



VERMILION  
ENERGY



Published July 31, 2023

**Vermilion Energy Inc.**  
**Values Matter || 2023 SUSTAINABILITY REPORT**  
Excellence. Trust. Respect. Responsibility.

# Disclaimer

Certain statements included or incorporated by reference in this document may constitute forward-looking statements or financial outlooks under applicable securities legislation. Such forward-looking statements or information typically contain statements with words such as "anticipate", "believe", "expect", "plan", "intend", "estimate", "propose" or similar words suggesting future outcomes or statements regarding an outlook. Forward looking statements or information in this document may include, but are not limited to: capital expenditures and Vermilion's ability to fund such expenditures; business strategies and objectives; operational and financial performance; sustainability (Environment, Social, and Governance or ESG) data and performance; estimated volumes of reserves and resources; petroleum and natural gas sales; future production levels and the timing thereof, including Vermilion's 2022 guidance, and rates of average annual production growth; the potential financial impact of climate-related risks; acquisition and disposition plans and the timing thereof; operating and other expenses, including the payment and amount of future dividends; royalty and income tax rates and Vermilion's expectations regarding future taxes and taxability; and the timing of regulatory proceedings and approvals.

Although Vermilion believes that the expectations reflected in such forward-looking statements or information are reasonable, undue reliance should not be placed on forward-looking statements because Vermilion can give no assurance that such expectations will prove to be correct. Forward-looking statements or information are based on current expectations, estimates, and projections that involve a number of risks and uncertainties which could cause actual results to differ materially from those anticipated by Vermilion and described in the forward-looking statements or information. These risks and uncertainties include, but are not limited to: the ability of management to execute its business plan; the possibility that government policies or laws may change or governmental approvals may be delayed or withheld; uncertainty and current evolutions with relation to sustainability/ESG reporting methodologies; risks associated with existing and potential future lawsuits and regulatory actions against Vermilion; and other risks and uncertainties described elsewhere in this document or in Vermilion's other filings with Canadian securities regulatory authorities. This document contains references to sustainability/ESG data and performance that reflect metrics and concepts that are commonly used in such frameworks as the Global Reporting Initiative, Task Force on Climate-related Financial Disclosures, International Sustainability Standards Board and Sustainability Accounting Standards Board. Vermilion has used best efforts to align with the most commonly accepted methodologies for ESG reporting, including with respect to

climate data and information on potential future risks and opportunities, in order to provide a fuller context for our current and future operations. However, these methodologies are not yet standardized, are frequently based on calculation factors that change over time, and continue to evolve rapidly. Readers are particularly cautioned to evaluate the underlying definitions and measures used by other companies, as these may not be comparable to Vermilion's. While Vermilion will continue to monitor and adapt its reporting accordingly, the Company is not under any duty to update or revise the related sustainability/ESG data or statements except as required by applicable securities laws.

## Abbreviations & Terms

Term/Abbreviation	Definition
bb(s)	barrel(s)
bbls/d	barrels per day
boe	barrel of oil equivalent, including: crude oil, natural gas liquids and natural gas (converted on the basis of 1 boe = 6 mcf of natural gas)
boe/d	barrel of equivalent per day
CO <sub>2</sub> e	carbon dioxide equivalents
EESG	Economic, Environmental, Social and Governance Issues
GHG	Greenhouse gas
GJ	Gigajoules
HSE	Health, Safety, Environment
\$M	thousand dollars
\$MM	million dollars
mbbls	thousand barrels
mboe	thousand barrel of oil equivalent
mmboe	million barrel of oil equivalent
MWh	megawatt hour
NGLs	natural gas liquids
PPE	Personal Protective Equipment

# Highlights

## Economic

In 2022, Vermilion produced approximately 31 million boe of oil and natural gas, thereby investing:

- Close to \$194 million in wages and benefits to our employees
- More than \$755 million in taxes and royalties
- Close to \$62 million in protecting our environment
- Almost \$1.1 billion in 6,477 entities in our supply chain
- More than \$117 million in shareholder dividends and share repurchases

## Key Changes

We closed two major acquisitions:

- 2022: Leucrotta Exploration Inc., providing us with 77,000 net acres of Montney mineral rights with an expected 20+ years of low-risk, high-deliverability drilling inventory
- 2023: Equinor Energy Ireland Limited, which has increased our operated interest in Corrib to 56.5%

We closed one divestment:

- 2023: Approximately 5,500 boe/d of non-core light oil production in southeast Saskatchewan

## Emissions

We reduced our Scope 1 emission intensity to 0.017 tCO<sub>2</sub>e/operated boe, reflecting a 10% reduction over our baseline year of 2019 and on track to achieve our 2025 target of 15-20%.

## Community

We provided over \$2 million in community investment donations to non-profit and charitable organizations around the world.

We also committed \$1.2 million over the next seven years to Inn from the Cold, the largest organization in the Calgary region that is dedicated solely to families experiencing a housing crisis. We believe as they do: that a community is possible where no child or family is homeless

## ESG Performance

- 2022 CDP Climate Change: A-; 2022 CDP Water Security: B; 2022 CDP Supplier Engagement Rating: A
- 2023 MSCI ESG Ratings assessment: AAA<sup>1</sup>
- June 2023 ISS Quality Score
  - 1 - Environmental
  - 2 - Social
- 2022 Great Place to Work Survey: Best Workplaces designation in Canada, Germany, United States and Australia
- 2022 Globe and Mail Board Games: 1st in our peer group



Our front cover photo features Sruwaddacon Bay, County Mayo in Ireland. A 4.6-kilometre section of the Corrib gas pipeline is installed in a tunnel under the Bay, which is a large tidal inlet and comprises part of a Special Protection Area for birds and an internationally important wetland (Ramsar) site. The area was monitored intensely for water birds before, during and for several years after the construction of the pipeline as part of the Corrib Biodiversity Action Plan. Related data on the habitats and species can be found [here](#).

<sup>1</sup> The use of any MSCI ESG Research LLC or its affiliates ("MSCI") data, and MSCI logos, trademarks, service marks or index names herein, do not constitute a sponsorship, endorsement, recommendation, or promotion of Vermilion by MSCI. MSCI services and data are the property of MSCI or its information providers, and are provided 'as-is' and without warranty. MSCI names and logos are trademarks or service marks of MSCI.

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# President and CEO's Message

I'm pleased to share Vermilion's 10<sup>th</sup> sustainability report with you, and to take a brief moment to reflect on how far we've come. When we released our first report in 2014, we did so because we believed it was the right thing to do.

It still is.

The focus a decade ago was primarily on transparency, but has evolved considerably since. Disclosure alone was first surpassed by an expectation around performance – how we were positioned on key indicators relative to our peers, and to our industry. Today, the focus is rightfully on ambition, on how we are contributing to solutions for what is being recognized as an energy trilemma: the need to balance energy security, affordability and sustainability.

The years since 2020 have shown us that the evolution of energy sources will not be easy or smooth. For companies like Vermilion, it's important to make decisions about our future operations that consider all of our stakeholders — from our employees to our investors to our communities.

That's why we previously set an aspirational target of net zero Scope 1 and 2 emissions by 2050. We're spending much of this year working on a plan to get there. It's abundantly clear that there's no single solution; instead, we need to

consider all of the options available to us.

We've chose to focus our plan on four pillars:

- **Reduce** emissions, with methane a priority.
- **Convert** higher emitting elements of our portfolio to lower intensity production, considering both divestment and end-of-life fields.
- **Adapt** our portfolio to new energy, considering carbon capture and storage, renewable energy associated with our core operations such as biogas, hydrogen and geothermal production, and other new technologies.
- **Offset** as a solution for the emissions that cannot be eliminated.

We're excited about this work. There are many solutions that are making their way from inspiration to the laboratory bench to field pilots. I'm a firm believer in the power of technology, and can already see the increasing pace at which technology is offering ways to increase our operational efficiency while reducing our emissions.

We also recognize how interconnected climate issues are with the environment, particularly water and biodiversity, and we are

focused on both, to ensure we are caring for our communities. Our Corrib Biodiversity Action Plans demonstrate best practice in this area, and I encourage you to check them out on our website, or review the research that the University of Western Australia is doing at our Wandoo offshore platform to learn more about the "rigs to reefs" effect that has [increased marine biodiversity there](#).

Caring is something that I am consistently proud to see in our people, and this year has shown myriad examples of this. Our staff have hosted BBQs for local schools, gathered toys and more for holiday stockings, cleaned up riverbanks, planted trees, put together food and essential household items for hampers, and so much more. We've worked side-by-side to help people through the wild fires that occurred in north and central Alberta earlier this year, both on our well sites and in our communities, and we are pleased to continue to support the recovery efforts in these areas.

Which brings me back to this report. The data contained at the end of the report, in our performance metrics, is essential information. It provides a way for us track our progress and assess our performance. But even as the work of standardizing sustainability reporting grows, I believe that it's the people behind the data that matter. And I am grateful to each and every member of our staff, who show such commitment and dedication to each

other and the company throughout the year.

