
Imperial
ENERGY TRANSFORMS
OUR MODERN LIVES
ADVANCING CLIMATE SOLUTIONS

CONTENTS

Introduction

01 Letter from the Chairman

02 Our progress

Strategy

03 Finding solutions that deliver value and reduce emissions

04 Roadmaps to net-zero

11 Transformational technologies

29 Supportive public policy

Metrics & targets

Reducing oil sands emissions on the path to net-zero by 2050 32

Greenhouse gas emissions methodologies 33

Performance data 35

37 Scope 3 emissions

Governance

Imperial's board of directors 40

Executive compensation 42

Risk management

44 Identifying and managing climate-related risk and opportunity

45 OIMS — a cornerstone to achieving performance excellence

46 Facility resiliency

TCFD mapping 47

Footnotes 48

Published September 2023

LETTER FROM THE CHAIRMAN

Transformational solutions to meet energy needs and reduce greenhouse gas emissions

The need for effective strategies and solutions to supply affordable, accessible, reliable energy and reduce emissions in support of a net-zero future is paramount. Public policy, technology and investment must intersect to close the gap between reality and ambition. Upon reflection, the past year has highlighted the importance of both doing our part to provide energy supply security and taking action to reduce emissions in support of a net-zero future while growing value for our shareholders and stakeholders. Our company has worked diligently on emission reduction roadmaps and business plans to lower greenhouse gas emissions intensity in our operations and provide lower life-cycle product solutions to our customers.

Roadmaps in support of a net-zero future [1]

Imperial's net-zero ambition is supported by a comprehensive approach centered on detailed emission-reduction roadmaps for our major operated assets. These roadmaps consider Canadian public policy, supply resiliency, affordability, technology options and evolving customer choices while aligning with Imperial's core strengths in technology, operations, and project management. There are many choices that could be made in the coming decades dependent upon a range of future demand and technology scenarios. Signpost monitoring and collaboration is critical to guide the timing and direction of solutions to ensure an orderly energy transformation while meeting the needs of our customers and shareholders. I am very excited about Imperial's progress in advancing solutions that will support our journey to net-zero emissions.

Company-wide net-zero goal

I am pleased to share that Imperial has implemented a company-wide goal to achieve net-zero emissions (Scope 1, 2) from assets we operate by 2050 through collaboration with government and other industry partners. Successful technology development and supportive fiscal and regulatory frameworks represent a few examples of what will be needed to achieve this challenging goal.

Pathways Alliance

Approximately two years ago, Imperial came together with industry partners to collaborate with governments, industry, and communities on a goal of net-zero emissions [1] from oil sands operations by 2050. This ground-breaking approach to leverage scale, reduce risk, improve project economics and gain knowledge in new technologies includes carbon capture and storage (CCS), lower intensity oil production using solvents, renewable fuels and low-carbon intensity hydrogen. I am very excited about our collective opportunity to advance a world-scale and leading edge Canadian CCS project while engaging economic opportunities for local and Indigenous communities.

Largest renewable diesel project of its kind in Canada approved

I was very proud to advance Imperial's renewable diesel project at our Strathcona Refinery in Edmonton Alberta. The project will be the largest of its kind in Canada, producing more than one billion litres of renewable diesel annually primarily from locally sourced feedstocks. This renewable diesel will help reduce emissions for our customers by about 3 million metric tons per year and support Canada in achieving its net-zero goals. We are very encouraged by the results from a pilot wherein we effectively used renewable diesel in our heavy equipment at our Kearl operations and are excited about its potential to help our commercial and industrial customers reduce their emissions.

I am pleased to share with you our Advancing Climate Solutions report, a progress report highlighting our efforts to grow shareholder value and play a key role in the transformation to a lower-emission future. We work sincerely to listen to and inform our stakeholders and welcome your feedback on our efforts.

Brad Corson
Chairman, President and CEO

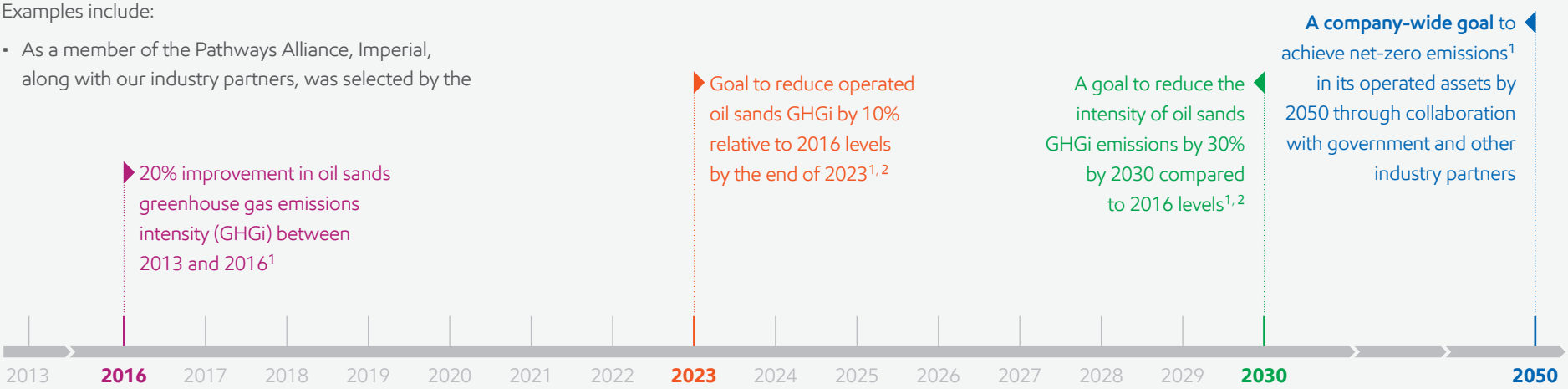
OUR PROGRESS

Imperial's businesses are well positioned to evolve with energy system transformations and we have continued to test the resiliency of our business and investment portfolio against a range of future scenarios. Comprehensive roadmaps were developed to prioritize cost efficient, lower-emissions intensity oil production methods in our upstream and to transition downstream and chemical operations to meet the growing demand for lower-carbon intensity fuels, renewable fuels and low-carbon intensity hydrogen.

We are excited that Imperial's Leduc oil field, where we first discovered oil 75 years ago, could be redeveloped into a potential leading source of lithium for Canada's growing minerals industry. This historic asset has the potential to be transformed into a new business in support of battery technology electrification.

Imperial finds great value in partnering with government, academic institutions, industry peers and other third parties to advance technology solutions, shape supportive climate policy with the purpose of reducing emissions and encouraging investment in lower-carbon solutions. Examples include:

- As a member of the Pathways Alliance, Imperial, along with our industry partners, was selected by the Government of Alberta to advance to the next phase of the evaluation of our advantaged carbon capture and storage (CCS) project with shared infrastructure, established regulatory framework and world-class storage capacity.
- Imperial is monetizing low-carbon intensity hydrogen by purchasing approximately 50 per cent of Air Products' 165 million standard cubic feet per day low-carbon intensity hydrogen for future renewable diesel production at our Strathcona refinery.
- Transitioning our operated oil sands to solvent-based technologies with the first commercial-scale deployment of SA-SAGD in the industry at our Cold Lake operations.
- Imperial collaborated with FLO, a leading North American electric vehicle charging company to jointly develop a charging service option for Imperial's Esso- and Mobil-branded wholesalers.
- Preliminary findings have identified geology that is potentially suitable for carbon storage located near our Nanticoke and Sarnia refineries.



From 2016 levels and includes scope 1 and 2 greenhouse gas emissions from operated assets.

STRATEGY

Finding solutions that deliver value and reduce emissions

Imperial's climate strategy is to responsibly and efficiently produce lower emission intensity oil and product solutions that are needed for energy security while advancing lower carbon solutions that change how society will use energy in the future. Transformational technologies, including renewable fuels, carbon capture and storage, lower-intensity oil production methods and low-carbon intensity hydrogen, are key to meeting emerging customer needs and reducing emissions in Imperial's operations.

Imperial works with partners and policy makers to develop robust, globally competitive policies geared to reducing the country s greenhouse gas emissions while promoting sound investment in energy solutions. Only through joint effort between government, industry, customers, and Indigenous peoples will Canada be successful in unlocking its global potential as an energy leader.

Imperial's climate strategy

- Transformational technology solutions
- Helping our customers reduce their emissions
- Mitigating emissions in our operations
- Finding solutions with partners and policy makers

TCFD* guided disclosure with third-party verified GHGs

** Task Force on Climate-related Financial Disclosures*

ROADMAPS TO NET-ZERO

Comprehensive Imperial roadmaps to net-zero[1] by 2050 completed in 2022

Imperial's roadmaps consider energy security, including energy access and affordability. Unplanned or premature retirement of traditional energy sources could have negative consequences on energy security if not appropriately synchronized with emerging lower-carbon solutions.

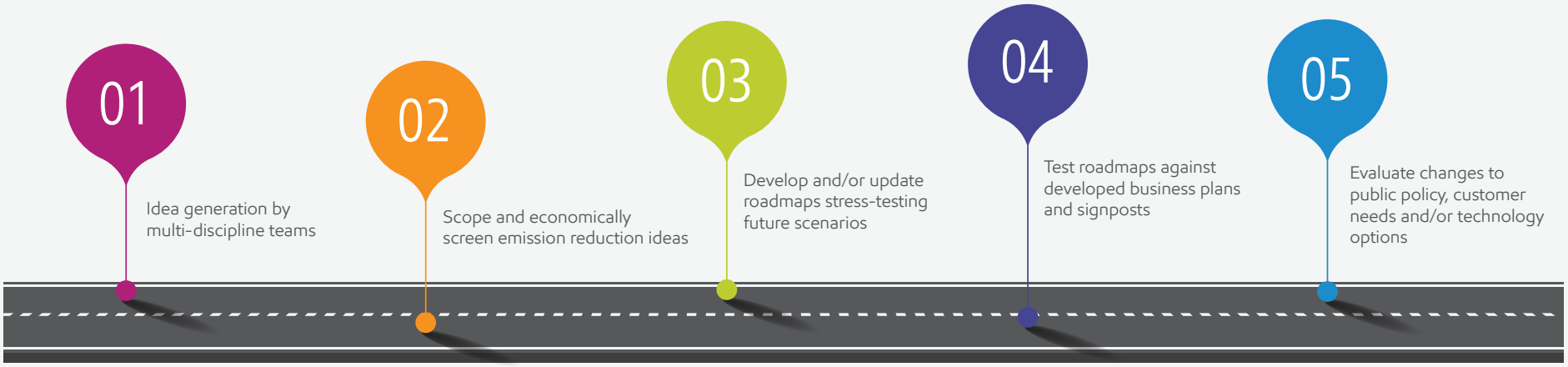
Scenarios

No single transition pathway can be reasonably predicted, given the wide range of uncertainties. Key unknowns include yet-to-be developed government policies, market conditions, and advances in technology that may influence the cost, pace and potential availability of certain pathways. Many scenarios are hypothetical constructs and are highly sensitive to assumptions that will change in the future. Scenarios that employ a full complement of technology options are likely to provide the most economically efficient pathways. Imperial uses reputable third-party energy transition scenarios to inform our strategic thinking, stress test assets and challenge 'business as usual' assumptions including potential timing for implementation and scale-up of lower-carbon solutions. Imperial's roadmaps anticipate continued advancement in technology and Canadian public policy.

Scenarios considered are either worked backward from a hypothetical outcome to identify the factors that would need to occur to achieve that outcome, such as the International Energy Agency's (IEA) net-zero by 2050 (NZE) scenario or are projected based on a sector-by-sector assessment of the current and announced government policies around the world like Exxon Mobil Corporation's (ExxonMobil's) Outlook for Energy, which is a directionally similar projection to the IEA's Stated Policies Scenario (STEPS).[4] As the IEA has acknowledged society is not on the IEA NZE Pathway, Imperial has also considered the IEA's Sustainable Development Scenario, a well below 2°C pathway in its roadmaps.

ExxonMobil's Outlook for Energy

Imperial uses the Outlook for Energy (Outlook)[5] developed by ExxonMobil as the basis for developing its business plans as it projects the company's view of future energy supply and demand for 2030 and beyond. The Outlook is ExxonMobil's latest projection of energy supply and demand through 2050 using models based on current trends in economic development, technology, global policies, geopolitics and consumer behaviour. It does not attempt to project the degree of necessary future policy, technological advancement and deployment for the world, or Canada, to meet net-zero by 2050. As policies and technology are implemented, the Outlook is refreshed which will then inform Imperial's business plans.



** Roadmap refreshed on an as needed basis*

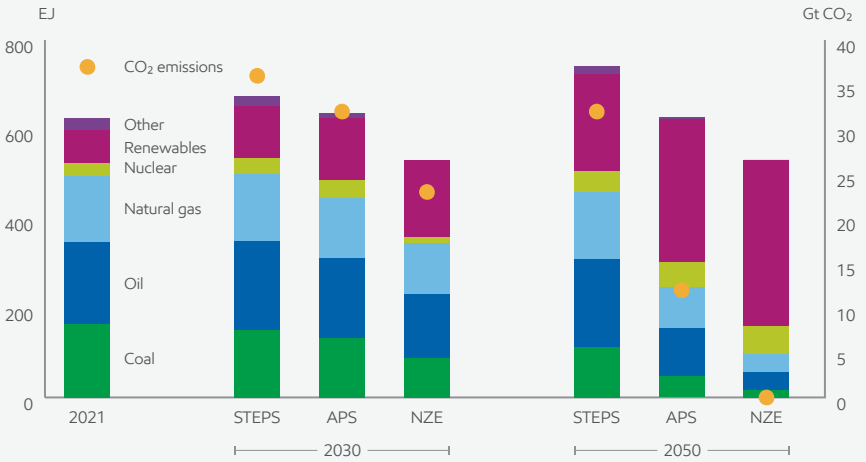
Policy actions account for differences in IEA scenarios

All future scenarios featured below demonstrate a change in fuel mix with the pace of transition to lower-carbon solutions being the key differentiator. The International Energy Agency (IEA) states "during energy transitions, both systems are required to function well in order to deliver the energy services needed by consumers, even as their respective contributions change over time."[3] A significant increase in energy investment is essential to reduce the risks of future price spikes and volatility and will be needed to get on track for a net-zero emissions by 2050 pathway.

- **IEA Stated Policies Scenario (STEPS):** shows the trajectory implied by today's policy settings and does not assume aspirational or economy-wide targets are met unless they are backed up with detail as to how to achieve.
- **IEA Announced Pledges Scenario (APS).** Assumes all aspirational targets announced by governments are met on time and in full including their long-term net-zero and energy access goals.
- **IEA Sustainable Development Scenario (SDS).** Models a well below 2°C pathway as well as the achievement of other sustainable development goals. The SDS is close to the APS in global temperature outcome, however the APS falls short of achieving the outcomes targeted in this scenario.
- **IEA Net Zero Emissions by 2050 Scenario (NZE)** "maps out a way to achieve a 1.5°C stabilisation in global average temperature and meet key energy related UN Sustainable Development Goals."[3]

The graph below outlines the IEA 2022 World Energy Outlook (WEO) three future scenarios, STEPS, APS and NZE. The demand for oil increases by 0.8 per cent per year in the STEPS scenario with peak forecasted around 103 million barrels per day (mb/d) in the mid-2030s compared with the APS where peak is forecasted in the mid-2020s. Comparing these two scenarios highlights that further policy to support emissions reductions in all sectors will be required.

Total energy supply by fuel and CO_2 emissions by scenario



EJ = exajoule; Gt CO_2 = gigatonnes of carbon dioxide
Source: International Energy Agency (2022), World Energy Outlook 2022, IEA, Paris

Predicting absolute 2050 energy demand levels and by type carries a range of uncertainty

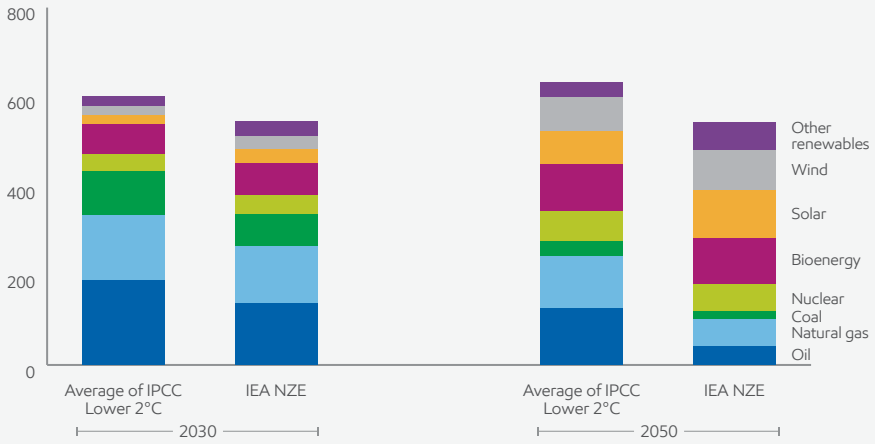
IPCC Lower 2°C Scenarios

In 2022, the Intergovernmental Panel on Climate Change (IPCC) published the Working Group III contribution to the Sixth Assessment Report on Mitigation of Climate Change (IPCC AR6) [6] and utilized more than 1,200 potential pathways with underlying socioeconomic development assumptions, energy system transformations, and land use change until the end of the century. The IPCC report identified 311 scenarios as "Lower 2°C," which are defined as pathways with a 67 per cent likelihood of limiting peak warming to below 2°C throughout the 21st century.

The chart below depicts the range of global energy demand in 2050 across the IPCC Lower 2°C and IEA NZE scenarios. As the chart shows, predicting absolute 2050 energy demand levels in total and by energy type carries a range of uncertainty. As noted, technology and policy assumptions heavily influence particular scenarios.

