global economic conditions, including recovery from the COVID-19 pandemic.

Upstream asset performance met or exceeded expectations in 2021. The company continued to benefit from its actions implemented in 2020 to reduce the cost structure and improve reliability of its assets, enabling the Upstream to capture significant value and take advantage of the improving business environment throughout 2021.

Upstream delivered its highest production in over 30 years, supported by Kearl achieving record annual total gross production of about 263,000 barrels per day (186,000 barrels Imperial's share). The company adjusted its planned maintenance and turnaround activity at Kearl, eliminating its fall turnaround and transitioned to a single annual turnaround, one year ahead of schedule.

During 2021, Cold Lake gross production was about 140,000 barrels per day, driven by continued focus on production optimization and reliability enhancements.

As described in more detail in Item 1A. “Risk factors”, environmental risks and climate related regulations, and COVID-19 could have negative impacts on the upstream business.

Results of operations

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

2020	Price	Volumes	Royalty	Identified Items (a)	Other	2021
(2,318)	3,640	550	(680)	1,171	(968)	1,395

(a) Identified items are a non-GAAP financial measure – see “Frequently used terms” section (page 44)

Price – Higher realizations increased net income by about $3,640 million, primarily driven by average bitumen realizations increasing by $32.22 per barrel and synthetic realizations increasing by $31.85 per barrel.

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 decreased net income by about $680 million, 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 – All other items decreased net income by $968 million, primarily driven by 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.

2020 Net income (loss) factor analysis
millions of Canadian dollars

2019	Price	Volumes	Royalty	Identified Items (a)	Other	2020
1,348	(2,620)	(130)	540	(1,860)	404	(2,318)

(a) Identified items are a non-GAAP financial measure – see “Frequently used terms” section (page 44)

Price – Lower realizations decreased net income by about $2,620 million.

Volumes – Lower volumes decreased net income by about $130 million.

Royalty – Lower royalties increased net income by about $540 million.

Identified items[1] – Non-cash impairment charge of $1,171 million, related to the company’s decision to no longer develop a significant portion of its unconventional portfolio. Absence of a favourable impact of $689 million associated with the Alberta corporate income tax rate decrease in 2019.

Other – All other items increased net income by $404 million, primarily driven by lower operating expenses of about $250 million, favourable foreign exchange impacts of about $100 million, and about $70 million associated with the Canada Emergency Wage Subsidy received by the company which includes Imperial’s proportionate share of a joint venture.

[1]non-GAAP financial measure – see “Frequently used terms” section on page 44 for definition and reconciliation

Marker prices and average realizations

Canadian dollars, unless otherwise noted	**2021**	2020	2019
West Texas Intermediate (US$) (per barrel)	**68.05**	39.26	57.03
Western Canada Select (US$) (per barrel)	**54.96**	26.87	44.29
WTI/WCS Spread (US$) (per barrel)	**13.09**	12.39	12.74
Bitumen (per barrel)	**57.91**	25.69	50.02
Synthetic oil (per barrel)	**81.61**	49.76	74.47
Conventional crude oil (per barrel)	**59.84**	29.34	51.81
Natural gas liquids (per barrel)	**35.87**	13.85	22.83
Natural gas (per thousand cubic feet)	**3.83**	1.90	2.05
Average foreign exchange rate (US$)	**0.80**	0.75	0.75

2021

Imperial's average Canadian dollar realizations for bitumen increased in 2021, generally in line with Western Canada Select. The company's average Canadian dollar realizations for synthetic crude increase generally in line with West Texas Intermediate, adjusted for changes in exchange rates and transportation costs.

2020

Imperial's average Canadian dollar realizations for bitumen decreased in 2020 primarily due to a decrease in WCS. The company's average Canadian dollar realizations for synthetic crude decreased generally in line with WTI, adjusted for changes in exchange rates and transportation costs.

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

thousands of barrels per day	**2021**		2020		2019	
	gross	**net**	gross	net	gross	net
Bitumen	**326**	**292**	290	279	285	254
Synthetic oil (b)	**71**	**62**	69	68	73	65
Conventional crude oil	**10**	**9**	11	10	14	13
Total crude oil production	**407**	**363**	370	357	372	332
NGLs available for sale	**1**	**1**	2	2	2	1
Total crude oil and NGL production	**408**	**364**	372	359	374	333
Bitumen sales, including diluent (c)	**451**		401		387	
NGL sales (d)	**-**		2		6	

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

millions of cubic feet per day	**2021**		2020		2019	
	gross	**net**	gross	net	gross	net
Production (e) (f)	**120**	**115**	154	150	145	144
Production available for sale (g)		**81**		115		108

(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 oil production volumes were from the company's share of production volumes in the Syncrude joint venture.

(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.

2021

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

2020

Kearl achieved the highest annual production in the asset's history. Improved production was mainly due to the addition of supplemental crushing facilities in 2020, partially offset by the balancing of near term production with demand through the advancement and extension of planned turnaround activities.

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 428,000 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 at 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 climate. Imperial’s integration across the value chain, from refining to marketing, enhances overall value across the fuels business.

Key events

Through 2021, demand for petroleum products continued to recover, with the Downstream financial results benefiting from stronger margins. The company continues to closely monitor industry and global economic conditions, including recovery from the COVID-19 pandemic.

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 to the motoring public through Esso and Mobil-branded sites and independent marketers. At the end of 2021, there were about 2,400 sites operating under a branded wholesaler model whereby Imperial supplies fuel to independent third parties who own and operate sites in alignment with Esso and Mobil brand standards.

Results of operations

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

2020	Margins	Other	2021
553	600	(258)	895

Margins – Higher margins increased net income by about $600 million, reflecting improved product demand.

Other – All other items decreased net income by $258 million, primarily driven by unfavourable foreign exchange impacts of about $150 million and an unfavourable inventory adjustment of $74 million[2], partially offset by lower operating expenses of about $50 million.

[2] 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.

2020 Net income (loss) factor analysis
millions of Canadian dollars

2019	Margins	Other	2020
961	(710)	302	553

Margins – Results were negatively impacted by lower margins of about $710 million.

Other – All other items increased net income by $302 million, primarily driven by lower operating expenses of about $190 million, lower turnaround impacts of about $190 million primarily related to reduced turnaround activity in the current year and improved reliability of about $180 million primarily due to the absence of the Sarnia fractionation tower incident which occurred in April 2019. These items were partially offset by lower sales volumes of about $290 million.

Refinery utilization

thousands of barrels per day (a)	**2021**	2020	2019
Total refinery throughput (b)	**379**	340	353
Rated capacity at December 31 (c)	**428**	428	423
Utilization of total refinery capacity (percent)	**89**	80	83

(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.

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

2020
Lower throughput was driven by reduced demand due to the COVID-19 pandemic, partially offset by lower refinery turnaround activity and reliability events, including impacts from the Sarnia fractionation tower incident which occurred in April 2019.

Petroleum product sales

thousands of barrels per day (a)	**2021**	2020	2019
Gasolines	**224**	215	249
Heating, diesel and jet fuels	**160**	146	167
Heavy fuel oils	**27**	20	21
Lube oils and other products	**45**	40	38
Net petroleum product sales	**456**	421	475

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

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

2020
Lower petroleum product sales were primarily driven by reduced demand due to the COVID-19 pandemic.

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.

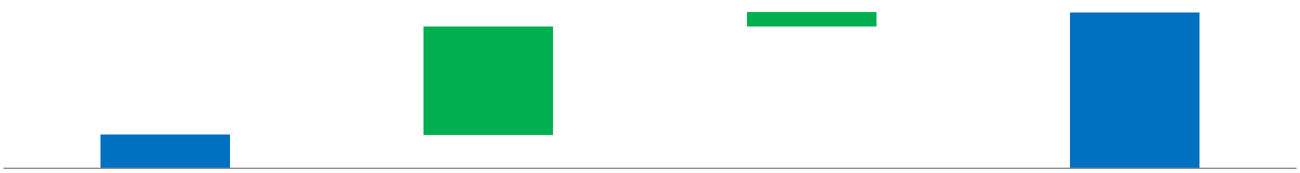
Key events

In 2021, results benefited from robust industry demand and strong reliability.

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

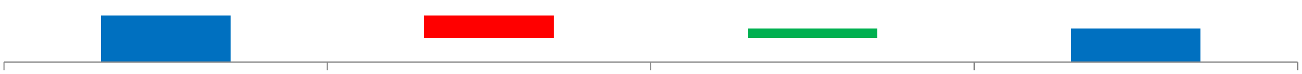
2021 Net income (loss) factor analysis
millions of Canadian dollars



2020	Margins	Other	2021
78	250	33	361

Margins – Improved margins increased net income by about $250 million, primarily due to stronger industry polyethylene margins.

2020 Net income (loss) factor analysis
millions of Canadian dollars



2019	Margins	Other	2020
108	(50)	20	78

Margins – Lower earnings primarily reflect lower margins.

Sales

thousands of tonnes	**2021**	2020	2019
Polymers and basic chemicals	**599**	574	575
Intermediate and others	**232**	175	157
Total petrochemical sales	**831**	749	732

Corporate and other

millions of Canadian dollars	**2021**	2020	2019
Net income (loss)	**(172)**	(170)	(217)

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. The company contributed $164 million to the registered retirement plans in 2021. 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	**2021**	2020	2019
Cash provided by (used in)			
Operating activities	**5,476**	798	4,429
Investing activities	**(1,012)**	(802)	(1,704)
Financing activities	**(3,082)**	(943)	(1,995)
Increase (decrease) in cash and cash equivalents	**1,382**	(947)	730
Cash and cash equivalents at end of year	**2,153**	771	1,718

Cash flow from operating activities

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

2020
Cash flow generated from operating activities primarily reflects lower realizations in the Upstream and unfavourable working capital impacts.

Cash flow from investing activities

2021
Investing activities used net cash of $1,012 million in 2021, up from $802 million used in 2020, primarily reflecting higher additions to property, plant and equipment.

2020
Investing activities used net cash of $802 million in 2020, compared to $1,704 million used in 2019, primarily reflecting lower additions to property, plant and equipment.

Cash flow from financing activities

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.

2020
At the end of 2020, total debt outstanding was $5,184 million, compared with $5,190 million at the end of 2019.

In response to market conditions, during the second quarter of 2020, the company entered into a $500 million committed short-term line of credit to May 2021, and a $300 million committed short-term line of credit to June 2021. These facilities were in addition to existing credit facilities of $500 million. The company has not drawn on these facilities.

In November 2020, the company extended the maturity date of one of its existing $250 million committed short-term line of credit to November 2021. The company has not drawn on the facility.

The maturity date of the other existing $250 million credit facility remains unchanged at November 2021. The company has not drawn on the facility.

Share repurchases

millions of Canadian dollars, unless noted	**2021**	2020	2019
Share repurchases	**2,245**	274	1,373
Number of shares purchased (millions) (a)	**56.0**	9.8	38.7

(a) Share repurchases were made under the company's normal course issuer bid program, and include shares purchased from Exxon Mobil Corporation concurrent with, but outside of the normal course issuer bid.

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 had received final approval from the Toronto Stock Exchange for a new normal course issuer bid and will continue its existing share purchase program. The program enables 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.

2020
In response to market conditions, substantial purchases under the share purchase program were suspended on April 1, 2020.

Dividends

millions of Canadian dollars, unless noted	**2021**	2020	2019
Dividends paid	**706**	649	631
Per share dividend paid (dollars)	**0.98**	0.88	0.82

Financial strength

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

percent At December 31	**2021**	2020	2019
Debt to capital (a)	**19**	19	18

(a) Debt, defined as the sum of "Notes and loans payable" and "Long-term debt" (page 77), divided by capital, defined as the sum of debt and "Total shareholders' equity" (page 77).

Debt-related interest incurred in 2021, before capitalization of interest, was $63 million, compared with $102 million in 2020. The average effective interest rate on the company's debt was 1.2 percent in 2021, compared with 2.0 percent in 2020.