As always, thank you for reviewing our sustainability reporting, and I look forward to your comments or suggestions.

Sincerely,



Dion Hatcher  
President and CEO



**Vermilion is guided by our core values:**

- **Excellence**
- **Trust**
- **Respect**
- **Responsibility**

# Introduction

# Vermilion at a Glance

## Our Focus

Founded in 1994, Vermilion is a publicly traded, widely held, international energy producer headquartered in Calgary, Canada.

We seek to create value through the acquisition, exploration, development and optimization of producing properties in North America, Europe and Australia — regions noted for their stable, well-developed fiscal and regulatory policies related to energy exploration and development.

## Our Purpose

At the core of our business is our purpose:

*To responsibly produce essential energy while delivering long-term value to our people, shareholders, customers, partners and communities.*

We believe that providing energy to the many people and businesses around the world that rely on it to meet their daily needs and sustain their quality of life is both a great privilege and a great responsibility.

## Our Priorities

We prioritize health and safety, the environment, and profitability, in that order. Nothing is more important to us than the safety of the public and those who work with us, and the protection of our natural surroundings.

Our energy transition strategy focuses on reducing environmental impacts of traditional oil and natural gas production while developing renewable energy projects closely related to our core competencies.



Our strategy aligns closely with the ideals and goals expressed in the Sustainable Development Goals, which we refer to throughout this report.<sup>102-15</sup>

### 8.1 Sustain per capita economic growth



# Our Business

## Our Operations

Vermilion's operations are focused on the exploitation of light oil and liquids-rich natural gas conventional and unconventional resource plays in North America and the exploration and development of conventional natural gas and oil opportunities in Europe and Australia.

## Our Business Model

Vermilion's business model relies on our five long-standing core business principles, which are based on a conservative, long-term focus on balance sheet strength and capital discipline to generate strong returns.

They include:

- Maintaining a strong balance sheet with low leverage
- Managing a total payout ratio of less than 100%
- Consistently delivering results that meet or exceed expectations
- Protecting equity to minimize dilution, and
- Maintaining a strong corporate culture.

## Our Strategic Plan

Vermilion's Strategic Plan includes six Matters of Importance, with strategic objectives that guide the Company's business plans to 2030:

- Extraordinary People and Culture
- Health, Safety and Environment
- Financial Discipline
- Robust and Profitable Portfolio
- Business and Operational Excellence
- Integrated Sustainability

These provide short, mid- and long term targets for the company and our people. We set annual commitments within each, and track achievements quarterly, reporting to senior management and our Board of Directors. Progress is reported annually in our Information Circular, and is also tracked using key performance indicators within our Short and Long Term Scorecards to assess company and individual performance, which is linked directly to compensation.

In addition to economic and investment metrics, our strategic objectives are guided by feedback from our external stakeholders, including voting results at our Annual General Meeting, and input from governance, investment and sustainability analysts, our communities and our people.

## Our Value Chain

Our success is made possible thanks to close to 1,000 employees and contractors (as of December 2022), throughout our operations, and through an extensive supply chain.

Our supply chain encompasses a wide range of inputs, including specialized field expertise and technology, supplies ranging from drilling mud to event facilities, and expert consultant advice. It is extremely important to us that our suppliers not only deliver a sound financial investment in their goods and services, but operate in a manner that aligns with the values that guide our own corporate culture. As a result, we have strict requirements for third-party vendors who do business with Vermilion.  
<sup>102-29</sup>

Our asset base comprises a diversified product and project portfolio that receives premium advantage pricing. This increases the stability of our cash flows and our flexibility in allocating our exploration and development capital. Our exposure to robust end markets includes:

- North American-based midstream and downstream refiners
- Asia Pacific-based refining and lubricant markets
- European downstream refiners, and
- Key aggregators and utilities.<sup>102-6</sup>



# Sourcing Our Energy

## Hydrocarbon Basics

Vermilion focuses on conventional exploration and development in Europe and Australia, and on conventional, semi-conventional and unconventional exploration and development in North America.

- Approximately half of our oil and gas is produced without hydraulic fracturing
- We do not use hydraulic fracturing in Australia or Europe (with the exception to date of one well in Hungary)
- When we use hydraulic fracturing, it is under strict government regulation, and at depths that have not been correlated with seismic effects or impacts to groundwater

## Rocks and Reservoirs Explained

All hydrocarbons (including oil and natural gas) are created from microscopic plants and organisms that lived predominantly in the ocean millions of years ago. When these plants and organisms died, they sank to the ocean floor, became preserved as kerogen and were covered by layer upon layer of sediment over millions of years. As the layers became more deeply buried and

compacted, the heat and pressure within them began to rise, ultimately transforming kerogen into the hydrocarbons we know today.

**Source rocks** are the organic-rich layers of rock in which hydrocarbons are formed.

The pressure surrounding them generally forces the hydrocarbons to migrate upward from the compact or “tight” source rock into more porous and permeable layers of rock, known as **reservoir rock**.

The classification of a reservoir as conventional, unconventional or semi-conventional depends on the specific geology of the rock and the reservoir conditions encountered at depth.

## Conventional Deposits

Generally, **conventional reservoir rocks** such as sandstones, siltstones and carbonates have sufficient porosity (the vacant space within the rock) and permeability (the connectivity between pore spaces) to allow fluids such as crude oil, natural gas and water to flow within and through the rock. Left unimpeded, the hydrocarbons continue their migration up towards the surface and escape as natural gas vents or oil seeps.

This upward migration, however, is often blocked by a layer of impermeable rock or other geologic formation. This traps the hydrocarbons, which then accumulate to form a **hydrocarbon deposit**.

If the reservoir rock has sufficient permeability to allow the hydrocarbons to naturally migrate within and through the rock, they are often referred to as **conventional pools or deposits**.

Recovering these hydrocarbons is generally referred to as conventional oil and natural gas exploration and development. Once the deposit is accessed, the hydrocarbons either flow to the surface under the reservoir’s natural pressure, or can be pumped to the surface.

Decades of oil and gas production around the world have resulted in a decline of conventional resources, with the majority of them already subject to development.

## Semi-Conventional Reservoirs

Vermilion uses “semi-conventional reservoirs” to describe reservoirs that – while requiring technology beyond pumping to bring hydrocarbons to the surface – can be accessed with significantly less intensive techniques than are

required for full-scale unconventional production such as that of shale oil or gas production. As a result, these stimulations use a lower amount of pressure, water and other assorted products than those needed for unconventional reservoirs. Approximately one third of Vermilion’s production comes from this reservoir type.

An example of this is the Cardium formation in western Canada, which is considered one of the largest stratigraphically trapped reservoirs in the world. It has been developed conventionally with vertical wells and limited stimulation for decades. However, new drilling techniques in the last decade such as hydraulic fracturing, horizontal drilling and new stimulation alternatives have made it technologically and economically feasible to access the reservoirs within the formation that historically have been too “tight” to produce.

## Unconventional Deposits

Unconventional or “tight” deposits are usually classified as shale, siltstone or carbonates that are rich in mature organic matter, complex mineral compositions, laminated structures and tight storage space. They generally have ultra-low permeability and low porosity that prevent the hydrocarbons from flowing naturally through the rock.

This means that the hydrocarbons don't form easily accessible pools that can be produced at the surface.

This is where hydraulic fracturing plays a role: multi-stage hydraulic fracturing using horizontal wellbores makes it both possible and economical to produce from these previously inaccessible unconventional reservoirs.

Regardless of how they are produced, or the type of reservoir they come from, unconventional hydrocarbons are essentially the same as conventional hydrocarbons. The term "unconventional" simply refers to the methods that are used to extract them, as well as the type

of reservoir rock from which they are produced.

Shale gas or shale oil is a particular type of unconventional resource that has not migrated and is produced directly from the organic-rich source rock in which it was formed.

## Hydraulic Fracturing

Hydraulic fracturing is a government-regulated technology that has been successfully used in North America for more than 60 years. Government regulations, in combination with industry operating practices and Vermilion's own priorities of public and employee safety, environmental stewardship and operational

excellence, help ensure safeguards are in place to protect the environment, including freshwater aquifers, and to ensure safe and responsible operations.

Hydraulic fracturing is a well stimulation technique in which rock is fractured by a pressurized liquid. The process involves the high-pressure injection of 'fracking fluid' (primarily water, containing sand or other proppants suspended with the aid of thickening agents) into a wellbore to create cracks in the deep-rock formations through which natural gas, petroleum and brine will then flow more freely. When the hydraulic pressure is removed from the well, small grains

of hydraulic fracturing proppants such as sand hold the fractures open.

We publicly disclose 100% of the additives we use to FracFocus in both Canada and the United States, as well as via our regulatory submissions. We continue to work to decrease the required concentration of our additives and we work with our fracturing suppliers to source even better alternatives for future consideration.