Global energy demand mix across IPCC Lower 2°C and IEA NZE

(exajoules)

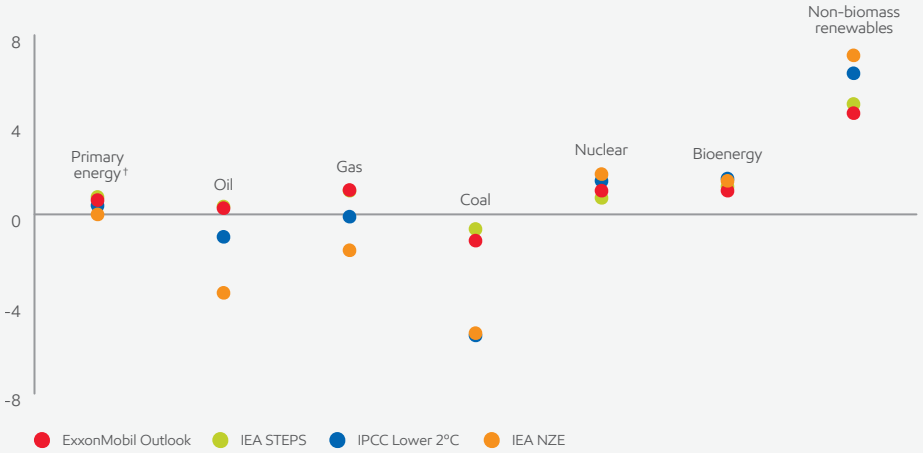


Source: IEA World Energy Outlook 2021, IPCC Sixth Assessment Report, ExxonMobil analysis

The IPCC Lower 2°C scenarios produce a variety of views on projected global energy demand in total and by specific types of energy. This report uses the average of the scenarios' growth rates per energy source to consider potential impacts on energy demand. [7] This is shown together with the growth rates of the IEA NZE scenario, IEA STEPS, and the Outlook for Energy in the chart on the top left on the following page. These scenarios project total primary energy demand on a worldwide basis to only marginally increase, from zero to 0.4 per cent per year on average from 2010 to 2050, and assume that energy efficiency improvements would almost entirely offset population and economic growth. Expected demand and technologies deployed by 2050 vary by model and energy type. All energy sources remain important through 2050 across these scenarios, as the mix of energy and technology shifts over time.

2010-2050 growth rates by energy type (CAGR)*

(per cent change per year)



Source: IEA World Energy Outlook 2021, IPCC Sixth Assessment Report, ExxonMobil analysis, ExxonMobil 2022 Outlook for Energy

** Compound annual growth rate*

† Primary energy is the total primary energy demand on a worldwide basis

Growth of lower-carbon solutions between 2020 and 2050 in Lower 2°C scenarios

Source: IPCC Sixth Assessment Report, ExxonMobil analysis

Error bars represent 10th percentile to 90th percentile scenario

The third-party scenarios also illustrate that the energy transition will evolve differently in each region based on access to infrastructure, technology, policy, and resources.

These scenarios imply a range of lower-emission growth opportunities as highlighted in the top right chart, which looks across the IPCC Lower 2°C scenarios and illustrates the average (blue bars) growth potential of various lower-emission solutions. While all of these solutions are needed, the black bars represent the wide range of growth potential across the IPCC Lower 2°C scenarios. To support further deployment of these technologies at scale, additional policies and technology advancements are needed to incentivize investments and influence consumer behaviour. Striking the right balance in investments at a pace consistent with policy support and technology advancements is crucial.

The Outlook for Energy guides Imperial's business plans

Imperial's business model is based on understanding and meeting the needs of our customers who are communicating that they desire high-value products with lower life-cycle greenhouse gas emissions. To deliver on this evolving value proposition, product innovation and greenhouse gas emissions intensity reductions in our operations will be needed. Energy efficiency and behavioural choices will also play a key role in determining future energy demand by type.

The Outlook for Energy, guiding Imperial's business plans, expects oil and natural gas to remain important for decades to come and anticipates the need for sustained investment to meet growing energy demand. The demand for conventional fuels is expected to peak this decade, while demand for energy-dense, lower-emission fuels is expected to grow rapidly (see chart on page 14) driven by hard-to-decarbonize sectors such as aviation, marine and heavy duty trucking. Renewable fuels, low-carbon intensity hydrogen and carbon capture and storage offer lower-emission solutions for hard-to-abate industrial sectors.

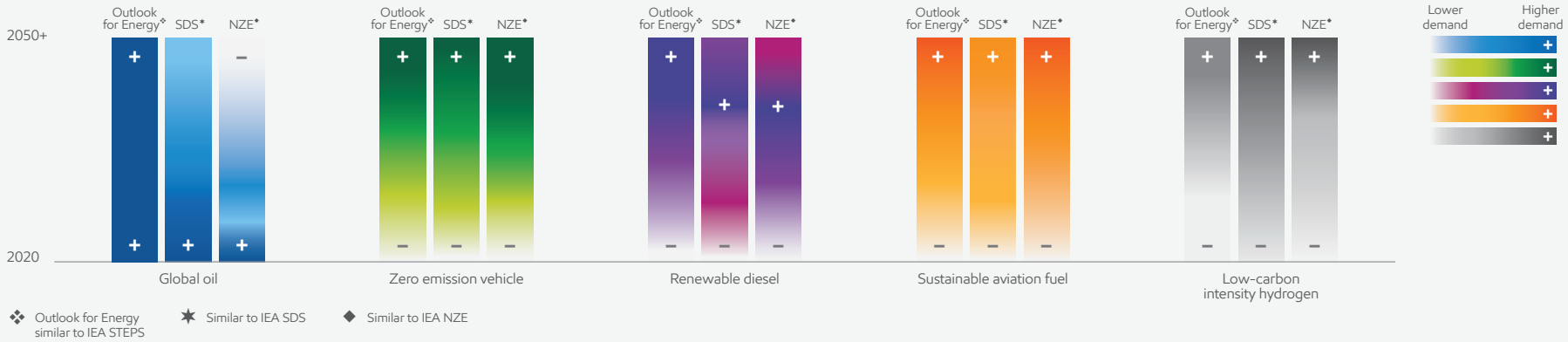
Outlook for Energy[8] highlights between 2021 and 2050

- World population expected to grow from 7.8 to 9.7 billion people
- GDP expected to more than double
- Efficiency gains and shift in energy mix enables an improvement of more than 60 per cent in the carbon emissions intensity of global GDP
- Global energy demand increases by 15 per cent
- CO_2 emissions decrease 24 per cent versus 2021 levels, ~20 per cent lower than IEA STEPS and 35 per cent higher than IEA APS

Future consumer choices impact roadmap trajectory and timing

The following demonstrates how various third-party scenarios, including ExxonMobil's Outlook for Energy, could impact future customer choices. Regional strengths are likely to shape future decarbonization options including access to carbon capture and storage geology, natural gas feedstock advantage, net-zero electricity, advantaged plant-based feedstock for renewable fuels, adequate infrastructure, mature regulatory systems and supportive Canadian public policies.

Canadian demand profiles*†



** With the exception of oil which is globally forecasted*
† Assumes SDS and NZE trajectories and adjusted for Canadian public policy and Canadian demand profile

Much uncertainty to future roadmaps

Business plans are tested against the roadmaps to understand flexibility, fit and timing with potential future trajectories. Roadmaps are refreshed to reflect technology, policy and other business developments on an as-needed basis. Providing asset-specific disclosure regarding remaining useful lives, retirement costs and future investments in hypothetical third-party scenarios could imply a higher degree of certainty or accuracy than exists.

With much uncertainty to future policy, technology and energy transition timing, signposts are important indicators for the company to monitor, shape and adapt our future strategy and plans.

Potential upstream impacts on proved reserves

Imperial's strategy is to continue to improve the financial position and greenhouse gas emissions intensity of its long-life oil sands operations. The geopolitical concerns of 2022 have highlighted the importance of supply security from friendly partners that may continue for decades to come. Imperial can leverage its prior investment in oil sands, operational experience over multiple years and pace-setting technologies including enhanced solvents and carbon capture and storage to sustain the company's strong competitive position.

In the IPCC Lower 2°C scenarios, average global oil demand is projected to decline from approximately 90 million barrels per day in 2021 to about 65 million in 2050. The IEA NZE scenario projects about 24 million barrels per day of demand in 2050. Without future investment, world oil production would be expected to drop to about 11 million barrels per day due to natural field decline. In the IEA NZE scenario, additional investment of approximately $11 trillion through 2050 will be required.[9] New discoveries will be needed even under IEA NZE to support energy security and reliable supply in the face of geopolitical uncertainty.

Business resiliency

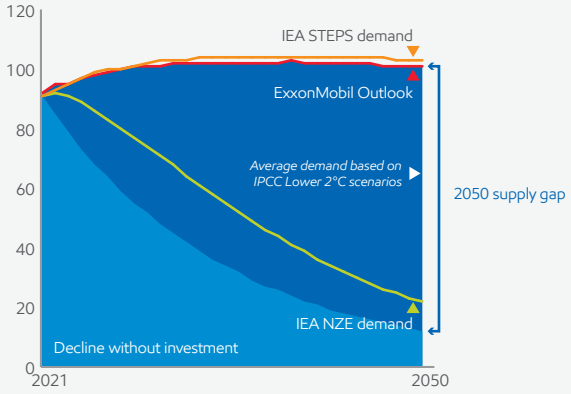
At the end of 2022, Imperial's proved reserves totalled about 2.5 billion oil equivalent barrels[10] predominantly consisting of oil sands resources. These proved reserves are assessed annually and disclosed in accordance with National Instrument 51-101.

Based on currently anticipated production schedules, Imperial estimates that in 2040 more than two-thirds of its year-end 2022 proved reserves will have been produced. As Imperial continues to develop projects over time, we expect that annual production estimates will change.

Although Imperial's upstream assets[10, 11] may be subject to more stringent Canadian climate policies, public policies supports could improve global competitiveness and provide the opportunity for Canadian producers to reduce their emissions intensity in advance of other global producers.

Global oil supply estimates

(million oil-equivalent barrels per day)



Source: IEA World Energy Outlook 2021, ExxonMobil analysis, ExxonMobil 2022 Outlook for Energy, IPCC Sixth Assessment Report

The 2050 supply gap

Significant investment would be needed to meet even the rapidly declining demand for oil and natural gas envisioned in the IEA's Net Zero Emissions by 2050 scenario.

In 2050, IEA STEPS projects a price of $88 per barrel and a U.S. natural gas price of $4.27 per million British thermal units (prices in 2020 U.S. dollars).

TRANSFORMATIONAL TECHNOLOGIES

Innovative technology solutions deliver lower-emissions energy

No single technology can enable society to achieve its net-zero ambitions. Access to a broad portfolio of technology options enables the company to be adaptable and resilient as energy use transforms. Imperial's sustained investment in research and development of more than $2.5 billion over the past 20 years plays an important role in progressing promising lower-emissions intensity oil and product solutions. Imperial has Canadian-based research centres in Sarnia, Ontario and Calgary, Alberta and can leverage ExxonMobil's breadth and depth of lower-carbon solution technologies for emerging growth areas including renewable fuels, carbon capture and storage and low-carbon intensity hydrogen.

Imperial's Calgary research centre is focused on enhancing environmental performance and improving efficiency in our upstream operations. Imperial is investing in game-changing in situ technologies that could deliver economically efficient upstream production with lower greenhouse gas intensity (GHGi) through the use of light hydrocarbons (solvents) instead of steam and can be paired with carbon capture and storage to deliver incremental barrels at net-zero emissions.

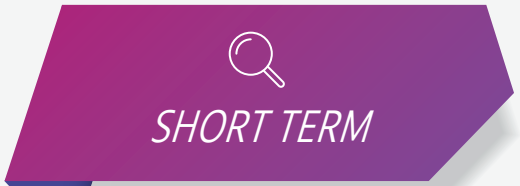
Our Sarnia research centre supports our evolving customer fuel offering by improving environmental technology. Biofuels and renewable diesel development are key focus areas with testing of new blends, assessing Canadian climate impacts on our products and evaluating biofuel performance and impacts on equipment and process reliability at our operating sites.

Our technology portfolio

Imperial's strategy includes the development, scale-up and deployment of lower-emission energy solutions. As great ideas come from many sources, we approach technology development with in-house research and development and by accessing industry-leading technologies through our relationship with ExxonMobil. Additionally, we partner with academic institutions, industry peers including the Pathways Alliance, and develop unique collaborations with partners such as FLO and E3 Lithium for adjacent opportunities.

We believe technology is critical to enable production growth and emissions reductions and we aim to have several technologies in our development pipeline over the short, medium and long term. Our transformational roadmaps will require economic scalable technologies to be successful and consider growth in renewable and sustainable fuels, next-generation solvent-based upstream technologies, carbon capture and storage, low-carbon intensity hydrogen and small modular nuclear reactors.

Technology solutions



Ongoing

- Boiler flue gas heat recovery
- Liquid addition to steam for enhanced recovery (LASER) [13]
- Advanced fuels and lubricants
- Biofuel blending
- Satellite methane emissions monitoring
- Collaborate with Pathways Alliance
- Autonomous haul trucks

Underway

- Renewable fuel production with low-carbon intensity hydrogen
- Solvent Assisted Steam Assisted Gravity Drainage (SA-SAGD) [14]
- Coprocessing
- E3 Lithium
- Collaboration with FLO
- High quality offsets recognized by policy

Developing

- Carbon capture and storage (CCS)
- Sustainable aviation fuel (SAF)
- Low-carbon intensity hydrogen
- Next-generation in situ technologies
  - Cyclic solvent process (CSP) [15]
  - Enhanced bitumen recovery technology (EBRT) [16]
  - Non-condensable gas (NCG) [17]
  - Enhanced late life process (ELP) [18]

Evaluating

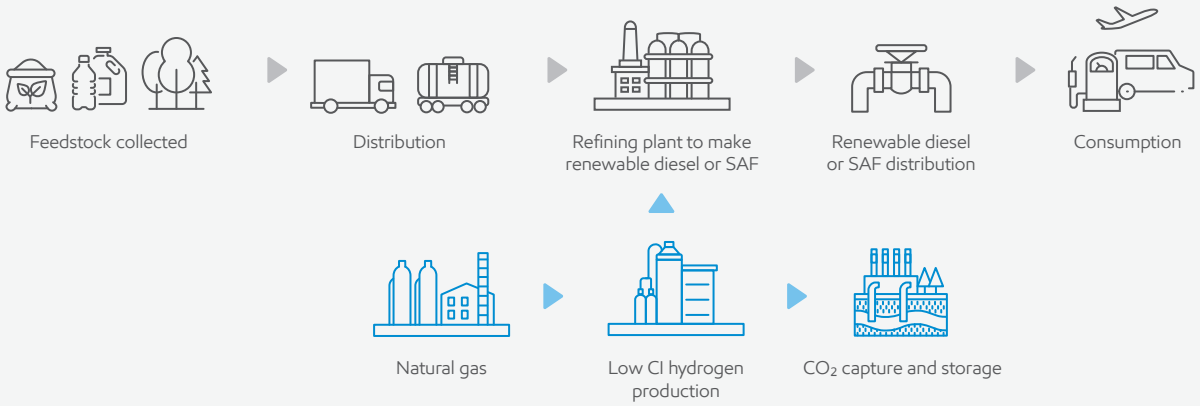
- Advanced biofuels
- Carbon fibre from bitumen
- Carbonate fuel cell technology
- Small modular reactors (SMR)
- Direct air capture (DAC)

Renewable fuels growing

Imperial is making progress on being able to provide lower life-cycle emission products to our customers, including renewable diesel, biofuels and sustainable aviation fuels.

- Renewable diesel (RD) is a low-carbon paraffinic diesel created by hydroprocessing plant oils and animal fats yielding a diesel product very similar to conventional diesel including performance in cold weather. This advanced biofuel reduces greenhouse gas emissions while meeting the same needs of conventional diesel and can be refined to operate in cold climates. For additional details please see page 15.
- By adding an additional processing step, it is possible to use the same process to make sustainable aviation fuel (SAF) which could reduce greenhouse gas emissions in the aviation sector. SAF can also be produced from recycled waste materials such as cooking oils, biomass residues from forestry and agriculture or by converting captured carbon from air or industrial processes using low-carbon intensity hydrogen and blended with traditional fuel for aircraft use. [19]
- Biofuels and biodiesel help reduce emissions in transportation fuel products and can be blended in various concentrations. For example, B5 represents 5 per cent concentration and B6-B20 represents 6 to 20 per cent concentration of biodiesel.

Renewable fuels and sustainable aviation fuels



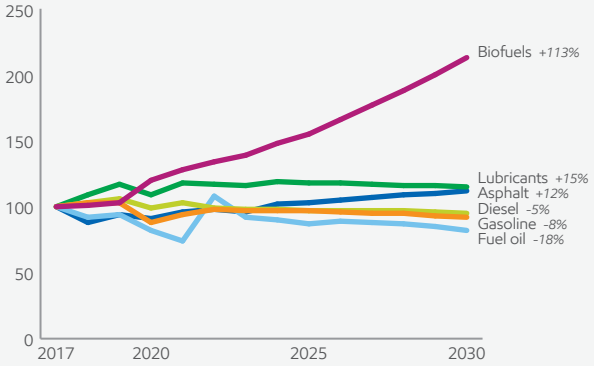
Progressing our world-class renewable diesel complex

In January 2023, Imperial announced its final investment decision to build the largest renewable diesel manufacturing facility in Canada at our Strathcona refinery near Edmonton, Alberta. Construction is expected to be completed in late 2024 with renewable diesel production starting in early 2025.

Imperial has awarded a long-term hydrogen contract to Air Products to supply low-carbon hydrogen via pipeline from its hydrogen plant currently under construction in Edmonton, Alberta. Air Products will supply Strathcona with approximately 50 per cent of the output from their 165 million standard cubic feet per day low-carbon intensity hydrogen production complex.

Canada potential demand growth

(indexed versus 2017, per cent)



Source: ExxonMobil's 2022 World Energy Outlook

Demand for lower-emission fuels is expected to grow rapidly, driven by the need for energy-dense, lower-carbon fuels for hard-to-decarbonize transportation such as aviation, marine and heavy-duty trucking.

Regina Davis | Strathcona Refinery Manager

There's a real sense of excitement at our site as we continue to make visible progress constructing this world-class facility. Our team is proud to be front and centre helping Imperial with its broader commitment to the energy transition and a lower-carbon future.

ESTIMATED OUTCOMES

- Will produce over 1 billion litres per year of renewable diesel
- Will reduce transportation emissions by 3 million tonnes per year
- Will capture 500,000 tonnes of CO_2 per year

Testing renewable diesel at our Kearl operations

In 2022, our Kearl operations explored the use of alternative fuels in our mining equipment to support our greenhouse gas (GHG) emissions intensity reduction goals. Renewable diesel is a low capital, effective solution to support emissions reductions and help vital sectors of Canada's economy reduce emissions.

Renewable diesel has some differences from conventional diesel such as energy and mass density. To assess the impact on mining equipment, a two-month trial was conducted at Imperial's Kearl operations.