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 2021 was $8.7 billion, of which $697 million is due in 2022, and $746 million is due in 2023. At March 31, 2021, due to the termination of transportation services agreements related to a third-party pipeline project, other long-term purchase agreements decreased by approximately $2.9 billion. The majority of these commitments related to years 2026 and beyond.

Litigation and other contingencies

As discussed in note 9 to the consolidated financial statements on page 98, 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, 2021, 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	**2021**	2020
Upstream (a)	**632**	561
Downstream	**476**	251
Chemical	**8**	21
Corporate and other	**24**	41
Total	**1,140**	874

(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 reliability, feedstock flexibility, energy efficiency and environmental performance.

Total capital and exploration expenditures are expected to be approximately $1.4 billion in 2022.

Expected capital and exploration expenditures for 2022 includes firm capital commitments of $290 million for the construction and purchase of fixed assets and other permanent investments. An additional $354 million of firm capital commitments have been made for years 2023 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 light and heavy differentials between North American crude benchmarks and western Canadian prices widen together, 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. As an example, the negative impact of a widening differential in the Upstream is more than offset by the benefit of lower feedstock costs in the Downstream.

At this time, Imperial is a net consumer of natural gas, used in Imperial's Upstream operation and refineries. A decrease in the value of natural gas reduces Imperial's operating expenses, thereby increasing Imperial's earnings.

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 and natural gas 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	+ (-)	**100**
One dollar (U.S.) per barrel increase (decrease) in light and heavy crude price differentials (b)	+ (-)	**30**
Ten cents per thousand cubic feet decrease (increase) in natural gas prices	+ (-)	**8**
One dollar (U.S.) per barrel increase (decrease) in refining 2-1-1 margins (c)	+ (-)	**140**
One cent (U.S.) per pound increase (decrease) in sales margins for polyethylene	+ (-)	**7**
One cent decrease (increase) in the value of the Canadian dollar versus the U.S. dollar	+ (-)	**120**

(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) Light and heavy crude differentials represent the difference between WTI benchmark prices and western Canadian prices for light and heavy crudes.
(c) 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, natural gas, 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, such as impacts due to the COVID-19 pandemic, will typically have a direct adverse impact on the company's financial results. Although price levels of crude oil and natural gas 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. Accordingly, the company evaluates the viability of its major investments over a range of prices.

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 underperforming assets are either improved to acceptable levels or 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 the Upstream, Downstream and Chemical businesses reduce 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 95. 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, and biofuels. 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 80.

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 and facilities with existing equipment and operating methods. Proved undeveloped reserves include amounts expected to be recovered from new wells on undrilled proved acreage or from existing wells where a relatively major expenditure is required for completion. Proved undeveloped reserves are recognized only if a development plan has been adopted indicating that the reserves are scheduled to be drilled 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 / facility capacity.

In 2019, downward revisions to proved bitumen reserves were driven by technical and development plan updates at Kearl, resulting in a decrease of 0.2 billion barrels, partially offset by an increase of 0.1 billion barrels at Cold Lake associated with an end of field life change driven by pricing. Downward revisions to proved synthetic oil reserves were a result of higher royalty obligations at Syncrude driven by pricing. Changes to 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 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 U.S. Securities and Exchange Commission definition of proved reserves. Downward revisions to proved synthetic 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 U.S. Securities and Exchange Commission definition of proved reserves. Upward revisions to proved synthetic 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.

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 U.S. Securities and Exchange Commission (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, 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, and 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.

Energy Outlook 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 Exxon Mobil Corporation's *Outlook for Energy* (the Outlook), which contains demand and supply projections based on its assessment of current trends in technology, government policies, consumer preferences, geopolitics, and economic development.

Reflective of the existing global policy environment, the Outlook does not 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. 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 amount by which the carrying value exceeds 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, 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 in equity companies 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.

Gains on sales of proved and unproved properties are only recognized when there is neither uncertainty about the recovery of costs applicable to any interest retained nor any substantial obligation for future performance by the company. Losses on properties sold are recognized when incurred or when the properties are held for sale and the fair value of the properties is less than the carrying value.

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. 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 4.5 percent used in 2021, compares to actual returns of 8.5 percent and 7.3 percent achieved over the last 10- and 20-year periods respectively, ending December 31, 2021. 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 $1.8 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 2021.

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. The obligations are initially measured at fair value and discounted to present value.

Over time, the discounted asset retirement obligation amount will be accreted for the change in its present value, with this effect included in production and manufacturing expenses. As payments to settle the obligations occur on an ongoing basis and will continue over the lives of the operating assets, which can exceed 25 years, the discount rate will be adjusted only as appropriate to reflect long-term changes in market rates and outlook. For 2021, the obligations were discounted at 6 percent and the accretion expense was $99 million, before tax, which was significantly less than 1 percent of total expenses in the year. There would be no material impact on the company's reported financial results if a different discount rate had been used. On page 94, 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. Significant management judgment is required in the accounting for income tax contingencies and tax disputes because the outcomes are often difficult to predict.

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.

Management’s report on internal control over financial reporting

Management, including the company’s chief executive officer and principal accounting officer and principal financial officer, is responsible for establishing and maintaining adequate internal control over the company’s financial reporting. Management conducted an evaluation of the effectiveness of internal control over financial reporting based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, management concluded that Imperial Oil Limited’s internal control over financial reporting was effective as of December 31, 2021.

PricewaterhouseCoopers LLP, an independent registered public accounting firm, audited the effectiveness of the company’s internal control over financial reporting as of December 31, 2021, as stated in their report which is included herein.

/s/ Bradley W. Corson

B.W. Corson
Chairman, president and chief executive officer
(Principal executive officer)

/s/ Daniel E. Lyons

D.E. Lyons
Senior vice-president,
finance and administration, and controller
(Principal accounting officer and principal financial officer)

February 23, 2022

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Imperial Oil Limited

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Imperial Oil Limited and its subsidiaries (together, the Company) as of December 31, 2021 and 2020, and the related consolidated statements of income, comprehensive income, shareholders' equity and cash flows for each of the three years in the period ended December 31, 2021, including the related notes (collectively referred to as the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's report on internal control over financial reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

The Impact of Proved Oil and Natural Gas Reserves on Upstream Property, Plant and Equipment, Net

As described in Notes 1 and 2 to the consolidated financial statements, the Company's upstream property, plant and equipment (PP&E), net balance was $27,811 million as of December 31, 2021, and the related depreciation and depletion expense for the year ended December 31, 2021 was $1,775 million. Management uses the successful efforts method to account for its exploration and production activities. Costs incurred to purchase, lease, or otherwise acquire a property (whether unproved or proved) are capitalized when incurred. As disclosed by management, proved oil and natural gas reserve volumes are used as the basis to calculate unit-of-production depreciation rates for most upstream assets. The estimation of proved oil and natural gas reserve volumes is an ongoing process based on technical evaluations, commercial and market assessments, detailed analysis of well information such as flow rates and reservoir pressures, and development and production costs, among other factors. As further disclosed by management, reserves changes are made within a well-established, disciplined process driven by qualified geoscience and engineering professionals, assisted by the reserves management group (together "management's specialists").

The principal considerations for our determination that performing procedures relating to the impact of proved oil and natural gas reserves on upstream PP&E, net is a critical audit matter are (i) the significant judgment by management, including the use of management's specialists, when developing the estimates of proved oil and natural gas reserve volumes, which in turn led to (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating the audit evidence related to the data, methods, and assumptions used by management and its specialists in developing the estimates of proved oil and natural gas reserve volumes and the assumptions related to development and production costs, as applicable.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's estimates of proved oil and natural gas reserve volumes. The work of management's specialists was used in performing the procedures to evaluate the reasonableness of estimates of proved oil and natural gas reserve volumes. As a basis for using this work, management’s specialists' qualifications were understood and the Company's relationship with management’s specialists was assessed. The procedures performed also included evaluation of the methods and assumptions used by management’s specialists, tests of the data used by management’s specialists, and an evaluation of management’s specialists' findings. These procedures also included, among others, testing the completeness and accuracy of the data related to future development and production costs. Additionally, these procedures included evaluating whether the assumptions related to development and production costs were reasonable considering the past performance of the Company and its business and strategic plan, as applicable.

/s/ PricewaterhouseCoopers LLP

Chartered Professional Accountants

Calgary, Canada
February 23, 2022

We have served as the Company’s auditor since 1934

Consolidated statement of income (U.S. GAAP)

millions of Canadian dollars For the years ended December 31	**2021**	2020	2019
Revenues and other income			
Revenues (a)	**37,508**	22,284	34,002
Investment and other income (note 8)	**82**	104	99
Total revenues and other income	**37,590**	22,388	34,101
Expenses			
Exploration (note 15)	**32**	13	47
Purchases of crude oil and products (b)	**23,174**	13,293	20,946
Production and manufacturing (c) (note 11)	**6,316**	5,535	6,520
Selling and general (c)	**784**	741	900
Federal excise tax and fuel charge	**1,928**	1,736	1,808
Depreciation and depletion (includes impairments) (note 2, 11)	**1,977**	3,293	1,598
Non-service pension and postretirement benefit	**42**	121	143
Financing (d) (note 12)	**54**	64	93
Total expenses	**34,307**	24,796	32,055
Income (loss) before income taxes	**3,283**	(2,408)	2,046
Income taxes (note 3)	**804**	(551)	(154)
Net income (loss)	**2,479**	(1,857)	2,200
Per share information (Canadian dollars)			
Net income (loss) per common share - basic (note 10)	**3.48**	(2.53)	2.88
Net income (loss) per common share - diluted (note 10)	**3.48**	(2.53)	2.88
(a) Amounts from related parties included in revenues, (note 16).	**8,777**	5,107	8,569
(b) Amounts to related parties included in purchases of crude oil and products, (note 16).	**2,737**	2,484	3,305
(c) Amounts to related parties included in production and manufacturing, and selling and general expenses, (note 16).	**420**	579	628
(d) Amounts to related parties included in financing, (note 16).	**28**	61	98

The information in the notes to consolidated financial statements is an integral part of these statements.

Consolidated statement of comprehensive income (U.S. GAAP)

millions of Canadian dollars For the years ended December 31	**2021**	2020	2019
Net income (loss)	**2,479**	(1,857)	2,200
Other comprehensive income (loss), net of income taxes			
Postretirement benefits liability adjustment (excluding amortization)	**679**	(212)	(505)
Amortization of postretirement benefits liability adjustment included in net periodic benefit costs	**133**	134	111
Total other comprehensive income (loss)	**812**	(78)	(394)
Comprehensive income (loss)	**3,291**	(1,935)	1,806

The information in the notes to consolidated financial statements is an integral part of these statements.

Consolidated balance sheet (U.S. GAAP)

millions of Canadian dollars At December 31	**2021**	2020
Assets		
Current assets		
Cash	**2,153**	771
Accounts receivable - net (a)	**3,869**	1,919
Inventories of crude oil and products (note 11)	**1,102**	1,161
Materials, supplies and prepaid expenses	**689**	673
Total current assets	**7,813**	4,524
Investments and long-term receivables (b)	**757**	781
Property, plant and equipment,		
less accumulated depreciation and depletion	**31,240**	32,034
Goodwill (note 11)	**166**	166
Other assets, including intangibles - net	**806**	526
Total assets	**40,782**	38,031
Liabilities		
Current liabilities		
Notes and loans payable (c) (note 12)	**122**	227
Accounts payable and accrued liabilities (a) (note 11)	**5,184**	3,153
Income taxes payable	**248**	-
Total current liabilities	**5,554**	3,380
Long-term debt (d) (note 14)	**5,054**	4,957
Other long-term obligations (note 5)	**3,897**	4,100
Deferred income tax liabilities (note 3)	**4,542**	4,176
Total liabilities	**19,047**	16,613
Commitments and contingent liabilities (note 9)		
Shareholders' equity		
Common shares at stated value (e) (note 10)	**1,252**	1,357
Earnings reinvested	**21,660**	22,050
Accumulated other comprehensive income (loss) (note 17)	**(1,177)**	(1,989)
Total shareholders' equity	**21,735**	21,418
Total liabilities and shareholders' equity	**40,782**	38,031

(a) Accounts receivable - net included net amounts receivable from related parties of $1,031 million (2020 – $384 million), (note 16).
(b) Investments and long-term receivables included amounts from related parties of $298 million (2020 – $313 million), (note 16).
(c) Notes and loans payable included amounts to related parties of $0 million (2020 – $111 million), (note 16).
(d) Long-term debt included amounts to related parties of $4,447 million (2020 – $4,447 million), (note 16).
(e) Number of common shares authorized and outstanding were 1,100 million and 678 million, respectively (2020 – 1,100 million and 734 million, respectively), (note 10).