For more information about our approach to water stewardship during fracking, see our Water Stewardship section.



# Sustainability Vision

Our approach to sustainability, and our business in general, is that we prioritize safety and the environment over profitability: the safety and health of our employees, contractors and those directly or indirectly involved in our operations is placed above all else. <sup>102-15</sup>

Vermilion's sustainability report is our way of communicating how we identify the economic, environmental and social impacts of our operations, and how we integrate their associated opportunities and risks into our business strategy. Over time, our reporting activities are helping us to realize our sustainability vision, which is closely aligned with our company's purpose: as an international company, we responsibly produce essential energy while delivering long-term value to our people, shareholders, customers, partners and communities.

We understand our moral and legal duty to operate in a manner that protects the health and safety of our people and communities, provides responsible stewardship over the environment, and treats our people, partners and suppliers respectfully and fairly.

From the landowners with whom we share the landscape, to the families and businesses that rely on oil and gas to fuel their daily needs, our

exploration and production activities have potential effects on a wide range of stakeholders who expect Vermilion to deliver consistently strong financial results in a responsible and ethical way.

*These expectations align economic success with every element of our sustainability commitments, and have led us to prioritize our objectives in the following order:*

1. The safety and health of our staff and those involved directly or indirectly in our operations. Nothing is more important.
2. Our responsibility to protect the environment. We follow the Precautionary Principle introduced in 1992 by the United Nations "Rio Declaration on Environment and Development" by using environmental risk as part of our development decision criteria, and by continually seeking improved environmental performance in our operations.

3. Economic success through a focus on operational excellence across our business, which includes technical and process excellence, efficiency, expertise and stakeholder relations.

We believe these three priorities generally do not conflict with each other, because business that is conducted in the safest and cleanest manner is also most likely to be the most profitable way to do business over the long term. Where they may be in conflict, we instruct our staff that the health and safety of people and the protection of the environment must always take priority over profitability.

For more information on how we manage sustainability, please see our Energy Transition section, including Governance and Strategy.



# Sustainability Policy

To meet our commitments, we rely on the framework and priorities provided by our sustainability policy:

Vermilion's sustainability policy is guided by our core values of Excellence, Trust, Respect and Responsibility. It applies to all of our operations, and in each of the communities where we live and work. Sustainability is led by our senior management team and supported by our Board of Directors, and championed by our employees and contractors. It applies equally to our suppliers and to those who represent us or conduct activities on our behalf.

Guided by our Code of Business Conduct and Ethics, Vermilion meets or exceeds the requirements of all applicable laws and standards in the communities where we operate, through all of our activities, including exploration, drilling, completion, operation and remediation. In doing so, we are committed to transparent and respectful engagement with our stakeholders, including our investors, employees, partners, suppliers and communities.

Sustainability is integrated into all facets of our business, and is reflected in the following five key areas.

## Governance and Ethics

Vermilion demonstrates strong corporate governance, with leadership that sets an example of the highest standards of ethics and integrity and a commitment to the responsible development of our diverse resource portfolio.

Our leadership model effectively embeds ethical, fiscal, environmental and social considerations into all aspects of our business, resulting in operational excellence and the protection of our human, natural, financial, operational, intellectual and reputational capital.

## Economic Performance

Vermilion recognizes that strong, consistent fiscal performance provides positive economic benefits for all of our stakeholders.

We are financially disciplined, with a focus on balance sheet strength and return of capital. This approach, together with our technical and intellectual excellence, ensures we recognize and develop appropriate opportunities, effectively manage risks, and continuously improve operational efficiency.

## People

Vermilion's commitment to people is embedded in our core values: we embrace diversity, we value and care for our people, and believe every employee and business associate worldwide deserves to be treated with dignity and respect.

We recognize the principles of The Universal Declaration of Human Rights, and have policies in place to support these principles throughout our operations, including creating a fair and equal-opportunity workplace.

We challenge and inspire our employees to achieve their best, and value the teamwork, collaboration and innovation that lead to creating both a great place to work and outstanding company performance.

## Health, Safety and Environment

Vermilion is committed to conducting our activities in a manner that will protect the health and safety of our employees, contractors and the public while reducing our impact on the environment.

We fully integrate HSE into our business – with the mantra of Everyone. Everywhere, Everyday. Our vision is that the consistent

application of our core values results in a workplace free of incidents, and that our proactive culture and behaviours create a high-reliability organization where HSE is fully integrated into our business; it is our way of life.

Every staff member, including management, is accountable for HSE and is actively involved in continuously delivering HSE performance improvements.

## Communities

Vermilion strives to support the communities in which we operate using a shared value model. We work to develop economic and employment opportunities, build positive relationships and contribute to meaningful, mutually beneficial partnerships that strengthen both the community and our company capacity.

Our community investment program contributes to the quality of life in our communities through both charitable giving and employee engagement, supporting social, environmental and cultural issues. Through this program, our "Ways of Caring," we give back, we give time and we give together.

# About Our Report

Our 2023 Sustainability Report is Vermilion's 10th report on how we manage economic, environmental, social and governance (EESG) factors, including impacts, risks and opportunities. It comprises two reports in one: a full sustainability report, and a Climate/Task Force on Climate-related Financial Disclosures Report.

This report covers 100% of Vermilion's business units: Canada, France, Netherlands, Germany, Ireland, Central and Eastern Europe, Australia and the United States, with data consolidation generally based on an operational control boundary.

Within each section of the report, we establish key areas of discussion for

each of Vermilion's nine identified Material Topics under GRI Universal and Topic-Specific Standards, and Sustainability Accounting Standards Board recommendations, incorporating GRI's 10 key Reporting Principles for defining report content and quality <sup>102-49</sup>

- Dashboard page with the most recent updates
- Approach section that details why the Aspect is material, how we manage it, and how we evaluate and adjust as needed (our Discussion of Management Approach), and
- Individual pages that create easily accessible information for longer-term projects.

Where updates of previously reported information were required,

they are noted in our Performance Metrics. <sup>102-48</sup>

## Materiality Analysis

Our materiality analysis is carried out on the basis of double materiality, assessing our impact on society, the environment and people based on our stakeholder engagement. It was approved by the Executive Committee and reviewed by the Board of Directors in 2022, and comprises the following steps:

- Mapping our value chain
- Engaging with stakeholders
- Identifying issues
- Prioritizing issues, and
- Ensuring material issues are incorporated into our enterprise risk management

system through the risk register.

## Verification

Specific data or management systems have been independently audited or verified by the following organizations: GLJ Petroleum Consultants (reserves), Deloitte (financial); Jacobs (Scope 1, 2 and 3 emissions externally verified under ISO 14064-3), and NSAI (Germany Business Unit's environmental management system under ISO 14001:2015). <sup>102-56</sup>



# Our Value Chain

Vermilion's operations influence an extensive value chain that connects energy resources with activities that are essential to our daily lives, including transportation, manufacturing and heating, thus contributing to the strength and resilience of the global economy and to energy security.<sup>102-9</sup>

Exploration	Supply	Production	Transportation	Product Use
How we identify, analyze and develop new energy opportunities	The external contractors, suppliers, materials and expertise we leverage throughout our processes for both traditional and alternative energy production, including geothermal and biogas	How we extract oil, gas, associated byproducts and geothermal heat from our operating properties, through the lifecycle from drilling & completion to production, cogeneration and reclamation	How Vermilion transports and markets our products and byproducts, along with the subsequent transportation of those products to the end consumer	The midstream and downstream refiners who are our customers, the manufacturers and consumers who use the resulting products, and the partners who benefit from our geothermal cogeneration projects

## Value, impact or influence

Exploration	Supply	Production	Transportation	Product Use
Our decisions about where to operate and how best to source energy offer job creation and economic assets for communities, while requiring strong safety and environmental protection and community capacity analysis	Our purchasing decisions, including our performance expectations of suppliers, have a strong influence on company and community safety, environmental impacts and economic success	We focus on the operational excellence of our people, processes and technology to maximize safety and environmental management and economic value; this includes the land reclamation stage of well life cycle management	This supports local energy security, job creation and economic success while potentially involving safety and environmental impacts, including pipeline, road and rail transport safety, waste transportation and disposal safety	The economic value, and the potential safety and environmental impacts, of our products are important to industrial, financial and consumer sectors, all of which rely on a stable and secure energy supply

## Focus of operational activity & decision making

Exploration	Supply	Production	Transportation	Product Use
Internal to Vermilion, with external consultation	Both internal and external to Vermilion	Primarily internal to Vermilion, with external consultation	Primarily external to Vermilion	Primarily external to Vermilion