Our trial demonstrated renewable diesel is as reliable as conventional diesel and showed no significant change in truck productivity. Efforts are ongoing to continue to refine and optimize its application. We are very excited about the opportunity to fuel Kearl's fleet with Imperial's Strathcona renewable diesel.

TRUCK DELIVERY

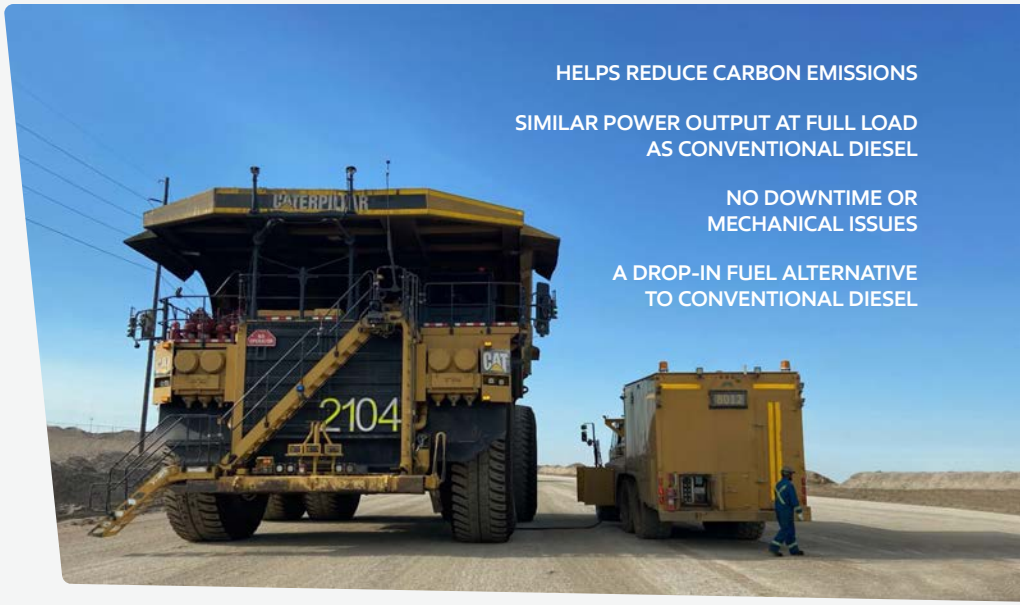
Edmonton to Kearl

KEARL MAIN OFFLOADING SITE

Conducted two month trial

SUCCESSFUL TRIAL RESULTS

Begin using RD blends in our operations



Tosin Oladeji | Lead Opportunity Advisor

Innovation takes multiple perspectives to be successful. It was fantastic to be part of this highly skilled team with colleagues from research, downstream, commercial, logistics, climate integration and upstream. I am very excited to see the integration potential of this opportunity.

Innovative product solutions

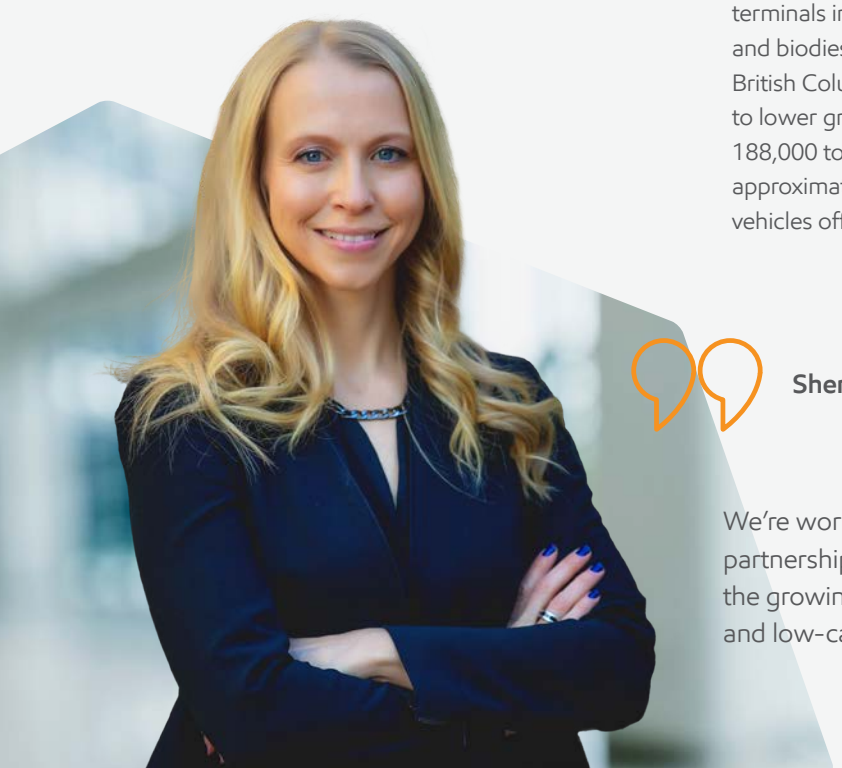
Fluidized catalytic cracking co-processing and sustainable aviation fuel

Imperial has completed bio-based co-processing trials at our Ontario downstream operations resulting in a successful demonstration of carbon intensity reductions in Imperial's finished products. Based on this successful outcome and pending a final investment decision, Imperial is pursuing projects to permanently install facilities at our refineries with a possible startup as early as 2026 at our Nanticoke refinery.

Imperial is exploring sustainable aviation fuel as a potential solution to decarbonizing the airline industry. We are an associate member and are collaborating with the Canadian Council for Sustainable Aviation Fuel (C-SAF), an organization with the mandate "to accelerate the commercial production and use of Canadian made, low carbon and sustainable aviation fuels in Canada."[19] In addition, the company is exploring the potential of producing sustainable aviation fuel using biomass-based feedstock in Canada.

Biofuel blending

In 2022, Imperial expanded its biofuel blending and distribution network across Canada by launching initiatives including ethanol-blended gasoline across its Canadian terminals in Alberta, Ontario, Quebec and Atlantic Canada and biodiesel at our Lougheed Terminal in Vancouver, British Columbia. Collectively, these projects are expected to lower greenhouse gas emissions by approximately 188,000 tonnes per year which is equivalent to removing approximately 40,500 gasoline-powered passenger vehicles off our Canadian roads.[20]



Sherri Evers | Sr. Vice President, Sustainability, Commercial Development and Product Solutions

We're working to advance innovation and strategic partnerships to evolve our product offering to meet the growing demand for lower-carbon intensity fuels and low-carbon solutions.

Collaboration with FLO

Imperial announced its collaboration with FLO, a leading North American electric vehicle charging company. Key components of the collaboration include jointly developing a charging service option for Imperial's Esso- and Mobil-branded wholesalers, an agreement to transfer credits under federal Clean Fuel Regulations and expanding FLO's charging network for electric vehicles.

Asphalt

Imperial produces crude at Cold Lake that is ideally suited for asphalt production and focuses on asphalt by studying product behaviour, quality and performance at our Sarnia research centre. In addition, Imperial collaborates with third parties such as the Asphalt Institute, which conducts important research on asphalt performance, pavement sustainability and asphalt road safety.

Esso Synergy Fuels

Synergy Supreme™ premium gasoline is designed to keep engines three times cleaner,[21] to help them run smoother and get more kilometres per tank. Synergy Supreme premium also contains a friction modifier, which is engineered to help reduce wear and tear on a customer's engine to help improve overall performance.

In heavy-duty trucking applications, Synergy Diesel Efficient™ demonstrates an average fuel economy benefit of 2 per cent and lower NOx and CO_2 emissions by 11 and 2 per cent[22] respectively.

Transforming Imperial's in situ operations to lower emissions intensity

Imperial is working toward advancing a suite of game-changing next-generation in situ technologies such as Cyclic Solvent Process (CSP) and Enhanced Bitumen Recovery Technology (EBRT) that use light hydrocarbons to replace most of the steam used to recover bitumen while providing anticipated GHGi reductions up to 90 per cent. Of significance, if coupled with carbon capture and storage, these lower-emission technologies have the potential to produce incremental barrels at net-zero emissions with economic efficiency.

steam based → solvent based

Gravity drainage process	**SAGD**	**SA-SAGD**	**EBRT**
Applicability	existing, new	existing, new	existing, new
Technology readiness	Deployed in industry	Deployed	Pilot
Potential benefits	Base case	$, GHGi up to 25%	$, GHGi up to 60%
Cyclic process	**CSS**	**LASER**	**CSP**
Applicability	existing	existing	existing, new
Technology readiness	Deployed	Deployed	Commercial ready
Potential benefits	Base case	$, GHGi up to 25%	$, GHGi up to 90%
Late life process	**Steamflood**	**NCG**[6]	**ELP**
Applicability	existing	existing, new	existing
Technology readiness	Deployed	In development	Pilot
Potential benefits	Base case	$, GHGi 10 to 20%	$, GHGi up to 70%

Legend [13, 15, 16, 17, 18]

- existing — Could be applied to existing production
- new — Could be applied to new production at existing/ new fields
- $ — Potential to unlock new resources or increase recovery at existing
- GHGi % — Anticipated GHGi reductions

Research in action: Piloting emerging technologies for in-field solutions

Imperial's Calgary-based Upstream Research Centre is leading the way in the development of solvent-based technologies that lower emissions intensity of oil production. Progress was made in field testing our enhanced solvent-based technologies with an aim to reduce our operations' GHGi [12] emissions, reduce water usage, upgrade produced oil where possible, improve project economics, and potentially unlock previously unrecoverable and bypassed resources.

Examples include:

- Implementing Imperial's first commercial SA-SAGD [14] implementation at Grand Rapids by leveraging Cold Lake's current infrastructure. These infrastructure upgrades are expected to incorporate the recovery of waste heat, which increases energy efficiency, as well as the recovery of the solvents used in the production process for reuse.
- Evaluating a brownfield small-scale pilot with modified existing facility kits to capture research data for commercial viability of our ELP [18] technology. The ELP pilot is testing a process that will replace steam usage, in a steamflood configuration, with butane solvent and eliminate the need for water usage. When conducting these types of small-scale pilots, careful consideration is taken in choosing the pilot location, solvent selection and usage, design of experiment and injection and production patterns.
- Evaluating a "water-chase" concept to enhance our CSP [15] in situ technology. During the mid-life phase of CSP a "water chase" will replace a portion of the propane solvent at the end of the injection phase. This concept will reduce solvent demand, improve economics, and add significant operational flexibility.
- Progressing a brownfield NCG [17] project to test the reduction in GHGi via the addition of methane to an existing steamflood at Cold Lake.

Mark Beckman | In Situ Research Manager

CSP holds much promise for our Cold Lake operation and it's been interesting approaching our research from different perspectives to deliver multiple benefits packed into one technology — GHG emissions intensity reductions, improved economics, reduced propane usage and operations flexibility.

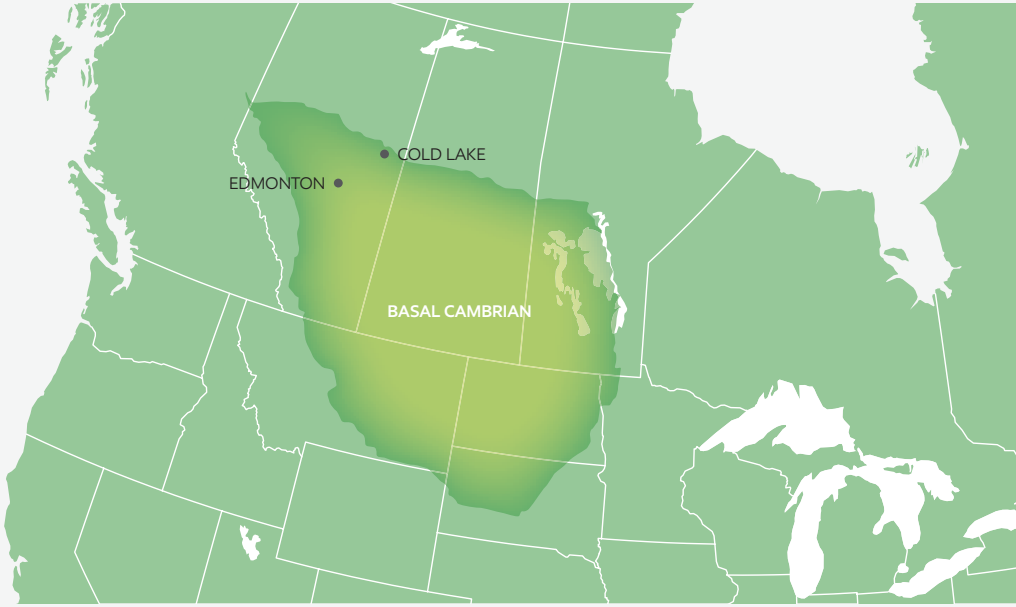
Leveraging Imperial's subsurface and geoscience expertise

Carbon Capture and Storage (CCS)

CCS is a process that captures CO_2 emissions from industrial activity or power plants at the source and injects the emissions into deep underground geological formations for safe, secure and permanent storage. Carbon capture and storage on its own, or in combination with hydrogen production, is among the few proven technologies that could enable significant CO_2 emissions reductions from high-emitting and hard-to-decarbonize sectors, such as power generation and heavy industries, including manufacturing, refining, steel, cement and petrochemicals.

Canada has focused its efforts on a number of technologies, including CCS, low-carbon intensity hydrogen and small modular nuclear reactors with a view to becoming an energy and climate solutions global supplier. The 2022 federal budget[23] introduced measures such as a CCUS investment tax credit to support emissions reductions, help advance technology and reduce costs.

Carbon capture technology is not "one size fits all" and CCS project costs can vary considerably, based on the specifics of each stage of the carbon capture supply chain. The CO_2 source stream volume, concentration and impurities could impact the type of technology selected and significantly impact project economics. Costs are also impacted by the distance the captured CO_2 must be transported from the source to the storage location. Storage costs vary depending on location, depth and properties of the storage formation.

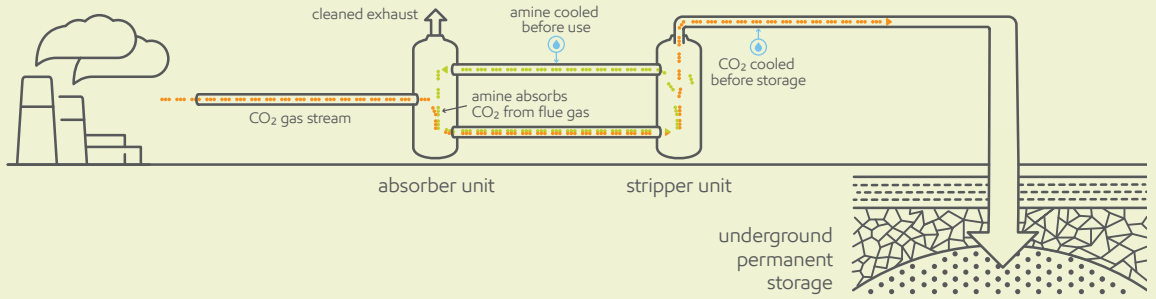


The Basal Cambrian reservoir is deep and spans a wide geographic range, including both Cold Lake and Edmonton. It is a proven formation for injecting CO_2, has ideal geology and has a vertical seal more than 100 metres thick ensuring injected CO_2 stays sequestered.

Carbon capture technologies

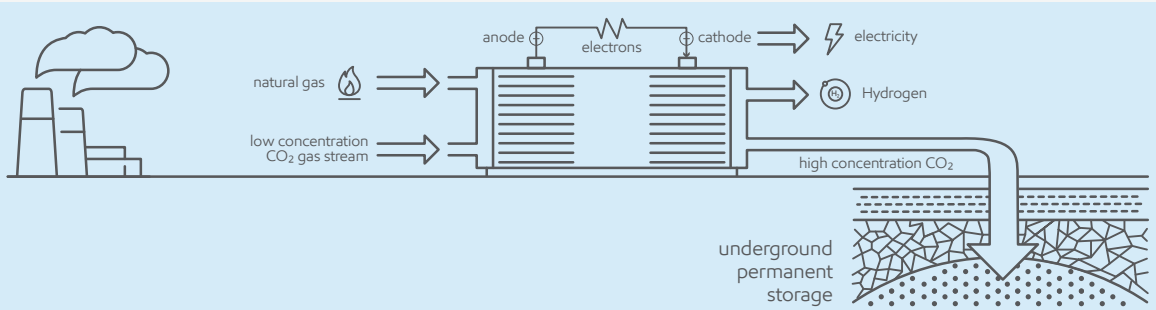
Amine absorption

- Uses amine-based solvents to absorb CO_2 from facility emission gas streams that when heated release a pure CO_2 gas stream ready for storage
- Is most efficient for higher concentration CO_2 emissions streams and for large-scale operations



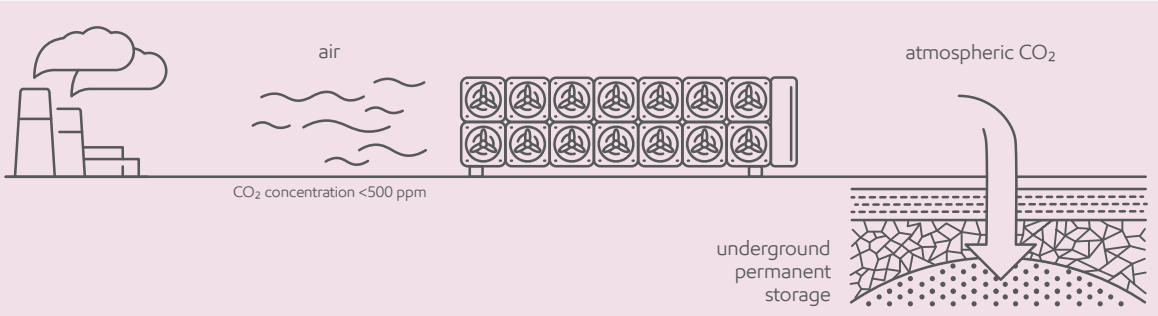
Carbonate fuel cell technology

- Uses electrochemical processes to concentrate CO_2 from facility gas streams
- Appropriate for lower-concentration gas streams and has a modular design suitable for both small and large operations
- Process produces electricity and low-carbon intensity hydrogen



Direct air capture

- Removes CO_2 directly from the atmosphere using sorbent chemicals
- Cost and energy requirements vary depending on type of technology
- Could provide path to negative emissions



READY

Large scale commercial readiness

IN DEVELOPMENT

Advancing one of Canada's largest CCS opportunities

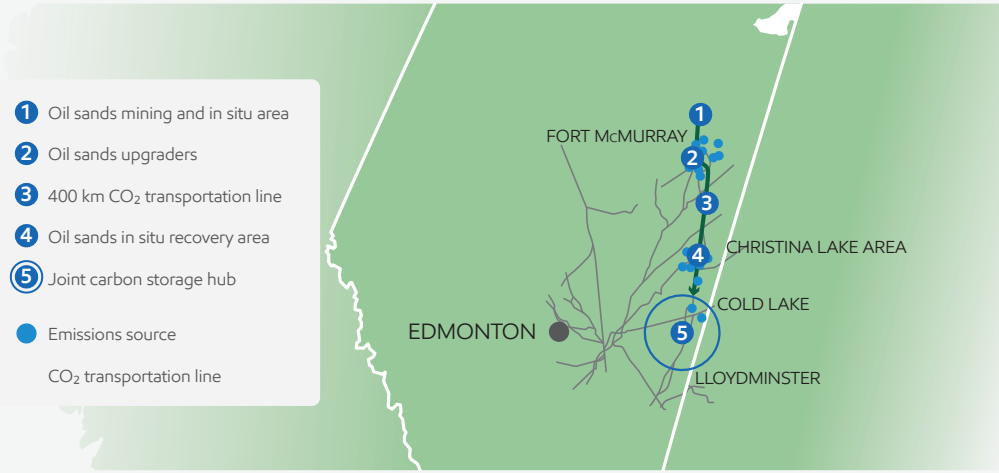
Oil Sands
Pathways to Net Zero

Canadian Natural | cenovus energy | ConocoPhillips Canada | Imperial | MEG Energy | SUNCOR

Imperial is a founding member of the Oil Sands Pathways to Net Zero Alliance. This alliance accounts for up to 95 per cent of oil sands production in Canada. The Pathways Alliance is working alongside the Government of Canada and the Government of Alberta toward the goal of achieving net-zero GHG emissions from oil sands operations by 2050,[1] collectively reducing an estimated 68 Mt/CO_2e per year. This unique alliance enables Imperial and its partners to draw upon industry expertise to further advance emerging technologies including CCS, low-carbon intensity hydrogen, renewable fuels, advanced in situ solvent technology and small modular nuclear reactors to reduce overall greenhouse gas emissions in the sector.