The information in the notes to consolidated financial statements is an integral part of these statements.

Approved by the directors.

/s/ Bradley W. Corson

B.W. Corson
Chairman, president and
chief executive officer

/s/ Daniel E. Lyons

D.E. Lyons
Senior vice-president,
finance and administration, and controller

Consolidated statement of shareholders' equity (U.S. GAAP)

millions of Canadian dollars At December 31	**2021**	2020	2019
Common shares at stated value (note 10)			
At beginning of year	**1,357**	1,375	1,446
Share purchases at stated value	**(105)**	(18)	(71)
At end of year	**1,252**	1,357	1,375
Earnings reinvested			
At beginning of year	**22,050**	24,812	24,560
Net income (loss) for the year	**2,479**	(1,857)	2,200
Share purchases in excess of stated value	**(2,140)**	(256)	(1,302)
Dividends declared	**(729)**	(647)	(646)
Cumulative effect of accounting change	**-**	(2)	-
At end of year	**21,660**	22,050	24,812
Accumulated other comprehensive income (loss) (note 17)			
At beginning of year	**(1,989)**	(1,911)	(1,517)
Other comprehensive income (loss)	**812**	(78)	(394)
At end of year	**(1,177)**	(1,989)	(1,911)
Shareholders' equity at end of year	**21,735**	21,418	24,276

The information in the notes to consolidated financial statements is an integral part of these statements.

Consolidated statement of cash flows (U.S. GAAP)

millions of Canadian dollars Inflow (outflow) For the years ended December 31	**2021**	2020	2019
Operating activities			
Net income (loss)	**2,479**	(1,857)	2,200
Adjustments for non-cash items:			
Depreciation and depletion (includes impairments) (note 2)	**1,977**	3,273	1,598
Impairment of intangible assets (note 11)	**-**	20	-
(Gain) loss on asset sales (note 8)	**(49)**	(35)	(46)
Deferred income taxes and other	**91**	(521)	(237)
Changes in operating assets and liabilities:			
Accounts receivable	**(1,950)**	780	(170)
Inventories, materials, supplies and prepaid expenses	**45**	78	(74)
Income taxes payable	**248**	(106)	41
Accounts payable and accrued liabilities	**2,020**	(1,087)	1,010
All other items - net (b)	**615**	253	107
Cash flows from (used in) operating activities	**5,476**	798	4,429
Investing activities			
Additions to property, plant and equipment	**(1,108)**	(868)	(1,636)
Proceeds from asset sales (note 8)	**81**	82	82
Loans to equity companies - net	**15**	(16)	(150)
Cash flows from (used in) investing activities	**(1,012)**	(802)	(1,704)
Financing activities			
Short-term debt - net (note 12)	**(111)**	-	36
Reduction in finance lease obligations (note 14)	**(20)**	(20)	(27)
Dividends paid	**(706)**	(649)	(631)
Common shares purchased (note 10)	**(2,245)**	(274)	(1,373)
Cash flows from (used in) financing activities	**(3,082)**	(943)	(1,995)
Increase (decrease) in cash	**1,382**	(947)	730
Cash at beginning of year	**771**	1,718	988
Cash at end of year (a)	**2,153**	771	1,718

(a) Cash is composed of cash in bank and cash equivalents at cost. Cash equivalents are all highly liquid securities with maturity of three months or less when purchased.

(b) Included contributions to registered pension plans.	**(164)**	(195)	(211)
Income taxes (paid) refunded.	**58**	(42)	145
Interest (paid), net of capitalization.	**(43)**	(62)	(91)

Non-cash transactions

In 2019, the company removed $570 million of assets and corresponding liabilities associated with the Government of Ontario's revocation of its cap and trade legislation. The impact of this removal was not reflected in "Accounts payable and accrued liabilities" and "All other items - net" lines on the Consolidated statement of cash flows as it was not a cash transaction.

The information in the notes to consolidated financial statements is an integral part of these statements.

Notes to consolidated financial statements

The accompanying consolidated financial statements and the supporting and supplemental material are the responsibility of the management of Imperial Oil Limited.

The company's principal business involves 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, and biofuels.

The consolidated financial statements have been prepared in accordance with United States Generally Accepted Accounting Principles (U.S. GAAP), which 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. Actual results could differ from these estimates. Prior years' data have been reclassified in certain cases to conform to the 2021 presentation basis. All amounts are in Canadian dollars unless otherwise indicated.

1. Summary of significant accounting policies

Principles of consolidation
The consolidated financial statements include the accounts of subsidiaries the company controls. Intercompany accounts and transactions are eliminated. Subsidiaries include those companies in which Imperial has both an equity interest and the continuing ability to unilaterally determine strategic, operating, investing and financing policies. Imperial Oil Resources Limited and Canada Imperial Oil Limited are significant subsidiaries included in the consolidated financial statements and are wholly owned by Imperial Oil Limited. The consolidated financial statements also include the company's share of the undivided interest in certain upstream assets, liabilities, revenues and expenses, including its 70.96 percent interest in the Kearl joint venture and its 25 percent interest in the Syncrude joint venture.

Revenues
Imperial generally sells crude oil, natural gas and petroleum and chemical products under short-term agreements at prevailing market prices. In some cases, products may be sold under long-term agreements, with periodic price adjustments to reflect market conditions.

Revenue is recognized at the amount the company expects to receive when the customer has taken control, which is typically when title transfers and the customer has assumed the risks and rewards of ownership. The prices of certain sales are based on price indices that are sometimes not available until the next period. In such cases, estimated realizations are accrued when the sale is recognized, and are finalized when final information is available. Such adjustments to revenue from performance obligations satisfied in previous periods are not significant. Payment for revenue transactions is typically due within 30 days.

Revenues include amounts billed to customers for shipping and handling. Shipping and handling costs incurred up to the point of final storage prior to delivery to a customer are included in "Purchases of crude oil and products" in the Consolidated statement of income. Delivery costs from final storage to customer are recorded as a marketing expense in "Selling and general" expenses. The company does not enter into ongoing arrangements whereby it is required to repurchase its products, nor does the company provide the customer with a right of return.

Future volume delivery obligations that are unsatisfied at the end of the period are expected to be fulfilled through ordinary production or purchases. These performance obligations are based on market prices at the time of the transaction and are fully constrained due to market price volatility.

Purchases and sales of inventory with the same counterparty that are entered into in contemplation of one another are combined and recorded as exchanges measured at the book value of the item sold.

"Revenues" and "Accounts receivable - net" primarily arise from contracts with customers. Long-term receivables are primarily from non-customers. Contract assets are mainly from marketing assistance programs and are not significant. Contract liabilities are mainly customer prepayments, loyalty programs and accruals of expected volume discounts, and are not significant.

Consumer taxes
Taxes levied on the consumer and collected by the company are excluded from the Consolidated statement of income. These are primarily provincial taxes on motor fuels, the federal goods and services tax and the federal / provincial harmonized sales tax.

Derivative instruments
Imperial may use derivative instruments for trading purposes and to offset exposures associated with commodity prices, currency exchange rates and interest rates that arise from existing assets, liabilities, firm commitments and forecasted transactions. All derivative instruments, except those designated as normal purchase and normal sale, are recorded at fair value. Derivative assets and liabilities with the same counterparty are netted if the right of offset exists and certain other criteria are met. Collateral payables or receivables are netted against derivative assets and derivative liabilities respectively.

Recognition and classification of the gain or loss that results from adjusting a derivative to fair value depends on the purpose for the derivative. The gains and losses resulting from changes in the fair value of derivatives are recorded under “Revenues” or “Purchases of crude oil and products” in the Consolidated statement of income.

Fair value
Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. Hierarchy levels 1, 2 and 3 are terms for the priority of inputs to valuation techniques used to measure fair value. Hierarchy level 1 inputs are quoted prices in active markets for identical assets or liabilities. Hierarchy level 2 inputs are inputs other than quoted prices included within level 1 that are directly or indirectly observable for the asset or liability. Hierarchy level 3 inputs are inputs that are not observable in the market.

Inventories
Inventories are recorded at the lower of current market value or cost. The cost of crude oil and products is determined primarily using the last-in, first-out (LIFO) method. LIFO was selected over the alternative first-in, first-out and average cost methods because it provides a better matching of current costs with the revenues generated in the period.

Inventory costs include expenditures and other charges (including depreciation), directly or indirectly incurred in bringing the inventory to its existing condition and location. Selling and general expenses are reported as period costs and excluded from inventory costs. Inventories of materials and supplies are valued at cost or less.

Investments
The company’s interests in the underlying net assets of affiliates it does not control, but over which it exercises significant influence, are accounted for using the equity method. They are recorded at the original cost of the investment plus Imperial’s share of earnings since the investment was made, less dividends received. Imperial’s share of the after-tax earnings of these investments is included in “Investment and other income” in the Consolidated statement of income. Investments in equity securities, other than consolidated subsidiaries and equity method investments, are measured at fair value, with changes in the fair value recognized in net income. The company uses a modified approach for equity securities that do not have a readily determinable fair value. This modified approach measures investments at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions in similar investment of the same issuer. Dividends from these investments are included in “Investment and other income”.

These investments represent interests in non-publicly traded pipeline companies and a rail loading joint venture that facilitate the sale and purchase of liquids in the conduct of company operations. Other parties who also have an equity interest in these investments share in the risks and rewards according to their percentage of ownership. Imperial does not invest in these investments in order to remove liabilities from its balance sheet.

Property, plant and equipment

Cost basis

Imperial uses the “successful efforts” method to account for its exploration and production activities. Under this method, costs are accumulated on a field-by-field basis. Costs incurred to purchase, lease, or otherwise acquire a property (whether unproved or proved) are capitalized when incurred. Exploratory well costs are carried as an asset when the well has found a sufficient quantity of reserves to justify its completion as a producing well and where 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. Other exploratory expenditures, including geophysical costs and annual lease rentals, are expensed as incurred. Development costs, including costs of productive wells and development dry holes, are capitalized.

Maintenance and repair costs, including planned major maintenance, are expensed as incurred. Improvements that increase or prolong the service life or capacity of an asset are capitalized.

Depreciation, depletion and amortization

Depreciation, depletion and amortization are primarily determined under either the unit-of-production method or the straight-line method, which is based on estimated asset service life taking obsolescence into consideration. Depreciation and depletion for assets associated with producing properties begin at the time when production commences on a regular basis. Depreciation for other assets begins when the asset is in place and ready for its intended use. Assets under construction are not depreciated or depleted.

Acquisition costs of proved properties are amortized using a unit-of-production method, computed on the basis of total proved oil and natural gas reserve volumes. Capitalized exploratory drilling and development costs associated with productive depletable extractive properties are amortized using the unit-of-production rates based on the amount of proved developed reserves of oil and gas that are estimated to be recoverable from existing facilities using current operating methods. Under the unit-of-production method, oil and natural gas volumes are considered produced once they have been measured through meters at custody transfer or sales transaction points at the outlet valve on the lease or field storage tank. 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. Investments in mining heavy equipment and certain ore processing plant assets at oil sands mining properties are depreciated on a straight-line basis over a maximum of 15 years and 50 years respectively. Depreciation of other plant and equipment is calculated using the straight-line method, based on the estimated service life of the asset.

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, all properties have sufficient reserves at current SEC prices which will enable equitable allocation of cost over the economic lives of the Upstream assets.