## Key stakeholders, listed by degree of impact<sup>102-40</sup>

Exploration	Supply	Production	Transportation	Product Use
<ul style="list-style-type: none"> <li>• Communities</li> <li>• Government</li> <li>• Investors</li> <li>• Employees</li> <li>• Partners</li> <li>• NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• Suppliers</li> <li>• Employees</li> <li>• Investors</li> <li>• Communities</li> </ul>	<ul style="list-style-type: none"> <li>• Communities</li> <li>• Investors</li> <li>• Employees</li> <li>• Partners</li> <li>• Government</li> <li>• NGOs</li> <li>• Media</li> </ul>	<ul style="list-style-type: none"> <li>• Communities</li> <li>• Partners</li> <li>• Customers/end users</li> <li>• Investors</li> <li>• Government</li> <li>• NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• Customers/end users</li> <li>• Investors</li> <li>• Government</li> <li>• NGOs</li> <li>• Media</li> </ul>

**Primary issues** <sup>102-44</sup> (top three to five identified through stakeholder engagement and issues monitoring)

Exploration	Supply	Production	Transportation	Product Use
<ul style="list-style-type: none"> <li>• Safety</li> <li>• Environment</li> <li>• Community relations</li> <li>• Regulation</li> <li>• Governance</li> </ul>	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Environment</li> <li>• Efficiency</li> <li>• Supply chain management</li> </ul>	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Environment, including GHG emissions</li> <li>• Community / government relations</li> <li>• Staff relations</li> <li>• Efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Transport safety</li> <li>• GHG emissions</li> <li>• Spills</li> <li>• Ethics</li> <li>• Stable supply</li> </ul>	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Stable supply</li> <li>• GHG emissions</li> <li>• Cost</li> <li>• Regulation</li> </ul>





# Stakeholder Engagement

Our people, communities, investors, governments and regulators, and partners and suppliers are Vermilion’s key stakeholders: those who have the greatest impact on our business, or who are most impacted by our activities.

We base stakeholder identification and prioritization on our understanding and analysis of our value chain, with engagement that is guided by their impact and influence.<sup>102-42,413-1</sup>

Our key stakeholders influence our business and operations in important ways, including capital to fund our activities, licenses for exploration and production, and expectations regarding safety and environmental performance.

Meeting these expectations is the key to maintaining and growing our license to operate, and we therefore engage with these stakeholders on a regular and ongoing basis.<sup>102-43</sup>

Our corporate external stakeholder relations framework reflects the importance of community and government support, which we manage on a business unit-specific basis. This includes Public and Government Relations staff in France, Netherlands, Ireland, Germany, and Central and Eastern Europe; a regulatory specialist in the

United States; our Land department in Canada (which plays a key role in both community and Indigenous Peoples relations), and those responsible for our Safety Case and Environment Plan in Australia.

While regulations prescribe specific external stakeholder engagement, our approach is to also proactively communicate with our community and government stakeholders and Indigenous rightsholders – both individually and in venues such as town halls, open houses and visitor centres, where we provide information about our activities (planned and ongoing) and invite feedback. For example, as we evaluate and prioritize our exploration opportunities, we present activity plans, including managing the environmental and social impact of our activities, to partners, government and regulatory authorities, and public and community stakeholders.

For stakeholders with lesser degrees of impact or influence, our engagement is more specific and generally involves direct issue-related communication.

The table on the following page details how we engage with our stakeholders, topics raised, and how we have responded.<sup>102-40,102-42,102-43,102-44</sup>

# Identifying Issues

To identify the topics material to our business strategy, we begin by reviewing our existing issues, and those that we have added based on stakeholder engagement and recommendations, including those related to:

- International standards, including the United Nations Global Compact, OECD Guidelines for Multinational Enterprises, The Universal Declaration of Human Rights, the Global Goals for Sustainable Development (SDGs) and the United Nations Declaration on the Rights of Indigenous Peoples
- Sector-related government, regulatory and industry bodies, including the Extractive Industries Transparency Initiative
- Reporting entities such as the Sustainability Accounting Standards Board (IFRS/ISSB), The Task Force on Climate-Related Financial Disclosures, European Union Corporate Sustainability Reporting Directive, GRI and CDP, and
- ESG thought leaders, peer companies and media reports.<sup>102-15 102-46 102-47 103-1</sup>



## Current and Potential Investors

Engagement Channels	Topics Related	Response
Annual General Meeting and webcast, distribution of annual report & proxy statement	Financial results	Ongoing communication of material issues and results
Annual benchmarking against peers through Globe and Mail Board Games	Increasing emphasis on climate-related strategy and reporting, along with evolving regulatory approaches to sustainability reporting	ESG Rating Agency Responses
Business updates, analyst conference calls	Reporting recommendations from TCFD, IFRS/ISSB and EU Corporate Sustainability Reporting Directive	Sustainability reporting evolution
Ongoing presentations to investor and industry conferences, with webcasts posted on external Vermilion website and intranet	Increasing focus on emissions, freshwater use, biodiversity and lobbying	Response to requests for interviews and other input
Ongoing monitoring of and response to investor relations e-mail and phone inquiries		Reviews of evaluations by ESG rating agencies, including corrections, responses and engagement
Ongoing monitoring of and response to social media including LinkedIn		Input into business strategy, including risk register
Media monitoring/ media appearances		
News releases		
Engagement on sustainability-related queries from ESG investment agencies, potential investors and current shareholders		
Feedback for TCFD and SASB/ISSB proposed changes, directly and via industry groups		

## Partners and Suppliers

Engagement Channels	Topics Related	Response
HSE Pre-qualification screening and auditing of operations to ensure compliance	HSE performance	Development of HSE High Five personal safety initiative and implementation of the IOGP Life-Saving Rules
Safety meetings, including both Vermilion staff and our contractors and partners	Access to opportunities	Focus on operational excellence
Contractor briefings from Vermilion staff on expected standards of behavior, including our Code of Business Conduct and our Anti-Discrimination and Harassment Policy	Production and financial results	RFPs and invitations to bid
Meetings, etc. to review requirements and negotiate contracts, as needed		
Daily operations, including inspections and field audits		
Meetings, phone calls, e-mails as issues or concerns arise		

## Employees

Engagement Channels	Topics Related	Response
Great Place to Work® program confidential staff survey, communication of results to staff through e-mails and meetings, ongoing engagement of staff in feedback and improvement action planning meetings from department to team levels	Strategic direction of the company	Executive Committee response to town hall suggestions and questions
Global town halls, with executive question-and-answer sessions based on questions submitted anonymously in advance, or during the meeting	Employee engagement and satisfaction	Implementation of suggestions from staff working groups
Additional confidential staff surveys on topics such as HSE (Perception Survey), compensation and strategic community investment (choices of non-profit partners, activities, etc.)	Communication (internal and external) of strategic community investment program	Implementation of Fair Culture Policy in all business units
Additional town halls in each of our business units with leadership question-and-answer sessions	Clear communication and implementation of HSE program	Annual workplan within our VET Vision, with strategy to 2030
Extensive annual lunch and learn program with company, industry and wellness topics		
Whistleblower policy, 24/7 (referred to internally as “Reporting of Inappropriate Activity”)		
Company-wide working groups established to refresh our strategic plan		

## Communities

Engagement Channels	Topics Related	Response
HSE Pre-qualification screening and auditing of operations to ensure compliance	Community support and capacity building	Progressing community investment program in all locations based on community and staff engagement (see Our Communities in this report) and guided by the concept of Creating Shared Value
Safety meetings, including both Vermilion staff and our contractors and partners	Public safety	Discussions with local communities regarding impacts and potential partnerships
Briefings from Vermilion staff on expected standards of behavior, including our Code of Business Conduct and our Anti-Discrimination and Harassment Policy	Environmental stewardship	Increased engagement with Indigenous Peoples communities, including business opportunities and community investment
Meetings, etc. to review requirements and negotiate contracts, as needed		Online community investment applications to streamline process for community groups
Daily operations, including inspections and field audits		
Meetings, phone calls, e-mails as issues or concerns arise		

## Governments and Regulators

Engagement Channels	Topics Related	Response
Regulatory requirements in all of our locations	Compliance	Compliance with or exceeding all regulatory requirements
Meetings, phone calls, conferences with government officials	Technical expertise	Audits and inspections to confirm compliance
Government-Industry working groups	Economic and community development	Proactive community investment and sustainability programs

## NGOs: Industry, Environment, Social

Engagement Channels	Topics Related	Response
Ongoing participation in industry meetings and conferences	Increasing transparency and communication of sustainability performance	Annual ESG rating agency submission and engagement
High-level review of NGO positions and topics	Environmental concerns and performance based on location, location (see our Environment section)	Alignment of sustainability strategy with UN SDGs
Meetings with NGO representatives		Active engagement with ESG rating agencies, including CDP, Sustainalytics, MSCI, Vigeo-Eiris, ISS and S&P Global
		Focus on operational excellence, including compliance with or exceeding all regulations
		Use of feedback in developing internal environmental and social programs

# Materiality Matrix

Environment — Social — Governance



The issues identified in our stakeholder engagement are evaluated as to high, medium or low impact for Vermilion and for our stakeholders, including how directly affected the stakeholders are, and whether issues span multiple stakeholder groups. This is based on external engagement and input from our Board and senior leadership. Our current matrix reflects increasing importance for regulatory frameworks, lobbying and community support, freshwater management, biodiversity and supply chain risk.