In the fall of 2022, the Government of Alberta selected the Pathways Alliance proposed carbon capture and storage hub, near Cold Lake, to advance to the next phase. Kendall Dilling, president of Pathways Alliance stated "the Pathways Alliance project could eventually see more than 1,100 Mt/CO_2e safely stored deep underground in a saline aquifer — a critical lever in enabling our goal of net zero by 2050."[1, 24] The size and scale of this proposed project allows Imperial and other members of the Pathways Alliance to leverage carbon management knowledge, create unique commercial agreements, construct joint carbon injection and storage operations to optimize measurement, monitoring and verification practices.

Engineering work is currently underway and Pathways is currently working on detailed evaluation of the proposed hub.[24]



Danielle Speers | Senior Climate Policy Advisor

It is a privilege to work alongside our industry peers through Pathways Alliance. As Pathways, we possess the key skills required to find solutions with government partners on a common goal of achieving net-zero by 2050[1] for oil sands operations. It is exciting to be part of an effort to develop the most significant carbon capture and storage project in Canada.

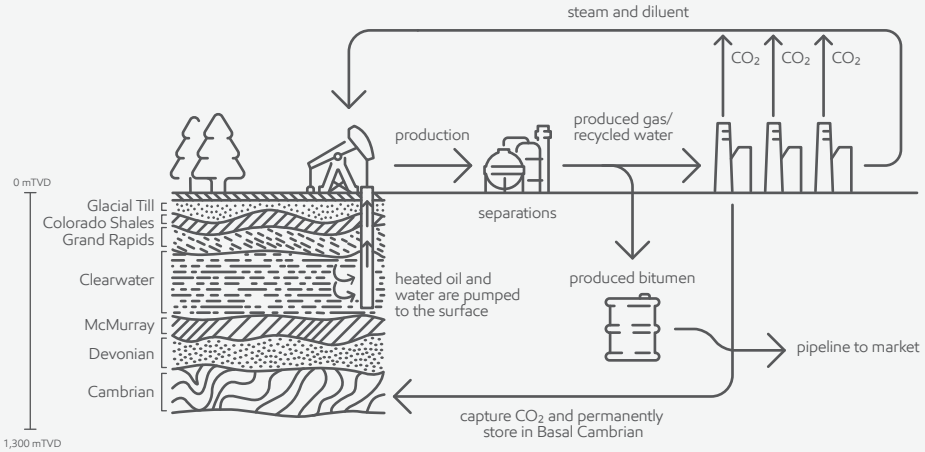
Integrating CCS with Imperial's upstream operations

Imperial has identified key CCS opportunities to enable it to help reduce greenhouse gas emissions intensity for our upstream facilities in Alberta. We have tasked a dedicated team to scope and detail a carbon capture facility at our Cold Lake operations. The CO_2 captured will be safely transported, injected and stored at the Pathways Alliance operated storage hub. The Cold Lake CCS proposal estimates capturing up to one million tonnes of CO_2 (gross) per year.

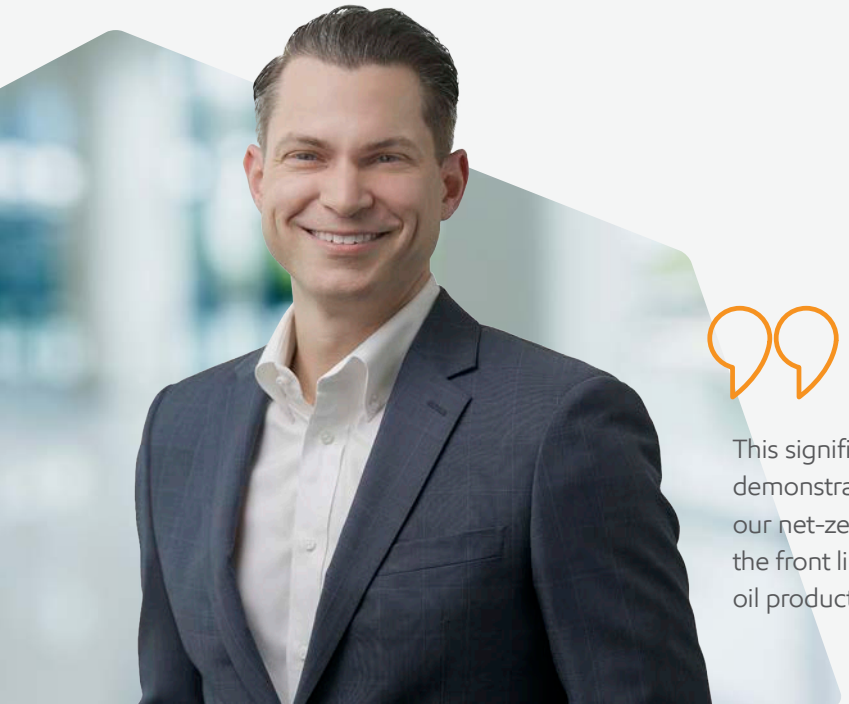
An independent report called *The Great Canadian CCUS Dilemma* published by BMO Capital Markets stated that Imperial is well positioned for CCS "having first-mover advantage given operating proximity to pore space near Cold Lake, Alberta, leading R&D programs, and extensive expertise. Imperial Oil has also materially improved its ESG story of late and is a good example of the oil and gas sector's vital role in energy transformation ventures like biofuels, hydrogen, lithium, and CCUS." [25]

According to independent experts like the International Energy Agency (IEA) and the UN Intergovernmental Panel on Climate Change, CCS is a critical technology. [3, 26] Imperial continues to look across its operations for economic CCS projects. It will continue to collaborate with industry partners and government on supportive public policy and refine economics in support of a favourable project investment decision.

Proposed Cold Lake carbon capture process



mTVD = metres true vertical depth
Image not to scale



Tristan Hamblin | Project Lead

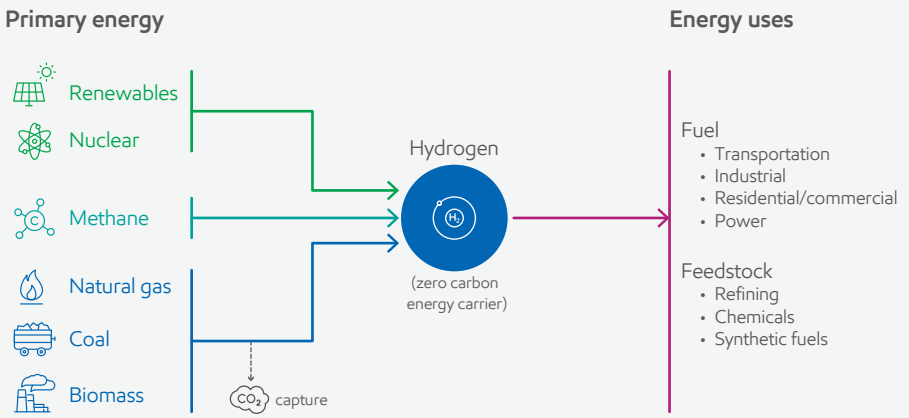
This significant proposed Imperial investment demonstrates the commitment of all of us to pursue our net-zero goal. We are proud to be working on the front lines of the transition to lower-intensity oil production.

Low-carbon intensity hydrogen

Hydrogen is a zero-carbon energy carrier that could serve as an affordable and reliable source of energy for difficult-to-decarbonize-sectors, such as heavy-duty transportation, power generation and industrial processes such as in steel manufacturing, refining and chemical production. Hydrogen is difficult to store and transport over long distances because it has very low volumetric density, approximately three times less than natural gas. However, existing natural gas infrastructure has the potential to be used for low-carbon intensity hydrogen with moderate upgrade costs. Canada is currently one of the top ten producers of grey hydrogen (hydrogen made from natural gas without CCS) in the world and is well positioned to transition to the production of low-carbon intensity hydrogen. By leveraging its robust energy infrastructure, natural gas supply, CCS storage capability, and operating experience, Canada has the opportunity to become a global leader.

The following featured technologies have the potential to reduce carbon emissions by 90 per cent or more, relative to reforming technology without CCS. [27]

- **Reforming technologies coupled with CCS** uses natural gas coupled with CCS to produce low-carbon hydrogen (known as "blue hydrogen"). The percentage of carbon capture achieved can further reduce the carbon intensity of the hydrogen. These technologies could provide an economic and readily available option in many settings and is anticipated to be one of the production options going forward.
- **Electrolysis** uses water to produce low-carbon intensity hydrogen from non-GHG emitting electricity (known as "green hydrogen"). This technology is considered to have the lowest carbon intensity footprint and is relatively expensive due to renewable energy required and scalability challenges.
- **Pyrolysis** directly splits methane into hydrogen and carbon to produce hydrogen. This technology is emerging and could be used where there is no renewable energy or CCS (known as "turquoise hydrogen").



Reforming with CCS	
Cost* [28]	$ $
Commercial readiness	●●●●●
Scalability	●●●●●
Carbon intensity [29]	●●○○○

Pyrolysis	
Cost* [28]	$ $ $
Commercial readiness	●●○○○
Scalability	●●●●○
Carbon intensity [29]	●●○○○

Electrolysis	
Cost* [28]	$ $ $ $ $
Commercial readiness	●●●●●
Scalability	●●○○○
Carbon intensity [29]	●○○○○

Reforming	
Cost* [28]	$
Commercial readiness	●●●●●
Scalability	●●●●●
Carbon intensity [29]	●●●●●

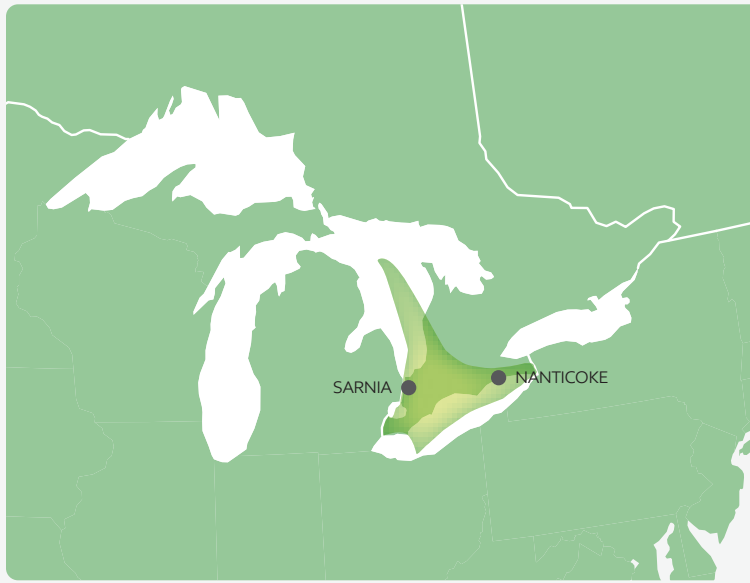
** Cost influenced by geographic location, cost of electricity and access to inexpensive natural gas.*

CCS, low-carbon intensity hydrogen (H_2) in downstream and chemical

In addition to Upstream oil and gas production, carbon capture and storage (CCS) is an effective technology to reduce GHG emissions in refining chemical and industrial operations. It can be used flexibly by either capturing emissions directly from a source or from low-carbon intensity hydrogen produced with natural gas. Low-carbon intensity hydrogen can be used as a substitute for a fossil fuel gas, can be used to produce lower-emissions steam and electricity and be used to produce renewable fuels. All of these solutions reduce life-cycle GHG emissions for our customers and our operations.

Imperial recently announced a long-term hydrogen contract with Air Products, which will provide low-carbon intensity hydrogen that is produced with CCS to our world-class renewable diesel complex at our Strathcona refinery, in Alberta, to further reduce the carbon intensity of our renewable diesel.

The Government of Ontario is currently working toward creating a new regulatory framework that would enable permanent geologic carbon storage. An early step includes proposed changes to address existing barriers prohibiting the injection of CO_2 underground for the purpose of sequestering.[30] Preliminary findings have identified potential suitable geology that is ideally located close to both our Nanticoke and Sarnia refineries which are strategically located near major fuel markets for both traditional and emerging fuel demands.



Bryan Healey | Low Carbon Business Development Manager

We've been sharing our CCS experiences from Alberta across jurisdictions. There is great uptake to the idea of collaboration in industrial clusters as a means of jump-starting CCS and low-carbon intensity hydrogen.

Non-combustible products and emerging technologies

E3 Lithium

Imperial's collaboration with E3 Lithium includes supporting a pilot project operated by E3 Lithium to explore the redevelopment of the Leduc oil field into a potential lithium source for commercialization of battery-grade lithium for electric vehicles and energy storage solutions. The field-scale pilot project focuses on scaling up E3 Lithium's proprietary technology, which follows a process of removing and concentrating lithium from subsurface brine liquid that is produced to the surface and then immediately returned underground. Imperial is actively providing technical and development support leveraging our water treatment, project execution, geoscience and reservoir management expertise.

E3 Lithium aims to start pilot plant operations during the second half of 2023.

Small modular reactors (SMRs)

SMRs use nuclear fission, similar to large power plants, to safely produce non-GHG emitting heat and electricity. Due to their size, SMRs offer the benefit of portability and could provide an excellent future source of energy for heavy industry or remote locations lacking electricity infrastructure and capacity.

Imperial is evaluating how SMRs could be used across its facilities to reduce GHG emissions, with some types of SMRs having the potential to replace boilers for steam generation in operated oil sands. Imperial is actively participating in a SMR working group at Canada's Oil Sands Innovation Alliance (COSIA) focused on understanding integration needs and determining requirements for commercial deployment into Canada's oil sands operations.

SMRs are currently in early stages of development with many possible designs being considered.

However, in order for this technology to be cost effective there is a need for a "fleet-based approach" to take advantage of economies of scale.

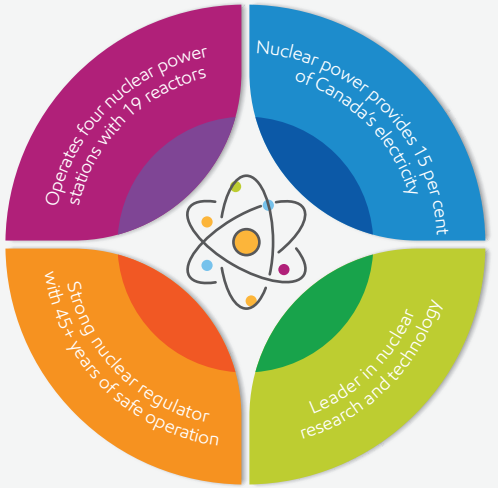
Bitumen beyond combustion (BBC)

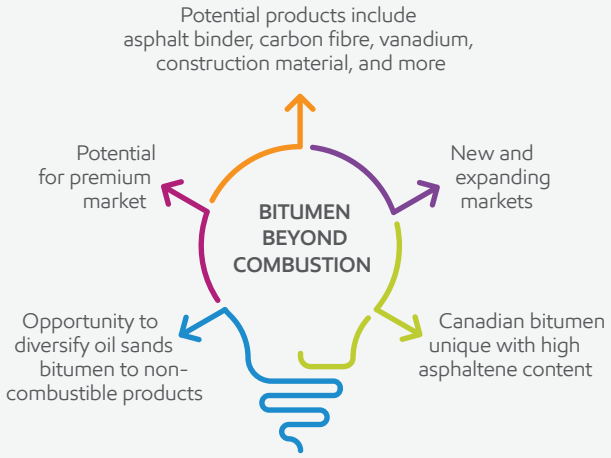
Bitumen is a form of crude oil that is processed and refined to make products such as gasoline, diesel, aviation fuel and asphalt. Bitumen is made of complex carbon-chain molecules, including the heaviest component known as asphaltenes. Asphaltenes, a key component of asphalt, have the potential with innovation to become a feedstock for carbon fibre and other non-combustible high-value materials like activated carbon.

Imperial's efforts involve our own in-house BBC research in Sarnia with a goal of creating feedstock for carbon fibre produced with competitive advantage. We are in the process of producing a carbon fibre feedstock in a laboratory pilot. Our efforts include collaborating with ExxonMobil to characterize the feedstock and we will be seeking a third-party carbon fibre manufacturer for spinning and performance testing.