Investments in refinery and chemical process manufacturing equipment are generally depreciated on a straight-line basis over a 25-year life. Maintenance and repairs, including planned major maintenance, are expensed as incurred. Major renewals and improvements are capitalized and the assets replaced are retired.

Impairment assessment
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.

Among the events or changes in circumstances which could indicate that the carrying value of an asset or asset group may not be recoverable are the following:

- a significant decrease in the market price of a long-lived asset;
- a significant adverse change in the extent or manner in which an asset is being used or in its physical condition including a significant decrease in current and projected reserve volumes;
- a significant adverse change in legal factors or in the business climate that could affect the value, including an adverse action or assessment by a regulator;
- an accumulation of project costs significantly in excess of the amount originally expected;
- a current-period operating loss combined with a history and forecast of operating or cash flow losses; and
- a current expectation that, more likely than not, a long-lived asset will be sold or otherwise disposed of significantly before the end of its previously estimated useful life.

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. Asset valuation analysis, profitability reviews and other periodic control processes assist the company in assessing whether events or changes in circumstances indicate the carrying amounts of any of its assets may not be recoverable.

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, and 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.

In the Upstream, the standardized measure of discounted cash flows included in the "Supplemental information on oil and gas exploration and production activities" is required to use prices based on the average of first-day-of-month prices in the year. These prices represent discrete points in time and could be higher or lower than the company's price assumptions which are used for impairment assessments. The company believes the standardized measure does not provide a reliable estimate of the expected future cash flows to be obtained from the development and production of its oil and gas properties or of the value of its oil and gas reserves and therefore does not consider it relevant in determining whether events or changes in circumstances indicate the need for an impairment assessment.

Energy Outlook 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 Exxon Mobil Corporation's *Outlook for Energy* (the Outlook), which contains demand and supply projections based on its assessment of current trends in technology, government policies, consumer preferences, geopolitics, and economic development.

Reflective of the existing global policy environment, the Outlook does not 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. 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.

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 amount by which the carrying value exceeds 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, 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. Gains on sales of proved and unproved properties are only recognized when there is neither uncertainty about the recovery of costs applicable to any interest retained nor any substantial obligation for future performance by the company. Losses on properties sold are recognized when incurred or when the properties are held for sale and the fair value of the properties is less than the carrying value.

Interest capitalization
Interest costs incurred to finance expenditures during the construction phase of projects are capitalized as part of the historical cost of acquiring the constructed assets. The project construction phase commences with the development of the detailed engineering design and ends when the constructed assets are ready for their intended use. Capitalized interest costs are included in property, plant and equipment and are depreciated over the service life of the related assets.

Asset retirement obligations and other environmental liabilities
The company incurs 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. Asset retirement obligations incurred in the current period were level 3 fair value measurements. The costs associated with these liabilities are capitalized as part of the related assets and depreciated as the reserves are produced. Over time, the liabilities are accreted for the change in their present value.

Asset retirement obligations for downstream and chemical facilities generally become firm at the time the facilities are permanently shut down and dismantled. These obligations may include the costs of asset disposal and additional soil remediation. However, these sites have indeterminate lives based on plans for continued operations, and as such, the fair value of the conditional legal obligations cannot be measured, since it is impossible to estimate the future settlement dates of such obligations.

The company accrues environmental liabilities when it is probable that obligations have been incurred and the amount can be reasonably estimated. Provisions for environmental liabilities are determined based on engineering estimated costs, taking into account the anticipated method and extent of remediation consistent with legal requirements, current technology and the possible use of the location. These provisions are not reduced by possible recoveries from third parties and projected cash expenditures are not discounted.

Foreign-currency translation
Monetary assets and liabilities in foreign currencies have been translated at the rates of exchange prevailing on December 31. Any exchange gains or losses are recognized in income.

2. Business segments

The company operates its business in Canada. The Upstream, Downstream and Chemical functions best define the operating segments of the business that are reported separately. The factors used to identify these reportable segments are based on the nature of the operations that are undertaken by each segment and the structure of the company's internal organization. The Upstream segment is organized and operates to explore for and ultimately produce crude oil and its equivalent, and natural gas. The Downstream segment is organized and operates to refine crude oil into petroleum products and to distribute and market these products. The Chemical segment is organized and operates to manufacture and market hydrocarbon-based chemicals and chemical products. The above segmentation has been the long-standing practice of the company and is broadly understood across the petroleum and petrochemical industries.

These functions have been defined as the operating segments of the company because they are the segments (a) that engage in business activities from which revenues are earned and expenses are incurred; (b) whose operating results are regularly reviewed by the company's chief operating decision maker to make decisions about resources to be allocated to each segment and assess its performance; and (c) for which discrete financial information is available.

Corporate and other includes assets and liabilities that do not specifically relate to business segments – primarily cash, capitalized interest costs, short-term borrowings, long-term debt and liabilities associated with incentive compensation, pension and other postretirement benefit liabilities. Net earnings effects under Corporate and other activities primarily include debt-related financing, corporate governance costs, non-service pension and postretirement benefit costs, share-based incentive compensation expenses and interest income.

Segment accounting policies are the same as those described in the summary of significant accounting policies. Upstream, Downstream and Chemical expenses include amounts allocated from Corporate and other activities. The allocation is based on proportional segment expenses. Transfers of assets between segments are recorded at book amounts. Intersegment sales are made essentially at prevailing market prices. Assets and liabilities that are not identifiable by segment are allocated.

	Upstream			Downstream			Chemical		
millions of Canadian dollars	**2021**	2020	2019	**2021**	2020	2019	**2021**	2020	2019
Revenues and other income									
Revenues (a)	**5,863**	6,263	9,479	**30,207**	15,178	23,591	**1,438**	843	932
Intersegment sales (b)	**9,956**	2,527	3,763	**4,520**	1,480	1,597	**319**	165	229
Investment and other income (note 8)	**12**	7	17	**59**	78	47	**1**	-	-
	15,831	8,797	13,259	**34,786**	16,736	25,235	**1,758**	1,008	1,161
Expenses									
Exploration (note 15)	**32**	13	47	**-**	-	-	**-**	-	-
Purchases of crude oil and products (b) (note 11)	**7,492**	4,834	6,528	**29,505**	12,047	19,332	**966**	579	667
Production and manufacturing (note 11)	**4,661**	3,852	4,440	**1,445**	1,468	1,829	**210**	215	251
Selling and general	**-**	-	-	**572**	619	774	**90**	92	86
Federal excise tax and fuel charge	**-**	-	-	**1,928**	1,736	1,808	**-**	-	-
Depreciation and depletion (c) (note 11)	**1,775**	3,084	1,374	**158**	166	186	**18**	19	16
Non-service pension and postretirement benefit	**-**	-	-	**-**	-	-	**-**	-	-
Financing (note 12)	**15**	3	3	**-**	-	-	**-**	-	-
Total expenses	**13,975**	11,786	12,392	**33,608**	16,036	23,929	**1,284**	905	1,020
Income (loss) before income taxes (note 11)	**1,856**	(2,989)	867	**1,178**	700	1,306	**474**	103	141
Income tax expense (benefit) (d) (note 3)	**461**	(671)	(481)	**283**	147	345	**113**	25	33
Net income (loss) (note 11)	**1,395**	(2,318)	1,348	**895**	553	961	**361**	78	108
Cash flows from (used in) operating activities (b)	**4,913**	286	2,423	**179**	470	1,965	**421**	114	172
Capital and exploration expenditures (e)	**632**	561	1,248	**476**	251	484	**8**	21	34
Property, plant and equipment									
Cost	**48,200**	47,693	47,050	**6,772**	6,321	6,123	**984**	975	954
Accumulated depreciation and depletion	**(20,389)**	(18,786)	(15,889)	**(4,096)**	(3,962)	(3,830)	**(721)**	(699)	(680)
Net property, plant and equipment (f)	**27,811**	28,907	31,161	**2,676**	2,359	2,293	**263**	276	274
Total assets (b) (g) (h)	**29,416**	31,835	34,554	**7,945**	4,554	5,179	**474**	408	416

	Corporate and other			Eliminations			Consolidated		
millions of Canadian dollars	**2021**	2020	2019	**2021**	2020	2019	**2021**	2020	2019
Revenues and other income									
Revenues (a)	**-**	-	-	**-**	-	-	**37,508**	22,284	34,002
Intersegment sales (b)	**-**	-	-	**(14,795)**	(4,172)	(5,589)	**-**	-	-
Investment and other income (note 8)	**10**	19	35	**-**	-	-	**82**	104	99
	10	19	35	**(14,795)**	(4,172)	(5,589)	**37,590**	22,388	34,101
Expenses									
Exploration (note 15)	**-**	-	-	**-**	-	-	**32**	13	47
Purchases of crude oil and products (b) (note 11)	**-**	-	-	**(14,789)**	(4,167)	(5,581)	**23,174**	13,293	20,946
Production and manufacturing (note 11)	**-**	-	-	**-**	-	-	**6,316**	5,535	6,520
Selling and general	**128**	35	48	**(6)**	(5)	(8)	**784**	741	900
Federal excise tax and fuel charge	**-**	-	-	**-**	-	-	**1,928**	1,736	1,808
Depreciation and depletion (c) (note 11)	**26**	24	22	**-**	-	-	**1,977**	3,293	1,598
Non-service pension and postretirement benefit	**42**	121	143	**-**	-	-	**42**	121	143
Financing (note 12)	**39**	61	90	**-**	-	-	**54**	64	93
Total expenses	**235**	241	303	**(14,795)**	(4,172)	(5,589)	**34,307**	24,796	32,055
Income (loss) before income taxes (note 11)	**(225)**	(222)	(268)	**-**	-	-	**3,283**	(2,408)	2,046
Income tax expense (benefit) (d) (note 3)	**(53)**	(52)	(51)	**-**	-	-	**804**	(551)	(154)
Net income (loss) (note 11)	**(172)**	(170)	(217)	**-**	-	-	**2,479**	(1,857)	2,200
Cash flows from (used in) operating activities (b)	**(47)**	(64)	(124)	**10**	(8)	(7)	**5,476**	798	4,429
Capital and exploration expenditures (e)	**24**	41	48	**-**	-	-	**1,140**	874	1,814
Property, plant and equipment									
Cost	**806**	782	741	**-**	-	-	**56,762**	55,771	54,868
Accumulated depreciation and depletion	**(316)**	(290)	(266)	**-**	-	-	**(25,522)**	(23,737)	(20,665)
Net property, plant and equipment (f)	**490**	492	475	**-**	-	-	**31,240**	32,034	34,203
Total assets (b) (g) (h)	**3,196**	1,632	2,536	**(249)**	(398)	(498)	**40,782**	38,031	42,187

(a) Includes export sales to the United States of $7,228 million (2020 - $4,614 million, 2019 - $7,190 million). Export sales to the United States were recorded in all operating segments, with the largest effects in the Upstream segment.
(b) In 2021, the Downstream segment acquired a portion of Upstream crude inventory for $444 million. There was no earnings impact and the effects of this transaction have been eliminated for consolidation purposes.
(c) In 2020, the Upstream segment included a non-cash impairment charge of $1,531 million, before-tax, related to the company's decision not to further develop a significant portion of its unconventional portfolio.
(d) Segment results in 2019 include a largely non-cash favourable impact of $662 million associated with the Alberta corporate income tax rate decrease, with the largest impact in the Upstream segment.
(e) Capital and exploration expenditures (CAPEX) include exploration expenses, additions to property, plant and equipment, additions to finance leases, additional investments and acquisitions and the company's share of similar costs for equity companies. CAPEX excludes the purchase of carbon emission credits.
(f) Includes property, plant and equipment under construction of $2,348 million (2020 - $1,874 million, 2019 - $2,149 million).
(g) Effective January 1, 2019, Imperial adopted the Financial Accounting Standards Board's standard, *Leases (Topic 842)*, as amended. As at December 31, 2021, Total assets include operating lease right of use assets of $245 million (2020 - $188 million, 2019 - $260 million). An election was made not to restate prior periods. See note 13 for additional details.
(h) In 2019, the company removed $570 million from Total assets and corresponding liabilities in the Downstream segment associated with the Government of Ontario's revocation of its cap and trade legislation.