## High

- Critical or immediate (0-3 year) risk to health & safety, the environment, financial performance, reputation, employee relations, community relations, or social license to operate
- Strong opportunity to significantly increase financial performance or operational efficiency

## Medium

- Important but not critical risk (see high risk categories); mid-term (3-6 years)
- Good opportunity to increase financial performance or operational efficiency

## Low

- Small or no risk (see high risk categories); longer term (6-50+ years)

- Small or no opportunity to increase financial performance or operational efficiency
- Already well managed

Risks are integrated into our enterprise risk management system and our business strategy as described in the TCFD Strategy and Risk Management sections of this report.

# TCFD/Climate Report & Index

## TCFD Integration Index

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# Governance

As a responsible energy producer, Vermilion believes that we can best deliver long-term value by operating in an economically, environmentally and socially sustainable manner that recognizes the importance of all our stakeholders. We believe that integrating sustainability principles into our business increases shareholder returns, enhances development opportunities, reduces long-term risks, and supports the well-being of key stakeholders including the communities in which we operate.

Vermilion has established a leadership position in sustainability performance and disclosure since 2013, aligned with the Global Reporting Initiative (GRI). We have since integrated the Task Force on Climate-related Financial Disclosure (TCFD) and the Sustainability Accounting Standards Board (SASB) frameworks, and are moving towards the International Sustainability Standards Board (ISSB) S1 and S2.

Our discussion of Governance is also included in our Information Circular, with the discussion of Strategy, Risk Management, and Metrics and Targets also contained in our Annual Report. This recognizes the importance of climate-specific disclosure while reflecting its intersectionality with other environment-related risks and opportunities, social factors such as safety and community engagement, and governance-related matters.

## Board Oversight

Integrated Sustainability is one of six strategic objectives that link together in our long-range business plan (see Our Approach to Business. The Board has responsibility for overseeing Vermilion's sustainability- and climate-related strategy and performance, including direction, goals and targets, with Board committees providing additional sustainability-related expertise in their areas of focus:

**Audit:** risk management and internal control systems, including cybersecurity.

**Governance and Human Resources:** executive and director compensation; talent management, succession planning and development of senior management and critical skill employees; governance practices and processes, including director training and development; and human resources including culture and employee engagement.

**Health, Safety and Environment (HSE):** occupational, process and asset safety; environmental stewardship; risk management; and HSE-related sustainability initiatives.

**Independent Reserves:** reserves, production and related disclosure to the Board.

**Sustainability:** energy transition, including emission reduction targets; and social impacts, including human

rights, community investment and government and other stakeholder relations.

Board and Committee mandates, available on our external website, include sustainability-related roles and responsibilities.

The Board and Sustainability Committee receive briefings and performance reports quarterly that include ESG performance, sustainability activities, updates from business unit leaders, environmental and social trends, and strategic community investment activities. These are augmented with continuing education from third parties in fields such as climate change and the energy sector, the energy transition, and ESG factors in institutional investment.

The Sustainability Committee provides oversight for the long-range sustainability strategy, its implementation, progress including key performance indicators, and methods of communicating sustainability policies and performance. The committee also identifies and reviews emerging risks and opportunities associated with sustainability issues, and their integration into Vermilion's enterprise risk management framework and policies.

The committee Chair reports to the Board on the committee's work; in addition, reflecting the holistic way in which sustainability issues impact the Company, most members of the

Board attend Sustainability Committee meetings. Thus, sustainability- and climate-related information is considered when the Board oversees major decisions, such as long-range planning, budget and capital allocation, and mergers, acquisitions and divestments. For example, the Board used the results of Vermilion's climate-related scenario analysis to inform its guidance and approval of our emission reduction targets.

## Management Role

Organizational responsibility for sustainability- and climate-related issues flows from the Board to our Executive Committee, whose Principal members include the President and CEO, Vice President and Chief Financial Officer, Vice President, Business Development, Vice President, International and HSE, and Vice President, North America. Associate members include the Vice Presidents of People and Culture, Sustainability, Marketing, Investor Relations, Geosciences, and European Operations, and our General Counsel.

The President and CEO has responsibility for sustainability, including climate-related risks. Our Vice President, Sustainability reports to the President and CEO, and is responsible for developing sustainability strategy and reporting, including identifying, assessing and overseeing management of sustainability- and climate-related issues, working in partnership with corporate teams and business units

to ensure the Company's approach reflects the goals within our long-range business plan.

The Vice President, Sustainability also provides updates to and receives guidance from the Board and/or the Sustainability Committee at least quarterly, and the Executive Committee monthly, on strategy, issues, performance and reporting. The corporate sustainability team provides a centre of excellence approach, advising the business on

all aspects of sustainability, including environmental, climate and social issues, based on extensive research and inputs from the business. The team is also responsible for external sustainability reporting, based on data from our HSE, People and financial information systems.

Our Vice President, North America and our Vice President, International and HSE lead the operationalization of sustainability, with business unit leaders responsible for strategy and

activities, including managing climate-related risks and opportunities, with the support of sustainability leads in each business unit. The sustainability leads, along with the corporate sustainability team, meet quarterly to discuss related issues, trends and learnings. In addition, various departments within the Company report sustainability- and climate-related priorities and progress as frequently as weekly to management, and quarterly to the full Board or Board

committees, on issues such as governance and ethics, HSE targets and performance, risk management, regulatory changes, and public and government relations.





# Strategy

We have identified climate-related risks and opportunities (including those related to water) in short-term (0-3 years), medium-term (3-6 years) and long-term (6-50 years) horizons.

These are described in our Annual Reports and below, with their potential company and financial impact (assessed using processes such as scenario analysis, cost

projections and our Emissions Long-Range Planning tool), and our resulting management approach. Our [CDP Climate Change and Water Security submissions](#) provide

additional information, including where in the value chain these risks and opportunities occur.



*Geothermal heat from the produced water at our oil operations in Parentis supports the production of more than 7,500 tonnes of tomatoes annually in 15 hectares of greenhouses*