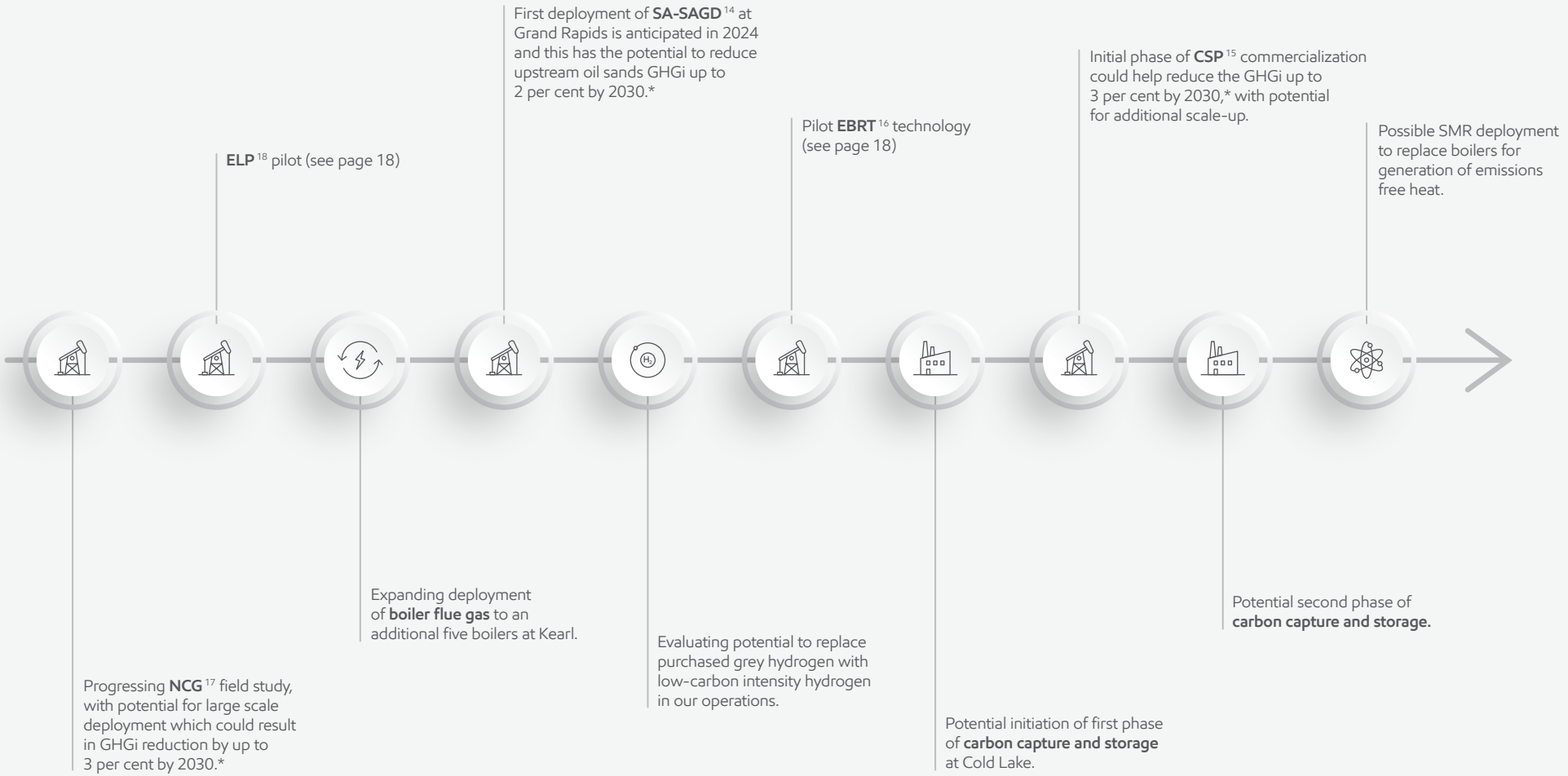
In addition, we are collaborating with Alberta Innovates and Clean Resource Innovation Network (CRIN) by providing samples from our upstream operations to an asphaltene bank to enable researchers from Canadian universities to access the samples and test the feasibility of alternative products. We participate on the Alberta Innovates BBC steering committee, review results of university research and share insights.

Canada is a leader in safe nuclear energy[31]



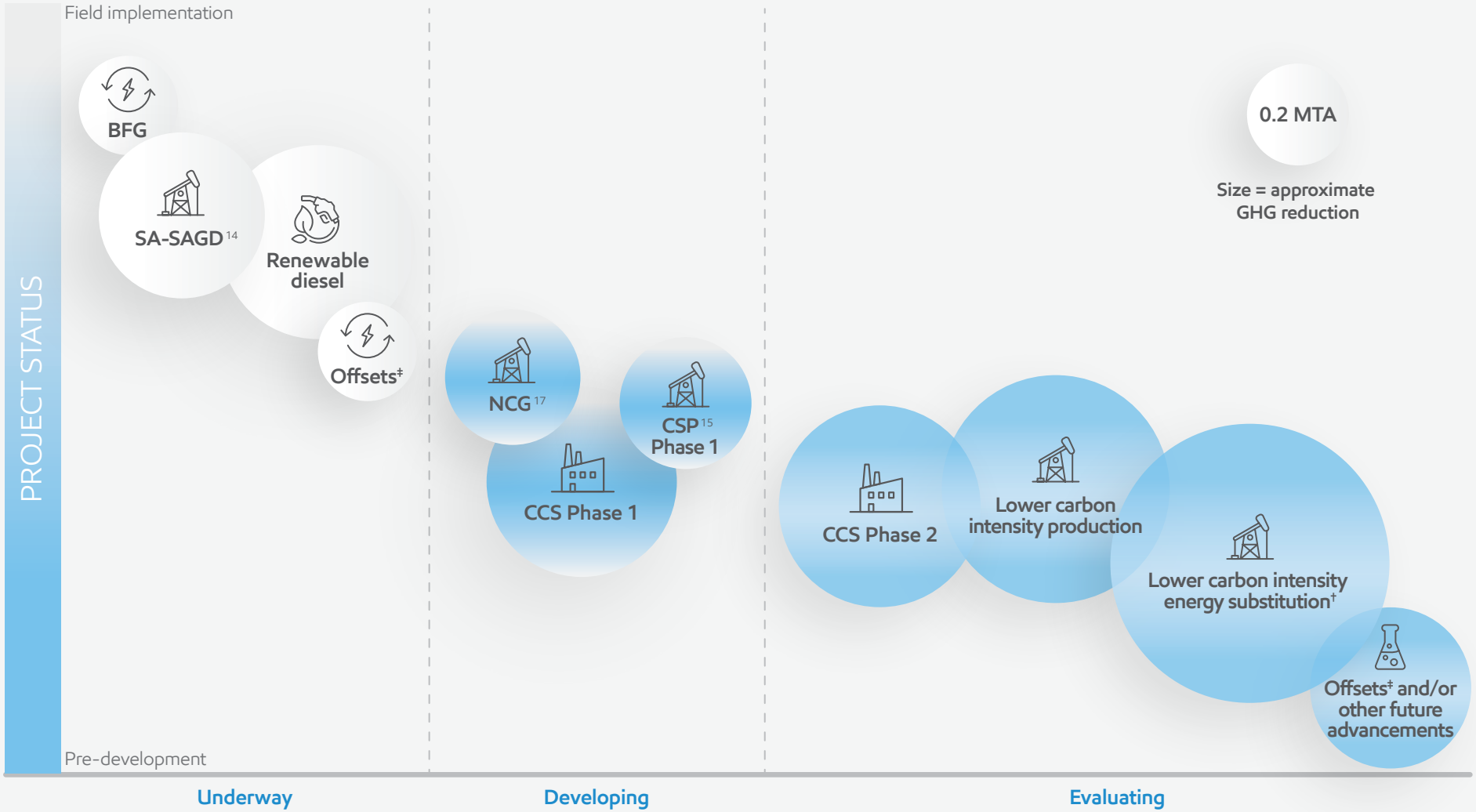


Potential technology deployment roadmap



** Subject to developed roadmaps and anticipated start-up.*

Potential operated oil sands GHG emission reduction*



** Subject to developed roadmaps and anticipated start-up. Expected outcomes are based on intensity-based reduction plans.*
‡ Quality offsets recognized by policy.
† Consists of a suite of multiple technologies.

MTA = million tonnes per annum
CCS = carbon capture and storage
BFG = boiler flue gas

Engaging in Canadian climate policy

The Government of Canada (GoC) is committed to moving toward its goal of net-zero emissions by 2050 and has legislated a series of regulations and proposed regulations and reduction targets to meet this goal.

Federal carbon pricing regulations

Carbon pricing is a foundational policy element with pricing set at $65/tonne in 2023, rising by $15/tonne each year, until it reaches $170/tonne[32] in 2030. In order to protect emissions intensive trade exposed industries from jurisdictions without carbon pricing, the federal policy provided free allowances of 80 to 95 per cent based on historical emissions, which tightens by two per cent per year starting in 2023. This is an important consideration to Canadian global competitiveness as the GoC advances its net-zero policies. Equivalent provincial policies are in place with slight differences relating to the per cent free allowances and the historical baseline development.

Imperial supports a transparent, economy-wide price on carbon to allocate resources and advance low-carbon technologies provided that Canada remains competitive with other jurisdictions.

Clean Fuel Regulations

The Clean Fuel Regulations (CFR) were published in July 2022 and will come into force on July 1, 2023. CFR requires liquid transportation fuels, excluding aviation and marine fuels, to reduce carbon intensity by 15 per cent below 2016 levels by 2030.[33] Fuel suppliers have multiple options to achieve this carbon intensity reduction including by reducing the carbon emissions at their refineries, blending in lower-carbon intensity biofuels, or generating credits through the electrification of the transportation sector.

It is Imperial's view that the CFR and the life-cycle approach take into account the emissions associated with all stages of fuel production and use. Imperial views the CFR as an effective mechanism to drive innovation, deliver emission reductions in the transportation sector and encourage efficient use of fuel by consumers.

Transport policy

The Government of Canada has set a mandatory target for all new light-duty cars and passenger trucks sales to be zero-emission by 2035.[34]

Geography and climate have played a major role in determining the transportation needs of Canadians. As the transportation sector transitions to a zero-emissions future, Imperial views it is important that consumers are given a suite of choices including hybrids, renewable fuels for existing combustion vehicles, electric vehicles and hydrogen-powered vehicles so they are able to meet their individual needs while reducing their emissions.

Proposed methane regulations

The Government of Canada recently published a proposed regulatory framework to amend the existing federal regulations for the oil and gas sector methane emissions to achieve at least a 75 per cent reduction in oil and gas methane emissions by 2030 relative to 2012 levels.[35]

Imperial continues to work towards reducing methane emissions from its operations, albeit less than one per cent of our upstream emissions are methane. In order to meet the Canadian methane target reduction, Imperial is actively exploring emerging technologies to improve methane detection in leak detection and repair through ongoing partnerships and association participation.

Proposed clean electricity regulations (CER)

In 2022, the GoC published a discussion paper and a proposed framework for CER. The proposed CER is "part of a suite of federal measures to move Canada's electricity sector to net-zero as an enabler for broader decarbonization of the economy"[36] and aims to achieve net-zero electricity supply by 2035.[37]

Imperial believes that the physical resiliency of both the grid and the electricity market to meet consumer demands, without large price impacts or supply disruptions will be essential. Any newly developed policy should be designed to ensure electricity remains affordable for consumers and should allow time for adequate infrastructure and energy storage requirements to be developed.

Proposed oil and gas emissions cap

Canada's proposed oil and gas emissions cap is intended to ensure that emissions from the sector reduce at a pace and scale consistent with Canada's 2030 and 2050 climate goals.[38]

It is our view that fiscal regulatory supports, investment certainty and regulatory efficiency and simplicity are needed to support emission reduction projects in Canada It is very important that Canada's industries remain competitive with other exporting jurisdictions.

SUPPORTIVE PUBLIC POLICY

Needed to accelerate emission reductions in Canada

Carbon pricing provides a signal to the economy to decarbonize. However, when technology costs exceed the signal, or when the signal is uncompetitive with other jurisdictions, then supportive public policies including additional government incentives are required to ensure Canada remains globally competitive and attracts investment toward emission reduction projects. Consequently, both the Government of Canada (GoC) and the Government of Alberta (GoA) have established and proposed programs and fiscal measures to support decarbonization projects across the economy. However, additional fiscal measures, along with timely and supportive regulatory processes, are essential in order to enable large-scale emissions reduction projects needed to support Canadian emission-reduction goals and ensuring global competitiveness.

Examples of existing and proposed funding programs to encourage investment decisions include:

- **Federal Carbon Capture and Storage Investment Tax Credit (CCS ITC).** Includes an investment tax credit of 50 per cent for capture and 37.5 per cent for transportation and storage for carbon capture and storage projects until 2030.[23]
- **Federal Clean Hydrogen Investment Tax Credit.** Includes levels of support between 15 and 40 per cent based on carbon intensity with the lowest carbon intensity tier that meets all eligibility requirements receiving 40 per cent ITC. The clean hydrogen ITC will be phased out after 2034.[39]
- **Federal Net Zero Accelerator fund (NZA).** Includes up to $8 billion to support large-scale investments in key industrial sectors that reduce domestic GHG emissions.[40]
- **Canada Growth fund.** $15 billion announced as part of the 2022 Fall Economic Statement. It will be designed in order to reduce risks to encourage private investment in low carbon projects, technologies, businesses and supply chains.[41]
- **Provincial Incentive Programs (PIP).** Additional funding programs provided by provincial government. For example, in Alberta, the province created the Alberta Petrochemicals Incentive Program (APIP) which "provides grants to companies to attract investment in new or expanded market-driven petrochemical facilities."[42]

DID YOU KNOW?

Technology development in the oil and natural gas sector could lead the way to accelerated decarbonization and energy security for Canadians and our global allies. The sector:

- In 2019, spent more than $3 billion on environmental protection activities including clean technology development
- Contributed more than $100 billion to Canada's GDP per year while supporting nearly 450,000 jobs nation-wide

Source: Statistics Canada/CAPP

Example supports

Principle-based advocacy

Imperial is committed to the development of effective policies to help address the risks of climate change. We engage with trade associations, Indigenous communities, governments, policy makers and other third parties to actively monitor public policy so that we can inform our business plans and to assist policy makers seeking our expertise. It is our view that early, proactive and collaborative engagement results in the most effective solutions. We encourage policy makers to focus on reducing the greatest amount of emissions at the lowest cost to society, which includes options to support the transition that is needed for a net-zero future while ensuring Canada remains globally competitive.

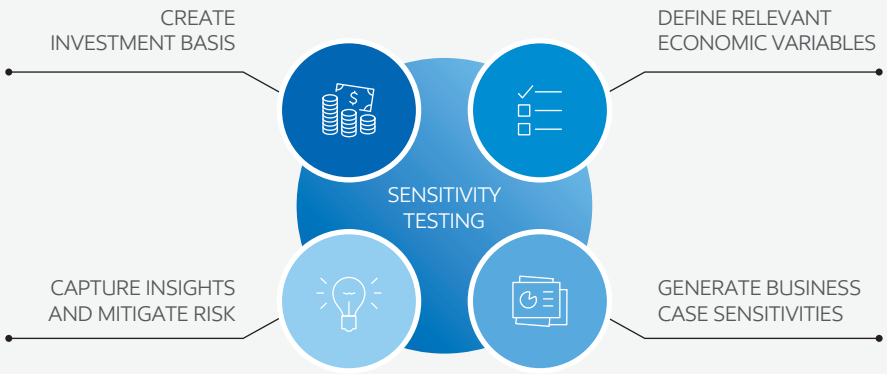
The company believes effective policies are those that:

- Promote global participation including investment in Canada;
- Allow market prices to drive the selection of solutions;
- Ensure uniform and predictable costs of GHG emissions across the economy;
- Minimize complexity and administrative costs;
- Maximize transparency;
- Are globally competitive.

Considering policy in investment decision making

Imperial has an objective of strengthening its competitive position and focusing on increasing cash flow while delivering industry-leading environmental performance enhancements and economic returns. Where appropriate the company applies sensitivities to evaluate projects for robustness over their intended life.

We test our capital investments against many uncertainties, which may include but are not limited to: technology, cost, geopolitics, material services, labour availability, infrastructure and logistics, regulatory, and environment including carbon pricing and climate policy as defined by the Government of Canada.



Trade associations

Imperial belongs to industry and trade associations that offer opportunities to share practices and collaborate on issues of importance to our sector. Participation in trade associations across a broad spectrum of issues provides Imperial with access to a range of perspectives and creates important opportunities to develop and propose solutions that align with our corporate values and with the interests of our stakeholders and employees.

Imperial belongs to the following associations where annual fees exceeded $25,000:

- Business Council of Alberta
- Business Council of Canada
- Canadian Association of Petroleum Producers
- Canadian Chamber of Commerce
- Canadian Council for Aboriginal Business
- Canadian Fuels Association
- Canadian Manufacturers and Exporters
- CD Howe Institute
- Chemical Industry Association of Canada
- Council of the Great Lakes Region
- Pathways Alliance
- Plastic Shipping Container Institute
- Public Policy Forum
- Strathcona Industrial Association.

METRICS & TARGETS

Imperial has consistently reported Scope 1 and 2 GHG emissions from its operations as they provide an accurate reflection of the company s direct effort to manage, measure and reduce emissions in our operations. The criteria for reporting these emissions is well established, transparent and consistent across sectors.

2023

Goal to reduce operated oil sands GHG emissions intensity by 10% by the end of 2023

2030

Goal to reduce operated oil sands GHG emissions intensity by 30% by 2030

2050

Company wide goal to achieve net zero emissions by 2050 in its operated assets through collaboration with government and other industry partners

From 2016 levels and includes scope 1 and 2 greenhouse gas emissions from operated assets.

REDUCING OIL SANDS EMISSIONS ON THE PATH TO 2050

Establishing clear measurable goals with specific plans and actions

Near-term goal

Imperial is continuing to progress its plans to meet its 2023 year-end greenhouse gas emissions intensity (GHGi) goal of 10 per cent reduction for operated oil sands facilities compared to 2016 levels.[1, 2] This improvement builds on our previous success of reducing GHGi in these assets by more than 20 per cent between 2013 and 2016.