3. Income taxes

millions of Canadian dollars	**2021**	2020	2019
Current income tax expense (benefit) (a)	**711**	(27)	140
Deferred income tax expense (benefit) (a)	**93**	(524)	(294)
Total income tax expense (benefit) (a)	**804**	(551)	(154)
Statutory corporate tax rate (percent)	**24.0**	25.0	26.0
Increase (decrease) resulting from:			
Enacted tax rate change (a)	**-**	0.1	(31.9)
Other (b)	**0.5**	(2.2)	(1.6)
Effective income tax rate (percent)	**24.5**	22.9	(7.5)

(a) On June 28, 2019 the Alberta government enacted a 4 percent decrease in the provincial tax rate, from 12 percent to 8 percent by 2022. On December 9, 2020 the Alberta government enacted an accelerated decrease in the province's general corporate income tax rate from 10 percent to 8 percent, effective July 1, 2020. The cumulative effect of the 2020 legislative tax changes on the company's financial statements were immaterial.
(b) Other primarily relates to prior year adjustments, re-assessments and disposals.

Deferred income taxes are based on differences between the accounting and tax values of assets and liabilities. These differences in value are re-measured at each year-end using the tax rates and tax laws expected to apply when those differences are realized or settled in the future. Components of deferred income tax liabilities and assets as at December 31 were:

millions of Canadian dollars	**2021**	2020	2019
Depreciation and amortization	**5,284**	5,319	5,164
Successful drilling and land acquisitions	**331**	363	750
Pension and benefits	**(303)**	(534)	(469)
Asset retirement obligation	**(418)**	(403)	(336)
Capitalized interest	**120**	120	117
LIFO inventory valuation	**(413)**	(150)	(276)
Tax loss carryforwards	**(42)**	(460)	(141)
Other	**(101)**	(154)	(161)
Net deferred income tax liabilities	**4,458**	4,101	4,648

Unrecognized tax benefits
Unrecognized tax benefits reflect the difference between positions taken or expected to be taken on income tax returns and the amounts recognized in the financial statements.

The following table summarizes the movement in unrecognized tax benefits:

millions of Canadian dollars	**2021**	2020	2019
Balance as of January 1	**36**	35	36
Additions based on current year's tax position	**16**	2	-
Additions for prior years' tax positions	**-**	-	1
Settlements with tax authorities	**(5)**	(1)	(2)
Balance as of December 31	**47**	36	35

The unrecognized tax benefit balances shown above are predominately related to tax positions that would reduce the company's effective tax rate if the positions are favourably resolved. Unfavourable resolution of these tax positions generally would not increase the effective tax rate. The 2021, 2020 and 2019 changes in unrecognized tax benefits did not have a material effect on the company's net income or cash flow. The company's tax filings from 2017 to 2021 are subject to examination by the tax authorities. Tax filings from 2007 to 2016 have open objections and therefore are also subject to examination by the tax authorities. The Canada Revenue Agency has made certain adjustments to the company's filings. Management has evaluated these adjustments and is formally disputing those matters to which the company disagrees. Many of these outstanding matters will not be resolved until after 2022. The impact on unrecognized tax benefits and the company's effective income tax rate from these matters is not expected to be material.

Resolution of the related tax positions could take many years to complete. It is difficult to predict the timing of resolution for tax positions since such timing is not entirely within the control of the company.

The company classifies interest on income tax related balances as interest expense or interest income and classifies tax related penalties as operating expense.

Unrecognized tax benefits are not classified as future commitments because the company does not expect there will be any cash impact from the final settlements as sufficient funds have been deposited with the Canada Revenue Agency.

4. Employee retirement benefits

Retirement benefits, which cover almost all retired employees and their surviving spouses, include pension income and certain health care and life insurance benefits. They are met through funded registered retirement plans and through unfunded supplementary benefits that are paid directly to recipients.

Pension income benefits consist mainly of company-paid defined benefit plans that are based on years of service and final average earnings. The company shares in the cost of health care and life insurance benefits. The company's benefit obligations are based on the projected benefit method of valuation that includes employee service to date and present compensation levels, as well as a projection of salaries to retirement.

The expense and obligations for both funded and unfunded benefits are determined in accordance with accepted actuarial practices and U.S. GAAP. The process for determining retirement-income expense and related obligations includes making certain long-term assumptions regarding the discount rate, rate of return on plan assets and rate of compensation increases. The obligation and pension expense can vary significantly with changes in the assumptions used to estimate the obligation and the expected return on plan assets.

The benefit obligations and plan assets associated with the company's defined benefit plans are measured on December 31.

	Pension benefits		Other postretirement benefits	
	2021	2020	**2021**	2020
Assumptions used to determine benefit obligations at December 31 (percent)				
Discount rate	**3.00**	2.50	**3.00**	2.50
Long-term rate of compensation increase	**4.00**	4.00	**4.00**	4.00

millions of Canadian dollars				
Change in benefit obligation				
Benefit obligation at January 1	**10,716**	9,786	**873**	693
Service cost	**324**	305	**28**	24
Interest cost	**271**	308	**22**	24
Actuarial loss (gain) (a)	**(925)**	811	**(83)**	152
Benefits paid (b)	**(536)**	(494)	**(22)**	(20)
Benefit obligation at December 31	**9,850**	10,716	**818**	873
Accumulated benefit obligation at December 31	**8,885**	9,619		

(a) Actuarial loss (gain) primarily driven by changes in the year-end discount rate, salary experience and lower long-term rate of compensation.

(b) Benefit payments for funded and unfunded plans.

The discount rate for the purpose of calculating year-end postretirement benefits plan obligation is determined by using the Canadian Institute of Actuaries recommended spot yield curve for high-quality, long-term Canadian corporate bonds with an average maturity (or duration) approximating that of the liabilities. For the measurement of the accumulated postretirement benefit obligation, the assumed health care cost trend rates start with 5.80 percent in 2022 and gradually decline to 3.57 percent by 2040 and beyond.

	Pension benefits		Other postretirement benefits	
millions of Canadian dollars	**2021**	2020	**2021**	2020
Change in plan assets				
Fair value at January 1	**9,426**	8,599		
Actual return on plan assets	**319**	1,073		
Company contributions	**164**	195		
Benefits paid (a)	**(469)**	(441)		
Fair value at December 31	**9,440**	9,426		
Plan assets in excess of (less than) projected benefit obligation at December 31				
Funded plans	**89**	(641)		
Unfunded plans	**(499)**	(649)	**(818)**	(873)
Total (b)	**(410)**	(1,290)	**(818)**	(873)

(a) Benefit payments for funded plans only.

(b) Fair value of assets less projected benefit obligation shown above.

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. In accordance with authoritative guidance relating to the accounting for defined pension and other postretirement benefits plans, the overfunded or underfunded status of the company’s defined benefit postretirement plans was recorded as an asset or liability in the Consolidated balance sheet, and the changes in that funded status in the year in which the changes occurred was recognized through other comprehensive income.

millions of Canadian dollars	Pension benefits 2021	2020	Other postretirement benefits 2021	2020
Amounts recorded in the Consolidated balance sheet consist of:				
Other assets, including intangibles - net	**190**	-	-	-
Current liabilities	**(26)**	(27)	**(30)**	(31)
Other long-term obligations	**(574)**	(1,263)	**(788)**	(842)
Total recorded	**(410)**	(1,290)	**(818)**	(873)
Amounts recorded in accumulated other comprehensive income consist of:				
Net actuarial loss (gain)	**1,272**	2,232	**173**	272
Prior service cost	**252**	269	**-**	-
Total recorded in accumulated other comprehensive income, before-tax	**1,524**	2,501	**173**	272

The company establishes the long-term expected rate of return on plan assets by developing a forward-looking long-term return assumption for each asset class, taking into account factors such as the expected real return for the specific asset class and inflation. A single, long-term rate of return is then calculated as the weighted average of the target asset allocation percentages and the long-term return assumption for each asset class. The 2021 long-term expected return of 4.5 percent used in the calculations of pension expense compares to an actual rate of return of 8.5 percent and 7.3 percent over the last 10- and 20-year periods respectively, ending December 31, 2021.

	Pension benefits 2021	2020	2019	Other postretirement benefits 2021	2020	2019
Assumptions used to determine net periodic benefit cost for years ended December 31 (percent)						
Discount rate	**2.50**	3.10	3.90	**2.50**	3.10	3.90
Long-term rate of return on funded assets	**4.50**	4.50	4.50	**-**	-	-
Long-term rate of compensation increase	**4.00**	4.50	4.50	**4.00**	4.50	4.50
millions of Canadian dollars						
Components of net periodic benefit cost						
Service cost	**324**	305	228	**28**	24	16
Interest cost	**271**	308	324	**22**	24	20
Expected return on plan assets	**(427)**	(391)	(349)	**-**	-	-
Amortization of prior service cost	**17**	14	-	**-**	-	-
Amortization of actuarial loss (gain)	**143**	153	149	**16**	13	(1)
Net periodic benefit cost	**328**	389	352	**66**	61	35
Changes in amounts recorded in accumulated other comprehensive income						
Net actuarial loss (gain)	**(817)**	129	288	**(83)**	152	99
Amortization of net actuarial (loss) gain included in net periodic benefit cost	**(143)**	(153)	(149)	**(16)**	(13)	1
Prior service cost	**-**	-	283	**-**	-	-
Amortization of prior service cost included in net periodic benefit cost	**(17)**	(14)	-	**-**	-	-
Total recorded in other comprehensive income	**(977)**	(38)	422	**(99)**	139	100
Total recorded in net periodic benefit cost and other comprehensive income, before-tax	**(649)**	351	774	**(33)**	200	135

Costs for defined contribution plans, primarily the employee savings plan, were $47 million in 2021 (2020 - $47 million, 2019 - $43 million).

A summary of the change in accumulated other comprehensive income is shown in the table below:

millions of Canadian dollars	Total pension and other postretirement benefits 2021	2020	2019
(Charge) credit to other comprehensive income, before-tax	**1,076**	(101)	(522)
Deferred income tax (charge) credit (note 17)	**(264)**	23	128
(Charge) credit to other comprehensive income, after-tax	**812**	(78)	(394)

The company's investment strategy for pension plan assets reflects a long-term view, a careful assessment of the risks inherent in various asset classes and broad diversification to reduce the risk of the portfolio. Consistent with the long-term nature of the liability, the plan assets are primarily invested in global, market-cap-weighted indexed equity and domestic indexed bond funds to diversify risk while minimizing costs. The balance of the plan assets is largely invested in high-quality corporate and government debt securities with interest rate sensitivity designed to approximate the interest rate sensitivity of plan liabilities. The preferred target asset allocation for pension plan assets is reviewed periodically and set based on considerations such as risk, diversification, liquidity and credit quality of investment. The target asset allocation for equity securities is 30 percent with the remainder in fixed-income securities.

The fair value measurement levels are accounting terms that refer to different methods of valuing assets. The terms do not represent the relative risk or credit quality of an investment.