Category / Issue	Description of Impacts	Potential Financial Impact	Management Approach
<b>Short-term Transition Risks: 2022-2025</b>			
Policy and Legal: Increased Pricing of GHG Emissions e.g. Carbon Tax	Short-term impact is primarily in Canada and Ireland. Canadian Federal Greenhouse Gas Pollution Pricing Act has set carbon tax rates at \$50 per tCO <sub>2</sub> e in 2022, rising to \$170 by 2030, with provincial responses to keep pace with the federal system. Our Ireland operations are subject to the EU ETS and Ireland Carbon Tax systems. Longer-term impact rests on carbon pricing's vulnerability to changes in government policy.	With our recent northeast British Columbia acquisition, our Canadian carbon tax liability was approximately \$1.6MM in 2022, and is forecasted to exceed this in the near term based on emerging but not yet finalized provincial regulations in line with the federal schedule.  Our Ireland EU ETS liability was approximately \$0.75MM in 2022, increasing to approximately \$2.6MM in 2025 and \$3.5MM in 2030. The Ireland Carbon Tax liability is expected to be an additional approximately \$0.1MM/year over this period. All estimates are net Vermilion.	Our exposure is mitigated by provincial responses to the Act, including Alberta's Technology Innovation and Emissions Reduction (TIER) regulation and Output-Based Pricing Systems (OBPS) in Saskatchewan and forthcoming in British Columbia. Our ongoing efforts to reduce the energy and emissions intensity of our operations are integral to managing this risk, including our emission reduction targets. Vermilion continues to monitor and comply with taxation requirements.
Policy and Legal: Enhanced Emissions and other ESG Reporting Obligations	Climate and other ESG reporting obligations are evolving rapidly, with Vermilion potentially subject to the International Sustainability Standards Board (2024-25) and European Sustainability Reporting Standards (2028), U.S. Securities and Exchange Commission and Canadian Securities Administrators Climate-Related Disclosure Rules, and Canada's Modern Slavery Act. Although Vermilion's existing sustainability-related disclosure provides a sound foundation for compliance, there are costs to implement these, particularly potential requirements for increased levels of audit. The impact to Vermilion would be a decreased netback per BOE, due to increased expenses for staff time and system development and implementation.	The financial impact is an increase in operational cost associated with the management and quantification of emissions to meet new reporting requirements, and the administrative costs associated with reporting and audit obligations. This is estimated at \$0.8MM annually.	Regulations in all of our business units are monitored on an ongoing basis, and assumptions/ scenario planning is used annually to assess risk. In Canada, we implemented an external emission data gathering software in 2021 to support the evolving regulatory landscape. Vermilion also engages stakeholders relating to emissions reporting obligations. Management of this risk is built into Vermilion's operations and our ERM. In addition, we expect to automate our emissions data gathering, aggregation and calculation processes in 2024, while ensuring audit-ready processes for all ESG data points to align with proposed regulatory requirements.
Policy and Legal: Changes in Mandates/Regulations re Products - Existing Production or Acquisition Impaired by Regulatory or Political Changes	Vermilion's operations are subject to regional regulatory and political changes that result in changes to equipment requirements such as engineering and modifications to reduce carbon emissions and / or emissions of air contaminants. The most likely short-term impact is regulations in Canada and the European Union to reduce methane emissions, in France to reduce flaring, and in Netherlands to reduce NO <sub>x</sub> .  From a macro perspective, geopolitical impacts (e.g. war in Ukraine) have escalated diverging government and consumer viewpoints on the need for energy security vs energy transition. We expect demand for oil and natural gas to remain strong in the short to medium term, while safety and environmental regulations governing its production will increase. We have identified these risks as interconnected and existing in the short-term; however, they should be seen as medium- to long-term risks as well, impacting both existing production and acquisitions.	Operational changes to comply with existing and pending methane reduction regulations are under evaluation but are expected to impact our Canadian and European operations in the near term. This includes Canada's proposed regulatory framework to reduce oil and gas methane emissions by 75% by 2030, the evolving EU-wide methane reduction regulations targeting a 58% reduction by 2030, and the elimination of routine flaring in France, also by 2030. The cost of compliance with the proposed regulations is not yet established, and will depend on the final versions of the frameworks.	Vermilion is closely monitoring regulatory and market changes to ensure an appropriate approach to resilience under evolving conditions. We provide feedback to governments on proposed regulations, as per our lobbying disclosures, and allocate resources, including staff and capital, to ensure that required operational changes can be effectively actioned. In the short term, we are pursuing two emission reduction targets, with associated measures including tying in vented equipment to flaring infrastructure in Canada, and using NO <sub>x</sub> scrubbers and NO <sub>x</sub> certificates to comply with new regulations in Netherlands. In 2023, we are developing our net zero transition plan and 2030 emissions reduction target. We are also working with external partners to further implement and develop emission reduction technologies that are economic to the company, in part due to the potential generation of carbon credits. Based on stakeholder engagement, Vermilion believes that independent assessments of our operations by third parties are an important tool to demonstrate our responsible approach to production of essential energy. As a result, we have sought and achieved Equitable Origin responsible gas producer certification for 3 of our Canadian sites, the AFNOR CSR Committed label in France, and the Business Working Responsibly mark in Ireland.
Reputation: Shareholder Divestment	Investors are raising concerns regarding risks related to emissions, environmental and biodiversity protection, water stewardship, and abandonment and reclamation liabilities.	Impact of divestment is estimated to be equal to 0.25X of 2023E FFO, reducing market capitalization by \$317MM. This estimate covers all significant sustainability risk scenarios including but not limited to water stewardship, biodiversity, modern slavery and community relations.	In addition to our net zero transition plan development, we have set internal targets to reduce ARO liabilities and to maintain freshwater intensity performance via water management plans where higher-intensity freshwater use is, or could become, an issue. We are also prioritizing compliance with incoming sustainability reporting requirements, which are largely investor- and financial institution-driven.

Category / Issue	Description of Impacts	Potential Financial Impact	Management Approach
Reputation: Changes in Customer Behaviour and Legal Challenges	Government and community relationships are strongly linked to both social and regulatory licenses to operate. Communities where we operate also bear potential impacts, including noise, dust, lights, traffic, etc. Legal challenges, public opposition and taxation against the oil and gas industry are increasing, as is consumer adoption of technology such as EVs	Legal challenges or public opposition can result in delays or shutdowns in production, which can be measured per day; the EU solidarity contribution (windfall tax) impact of 222MM in 2022 is expected to significantly decrease in 2023 due to a decrease in commodity pricing.	We are managing this through our Non-technical Risk Management Policy and framework, being implemented in 2023, that provides for community/social impact assessments, including strategic community investment, and our lobbying policy implemented in 2023 that includes engagement with governments on specific issues such as windfall taxes.
<b>Medium-Term Transition Risks: 2026-2030</b>			
Technology	Our emission reduction projects and net zero transition plan rely on technologies that are rapidly evolving, but in many cases unproven at larger scales and uneconomic for dispersed assets that are not, for example, near an electrical grid or pipeline gathering system. Assumptions by those outside the industry involve broad generalizations on methane reduction being economical for all assets, and in many cases may prove false. Some technology projects will fail; others will prove uneconomic.	Financial impact is based on the capital and/or operating spend required to reduce our near-term carbon tax liability through emission reduction projects, which is to be recalculated as part of the net zero transition plan development	Vermilion is mitigating this risk through a careful and deliberate approach to new technology adoption. We have established sustainability project criteria that need to be met in order to move into the Vermilion Opportunity Development Process, providing various stage gates and offramps.
Market: Increased costs related to capital and financing	Pressure from stakeholders and limited access to debt, capital or insurance without the use of sustainability-linked financing arrangements	100 bps increase to total debt would represent \$10MM	Establishment of 2 emission reduction targets and 1 ARO target, development of net zero transition plan and 2030 target, to establish groundwork for sustainability-linked financing should it be required.
<b>Medium-Term Physical Risks: 2026-2030</b>			
Acute: Increased Severity of Extreme Weather Events such as Cyclones and Floods	Vermilion's Wandoo field off northwestern Australia, Corrib project off the Irish coast and oil fields in the coastal area of SW France can be impacted by extreme weather events such as cyclones, resulting in down time or damage to infrastructure. Such events can also impact the downstream handling capacity of our partners, resulting in a limitation to the distribution and sale of our products.	Based on the value of the Wandoo Platform and a 1-in-10,000-year cyclonic event, the financial implication associated with damage due to a severe weather event is estimated at \$274MM (total impact before insurance). The third-party costs associated with potential damages from extreme weather events are not tracked.	Vermilion maintains insurance as a mitigative measure to reduce the financial impact associated with damage to our assets due to severe weather events. We also have a robust asset integrity program that maintains our offshore facilities to their original design specifications of CAT 5 hurricane force. We also have protocols for monitoring and preparing for cyclones, and have invested in our emergency response capabilities in the event of damage to our assets due to severe weather.
<b>Long-term Transition Risks: 2030-2050+</b>			
Technology: Substitution of existing products and services with lower emissions options, including market supply and demand	Although we see demand for oil and natural gas remaining robust in the short- to mid-term, it is likely that demand for oil and, to a lesser degree, natural gas will eventually fall as the energy transition evolves and various alternatives for renewable energy options become technologically and economically available. This could impact the need for our products in the longer term, post-2035 for oil and even further out for natural gas, potentially leading to lower commodity prices. As 2021-2022 have demonstrated, however, it will be critical to maintain adequate supplies of both oil and natural gas during the energy transition, to provide both accessibility and affordability.	Given the uncertain timeline and progression of the energy transition, and supply-demand dynamics, we are not using a financial forecast for impact. We are, however, using our scenario analysis to identify potential opportunities that would mitigate the risk to our products.	Based on our scenario analysis, we identified the need to explore new and evolving technologies and processes to identify synergistic fits for our business in both traditional and renewable energy production. We are pursuing this via our established track record in geothermal energy from produced water, for which our internal expertise in engineering, geoscience and drilling is particularly well suited. We are also investing in early R&D in other areas, such as biogas and the conversion of traditional oil and gas assets to geothermal and hydrogen production, to better understand the long-term potential.
<b>Long-Term Physical Risks: 2030-2050+</b>			
Chronic: Rising Sea Levels	Potential rising sea levels could impact our Netherlands assets and operations due to issues such as flooding, transportation difficulties, supply chain interruptions and salinization of groundwater.	A rise in sea level could have an estimated financial impact of \$571MM before insurance at our main Netherlands gas processing facility Garijp (GTC) caused by an extreme 1-in-10,000-year tide/extreme wind event.	Physical measures such as conventional berms may not provide complete protection. Based on Vermilion's assessment of less than 0.05% probability over the next 5 years we have accepted this level of risk, reviewing it annually.