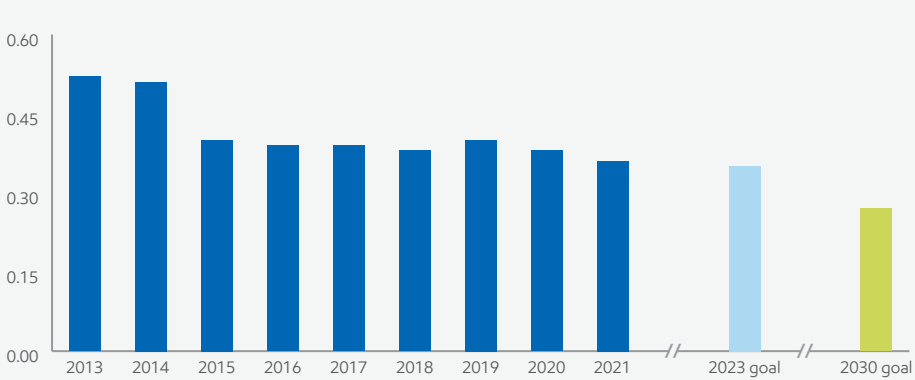
Medium-term goal

By the end of 2030, Imperial expects to reduce GHGi of its operated oil sands facilities by 30 per cent compared with 2016 levels.[1, 2] This emissions reduction goal is challenging and will require innovative technology solutions developed in collaboration with policy makers, industry and other stakeholders to accelerate the deployment of lower-carbon technologies. The company plans to achieve this reduction through the implementation of lower GHGi next-generation technologies at our Cold Lake operation (e.g., CSP), efficiency improvements at all our sites, and through the use of carbon capture and storage.

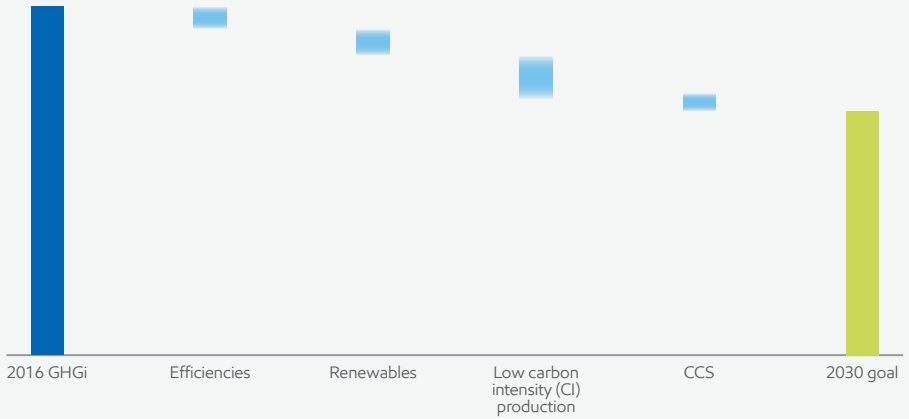
Long-term goal (2050)

Imperial's oil sands roadmap provides a foundation for our oil sands goal to achieve net-zero emissions by 2050[1] through collaboration with governments and other partners. We anticipate our roadmaps will evolve as policy and technology shapes pathway options.

Operated oil sands GHG emissions intensity[43, 44, 45]
(tonnes CO_2e/m^3)



Operated oil sands – a potential roadmap to 2030[1]



GREENHOUSE GAS EMISSIONS METHODOLOGIES [46, 47]

Imperial reports its GHG emissions using federal and provincial methodology (pages 35-36). Common methods for estimating society's GHG emissions include life-cycle approach (LCA) and the GHG Protocol. Although each method has value, we see LCA as a more useful method to better understand the degree to which a company is helping reduce global emissions.

Life-cycle approach (LCA) [47]

A life-cycle approach highlights multiple opportunities to reduce emissions intensity along a full value chain. When comparing different energy technologies or product alternatives, it may help consumers better understand the choices they are making based on the relative carbon burden of a good or service. For petroleum products, LCA includes GHG emissions associated with production of the resource, refining and transportation steps and lastly consumption of the product by the end user.

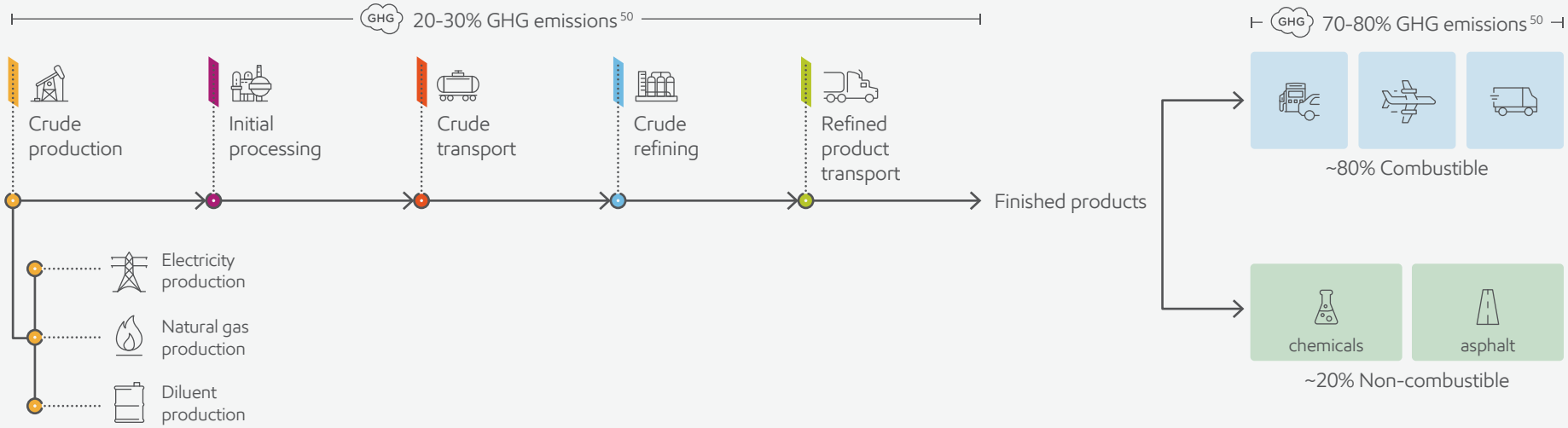
GHG Protocol

GHG Protocol supplies GHG "standards, guidance, tools and training for business and government to measure and manage climate-warming emissions." [48] It divides emissions into three categories or "scopes": Scope 1, 2 and 3.

- **Scope 1** – Direct GHG emissions from company operations, such as fuel consumption in a boiler or mining truck fleet.
- **Scope 2** – Indirect GHG emissions from energy purchased by the company, such as electricity from the grid.
- **Scope 3** – Indirect GHGs that are generated across the value chain that are not included in Scope 1 and 2, such as employee travel and commuting, transportation and distribution, purchased goods and services, and the use of sold products.

The GHG Protocol is an activity-based analysis and provides limited insight into how companies might substantially lower their emissions. A company that reduces production will see its GHG Protocol-calculated emissions decrease, but activity does not stop because society's needs have not changed resulting in another company filling the production void. If activity completely stops, society's needs may go unfulfilled, leading to shortages and potential price spikes. The GHG Protocol was not designed to consider these important nuances and could reward an entity that has reduced their greenhouse gas emissions within their defined boundaries while society's emissions could remain constant or even rise. Conversely, it is possible for an entity to show a rise in emissions reporting in GHG Protocol [1] although contributing to a reduction in society's emissions. [49] For example, a company that adds renewable fuel manufacturing capacity could see its emissions increase even though they may be helping to meet society's needs for lower-carbon fuels.

Life-cycle assessment (GHG emissions) for petroleum-based products



Upstream life-cycle assessment study

Imperial was pleased to participate in a life-cycle assessment study led by scientists from the University of Calgary, Stanford University and the University of Toronto in collaboration with government agencies (Alberta Innovates, Emissions Reduction Alberta, and Natural Resources Canada), LCA experts, industry groups and other oil sands producers.[51]

This study, using real operational data to improve upon open source model GHG estimates (an exercise known as "ground truthing"), could not have been successful without the collaboration of these knowledgeable participants. The published report, demonstrating GHG performance of various oil sands technologies including Imperial's paraffinic froth treatment (PFT) and solvent assisted-steam assisted gravity drainage (SA-SAGD) processes, was released in December 2020 and the results were published in the *Journal of Cleaner Production* in early 2021.[52]

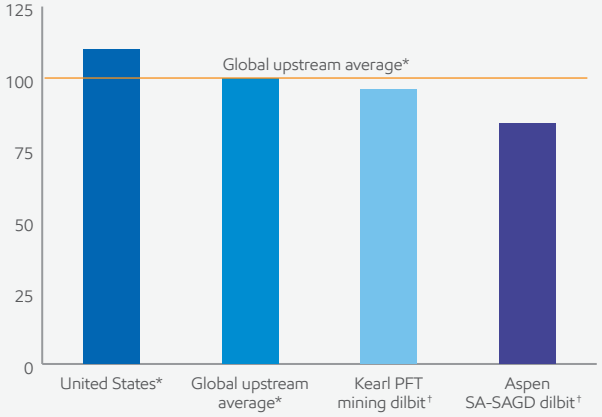
The results showcase Alberta's global leadership in transparent reporting of its emissions and operational data with improved modelling outputs demonstrating positive correlation (96 to 99 per cent) with actual operational and regional data. The study found that the carbon intensity (CI) of Kearl's oil sands mining operation is better than the global upstream average and continues to improve. Among the facilities modelled, the Kearl PFT diluted bitumen (dilbit) had the lowest upstream GHG emission intensity, estimated at 54.7 kg CO_2e/bbl of crude. Of significance, next-generation in situ technologies using light hydrocarbons (solvents) instead of steam to recover bitumen are anticipated to result in intensities lower than the global upstream average.[52]

Devin Soon | Supervisor, Environmental & Regulatory

Canada is a global leader in well-established in-field measurement and reporting practices. I am proud to lead a team that transparently shares our company's GHG emissions.

Global upstream carbon intensity

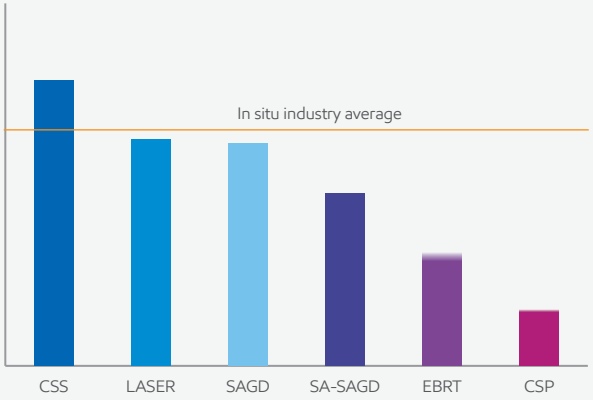
(normalized)



* Masnadi et al. (Science, 2018)
† Sleep et al. (Journal of Cleaner Production, 2021)

Imperial's in situ technologies

(normalized)



Source: Modified from Boone World Heavy Oil Conference, 2012

PERFORMANCE DATA[1]

Imperial is committed to providing our shareholders and stakeholders with meaningful information about our business. Our sustainability performance table and metrics include environmental, social and governance data up to year-end 2021.

	2016	2017	2018	2019	2020	**2021**
GHG emissions and energy consumption[2]						
Direct GHG emissions – including cogeneration						
Downstream & Chemical *(million metric tonnes of CO_2e)*	4.8	4.7	4.7	4.4	4.6	**4.9**
Carbon dioxide emissions *(million metric tonnes)*	4.8	4.6	4.6	4.4	4.5	**4.9**
Methane emissions *(million metric tonnes)*	0.0010	0.0011	0.0011	0.0012	0.0011	**0.0012**
Nitrous oxide emissions *(million metric tonnes)*	0.0001	0.0001	0.0001	0.0001	0.0001	**0.0001**
Upstream *(million metric tonnes of CO_2e)*	8.2	8.4	8.4	8.7	8.4	**8.9**
Carbon dioxide emissions *(million metric tonnes)*[3]	8.0	8.2	8.3	8.6	8.4	**8.9**
Methane emissions *(million metric tonnes)*	0.0023	0.0018	0.0017	0.0020	0.0010	**0.0012**
Nitrous oxide emissions *(million metric tonnes)*	0.0003	0.0003	0.0003	0.0001	0.0001	**0.0001**
Operated oil sands *(million metric tonnes of CO_2e)*	8.1	8.3	8.4	8.6	8.4	**8.9**
Carbon dioxide emissions *(million metric tonnes)*[3]	8.0	8.2	8.3	8.5	8.3	**8.8**
Methane emissions *(million metric tonnes)*	0.0020	0.0017	0.0016	0.0017	0.0010	**0.0012**
Nitrous oxide emissions *(million metric tonnes)*	0.0003	0.0003	0.0003	0.0001	0.0001	**0.0001**
Imported electricity and associated indirect GHG emissions						
Downstream & Chemical – imported electricity *(million MWhr)*	1.07	1.04	1.09	1.09	1.07	**0.82**
Downstream & Chemical – associated indirect GHG emissions *(million metric tonnes of CO_2e)*	0.39	0.39	0.40	0.40	0.40	**0.30**
Upstream – imported electricity *(million MWhr)*	0.83	0.92	0.95	1.07	1.05	**1.02**
Upstream – associated indirect GHG emissions *(million metric tonnes of CO_2e)*	0.31	0.34	0.35	0.39	0.39	**0.38**
Operated oil sands – imported electricity *(million MWhr)*	0.83	0.92	0.94	1.07	1.05	**1.02**
Operated oil sands – associated indirect GHG emissions *(million metric tonnes of CO_2e)*	0.31	0.34	0.35	0.39	0.39	**0.38**
Exported electricity and associated GHG emissions						
Downstream & Chemical – exported electricity *(million MWhr)*	–	–	–	–	0.01	**–**
Downstream & Chemical – associated GHG emissions *(million metric tonnes of CO_2e)*	–	–	–	–	–	**–**
Upstream – exported electricity *(million MWhr)*	1.48	1.45	1.55	1.50	1.45	**1.48**
Upstream – associated GHG emissions *(million metric tonnes of CO_2e)*	0.55	0.54	0.57	0.56	0.54	**0.55**
Operated oil sands – exported electricity *(million MWhr)*	1.47	1.45	1.55	1.49	1.45	**1.47**
Operated oil sands – associated GHG emissions *(million metric tonnes of CO_2e)*	0.55	0.53	0.57	0.55	0.54	**0.54**

	2016	2017	2018	2019	2020	**2021**
GHG emissions[4]						
Downstream & Chemical *(million metric tonnes of CO_2e)*	5.2	5.1	5.1	4.9	5.0	**5.2**
Upstream *(million metric tonnes of CO_2e)*	7.9	8.2	8.2	8.5	8.3	**8.8**
Operated oil sands *(million metric tonnes of CO_2e)*	7.8	8.2	8.2	8.4	8.2	**8.7**
Production/throughput						
Downstream & Chemical – refining throughput *(million m^3)*[5]	21	22	23	20	20	**22**
Upstream – production *(million m^3)*[6]	21	21	22	21	22	**25**
Operated oil sands – production *(million m^3)*[7]	20	21	21	21	22	**24**
GHG emissions intensity[8]						
Downstream & Chemical *(metric tonnes of CO_2e/m^3 refining throughput)*[5]	0.25	0.23	0.22	0.24	0.25	**0.24**
Upstream *(metric tonnes of CO_2e/m^3 upstream production)*[6]	0.38	0.39	0.38	0.40	0.38	**0.35**
Operated oil sands *(metric tonnes of CO_2e/m^3 upstream production)*[7]	0.39	0.39	0.38	0.40	0.38	**0.36**
Total energy use *(million gigajoules)*	220	223	227	227	225	**236**
Fuels refining Solomon EII® – normalized versus 1990[9]	0.808	0.804	0.790	0.809	0.822	**0.804**

(1) Some uncertainty exists in performance data, depending on measurement methods. Data in the report and performance data table represent the best available information at the time of publication. Data represents Imperial owned and operated assets (including 100% Kearl, Cold Lake and Norman Wells; excluding ExxonMobil Canada, XTO Canada and Syncrude). Retail stations (sold in 2016) and other assets that were divested between 2017-2021 are not included.

(2) Reported emissions, reductions, and avoidance performance data are based on a combination of measured and estimated emissions data. Greenhouse Gas (GHG) emissions were quantified based on applicable provincial and federal regulations. Imported/exported electricity GHG emission factor (0.37 tonnes CO_2e/MWhr). As required by provincial regulation in Alberta and Ontario, our greenhouse gas emissions are third party verified. There is uncertainty associated with the emissions, reductions, and avoidance performance data due to variation in the processes and operations, the availability of sufficient data, quality of those data and methodology used for measurement and estimation. Performance data may include rounding of subcategories. Changes to the performance data may be reported as part of the company's annual publications as new or updated data and/or emission methodologies become available.

(3) Excluding CO_2 emissions from biomass.

(4) GHG emissions calculated as sum of direct emissions and emissions associated with imported electricity less (minus) emissions associated with exported electricity.

(5) Throughput basis: Refinery throughput is the volume of crude oil and feedstocks that is processed in the refinery atmospheric distillation units.

(6) Production basis: Represents bitumen/crude production at Kearl, Cold Lake and Norman Wells; Kearl and Cold Lake production basis same as reported under Alberta greenhouse gas emissions regulation.

(7) Production basis: Operated oil sands (Kearl and Cold Lake) production basis same as reported under Alberta greenhouse gas emissions regulation.

(8) GHG emissions intensity is the ratio of GHG emissions to production or throughput.

(9) Solomon EII® is a measure of energy efficiency for petroleum refineries. A lower energy intensity index number indicates a more energy-efficient facility.

SCOPE 3 EMISSIONS

Scope 3 emissions are GHGs that are generated across the value chain and are not included in Scope 1 and 2 emissions. Scope 3 estimates can include employee travel and commuting, transportation and distribution, purchased goods and services, and the use of sold products. Imperial has opted to focus its Scope 3 emissions estimate on indirect emissions resulting from the consumption and use of the company s products since they represent the majority of our estimate. [53] Scope 3 emissions from product usage are a function of the demand for energy products and consumer choices on how and when to use energy products. Consumer actions, including efficient use, are necessary to drive meaningful Scope 3 reductions. As they are indirect and occur outside of our control, the reporting of Scope 3 emissions is less certain and consistent. Imperial is providing solutions to help customers reduce their emissions, including advanced fuels and renewable fuels in our product offerings.