The 2021 fair value of the pension plan assets, including the level within the fair value hierarchy, is shown in the table below:

		Fair value measurements at December 31, 2021, using:			
millions of Canadian dollars	Total	Level 1	Level 2	Level 3	Net Asset Value
Asset class					
Equity securities					
Canadian	**247**				**247**
Non-Canadian	**2,539**				**2,539**
Debt securities - Canadian					
Corporate	**1,496**				**1,496**
Government	**4,865**				**4,865**
Asset backed	**1**				**1**
Equities – Venture capital	**249**				**249**
Cash	**43**	**36**			**7**
Total plan assets at fair value	**9,440**	**36**			**9,404**

The 2020 fair value of the pension plan assets, including the level within the fair value hierarchy, is shown in the table below:

millions of Canadian dollars	Total	Fair value measurements at December 31, 2020, using: Level 1	Level 2	Level 3	Net Asset Value
Asset class					
Equity securities					
Canadian	222				222
Non-Canadian	2,690				2,690
Debt securities - Canadian					
Corporate	1,426				1,426
Government	4,825				4,825
Asset backed	-				-
Equities – Venture capital	214				214
Cash	49	41			8
Total plan assets at fair value	9,426	41			9,385

A summary of pension plans with accumulated benefit obligation and projected benefit obligation in excess of plan assets is shown in the table below:

millions of Canadian dollars	Pension benefits **2021**	2020
For funded pension plans with accumulated benefit obligation in excess of plan assets: (a)		
Accumulated benefit obligation	**-**	1,034
Fair value of plan assets	**-**	954
Accumulated benefit obligation less fair value of plan assets	**-**	80
For funded pension plans with projected benefit obligation in excess of plan assets: (b)		
Projected benefit obligation	**1,132**	10,067
Fair value of plan assets	**1,031**	9,426
Projected benefit obligation less fair value of plan assets	**101**	641
For unfunded plans covered by book reserves:		
Projected benefit obligation	**499**	649
Accumulated benefit obligation	**461**	565

(a) The amounts shown for 2020 represent the company's proportionate share of a joint venture sponsored pension plan. The fair value of plan assets exceeded the accumulated benefit obligation for both the company sponsored plan and its proportionate share of a joint venture sponsored plan in 2021.

(b) In 2021, projected benefit obligation exceeded the fair value of plan assets only for the company's proportionate share of a joint venture sponsored pension plan.

Cash flows

Benefit payments expected in:

millions of Canadian dollars	Pension benefits	Other postretirement benefits
2022	**460**	**30**
2023	**460**	**31**
2024	**460**	**31**
2025	**460**	**32**
2026	**460**	**33**
2027 - 2031	**2,295**	**173**

In 2022, the company expects to make cash contributions of about $204 million to its pension plans.

5. Other long-term obligations

millions of Canadian dollars	**2021**	2020
Employee retirement benefits (a) (note 4)	**1,362**	2,105
Asset retirement obligations and other environmental liabilities (b) (c)	**1,713**	1,676
Share-based incentive compensation liabilities (note 7)	**79**	45
Operating lease liability (note 13)	**147**	95
Other obligations	**596**	179
Total other long-term obligations	**3,897**	4,100

(a) Total recorded employee retirement benefits obligations also included $56 million in current liabilities (2020 – $58 million).

(b) Total asset retirement obligations and other environmental liabilities also included $102 million in current liabilities (2020 – $100 million).

(c) For 2021, the asset retirement obligations were discounted at 6 percent (2020 - 6 percent). Asset retirement obligations incurred in the current period were level 3 fair value measurements.

The following table summarizes the activity in the liability for asset retirement obligations:

millions of Canadian dollars	**2021**	2020	2019
Balance as at January 1	**1,674**	1,400	1,417
Additions (deductions)	**6**	265	(23)
Accretion	**99**	82	80
Settlement	**(58)**	(73)	(74)
Balance as at December 31	**1,721**	1,674	1,400

Estimated cash payments for asset retirement obligations are $77 million in 2022 and $64 million in 2023.

6. Financial and derivative instruments

Financial instruments

The fair value of the company's financial instruments is determined by reference to various market data and other appropriate valuation techniques. There are no material differences between the fair value of the company's financial instruments and the recorded carrying value. At December 31, 2021 and December 31, 2020, the fair value of long-term debt ($4,447 million, excluding finance lease obligations) was primarily a level 2 measurement.

Derivative instruments

The company's size, strong capital structure and the complementary nature of the Upstream, Downstream and Chemical businesses reduce the company's enterprise-wide risk from changes in commodity prices and currency exchange rates. In addition, the company uses commodity-based contracts, including derivative instruments to manage commodity price risk and for trading purposes. Commodity contracts held for trading purposes are presented in the Consolidated statement of income on a net basis in the line "Revenues". The company does not designate derivative instruments as a hedge for hedge accounting purposes.

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. The company maintains a system of controls that includes the authorization, reporting and monitoring of derivative activity.

At December 31, the net notional long / (short) position of derivative instruments was:

thousands of barrels	**2021**	2020
Crude	**7,390**	(800)
Products	**(560)**	(390)

Realized and unrealized gain or (loss) on derivative instruments recognized in the Consolidated statement of income is included in the following lines on a before-tax basis:

millions of Canadian dollars	**2021**	2020	2019
Revenues	**(46)**	(13)	(3)
Purchases of crude oil and products	**(33)**	(21)	(7)
Total	**(79)**	(34)	(10)

The estimated fair value of derivative instruments, and the related hierarchy level for the fair value measurement is as follows:

At December 31, 2021
millions of Canadian dollars

	Fair value				Effect of counterparty netting	Effect of collateral netting	Net carrying value
	Level 1	Level 2	Level 3	Total			
Assets							
Derivative assets (a)	**24**	**17**	**-**	**41**	**(31)**	**-**	**10**
Liabilities							
Derivative liabilities (b)	**31**	**12**	**-**	**43**	**(31)**	**(7)**	**5**

(a) Included in the Consolidated balance sheet line: "Materials, supplies and prepaid expenses", "Accounts receivable - net" and "Other assets, including intangibles - net".

(b) Included in the Consolidated balance sheet line: "Accounts payable and accrued liabilities" and "Other long-term obligations".

At December 31, 2020
millions of Canadian dollars

	Fair value Level 1	Level 2	Level 3	Total	Effect of counterparty netting	Effect of collateral netting	Net carrying value
Assets							
Derivative assets (a)	2	-	-	2	(2)	-	-
Liabilities							
Derivative liabilities (b)	12	-	-	12	(2)	(10)	-

(a) Included in the Consolidated balance sheet line: "Materials, supplies and prepaid expenses", "Accounts receivable - net" and "Other assets, including intangibles - net".

(b) Included in the Consolidated balance sheet line: "Accounts payable and accrued liabilities" and "Other long-term obligations".

At December 31, 2021 and December 31, 2020, the company had $6 million and $5 million, respectively, of collateral under a master netting arrangement not offset against the derivatives on the Consolidated balance sheet in “Accounts receivable - net”, primarily related to initial margin requirements.

7. Share-based incentive compensation programs

Share-based incentive compensation programs are designed to retain selected employees, reward them for high performance and promote individual contribution to sustained improvement in the company's future business performance and shareholder value over the long-term. The nonemployee directors also participate in share-based incentive compensation programs.

Restricted stock units and deferred share units

Under the restricted stock unit plan, each unit entitles the recipient to the conditional right to receive from the company, upon vesting, an amount equal to the value of one common share of the company, based on the five-day average of the closing price of the company's common shares on the Toronto Stock Exchange on and immediately prior to the vesting dates. For the majority of the units, fifty percent of the units vest on the third anniversary of the grant date, and the remainder vest on the seventh anniversary of the grant date. The company may also issue units to the chairman, president and chief executive officer where 50 percent of the units vest on the fifth anniversary of the grant date and the remainder vest on the tenth anniversary of the grant date, except that for awards granted prior to 2021, the vesting of the tenth anniversary portion is delayed until retirement if later than 10 years.

The deferred share unit plan is made available to nonemployee directors. The nonemployee directors can elect to receive all or part of their eligible directors' fees in units. The number of units granted is determined at the end of each calendar quarter by dividing the dollar amount of the nonemployee director's fees for that calendar quarter elected to be received as deferred share units by the average closing price of the company's shares for the five consecutive trading days ("average closing price") immediately prior to the last day of the calendar quarter. Additional units are granted to represent dividends on unexercised units, and are calculated by dividing the cash dividend payable on the company's shares by the average closing price immediately prior to the payment date for that dividend and multiplying the resulting number by the number of deferred share units held by the recipient, as adjusted for any share splits. Deferred share units cannot be exercised until after termination of service as a director, including termination due to death, and must be exercised in their entirety in one election no later than December 31 of the year following the year of termination of service. On the exercise date, the cash value to be received for the units is determined based on the company's average closing price immediately prior to the date of exercise, as adjusted for any share splits.

All units require settlement by cash payments with the following exceptions. The restricted stock unit program provides that, for units granted to Canadian residents, the recipient may receive one common share of the company per unit or elect to receive the cash payment for the units that vest on the seventh year anniversary of the grant date. For units where 50 percent vest on the fifth anniversary of the grant date and the remainder vest on the tenth anniversary of grant, the recipient may receive one common share of the company per unit or elect to receive cash payment for all that vest.

The company accounts for all units by using the fair-value-based method. The fair value of awards in the form of restricted stock and deferred share units is the market price of the company's stock. Under this method, compensation expense related to the units of these programs is measured each reporting period based on the company's current stock price and is recorded in the Consolidated statement of income over the requisite service period of each award.

The following table summarizes information about these units for the year ended December 31, 2021:

	Restricted stock units	Deferred share units
Outstanding at January 1, 2021	**4,463,320**	**147,405**
Granted	**681,520**	**19,260**
Vested / Exercised	**(1,021,865)**	**-**
Forfeited and cancelled	**(172,360)**	**-**
Outstanding at December 31, 2021	**3,950,615**	**166,665**

In 2021, the before-tax compensation expense charged against income for these programs was $96 million (2020 - $2 million benefit, 2019 - $34 million expense). Income tax expense associated with compensation programs for the year was $23 million (2020 - $0 million, 2019 - $9 million benefit). Cash payments of $52 million were made for these programs in 2021 (2020 - $33 million, 2019 - $50 million).

As of December 31, 2021, there was $80 million of total before-tax unrecognized compensation expense related to non-vested restricted stock units based on the company's share price at the end of the current reporting period. The weighted average vesting period of non-vested restricted stock units is 4.0 years. All units under the deferred share programs have vested as of December 31, 2021.

8. Investment and other income

Investment and other income includes gains and losses on asset sales as follows:

millions of Canadian dollars	**2021**	2020	2019
Proceeds from asset sales	**81**	82	82
Book value of asset sales	**32**	47	36
Gain (loss) on asset sales, before-tax	**49**	35	46
Gain (loss) on asset sales, after-tax	**43**	32	42

9. Litigation and other contingencies

A variety of claims have been made against Imperial and its subsidiaries in a number of lawsuits. Management has regular litigation reviews, including updates from corporate and outside counsel to assess the need for accounting recognition or disclosure of these contingencies. The company accrues an undiscounted liability for those contingencies where the incurrence of a loss is probable and the amount can be reasonably estimated. If a range of amounts can be reasonably estimated and no amount within the range is a better estimate than any other amount, then the minimum of the range is accrued. The company does not record liabilities when the likelihood that the liability has been incurred is probable but the amount cannot be reasonably estimated or when the liability is believed to be only reasonably possible or remote. For contingencies where an unfavourable outcome is reasonably possible and which are significant, the company discloses the nature of the contingency and, where feasible, an estimate of the possible loss. For purposes of the company’s contingency disclosures, “significant” includes material matters, as well as other matters which management believes should be disclosed. 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, the company has other commitments arising in the normal course of business for operating and capital needs, all of which are expected to be fulfilled with no adverse consequences material to the company's operations or financial condition. Unconditional purchase obligations, as defined by accounting standards, are those long-term commitments that are non-cancelable or cancelable only under certain conditions and that third parties have used to secure financing for the facilities that will provide the contracted goods and services. The company has not entered into any unconditional purchase obligations.

As a result of the completed sale of Imperial’s remaining company-owned Esso retail sites, the company was contingently liable at December 31, 2021, for guarantees relating to performance under contracts of other third-party obligations totalling $21 million (2020 - $26 million).

At March 31, 2021, due to the termination of transportation services agreements related to a third-party pipeline project, the company recognized a liability of $62 million, previously reported as a contingent liability.