Category / Issue	Description of Impacts	Potential Financial Impact	Management Approach
Chronic: Changes in Temperature Extremes, Including Rising Mean Temperatures; Changes In Precipitation Patterns and Extreme Variability in Weather Patterns	Based on RCP4.5, which limits warming to 3C (overshooting 1.5-2C), our assets and operations could experience climate changes between 2041 and 2070 such as: North America: 2-3C increase, 12-14% increased precipitation, 7-8% increased aridity, >10 fewer frost days and <25% decrease in number of dry spells. Europe: 1-2C increase, 0-5% increased precipitation, 4-12% increased aridity, generally decreased frost days, with several areas seeing <25% increase in number of dry spells. Australia: 1C increase; 8% increased precipitation (SMHI, Climate Information, <a href="https://climateinformation.org/">https://climateinformation.org/</a> , last accessed: 9 July 2023.) Overall warming temperatures, greater precipitation and generally drier conditions (due to increased evaporation) may increase capital costs for drilling, completion and workover operations due to increased timelines, equipment breakdown and restricted access in North America (fewer frost days). They may also impact the health and safety of workers, and create variability and potentially more severe weather events such as flooding, drought and wildfires. Flooding could result in limited access to locations; droughts could impact the availability of surface and / or groundwater required for drilling and completion. This could negatively impact growth by increasing timelines and capital costs to bring on new production.	The financial implications of a single time event (i.e. wildfire) have been assessed on a case-specific basis. Vermilion maintains insurance to mitigate the potential impact of precipitation-related extreme events (i.e. wildfire, flooding)  The financial implications of a decreased ability to access lands on an annual basis are difficult to quantify; however, based on Vermilion's experience, the most significant would result from shutdowns in drilling or completions locations. The estimated cost of this would be \$0.5MM per day of delay.	Each of our assets is assessed for potential risks and hazards, including those associated with weather events, from lightning to flooding to wildfires. These risks are reviewed at least annually on a case-by-case basis as part of our Enterprise Risk Management system. Mitigation approaches such as clearance of vegetation around facilities, and physical barriers to flooding, are implemented as per our HSE Management System, to protect the health and safety of our workers, contractors and the public, and to protect the environment.  For example, we have reduced the potential impact related to access in remote assets by using multi-well pads wherever possible, and we have flexibility as to starting our drilling activities earlier. This would significantly decrease capital considerations in the event that limited frost days occurred. Each risk associated with weather is assessed on a case-by-case basis.  In the case of a longer term extreme precipitation event or drought, Vermilion would implement water management programs to reduce our reliance on freshwater sources to limit the potential impact on operations.

### Short-term Opportunities 2022-2025

<b>Products and Services, and Resilience: Development of New Products and Services through R&amp;D and Innovation; participation in renewable energy programs</b>	Directly related to the long-term transitional risk associated with the substitution of low-carbon products, we have the opportunity to participate in the development of those products. This has the potential to reuse our current infrastructure to provide alternative products, such as biogas or hydrogen, or to develop new products such as geothermal energy, creating new revenue streams.  An example of this opportunity is the geothermal heat we are providing heat from the produced water in our oil operations to develop sustainable agriculture and residential projects near our operations.	As this opportunity is in the early stage of assessment, it is difficult to quantify the financial impact, but it is estimated at up to \$2.0MM per year in revenue and returns on investment. Potential also exists for significant cost adjustments, as assets slated for abandonment would be repurposed to enable them to continue to generate energy.	We are leveraging our technical experts and partnerships to provide input into alternative and renewable energy projects as they are identified. An example of the development of low emission goods/services is our France-based industry partnership with Avenia to expand the use of geothermal energy production in oil production, and a geothermal association in Germany. We have also developed criteria for approving the move of these ideas into our Vermilion Opportunity Development Process, which provides clear gates and criteria for considering and implementing such projects.
<b>Products and Services: Access to New Markets</b>	More stringent global measures to reduce emissions from individual ships by 30% by 2030, established through amendments to MARPOL Annex VI, came into force on Jan 1 2020, limiting the sulphur content of bunker fuel to a maximum of 0.5%. Vermilion's Australian Wando facility produces 4500 bbl/d of low sulphur crude oil that meets the needs of refineries in the short term to meet IMO regulations.	Vermilion conservatively foresees achieving a premium of \$10/ bbl for its Wando production over the next three years for cumulative incremental revenue of \$49.3MM.	Vermilion continues to access local markets for our low sulphur production, while exploring regions to expand our operations. Our Marketing group ensures that Vermilion meets its contractual obligation with our buyers in terms of volumes, delivery dates and crude quality.
<b>Products and Services: Ability to Diversify Business Activities; Shift in Consumer Preferences</b>	Vermilion maintains a diverse, stable global portfolio of oil and gas assets. Our strong record of safe and socially conscious development of energy resources has provided opportunities to access and develop these resources. We see our commitment to sustainability as core to our business, which has provided important organizational focus on emissions quantification and management. As consumers become more aware of and involved in the selection of their energy sources and associated carbon intensity, we believe that Vermilion will continue to be a top quartile choice, providing us with opportunities not available to peer organizations.	The financial impact of changing consumer preferences is difficult to quantify. We foresee revenue opportunities in two distinct areas. (1) In consumers selecting premium energy products, with these products demanding a higher price than other energy sources on the market; currently we estimate the potential impact of premium pricing in the long-term to be \$1-5 per BOE, or \$31.1MM/year based on \$1 at 2022 production levels. (2) Access to more stringent markets, supported by our environmental and sustainability performance. Vermilion has entered into German, Hungarian, Croatian and Slovak oil and gas operations, which our sustainability performance has supported.	Based on stakeholder engagement, Vermilion believes that independent assessments of our operations by third parties are an important tool to demonstrate our responsible approach to production of essential energy, and generate premium. As a result, we have sought and achieved Equitable Origin responsible gas producer certification for 3 of our Canadian sites, the AFNOR CSR Committed label in France, and the Business Working Responsibly mark in Ireland. We are currently assessing the potential to expand these certifications.

Category / Issue	Description of Impacts	Potential Financial Impact	Management Approach
<b>Medium-term Opportunities (3-6 Years)</b>			
<b>Energy Source: Participation in Carbon Market</b>	Under the revised EU ETS Directive in effect 2021-2030, it is anticipated that there will be an active market and consumers for the offset credits generated at some of Vermilion's sustainability initiatives around the world. This shift in the cap and trade scheme may provide opportunities for Vermilion to generate certified energy reduction / offset credits through our geothermal cogeneration projects in France; however, current carbon markets are experiencing significant volatility, including reputational impacts to voluntary markets.	Vermilion is not accounting for any short term financial impact due to the volatility in current markets.	<p>We will continue to evaluate the benefit that certified offset credits from various emission reduction projects across our operations could provide.</p> <p>Examples of projects that have the potential to generate credits include four geothermal co-production projects in France. Vermilion's project assessment framework is applied to each identified opportunity, including considerations associated with emissions offset.</p>
<b>Long-term Opportunities (6-50 Years)</b>			
<b>Products and Services: Shift in Consumer Preferences</b>	Under the Canadian Environmental Protection Act and based on commitments made by the Canadian and Alberta governments and energy utilities relating to COP21, there is a commitment to reduce emissions for coal-fired power generation. Based on this and with a number of power generating facilities in Alberta nearing the end of their service life, the demand for natural gas is likely to increase due to increased use of combined cycle gas turbine (CCGT) power generation.	The short term impact of this regulatory change on gas pricing is anticipated to be low and increase to medium in the mid- to long-term. Once the regulations have come into effect and the implementation period has occurred, there is a potential to see an impact on the marketable price and demand for natural gas. As a natural gas and oil producer, Vermilion would benefit from an increase in marketable prices for natural gas in our Canadian operations.	As we move further into the energy transition, we foresee natural gas playing an impactful role as a less carbon intense fuel than other options (i.e. coal). Vermilion continues to focus on the identification of resources and assets where we have the opportunity to apply our industry leading expertise to optimize production while reducing emissions. An example of our strategy to realize this opportunity is our asset base in Alberta, which currently includes a large liquids rich gas play. Vermilion's marketing team is also actively pursuing options for our natural gas production that will enable Vermilion to achieve the best netbacks on production.
<b>Energy Source: Shift Toward Decentralized Energy Generation</b>	The carbon intensity of energy used around the world has a direct relationship to where the energy product was generated. Vermilion's business unit structure supports production and distribution of energy products into local markets. This strategy results in the significant reduction of the carbon footprint of our energy when compared to non-local sources.	The long-term financial impact of decentralized energy generation will depend on the speed of the energy transition balanced against the need for energy security. As such, we believe it is not possible to predict the financial impact at this time.	Vermilion continues to assess where we can access local markets for our production, while exploring regions to expand our operations. The actions taken in the past several years to realize this opportunity include alterations to our structure, our strategic objectives and our operational development plans to support Vermilion as a distributed energy provider, and exploration and development programs in regions with relatively low energy production as compared to consumption (i.e. Hungary).

## Resilience of the Company's Strategy

Our sustainability strategy rests on three pillars: Carbon, Conservation and Community.

### Carbon

Countries in all of our operating regions are implementing policies to create a low-carbon future for the world's economy, consistent with a 1.5-2C or lower scenario. As a global energy producer, we have an opportunity to be part of the solution: to help ensure the supply of safe, reliable and affordable energy during this transition. The Board of Directors and senior leadership therefore responded to our risk and opportunity identification using a robust scenario analysis.