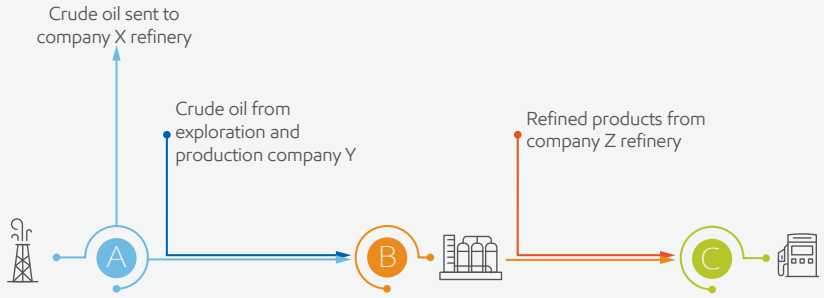
Evaluating a company s Scope 3 emissions and comparing them to others can be challenging due to inconsistent reporting methodologies, as well as potential duplication, inconsistencies and inaccuracies that may occur when reporting emissions that are the result of activities from assets not owned or controlled by the reporting organization. Ipieca acknowledges these issues. [54]

Imperial's Scope 3 emissions estimates

The table below provides Imperial's Scope 3 estimates associated with the use of its crude oil and natural gas production, in alignment with Category 11 of Ipieca's methodology for the use of sold products. This methodology contemplates accounting for products at the point of extraction (point A), processing (point B) or sales (point C). Imperial's Scope 3 estimates for points A, B and C represent three distinct approaches for estimating, and are not meant to be aggregated as this would lead to duplicative accounting.

For example and for completeness, the table provides the Scope 3 estimates associated with the combustion of the crude processed and products produced and sold from Imperial's refineries (points B and C). However, to avoid duplicative accounting, these Scope 3 estimates are not included in Imperial's Scope 3 Category 11 total because the associated Scope 3 emissions would also be accounted for by the producer of those crudes.

Integrated oil and gas company



Adapted from IPIECA

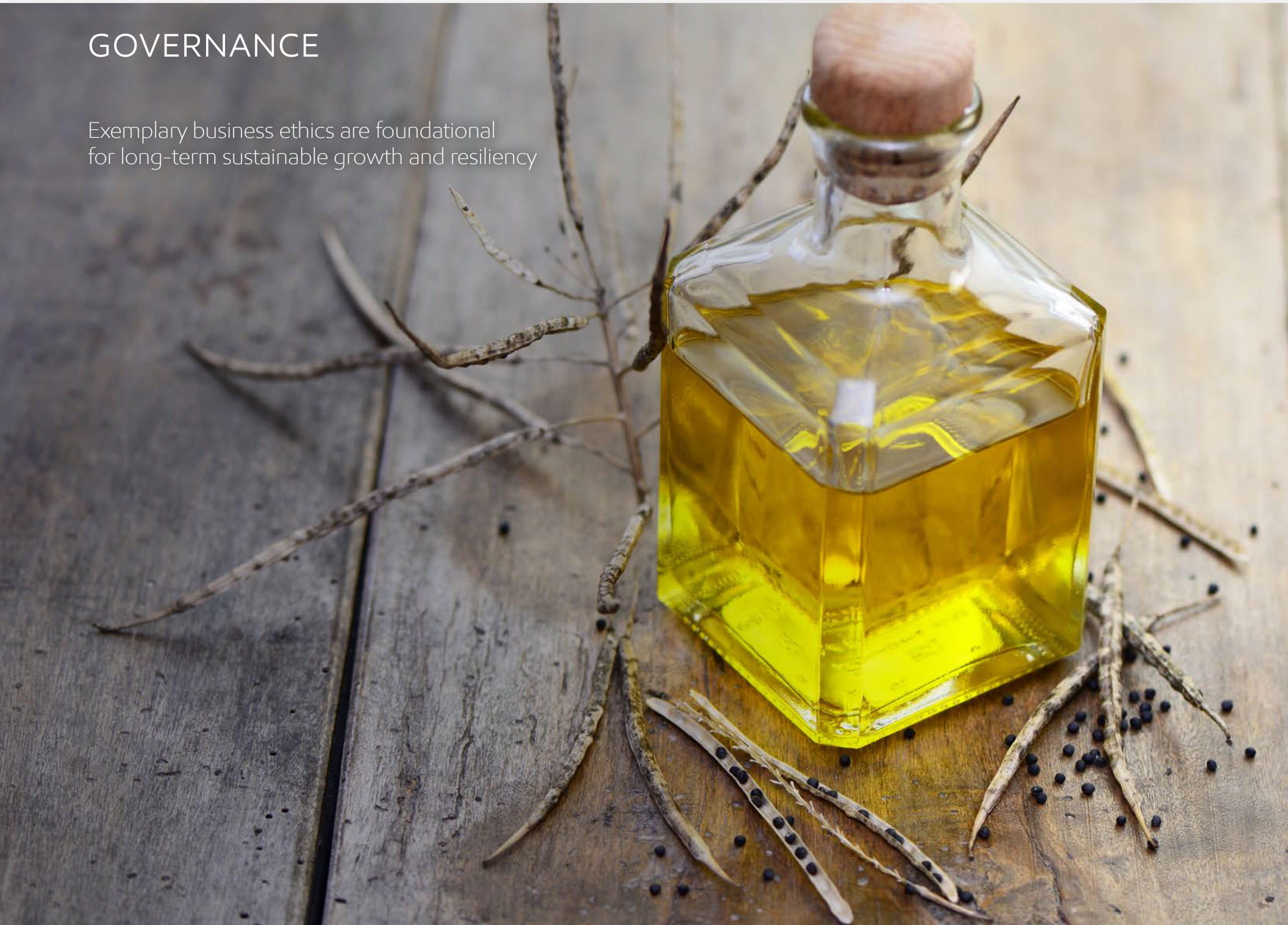
	Upstream production *(point A)*	Refining throughput *(point B)*	Petroleum product sales *(point C)*
Scope 3 potential estimates from the use of sold products *(million tonnes CO_2-equivalent)*	70	60	60

Estimated Scope 3 emissions for the use of Imperial's crude and natural gas production for the year ending Dec 31, 2021 were 70 million tonnes.

Applied CO_2 Emission Factors were obtained from US EPA or derived from API calculations; where applicable, emission factors for specific fuel products were applied. Non-fuels products are not combusted by the end-user and therefore are not included in these Scope 3 estimates. Ipieca's Scope 3 methodology includes 15 categories of activities along each product's value chain. Imperial's Scope 3 estimates only includes estimated emissions from Category 11 (use of sold products) as they represent the majority of our Scope 3 emissions. Biogenic carbon is considered to be part of the natural carbon balance and does not add to atmospheric concentrations of CO_2, therefore CO_2 emission factor for biofuels and renewable fuels is zero. Estimates based on net upstream production, refining throughput and petroleum product sales as reported in Imperial's 2021 10-K annual financial report.

GOVERNANCE

Exemplary business ethics are foundational for long-term sustainable growth and resiliency



IMPERIAL'S BOARD OF DIRECTORS

Imperial's board of directors has a fiduciary duty to manage the corporation in the company's best interests. Our directors act honestly and in good faith in their duty of care. Imperial's board provides guidance and oversight of enterprise risk, which includes physical and transition risks of climate change and advancing opportunities arising from the energy transition. The board contributes to the annual development and approval of strategic plans that consider Canadian and global economic outlooks and management recommendations regarding major corporate decisions and actions that may have significant societal impact.

The board has access to relevant information to make informed decisions in representation of shareholders and reviews assumptions and sensitivities in testing major projects and investments for resiliency across a range of potential outcomes. The board provides strategic direction on items including but not limited to strategy, climate change, competitive positioning, safety, culture, performance, succession planning, compliance, executive compensation, environmental stewardship, research and technology, public policy, community and Indigenous engagement, stakeholder feedback and disclosure.

The board assesses company performance through a broad range of criteria including site visits, reviews of key reports and the approval of regulatory filings such as oil and gas disclosures under National Instrument 51-101and interim and annual disclosures under U.S. Securities and Exchange Commission forms.

Five of Imperial's seven board members are independent and meet the criteria for independence set by Canadian securities regulators, the SEC and the NYSE American LLC. All board committees are chaired by independent directors who meet regularly in executive sessions without the presence of management. In 2022, eight independent sessions were held to allow independent board members to raise substantive issues that were more appropriate to be discussed in the absence of management. Learn more at imperialoil.ca/en-ca/company/investors.

Brad Corson – *Chairman*

David Cornhill

Matthew Crocker

Sharon Driscoll

John Floren

Gary Goldberg

Miranda Hubbs

Board committees understand stakeholder interests and concerns

The board, collectively and through its Safety and Sustainability Committee, regularly engages with senior management on climate matters and our environmental approach and performance. This includes briefings from subject-matter experts, which can cover elements of scientific and technical research, public policy positions, greenhouse gas emission-reduction performance and new technology developments.

Finance

Reviews the corporation's capital structure, capital allocation and financial policies, practices and strategies, including the company's financial outlook and financing plan, capital plan including significant capital appropriations, and significant investments by the company.

Audit

Provides oversight of disclosures, financial statements, internal accounting and financial controls, business controls, compliance with legal and regulatory requirements and performance of the audit function (including independence).

Safety and sustainability

Assists the board by providing oversight on environmental, health, safety and sustainability performance along with legislative compliance and the assessment of potential long-term effects of public policy, climate change and sustainable business practices on corporate performance. Recommends desirable policies and actions.

Provides oversight on public awareness and consultation, government and Indigenous relations, community partnerships and investment programs.

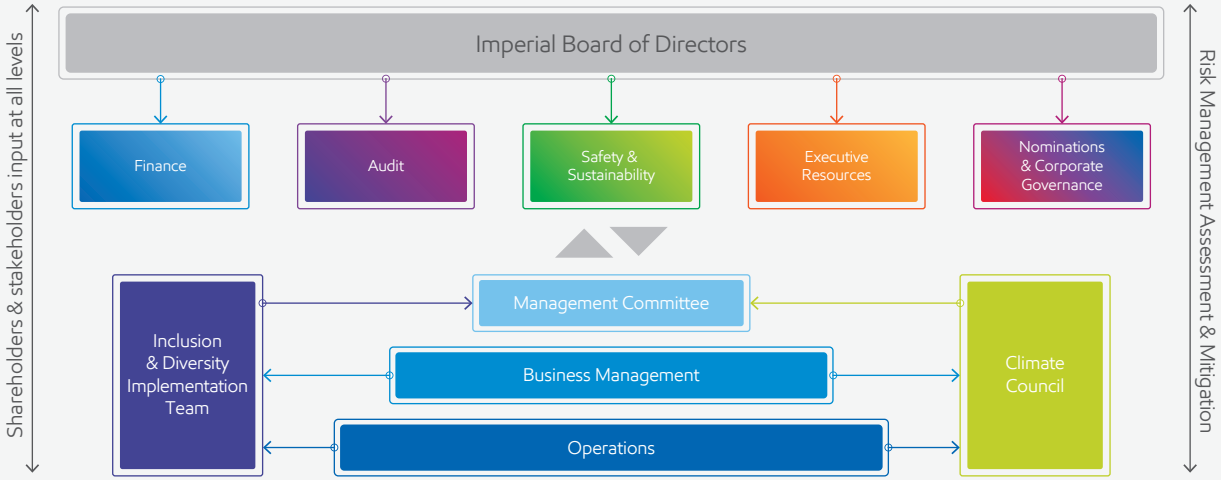
Executive resources

Ensures the compensation system is inherently designed to support the sustainability of the company's operations and the management of risk including risk related to climate change. Reviews and evaluates goals and objectives relative to compensation.

Nominations and corporate governance

Monitors and recommends implementation of appropriate corporate governance standards. Responsible for identifying and recommending highly qualified directors including appointments to committees.

Risk management oversight



In 2021, Imperial established a climate council within the organization, with downstream and chemical and upstream multi-disciplinary teams focused on developing and deploying emission reduction roadmaps. This integrated cross functional approach is key to progressing opportunities across the company in support of our short-, medium- and long-term goals.

EXECUTIVE COMPENSATION

Executive compensation incentivizes long-term, sustainable decision making

Imperial's executive compensation program includes features that are designed to incent effective management of current and future operating and financial risks associated with Imperial's business, including risks related to climate change, in order to:

- Protect the safety and security of our employees, the communities and the environment in which we operate;
- Manage risk and operate the business with effective business controls;
- Create sustainable value for company shareholders by increasing shareholder return, net income, and return on average capital employed, [55] while positioning the company for long-term success in a lower emission future; and
- Advance the long-term strategic direction of the company.

Key design features include restricted stock units with long vesting periods and compensation that is strongly tied to overall company performance.

Performance is assessed against relevant business performance measures and objectives. These business performance measures include:

- Safety, health and environmental performance;
- Risk management;
- Total shareholder return;
- Net income;
- Return on average capital employed; [56]
- Cash flow from operations and asset sales; [56]
- Operating performance of the upstream, downstream and chemical business; and
- Progress on advancing government relations and long-term strategic interests.

Details on the executive compensation program can be found in the company's annual Proxy statement.

RISK MANAGEMENT

Enterprise risk management

Imperial uses a comprehensive risk management framework to identify and manage risk to the company. Risk management occurs at multiple levels of the business as part of Imperial's risk management process. The Management Committee, which includes the chairman, president and chief executive officer, ensures risks, including climate risks, are addressed throughout the company. The company provides regular updates to the board of directors on business risks including climate risks and GHG emissions performance.

Imperial engages directly with a variety of external stakeholders including policy makers, investors, customers, regulators, academics, Indigenous peoples, non governmental organizations and industry associations on issues and opportunities of relevance to the company. This engagement provides excellent external input and feedback to our risk management system.

The management of risk is integrated across the organization through our Operations Integrity Management System (OIMS) that outlines expectations in managing personnel and process safety, operational and environmental risks. It is also integrated in our Controls Integrity Management System (CIMS), which is used to manage business control risks.

IDENTIFYING AND MANAGING CLIMATE-RELATED RISK AND OPPORTUNITY

Imperial has a robust issues and opportunities management process to identify and prioritize key actions for the company, including managing the risk of climate change. The issues and opportunities process includes analysis that considers stakeholder input, issues research, trends assessment and potential business impact. It ensures these items get the appropriate level of management attention so strategies can be developed to mitigate risk or progress opportunities. Oversight responsibilities by the Management Committee and the board and its committees, as described on page 41, are a key part of risk governance.

The Task Force on Climate-related Financial Disclosures outlines climate-related risks and opportunities into three major categories, physical risk, transition risk and climate-related opportunities: [57]

Climate risk and mitigation*

Physical risk

- Physical impacts as a result of climate change
- Includes both acute, event driven risks and chronic risk associated with longer-term shifts in climate patterns

- Resiliency impacts on facilities and operations
- Design, construction, and operation considers extreme weather events, ie floods, extreme cold, forest fires

Transition risk/ Climate-related opportunities

- Business impacts and opportunities related to the transition to a lower-carbon economy

- Goal to net-zero scope 1 and 2 emissions
- Mitigating emissions in our operations
- Helping customers reduce their emissions
- Climate strategy
- Growth in lower-emissions fuels

Financial impact

- Company disclosure of climate-related risk and opportunities

- Annual Report on Form 10-K, including financial statements and management's discussion and analysis, identifies risk factors, reserve disclosures and business environment and risks
- NI 51-101 (ASC) reserves disclosure
- Advancing Climate Solutions report guided by TCFD framework

* outlines a sample of some risk and opportunities

OIMS — A CORNERSTONE TO ACHIEVING PERFORMANCE EXCELLENCE

Operations integrity management

Imperial's Operations Integrity Management System (OIMS) is a cornerstone of our commitment to managing safety, security, health and environmental risk and achieving excellence in performance. To drive continuous improvement, our OIMS framework is continuously updated. The framework has also been certified by Lloyd's Register Quality Assurance, Inc. as meeting the following standards: ISO 14001:2015 and ISO 45001:2018.

OIMS is made up of 11 different elements, each with an underlying principle and set of expectations. Risks can include areas such as supply and demand interruptions, extreme weather, government and political factors, and risks associated with exploration and development, operations, and cybersecurity.

Imperial conducts risk assessments to identify and address potential hazards. Assessed risks are then prioritized and managed as appropriate. Decisions are clearly documented and managed.

Managers and supervisors are expected to demonstrate leadership and commitment for operations integrity. Imperial also uses sound standards, procedures and management systems for facility design, construction, startup, operation and other activities. Imperial facilities meet or exceed applicable regulatory requirements.

As our business and operating environments evolve, so does our OIMS framework. In 2021, we completed our first significant upgrade to the framework since its initial development.

Quality assurance processes are in place and verifications confirm that risk management recommendations have been addressed. Environmental performance, including emissions, discharges and wastes are tracked and stewarded to meet performance goals and the company carefully selects, trains and monitors personnel. Ongoing evaluations are performed to ensure framework expectations are met.

As a member of the Chemistry Industry Association of Canada, we have adopted the Responsible Care® ethic for the safe and environmentally sound management of chemicals. We also comply with the requirements of ISO 9001:2015 for the manufacture and distribution of polyethylene, naphtha intermediates, vinyl intermediates and aromatics.

FACILITY RESILIENCY

Imperial has extensive experience operating in a range of challenging environments across Canada. The company carefully considers the potential for physical and environmental risks in the design, construction, and operation of facilities. Internal design practices follow industry standards and meet regulatory requirements while incorporating environmental data on extreme events such as forest fires or floods to improve facility design. Procedures are in place to ensure the safety of both personnel and equipment while operating under extreme conditions.

To reduce the potential risk from fire events, facilities are designed to maintain buffer zones appropriate for the forest fire risk associated with the location. The size of the buffer is determined by considering the surrounding vegetation, facility type and construction material.

In the event of a flood, our facilities have infrastructure in place including pumps, ponds, ditches and storm sewers to help manage water.

Temperature extremes — especially cold — can be challenging to all Canadian operations. Winterization of equipment, buildings, instrumentation and piping is considered in facility design to ensure continued operability and maintainability during cold weather conditions.

Emergency preparedness, response and business continuity plans are carefully thought out and maintained. These plans are detailed, practiced and engage external stakeholders and Indigenous communities. In the event of an actual incident, all necessary actions are taken to protect the public, the environment, company personnel and assets. In response to business continuity risk, Imperial is able to activate emergency and safety protocols at all of our operations to manage risk and minimize impact. In addition, Imperial participates in provincial emergency drills to ensure preparedness.

TCFD MAPPING

This report is aligned with the core elements of the framework developed by the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), designed to encourage the informed conversation society needs on these important issues.