10. Common shares

At December 31 thousands of shares	**2021**	2020
Authorized	**1,100,000**	1,100,000
Common shares outstanding	**678,080**	734,077

The most recent 12-month normal course issuer bid program came into effect June 29, 2021, under which Imperial continued its existing share purchase program. The program enabled the company to purchase up to a maximum of 35,583,671 common shares (5 percent of the total shares on June 15, 2021) which included shares purchased under the normal course issuer bid and from Exxon Mobil Corporation concurrent with, but outside of the normal course issuer bid. As in the past, Exxon Mobil Corporation advised the company that it intended to participate to maintain its ownership percentage at approximately 69.6 percent. Subsequent to December 31, 2021, the program completed on January 31, 2022 as a result of the company purchasing the maximum allowable number of shares under the program.

The excess of the purchase cost over the stated value of shares purchased has been recorded as a distribution of earnings reinvested.

The company's common share activities are summarized below:

	Thousands of shares	Millions of dollars
Balance as at January 1, 2019	782,565	1,446
Issued under employee share-based awards	1	-
Purchases at stated value	(38,664)	(71)
Balance as at December 31, 2019	743,902	1,375
Issued under employee share-based awards	7	-
Purchases at stated value	(9,832)	(18)
Balance as at December 31, 2020	734,077	1,357
Issued under employee share-based awards	7	-
Purchases at stated value	(56,004)	(105)
Balance as at December 31, 2021	**678,080**	**1,252**

The following table provides the calculation of basic and diluted earnings per common share and the dividends declared by the company on its outstanding common shares:

	2021	2020	2019
Net income (loss) per common share – basic			
Net income (loss) (millions of Canadian dollars)	**2,479**	(1,857)	2,200
Weighted average number of common shares outstanding (millions of shares)	**711.6**	735.3	762.7
Net income (loss) per common share (dollars)	**3.48**	(2.53)	2.88
Net income (loss) per common share – diluted			
Net income (loss) (millions of Canadian dollars)	**2,479**	(1,857)	2,200
Weighted average number of common shares outstanding (millions of shares)	**711.6**	735.3	762.7
Effect of employee share-based awards (millions of shares) (a)	**1.6**	-	2.3
Weighted average number of common shares outstanding, assuming dilution (millions of shares)	**713.2**	735.3	765.0
Net income (loss) per common share (dollars)	**3.48**	(2.53)	2.88
Dividends per common share – declared (dollars)	**1.03**	0.88	0.85

(a) For 2020, the Net income (loss) per common share – diluted excludes the effect of 1.9 million employee share-based awards. Share-based awards have the potential to dilute basic earnings per share in the future.

11. Miscellaneous financial information

In 2021, net income included an after-tax loss of $13 million (2020 – $19 million loss, 2019 – $22 million loss) attributable to the effect of changes in last-in, first-out (LIFO) inventories. The replacement cost of inventories was estimated to exceed their LIFO carrying values at December 31, 2021 by about $1.8 billion (2020 – $0.8 billion). Inventories of crude oil and products at year-end consisted of the following:

millions of Canadian dollars	**2021**	2020
Crude oil	**674**	630
Petroleum products	**310**	403
Chemical products	**73**	55
Other	**45**	73
Total	**1,102**	1,161

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.

The company has determined that the adjustment is not material to the consolidated financial statements for the year ended December 31, 2021, or any of the prior periods related to the adjustment. Accordingly, comparative periods presented in the consolidated financial statements have not been restated.

Research expenditures are mainly spent on developing technologies to improve bitumen recovery, reduce costs and reduce the environmental impact of upstream operations, including technologies to reduce greenhouse gas emissions intensity, supporting environmental and process improvements in the refineries, as well as accessing ExxonMobil's research worldwide.

The company has scientific research agreements with affiliates of ExxonMobil, which provide for technical and engineering work to be performed by all parties, the exchange of technical information and the assignment and licencing of patents, and patent rights. These agreements provide mutual access to scientific and operating data related to nearly every phase of the petroleum and petrochemical operations of the parties.

Net research and development costs charged to expenses in 2021 were $89 million (2020 – $105 million, 2019 – $133 million). These costs are included in expenses due to the uncertainty of future benefits.

“Accounts payable and accrued liabilities” included accrued taxes other than income taxes of $415 million at December 31, 2021 (2020 – $344 million).

The company has received subsidies as part of the Government of Canada’s COVID-19 Economic Response Plan, which included the company's proportionate share of a joint venture. It was recognized as a reduction to expense (2020 – $155 million before tax) and was included in the Consolidated statement of income, primarily as part of “Production and manufacturing”.

In the first quarter of 2020, with the change in economic conditions and the reduction in the company’s market capitalization, the company assessed its goodwill balances for impairment and recognized a non-cash goodwill impairment charge of $20 million in the company’s Upstream segment. The goodwill impairment is reflected in “Depreciation and depletion” on the Consolidated statement of income and “Goodwill” on the Consolidated balance sheet. The remaining balance of goodwill is associated with the Downstream segment.

12. Financing and additional notes and loans payable information

millions of Canadian dollars	2021	2020	2019
Debt-related interest (a)	**63**	102	138
Capitalized interest	**(24)**	(41)	(48)
Net interest expense	**39**	61	90
Other interest	**15**	3	3
Total financing (b)	**54**	64	93

(a) Includes related party interest with ExxonMobil.
(b) The weighted average interest rate on short-term borrowings in 2021 was 0.2 percent (2020 – 0.8 percent, 2019 – 1.8 percent). Average effective rate on the long-term borrowings with ExxonMobil in 2021 was 0.6 percent (2020 – 1.4 percent, 2019 – 2.2 percent).

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.

In 2021, the company repaid the $111 million outstanding balance and terminated the non-interest bearing, revolving demand loan under an arrangement with an affiliate company of ExxonMobil.

13. Leases

The company generally purchases the property, plant and equipment used in operations, but there are situations where assets are leased, primarily storage tanks, rail cars, marine vessels and transportation facilities. Right of use assets and lease liabilities are established on the balance sheet for leases with an expected term greater than one year, by discounting the amounts fixed in the lease agreement for the duration of the lease which is reasonably certain, considering the probability of exercising any early termination and extension options. The portion of the fixed payment related to service costs for tankers and finance leases is excluded from the calculation of right of use assets and lease liabilities. Usually, assets are leased only for a portion of their useful lives and are accounted for as operating leases. In limited situations, assets are leased for nearly all of their useful lives and are accounted for as finance leases. In general, leases are capitalized using the company's incremental borrowing rate.

Variable payments under these lease agreements are not significant. Residual value guarantees, restrictions, or covenants related to leases, and transactions with related parties are also not significant. The company's activities as a lessor are not material.

The table below summarizes the total lease cost incurred:

	2021		2020		2019	
millions of Canadian dollars	Operating leases	Finance leases	Operating leases	Finance leases	Operating leases	Finance leases
Operating lease cost	**123**		157		151	
Short-term and other (net of sublease rental income)	**19**		40		76	
Amortization of right of use assets		**17**		29		55
Interest on lease liabilities		**33**		38		40
Total lease cost	**142**	**50**	197	67	227	95

The following table summarizes the amounts related to operating leases and finance leases recorded on the Consolidated balance sheet, weighted average remaining lease term and weighted average discount rates applied at December 31:

	2021		2020	
millions of Canadian dollars	Operating leases	Finance leases (a)	Operating leases	Finance leases
Right of use assets				
Included in Other assets, including intangibles - net	**245**		188	
Included in Property, plant and equipment, less accumulated depreciation and depletion		**637**		532
Total right of use assets	**245**	**637**	188	532
Lease liability due within one year				
Included in Accounts payable and accrued liabilities	**102**	**-**	97	-
Included in Notes and loans payable		**22**		16
Long-term lease liability				
Included in Other long-term obligations	**147**	**-**	95	-
Included in Long-term debt		**607**		510
Total lease liability	**249**	**629**	192	526
Weighted average remaining lease term (years)	**4**	**38**	4	38
Weighted average discount rate (percent)	**1.2**	**4.8**	2.5	7.3

(a) The change in finance leases was due to a finance lease modification and re-measurement.

The maturity analysis of the company's lease liabilities as at December 31 are summarized below:

	2021	
millions of Canadian dollars	Operating leases	Finance leases
Maturity analysis of lease liabilities		
2022	**104**	**52**
2023	**65**	**50**
2024	**44**	**49**
2025	**6**	**46**
2026	**5**	**44**
2027 and beyond	**36**	**942**
Total lease payments	**260**	**1,183**
Discount to present value	**(11)**	**(554)**
Total lease liability	**249**	**629**

In addition to the operating lease liabilities in the table immediately above, at December 31, 2021, additional undiscounted commitments for leases not yet commenced totalled $5 million (2020 - $27 million).

Estimated cash payments for operating and finance leases not yet commenced are $2 million in both 2022 and 2023.

The table below summarizes the cash paid for amounts included in the measurement of lease liabilities and the right of use assets obtained in exchange for new lease liabilities:

	2021		2020		2019	
millions of Canadian dollars	Operating leases	Finance leases	Operating leases	Finance leases	Operating leases	Finance leases
Cash paid for amounts included in the measurement of lease liabilities						
Cash flows from operating activities	**122**	**-**	136	15	147	45
Cash flows from financing activities		**20**		20		27
Non-cash right of use assets recorded for lease liabilities						
For January 1 adoption of *Leases (Topic 842)*					298	
In exchange for lease liabilities during the year	**176**	**123**	63	14	104	-

14. Long-term debt

At December 31 millions of Canadian dollars	**2021**	2020
Long-term debt (a)	**4,447**	4,447
Finance leases (b)	**607**	510
Total long-term debt	**5,054**	4,957

(a) Borrowed under an existing agreement with an affiliated company of ExxonMobil that provides for a long-term, variable-rate, Canadian dollar loan from ExxonMobil to the company of up to $7.75 billion at interest equivalent to Canadian market rates. The agreement is effective until June 30, 2025, cancelable if ExxonMobil provides at least 370 days advance written notice.

(b) Finance leases are primarily associated with transportation facilities and services agreements. The average imputed rate was 4.8 percent in 2021 (2020 – 7.3 percent). Total finance lease obligations also include $22 million in current liabilities (2020 - $16 million). Principal payments on finance leases of approximately $20 million on average per year are due in each of the next four years after December 31, 2022.

15. Accounting for suspended exploratory well costs

The company continues capitalization of exploratory well costs when the well 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. 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. At December 31, 2021 the company had no capitalized suspended exploratory well costs (2020 - $0 million, 2019 - $0 million).

Exploration activity often involves drilling multiple wells, over a number of years, to fully evaluate a project. At December 31, 2021 the company had no projects with exploratory wells costs capitalized (2020 - 0, 2019 - 0).

16. Transactions with related parties

Revenues and expenses of the company also include the results of transactions with affiliated companies of ExxonMobil in the normal course of operations. These were conducted on terms comparable to those which would have been conducted with unrelated parties and primarily consisted of the purchase and sale of crude oil, natural gas, petroleum and chemical products, as well as technical, engineering and research and development costs. Transactions with ExxonMobil also included amounts paid and received in connection with the company’s participation in a number of upstream activities conducted jointly in Canada.

In addition, the company has existing agreements with ExxonMobil:

a) To provide computer and customer support services to the company and to share common business and operational support services that allow the companies to consolidate duplicate work and systems;

b) To operate certain western Canada production properties owned by ExxonMobil, as well as provide for the delivery of management, business and technical services to ExxonMobil in Canada. These agreements are designed to provide organizational efficiencies and to reduce costs. No separate legal entities were created from these arrangements. Separate books of account continue to be maintained for the company and ExxonMobil. The company and ExxonMobil retain ownership of their respective assets, and there is no impact on operations or reserves;

c) To provide for the option of equal participation in new upstream opportunities; and

d) To enter into derivative agreements on each other’s behalf.

The company had an existing agreement with ExxonMobil to provide for the delivery of management, business and technical services to Syncrude Canada Ltd. by ExxonMobil, which was terminated in connection with the transfer of operatorship of Syncrude on September 30, 2021.

Certain charges from ExxonMobil have been capitalized; they are not material in the aggregate.

The amounts of purchases and revenues by Imperial in 2021, with ExxonMobil, were $2,669 million and $8,777 million respectively (2020 - $2,424 million and $5,101 million respectively).

As at December 31, 2021, the company had outstanding long-term loans of $4,447 million (2020 – $4,447 million) and short-term loans of $0 million (2020 – $111 million) from ExxonMobil (see note 14, Long-term debt, on page 104 and note 12, Financing and additional notes and loans payable information, on page 101 for further details). The amount of financing costs with ExxonMobil were $28 million (2020 - $61 million).

Imperial has other related party transactions not detailed above in note 16, as they are not significant.

17. Other comprehensive income (loss) information

Changes in accumulated other comprehensive income (loss):

millions of Canadian dollars	**2021**	2020	2019
Balance at January 1	**(1,989)**	(1,911)	(1,517)
Postretirement benefits liability adjustment:			
Current period change excluding amounts reclassified from accumulated other comprehensive income	**679**	(212)	(505)
Amounts reclassified from accumulated other comprehensive income	**133**	134	111
Balance at December 31	**(1,177)**	(1,989)	(1,911)

Amounts reclassified out of accumulated other comprehensive income (loss) - before-tax income (expense):

millions of Canadian dollars	**2021**	2020	2019
Amortization of postretirement benefits liability adjustment included in net periodic benefit cost (a)	**(176)**	(180)	(148)

(a) This accumulated other comprehensive income component is included in the computation of net periodic benefit cost (note 4).

Income tax expense (credit) for components of other comprehensive income (loss):

millions of Canadian dollars	**2021**	2020	2019
Postretirement benefits liability adjustments:			
Postretirement benefits liability adjustment (excluding amortization)	**221**	(69)	(165)
Amortization of postretirement benefits liability adjustment included in net periodic benefit cost	**43**	46	37
Total	**264**	(23)	(128)

Supplemental information on oil and gas exploration and production activities (unaudited)

The information on pages 107 to 108 excludes items not related to oil and natural gas extraction, such as administrative and general expenses, pipeline operations, gas plant processing fees and gains or losses on asset sales. The company's 25 percent interest in proved synthetic oil reserves in the Syncrude joint-venture is included as part of the company's total proved oil and gas reserves and in the calculation of the standardized measure of discounted future cash flows, in accordance with U.S. Securities and Exchange Commission and U.S. Financial Accounting Standards Board rules. Results of operations, costs incurred in property acquisitions, exploration and development activities, and capitalized costs include the company's share of Kearl, Syncrude and other unproved mineable acreages in the following tables.

Results of operations

millions of Canadian dollars	**2021**	2020	2019
Sales to customers (a)	**5,081**	2,066	3,927
Intersegment sales (a) (b)	**3,037**	1,777	2,627
	8,118	3,843	6,554
Production expenses	**4,728**	3,977	4,467
Exploration expenses	**32**	13	47
Depreciation and depletion (includes impairments)	**1,579**	2,857	1,266
Income taxes	**457**	(678)	(487)
Results of operations	**1,322**	(2,326)	1,261

The amounts reported as costs incurred in property acquisitions, exploration and development activities include both capitalized costs and costs charged to expense during the year. Costs incurred also include new asset retirement obligations established in the current year, as well as increases or decreases to the asset retirement obligation resulting from changes in cost estimates or abandonment date.

Costs incurred in property acquisitions, exploration and development activities

millions of Canadian dollars	**2021**	2020	2019
Property costs (c)			
Proved	**-**	-	-
Unproved	**-**	-	2
Exploration costs	**32**	13	47
Development costs	**576**	816	1,176
Total costs incurred in property acquisitions, exploration and development activities	**608**	829	1,225

(a) Sales to customers or intersegment sales do not include the sale of natural gas and natural gas liquids purchased for resale, as well as royalty payments or diluent costs. These items are reported gross in note 2 in "Revenues", "Intersegment sales" and in "Purchases of crude oil and products".

(b) Sales of crude oil to consolidated affiliates are at market value, using posted field prices. Sales of natural gas liquids to consolidated affiliates are at prices estimated to be obtainable in a competitive, arm's-length transaction.

(c) "Property costs" are payments for rights to explore for petroleum and natural gas and for purchased reserves (acquired tangible and intangible assets such as gas plants, production facilities and producing-well costs are included under "producing assets"). "Proved" represents areas where successful drilling has delineated a field capable of production. "Unproved" represents all other areas.

Capitalized costs

millions of Canadian dollars	**2021**	2020
Property costs (a)		
Proved	**2,045**	2,070
Unproved	**2,468**	2,462
Producing assets	**39,926**	39,785
Incomplete construction	**1,762**	1,518
Total capitalized cost	**46,201**	45,835
Accumulated depreciation and depletion	**(20,112)**	(18,551)
Net capitalized costs	**26,089**	27,284

(a) "Property costs" are payments for rights to explore for petroleum and natural gas and for purchased reserves (acquired tangible and intangible assets such as gas plants, production facilities and producing-well costs are included under "producing assets"). "Proved" represents areas where successful drilling has delineated a field capable of production. "Unproved" represents all other areas.

Standardized measure of discounted future cash flows

As required by the U.S. Financial Accounting Standards Board, the standardized measure of discounted future net cash flows is computed by applying first-day-of-the-month average prices, year-end costs and legislated tax rates and a discount factor of 10 percent to net proved reserves. The standardized measure includes costs for future dismantlement, abandonment and remediation obligations. The company believes the standardized measure does not provide a reliable estimate of the company's expected future cash flows to be obtained from the development and production of its oil and gas properties or of the value of its proved oil and gas reserves. The standardized measure is prepared on the basis of certain prescribed assumptions, including first-day-of-the-month average prices, which represent discrete points in time and therefore may cause significant variability in cash flows from year to year as prices change.

Standardized measure of discounted future net cash flows related to proved oil and gas reserves

millions of Canadian dollars	**2021**	2020	2019
Future cash flows	**161,577**	23,911	166,801
Future production costs	**(101,580)**	(18,787)	(127,911)
Future development costs	**(21,903)**	(6,096)	(24,759)
Future income taxes	**(8,192)**	(155)	(3,960)
Future net cash flows	**29,902**	(1,127)	10,171
Annual discount of 10 percent for estimated timing of cash flows	**(15,732)**	1,065	(4,660)
Discounted future cash flows	**14,170**	(62)	5,511

Changes in standardized measure of discounted future net cash flows related to proved oil and gas reserves

millions of Canadian dollars	**2021**	2020	2019
Balance at beginning of year	**(62)**	5,511	8,734
Changes resulting from:			
Sales and transfers of oil and gas produced, net of production costs	**(3,841)**	(447)	(2,441)
Net changes in prices, development costs and production costs (a)	**7,681**	(8,661)	(3,117)
Extensions, discoveries, additions and improved recovery, less related costs	**52**	114	169
Development costs incurred during the year	**650**	563	1,016
Revisions of previous quantity estimates	**13,482**	459	(168)
Accretion of discount	**24**	623	643
Net change in income taxes	**(3,816)**	1,776	675
Net change	**14,232**	(5,573)	(3,223)
Balance at end of year	**14,170**	(62)	5,511

(a) SEC rules require the company's reserves to be calculated on the basis of average first-day-of-the-month oil and natural gas prices during the reporting year. Future net cash flows are determined based on the net proved reserves as outlined in the "Net proved reserves table".

Net proved reserves (a)

	Liquids (b)	Natural gas	Synthetic oil	Bitumen	Total oil-equivalent basis (c)
	millions of barrels	billions of cubic feet	millions of barrels	millions of barrels	millions of barrels
Beginning of year 2019	62	639	466	3,166	3,800
Revisions	(20)	(33)	(27)	(134)	(187)
Improved recovery	-	-	-	-	-
(Sale) purchase of reserves in place	-	(24)	-	-	(4)
Discoveries and extensions	4	51	-	-	13
Production	(5)	(52)	(24)	(93)	(130)
End of year 2019	41	581	415	2,939	3,492
Revisions	(29)	(348)	(79)	(2,757)	(2,923)
Improved recovery	-	-	-	-	-
(Sale) purchase of reserves in place	-	(10)	-	-	(2)
Discoveries and extensions	-	-	133	1	134
Production	(5)	(55)	(25)	(102)	(141)
End of year 2020	7	168	444	81	560
Revisions	13	165	17	2,239	2,297
Improved recovery	-	-	-	2	2
(Sale) purchase of reserves in place	-	(10)	-	-	(2)
Discoveries and extensions	-	-	-	-	-
Production	(4)	(42)	(23)	(106)	(140)
End of year 2021	**16**	**281**	**438**	**2,216**	**2,717**
Net proved developed reserves included above, as of					
January 1, 2019	24	273	466	2,861	3,396
December 31, 2019	22	291	415	2,609	3,095
December 31, 2020	7	167	311	76	422
December 31, 2021	**14**	**205**	**326**	**1,957**	**2,331**
Net proved undeveloped reserves included above, as of					
January 1, 2019	38	366	-	305	404
December 31, 2019	19	290	-	330	397
December 31, 2020	-	1	133	5	138
December 31, 2021	**2**	**76**	**112**	**259**	**386**

(a) Net reserves are the company's share of reserves after deducting the shares of mineral owners or governments or both. All reported reserves are located in Canada. Reserves of natural gas are calculated at a pressure of 14.73 pounds per square inch at 60°F.

(b) Liquids include crude, condensate and natural gas liquids (NGLs). NGL proved reserves are not material and are therefore included under liquids.

(c) Gas converted to oil-equivalent at six million cubic feet per one thousand barrels.

The information above describes changes during the years and balances of proved oil and gas reserves at year-end 2019, 2020 and 2021. The definitions used are in accordance with the U.S. Securities and Exchange Commission's Rule 4-10 (a) of Regulation S-X.

Proved oil and natural gas reserves are those quantities of oil and gas, which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be economically producible – from a given date forward, from known reservoirs, and under existing economic conditions, operating methods and government regulations – prior to the time at which contracts providing the right to operate expire. In some cases, substantial new investments in additional wells and other facilities will be required to recover these proved reserves.

In accordance with SEC rules, the year-end reserves volumes, as well as the reserves change categories shown in the proved reserves tables are required to be calculated on the basis of average prices during the 12-month period prior to the ending date of the period covered by the report, determined as an unweighted arithmetic average of the first-day-of-the-month price for each month within such period. These reserves quantities were also used in calculating unit-of-production depreciation rates and in calculating the standardized measure of discounted net cash flow.

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 / facility capacity.

In 2019, downward revisions to proved bitumen reserves were driven by technical and development plan updates at Kearl, resulting in a decrease of 0.2 billion barrels, partially offset by an increase of 0.1 billion barrels at Cold Lake associated with an end of field life change driven by pricing. Downward revisions to proved synthetic oil reserves were a result of higher royalty obligations at Syncrude driven by pricing. Changes to 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 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 U.S. Securities and Exchange Commission definition of proved reserves. Downward revisions to proved synthetic 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 U.S. Securities and Exchange Commission definition of proved reserves. Upward revisions to proved synthetic 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.

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 U.S. Securities and Exchange Commission (SEC) definition.

Net proved reserves are determined by deducting the estimated future share of mineral owners or governments or both. For liquids and natural gas, net proved reserves are based on estimated future royalty rates as of the date the estimate is made incorporating the applicable governments’ oil and gas royalty regimes. For bitumen, net proved reserves are based on the company’s best estimate of average royalty rates over the remaining life of each of the Cold Lake and Kearl fields, and they incorporate the Alberta government's oil sands royalty regime. For synthetic oil, net proved reserves are based on the company’s best estimate of average royalty rates over the remaining life of the project, and they incorporate the Alberta government’s oil sands royalty regime. In all cases, actual future royalty rates may vary with production, price and costs.

Net proved developed reserves are those volumes that are expected to be recovered through existing wells and facilities with existing equipment and operating methods or in which the cost of the required equipment is relatively minor compared to the cost of a new well or facility. Net proved undeveloped reserves are those volumes that are expected to be recovered as a result of future investments to drill new wells, to recomplete existing wells and / or to install facilities to collect and deliver the production from existing and future wells and facilities.

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