TCFD core elements and recommended disclosures		Imperial disclosures
Governance	a. Describe the board's oversight of climate-related risks and opportunities.	pages 41, 43
	b. Describe management s role in assessing and managing climate-related risks and opportunities.	pages 41, 43
Strategy	a. Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term.	pages 3-30
	b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning.	pages 3-30
	c. Describe the resilience of the organization's strategy, taking into consideration different climate related scenarios, including a 2°C or lower scenario.	pages 3-30
Metrics and targets	a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	pages 31-34
	b. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 GHG emissions, and the related risks.	pages 31-36
	c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	page 32
Risk management	a. Describe the organization's processes for identifying and assessing climate related risks.	pages 30, 43-46
	b. Describe the organization's processes for managing climate-related risks.	pages 30, 43-46
	c. Describe how processes for identifying, assessing and managing climate related risks are integrated into the organization's overall risk management.	pages 30, 43-46

FOOTNOTES

(1) *Scope 1 and 2.*

(2) *Compared with 2016 operated oil sands GHGi. Governmental, legal or regulatory changes and production volumes could directly or indirectly delay or otherwise impact GHG emissions intensity reduction measures.*

(3) *IEA, 2022 World Energy Outlook*

(4) *ExxonMobil 2023 Advancing Climate Solutions progress report https://corporate.exxonmobil.com/climate-solutions/advancing-climate-solutions-progress-report*

(5) *ExxonMobil's 2022 Outlook for Energy*

(6) *IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G.Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926*

(7) *The IPCC Lower 2°C scenarios produce a variety of views on the global energy demand in total and by specific types of energy, providing a range of possible growth rates for each type of energy across these 311 scenarios. Given the inherent uncertainty in energy demand modeling, we used an average of all 311 scenarios to approximate growth rates for various energy types to estimate trends to 2050 indicative of hypothetical 2°C pathways.*

(8) *Global economy – ExxonMobil's 2022 Outlook for Energy; Chemicals growth - IHS Markit Report, Global (Polyethylene, Polypropylene, and Paraxylene), 2022 edition: Fall 2022 update.*

(9) *International Energy Agency (2021), Net Zero by 2050, IEA, Paris. Figure 3.4 p 103. Estimate is based on the New and Existing Fields, Refining and Transport data from 2020-2050.*

(10) *Reserve estimates provided in these materials are effective as of December 31, 2022, and based on definitions contained in the Canadian Oil and Gas Evaluation Handbook (COGEH) and are presented in accordance with National Instrument 51-101, as disclosed in Imperial's Form 51-101F1 for the fiscal year ending December 31, 2022. Except as otherwise disclosed herein, reserves information are an estimate of the company's working interest before royalties at year-end 2022, as determined by Imperial's internal qualified reserves evaluator. Working interest is Imperial's share before deducting the shares of mineral owners or governments or both. In these materials, certain natural gas volumes have been converted to barrels of oil equivalent (BOE) on the basis of six thousand cubic feet (Mcf) to one barrel (bbl). BOE may be misleading, particularly if used in isolation. A BOE conversion ratio of 6 Mcf to one bbl is based on an energy-equivalency conversion method primarily applicable at the burner tip and does not represent a value equivalency at the wellhead. Given that the value ratio based on the current price of crude oil as compared to natural gas is significantly different than the energy equivalency ratio of 6 Mcf to 1 bbl, using a 6:1 conversion ratio may be misleading as an indication of value. Please note, proved reserves reported on the U.S. Securities and Exchange Commission use a different methodology, and U.S. investors are urged to consider closely the disclosures in the company's Form 10-K.*

(11) *Property and/or operations that Imperial and its affiliates owns or control.*

(12) *Greenhouse gas intensity*

(13) *LASER – Liquid addition to steam for enhanced recover*

(14) *SA-SAGD – Solvent Assisted Steam Assisted Gravity Drainage*

(15) *CSP – Cyclic solvent process*

(16) *EBRT – Enhanced bitumen recovery technology*

(17) *NCG – Non-condensable gas*

(18) *ELP – Enhanced late life process*

(19) *https://c-saf.ca/what-is-saf*

(20) *https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator*

(21) *All claims are based on comparison of Synergy Supreme premium gas to gasoline meeting minimum Canadian government detergency standards in port fuel injected engines. Actual benefits are based on continuous use and may vary depending on vehicle type, driving style, and gasoline previously used. Concentration and availability of our proprietary additive package may vary based upon factors beyond our control, including supply disruptions.*

(22) *Based on internal and third-party vehicle engine testing, laboratory testing and/or industry or other scientific literature. Basis for comparison for all claims is versus diesel without detergent additive. Vehicle type, engine type, driving behaviour and other factors also impact fuel and vehicle performance, emissions and fuel economy. Synergy Diesel Efficient fuel may be used in other heavy-duty and light-duty vehicles, but results will vary.*

(23) *Government of Canada: Budget 2022 https://www.budget.canada.ca/2022/report-rapport/toc-tdm-en.html*

(24) *https://pathwaysalliance.ca/phase1-progress*

(25) *J. Dziuba, R. Walsh, T. Ollenbrger, W. Avila, The Great Canadian CCUS Dilemma (2023), BMO Capital Markets*

(26) *IPCC Synthesis Report for the Sixth Assessment Report https://www.ipcc.ch/report/ar6/syr/*

(27) *International Energy Agency June 2019, The Future of Hydrogen https://www.iea.org/reports/the-future-of-hydrogen*

(28) *Costs for illustrative purposes. Cost influenced by geographic location, cost of electricity and access to inexpensive natural gas. Table 38: Comparison of different hydrogen production methods – Hydrogen Production Cost – an overview | ScienceDirect Topics (https://www.sciencedirect.com/topics/engineering/hydrogen-production-cost) IEA: Global average levelised cost of hydrogen production by energy source and technology, 2019 and 2050 https://www.iea.org/data-and-statistics/charts/global-average-levelised-cost-of-hydrogen-production-by-energy-source-and-technology-2019-and-2050*

(29) *Hydrogen strategy for Canada https://natural-resources.canada.ca/climate-change-adapting-impacts-and-reducing-emissions/canadas-green-future/the-hydrogen-strategy/23080*

(30) *https://www.ontario.ca/page/geologic-carbon-storage*

(31) *Nuclear in Canada https://www.nrcan.gc.ca/sites/nrcan/files/energy/pdf/uranium-nuclear/20-02262-Canada-Nuclear-Fuel-Cycle-Infographic-EN.pdf*

(32) *Canada's Climate Actions for a Healthy Environment and a Healthy Economy pdf https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/actions-healthy-environment-economy.html*

(33) *Government of Canada: What are the Clean Fuel Regulations? https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/fuel-regulations/clean-fuel-regulations/about.html*

(34) *Government of Canada: Zero-emission vehicles https://tc.canada.ca/en/road-transportation/innovative-technologies/zero-emission-vehicles*

(35) *https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/reducing-methane-emissions/proposed-regulatory-framework-2030-target.html*

(36) *Government of Canada: Proposed Frame for the Clean Electricity Regulations https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/proposed-frame-clean-electricity-regulations.html*

(37) *Government of Canada: Clean Electricity Regulations https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/clean-electricity-regulation.html*

(38) *Government of Canada: Oil and gas emissions cap https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/oil-gas-emissions-cap.html*

(39) *Government of Canada: Budget 2023 https://www.budget.canada.ca/2023/report-rapport/toc-tdm-en.html*

(40) *https://ised-isde.canada.ca/site/strategic-innovation-fund/en/net-zero-accelerator-initiative*

(41) *Canada Growth Fund: Technical backgrounder https://www.budget.canada.ca/fes-eea/2022/doc/gf-fc-en.pdf; Government of Canada: Fall Economic Statement 2022 https://www.budget.canada.ca/fes-eea/2022/home-accueil-en.html*

(42) *Alberta Petrochemicals Incentive Program (APIP) https://www.alberta.ca/alberta-petrochemicals-incentive-program.aspx*

(43) *Production basis: Operated oil sands (Kearl and Cold Lake) production basis same as reported under Alberta greenhouse gas emissions regulation.*

(44) *GHG emissions intensity is the ratio of GHG emissions to production or throughput.*

(45) *In 2019, our Cold Lake production volumes were unable to fully offset natural field decline and our Kearl mine site needed to move more overburden than the previous year. Although this resulted in a slight uptick in our GHGi metric for 2019, we remain focused on our 2023 and 2030 goals.*

(46) *This section includes a discussion of two common GHG emission estimation methodologies based on Imperial's assessment and interpretation of such methodologies as potentially applied to an integrated oil and gas and petrochemical company. The methods discussed within this section are based on Imperial's perspectives, certain assumptions, and may evolve as learnings are applied and additional information becomes available. The term "carbon" used in this section refers to GHG emissions converted to units of carbon dioxide equivalents. References to "GHG Protocol" mean the 2004 GHG Protocol Corporate Accounting and Reporting Standard and 2011 Corporate Value Chain (Scope 3) Accounting and Reporting Standard as of Oct. 24, 2022.*

(47) *Imperial's life-cycle approach methodology for estimating GHG emissions (carbon dioxide equivalents) of portfolios, energy pathways, and products versus alternatives is informed by the scientific principles of life-cycle assessment. We utilize this approach in various ways including: estimating a company's portfolio carbon intensity (g CO_2e per MJ), comparison of alternative products and energy pathways, and estimating avoided GHG emissions relative to alternatives. Any references to double counting of GHG emissions in this section refer to the potential overlapping of emissions among companies, within a company, or in product pathways. Imperial's lifecycle approach methodology provides the flexibility to include all relevant value chain emissions; some exclusions may apply, for example, due to uncertainty, double counting, lack of data, or immateriality.*

(48) *https://ghgprotocol.org/about-us*

(49) *While the GHG Protocol standards acknowledge the relevance of emissions intensity and other metrics, its emphasis is on absolute emissions inventories; intensity metrics are optional. Other metrics and methodologies exist and can provide additional context on the progress a company is making to reduce emissions. The GHG Protocol standards do not, for example, require or allow for netting of GHG removals or negative emissions technologies.*

(50) *The GHG intensity of Canadian oil sands production: A new analysis. (July 2020), IHS Markit Ltd.*

(51) *IHS Markit Ltd., ARC Financial Corp, Jacobs Consultancy Inc, National Energy Technology Laboratory, Canadian Natural Resources Limited, MEG Energy*

(52) *Sleep et al., 2021 Journal of Clean Fuel Production (vol. 281)*

(53) *Ipieca, API estimating petroleum industry value chain (Scope 3) greenhouse gas emissions (api.org). From 3.11.2, Materiality Consideration, 'The use of sold products is typically the most significant contributor to emissions for fuel-producing companies and can account for more than 80% of total scope 3 emissions.'*

(54) *IPIECA/API, 2016. Estimating petroleum industry value chain (scope 3) greenhouse gas emissions – Overview of methodologies*

(55) *For a definition of return on average capital employed see the "Frequently used terms" section of Imperial's most recent annual report on Form 10-K.*

(56) *For a definition of return on average capital employed and cash flow from operations and asset sales, see the "Frequently used terms" section of Imperial's most recent annual report on Form 10-K.*

(57) *Task Force on Climate-related Financial Disclosure https://www.fsb-tcfd.org*

CAUTIONARY STATEMENT

Statements of future events or conditions in this report, including projections, goals, expectations, estimates, business plans and descriptions of strategic and emission reduction goals are forward-looking statements. Similarly, emission-reduction pathways are dependent on future market factors, such as continued technological progress and policy support, and also represent forward-looking statements. Forward-looking statements can be identified by words such as believe, anticipate, propose, plan, goal, predict, estimate, expect, strategy, outlook, 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 Imperial's company-wide Scope 1 and 2 net-zero goal by 2050, and greenhouse gas emissions intensity goals for 2023 and 2030 for its oil sands operations, including the expected technologies to achieve these goals; the accuracy and effectiveness of roadmaps to 2050 and the ability for emission reduction pathways and business plans to deliver benefits to the company, its customers and shareholders; the impact of participation in the Pathways Alliance and other collaboration efforts; the impact of the renewable diesel facility at Strathcona, including production and reduction of CO_2 emissions and projected start-up in early 2025; being well positioned to transform with the evolving energy system; the impact of partnerships on lower-carbon solutions, including with Air Products and FLO; the company's climate strategy over the short, medium and long term, including the timing, development, and impact of specific technologies and R&D activities for in situ, SA-SAGD, EBRT, CSP, CCS including suitable geology, hydrogen, small modular reactors, bitumen beyond combustion, asphalt, lower carbon fuels, lithium and using offsets to reduce residual emissions; the Outlook for Energy including energy supply and demand and growth of lower emission fuels; reserves estimations and production of proved reserves; the scale and impact of research and development into new technologies, including leveraging ExxonMobil technologies and the Calgary and Sarnia research centres; digital technology innovation; progress providing lower life-cycle emissions products and innovative product solutions to customers and Imperial's operations, and the impact of such products; advancement of the Pathways Alliance proposed CCS hub near Cold Lake; potential technology deployment roadmaps and operated oil sands GHG emissions reduction; the ability to increase cash flow while delivering environmental performance enhancements and economic returns; the effectiveness of the board's governance, oversight, executive compensation program and risk management activities including climate risk and mitigation; and facility resiliency, preparedness and response systems.

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 refinery utilization, energy use and greenhouse gas emissions; demand growth and energy source, supply and mix; commodity prices; production rates, growth and mix across various assets; production life, resource recoveries and reservoir performance; project plans, timing, costs, technical evaluations and capacities, and the company's ability to effectively execute on these plans and operate its assets; 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 and technologies on capital efficiency, production and reductions to GHG emissions intensity; for the renewable diesel facility, the availability and cost of locally-sourced and grown feedstock, hydrogen produced with CCS and the supply of renewable diesel to British Columbia in connection with its low-carbon fuel legislation; the amount and timing of emissions reductions, including the impact of lower carbon fuels; that any required support from policymakers and other stakeholders for various new technologies such as CCS will be provided; applicable laws and government policies, including with respect to climate change, GHG emissions reductions and low carbon fuel legislation; assumptions regarding the performance of third-party service providers; receipt of regulatory approvals; financing sources and capital structure; general market conditions; capital and environmental expenditures; and the company's ability to effectively execute on its business continuity plans; could differ materially depending on a number of factors.

These factors include global, regional or local changes in supply and demand for oil, natural gas, petroleum and petrochemical products, feedstocks and other market factors, economic conditions or seasonal fluctuations and resulting demand, price, differential and margin impacts; political or regulatory events, including changes in law or government policy; environmental risks inherent in oil and gas activities; environmental regulation, including climate change and greenhouse gas regulation and changes to such regulation; government policies supporting lower carbon investment opportunities, or the 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; the results of research programs and new technologies, including with respect to greenhouse gas emissions, and the ability to bring new technologies to scale on a commercially competitive basis; unexpected technological developments; availability and performance of third-party service providers; third-party opposition to company and service provider operations, projects and infrastructure; unanticipated technical or operational difficulties; the impact of future consumer choices on roadmap trajectory and timing; availability and allocation of capital; management effectiveness and disaster response preparedness, including business continuity plans in response to COVID-19; project management and schedules and timely completion of projects; reservoir analysis and performance; the ability to develop or acquire additional reserves; operational hazards and risks; cybersecurity incidents; general economic conditions, including the occurrence and duration of economic recessions or downturns; and other factors discussed in Item 1A risk factors and Item 7 management's discussion and analysis of the company's most recent annual report on Form 10-K and subsequent interim reports on Form 10-Q.

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. Imperial's actual results may differ materially from those expressed or implied by its forward-looking statements and readers are cautioned not to place undue reliance on them. Imperial undertakes no obligation to update any forward-looking statements contained herein, except as required by applicable law.

References to "oil" and "gas" include crude, natural gas liquids, bitumen, synthetic oil, and natural gas. 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.

Forward-looking and other statements regarding Imperial's environmental, social and other sustainability efforts and aspirations are not an indication that these statements are necessarily material to investors or requiring disclosure in the company's filings with securities regulators. In addition, historical, current and forward-looking environmental, social and sustainability-related statements may be based on standards for measuring progress that are still developing, internal controls and processes that continue to evolve, and assumptions that are subject to change in the future, including future rule-making. The statements and analysis in this document represent a good faith effort by the company to address hypotheticals despite significant unknown variables and, at times, inconsistent market and government policy signals.

Energy demand modeling are forward-looking by nature and aim to replicate system dynamics of the global energy system, requiring simplifications. The reference to any scenario, including any potential net-zero scenario, 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 or inclusion herein is not an endorsement by Imperial 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 document does not constitute or imply an endorsement by Imperial of any or all of the positions or activities of such organization.

Actions needed to advance the company's 2030 greenhouse gas emissions intensity reductions plans are incorporated into its medium-term business plans, which are updated annually. The reference case for planning beyond 2030 is based on the ExxonMobil's Outlook for Energy research and publication, which contains demand and supply projections based on assessment of current trends in technology, government policies, consumer preferences, geopolitics, and economic development. Reflective of the existing global policy environment, the Outlook for Energy does not project the degree of required future policy and technology advancement and deployment for the world, or Imperial, to meet net-zero goals by 2050. As future policies and technology advancements emerge, they will be incorporated into the Outlook, and the company's business plans will be updated accordingly.

Imperial reported emissions, including reductions and avoidance performance data, are based on a combination of measured and estimated data using best available information. Calculations are based on industry standards and best practices, including guidance from the American Petroleum Institute (API) and Ipieca. The uncertainty associated with the emissions, reductions and avoidance performance data depends on variation in the processes and operations, the availability of sufficient data, the quality of those data and methodology used for measurement and estimation. Changes to the performance data may be reported as updated data and/or emission methodologies become available. ExxonMobil works with industry, including API and IPIECA, to improve emission factors and methodologies, including measurements and estimates and shares these best practices with Imperial for consideration.

This presentation includes a number of third-party scenarios such as the IPCC 74 Lower 2°C scenarios, made available through the IPCC SR 1.5 scenario explorer data, and the IEA's Net Zero Emissions by 2050 Scenario. These third-party scenarios reflect the modeling assumptions and outputs of their respective authors, not Imperial or ExxonMobil, and their use and inclusion herein is not an endorsement by Imperial or ExxonMobil of their likelihood or probability. The analysis done by ExxonMobil on the IPCC Lower 2°C scenarios and the IEA NZE 2050 scenario and the representation thereof aims to reflect the average or trends across a wide range of pathways. Where data was not or insufficiently available, further analysis was done to enable a more granular view on trends within these scenarios.

Imperial

Esso Mobil

After more than a century, Imperial continues to be an industry leader in applying technology and innovation to responsibly develop Canada's energy resources. As Canada's largest petroleum refiner, a major producer of crude oil, a key petrochemical producer and a leading fuels marketer from coast to coast, our company remains committed to high standards across all areas of our business.

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