Vermilion initially examined two energy transition scenarios from the World Economic Forum. These compared a Gradual versus Rapid low-carbon transition based on inputs that included the International Energy Agency's New Policies Scenario (Gradual) and Sustainable Development Scenario (Rapid), which meets the Paris Agreement's goal to limit global temperature increases to 1.5 to 2°C. Vermilion examined key factors impacting the speed of the transition – including the influence of new energy technologies; potential

speed of their adoption; anticipated changes in policy and regulation; and emerging market pathways such as India – and resulting factors that could impact the company, including economics (demand, supply, consumer behaviour, and costs of energy; technological advancement; capital availability; government policy; and Company reputation. Among these, government policy was seen as most influential in the near to mid-term.

We applied these findings to Vermilion's strategy to 2050, described below. In particular, the scenario analysis led us to develop two emission-related targets that were announced in 2021: an aspirational commitment to net zero emissions in our own operations, including Scope 1 and Scope 2 emissions, by 2050, and a near-term target to reduce Scope 1 emissions intensity from our operations by 15 to 20% by 2025, using a baseline year of 2019. See Metrics and Targets for more information.

In 2023, we augmented this work with a new analysis of both climate-related transition risks and physical risks. It should be noted that these scenarios are neither predictions nor forecasts; while they rely on the work of credible third-party organizations, they are constructions based on

circumstances and assumptions that are highly vulnerable to macroeconomic and geopolitical changes. We have used them to inform our discussions on short, mid- and long-term business strategy, along with risk identification and management.

In our scenario analysis, our Executive Committee and Board of Directors reviewed an internally developed comparison of a diverse range of climate-related transition scenarios. We focused on changes in demand for oil and for natural gas based on a Reference (business as usual) case and a Climate Policy (government support for reduced greenhouse gas emissions) case for Global, Advanced Economy and Emerging Economy scenarios. Specific scenarios included those from the International Energy Agency (Stated Policy, Announced Pledges and Net Zero), Equinor (Walls, Bridges), and BP (New Momentum, Accelerated), along with reference cases from Exxon, OPEC and the Energy Information Administration. The analysis showed the potential for energy demand declines over a 5- to 15-year horizon, but also showed greater impacts on specific assets based on government policies, location and logistics (landlocked vs waterborne), and proximity to petrochemical or carbon capture and sequestration capacities.

For example, our analysis for the Reference case in advanced economies points to strong policy uptake in Europe and Industrialized Asia, as well as energy efficiency improvements in the residential and commercial sectors. Oil demand declines as energy transition policy momentum pushes road transport towards electrification, which is further displaced by biofuels after 2030. Efficiency gains reduce consumption, while demographic trends work against oil demand. Climate Policy scenarios see advanced economies driving a rapid uptake of renewables to a near full phase-out of combustible natural gas use, leading to a finale in the role of gas as a transition fuel. Gas use in 2050 is mostly consumed by the petrochemical sector and for hydrogen production. Both scenarios rely on assumptions such as a continued improvement in advanced technology development for renewables (for example, battery improvement); and the addressing of supply chain human rights and environmental issues for critical minerals.

We also assessed the physical climate-related risks in each of our major operating regions using the International Panel on Climate Change's Representative Concentration Pathway (RCP) 4.5

scenario. We selected RCP 4.5 because it reflects the physical risks our operations would face if CO2 emissions do not start declining until approximately 2045, reaching approximately half of 2050 levels by the end of the century. This is more likely than not to result in rising global temperatures above 2C; specific geographic scenarios are summarized above in the Risks table.

While we have set emission reduction targets that are significantly more ambitious than this, using RCP 4.5 enabled us to identify impacts to operations such as rising temperatures, aridity and dry spells in many areas, rising precipitation in some areas, and rising sea levels. Since climate volatility would also increase, RCP 4.5 highlights the need to consider adaptation and mitigation tactics including changing work schedules for daily heat cycles, along with greater wind, storm and wildfire protection for our assets. We note that RCP 2.6 (which requires CO2 emissions to have started declining by 2020) relies not only on reducing emissions, but also on removing significant amounts of greenhouse gases from the atmosphere, and reflects similar physical risks as 4.5 in the next 10-15 years, with lesser effects in the period 2050-2100.

We have incorporated the results of the discussions around these

scenarios into our business strategy work in 2023, including working on our net zero transition plan (see Targets and Metric section) and our Risk identification and management process.

Our sustainability strategy continues to emphasize ensuring our resilience under various scenarios, and rests on three emissions-related activities:

**Focusing on efficient and responsible production of oil and natural gas**, viewing emissions as potential energy source:

- **Lower carbon fuels.** Since 2012, we have shifted our production mix towards natural gas as a cleaner burning fuel than other fossil fuels. We also sell our fuels within the country of production wherever possible, reducing the carbon footprint associated with transportation of the fuel to consumers while increasing national energy security.
- **Socially responsible fuels.** We are committed to ensuring that our products are produced in an environmentally and socially responsible manner, respecting worker rights and community engagement. We operate in regions noted for their stable, well-

developed fiscal and regulatory policies related to oil and gas exploration and development, and for their robust health, safety, environmental and human rights legislation.

- **Transparency and reporting.** We have established a strong record of reporting on greenhouse gas emissions, energy usage and other key environmental metrics, which has supported our emission reduction targets.

**Implementing technically and economically feasible options for emission reduction**, covering combustion, flaring, venting and fugitive emissions:

- **Greater energy efficiency.** Many energy and operational efficiency initiatives go hand-in-hand, which in turn helps us minimize our carbon footprint and reduce greenhouse gas emissions.
- **Lower greenhouse gas emission intensity.** We are committed to reducing the greenhouse gas emissions associated with our production, with particular focus on methane.

**Exploring new and evolving technologies and processes** to

identify synergistic fits for our business in both traditional and renewable energy production. We are continuing to develop our knowledge and use of alternative energy sources, including geothermal energy, for which our internal expertise in engineering, geoscience and drilling is particularly well suited. This work has begun with the geothermal potential of our produced water, supporting a circular economy model that conserves, reuses and recycles resources to better protect our environment. It is also expanding into areas such as biogas and the conversion of traditional oil and gas assets to geothermal and hydrogen production.

The other two pillars of our sustainability strategy reflect the interconnected nature of sustainability- and climate-related issues:

## Conservation

We are committed to reducing the impact our operations have, beginning with regulatory compliance across all business units. Our conservation efforts are further focused in three areas:

**Water:** We recognize water as a basic human right, and as a vital resource that is shared among many stakeholders in our communities. We are therefore committed to protecting both the supply and the quality of water sources in our areas of operation by:

- Proactively preventing harm and supporting healthy surface and groundwater bodies
- Reducing potable and freshwater usage to the lowest level practical, and
- Taking a lifecycle and circular economy approach to water, exploring opportunities to reuse and recycle products such as produced water

**Asset Retirement Obligations:** We are adapting our long-term Asset Retirement Obligation management

to include revitalizing or reusing assets to benefit our environment and our communities.

**Biodiversity:** We are focusing on protecting the species and habitats around us by proactively identifying biodiversity risks and opportunities, and implementing associated plans.

## Community

Our communities comprise a wide diversity of people and organizations, but they have one key thing in common: they care deeply about the safety, environmental stewardship and corporate citizenship that we bring to our local operations. In addition, our people care deeply about their communities - whether we work there or live there, these are the places we call home. We therefore steward our operations and relationships to demonstrate our commitment to being a responsible producer and a valued and trusted neighbor and business partner, including:

- **Transparency** with respect to safe and environmentally responsible operations, including our potential impacts on local communities
- Maintaining **strong, genuine relationships** with our communities, with engagement based on

respect, listening and openness, and

- **Creating shared value** focused on local economic and social development.



Our Ways of Caring community investment program engages our staff in contributing to our communities



# Risk Management

Vermilion's board and senior leadership provide risk oversight, including for sustainability-related risks such as climate.<sup>102-30</sup>

Effective risk and crisis management positions the company for better resiliency from the present to the future. We use a multi-layered approach to ensure identification, awareness and effective management of our business-related risks, including sustainability risks. This includes identifying business opportunities that may arise from changing conditions.

Sustainability-related risks and opportunities, including those related to climate, are integrated into multi-disciplinary company-wide risk identification, assessment and management processes as part of our Enterprise Risk Management (ERM) system, based on the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework.

This provides an integrated approach to managing risk as it impacts strategy and performance, and includes Operational, Market & Financial, Credit, Organizational, Political, Regulatory Compliance, Strategic and Reputational, and Sustainability categories.

## Identifying and Assessing Risks

Risk management is the responsibility of the Board and the Executive Committee based on a Top-Down, Bottom-Up approach to engage all staff. Top-Down begins with our Board and its committees with clear terms of reference, including oversight for identification and management of specific allocations of risk type.

This is translated into action by our Executive Committee, which reviews and manages the ERM process through implementation of associated policies and procedures. Within our Executive Committee, the Vice President International and HSE and the Vice President North America have risk management responsibility on an operational level, while the Chief Financial Officer is responsible for overseeing risk management performance.

Bottom-Up is how staff implement, maintain and improve risk management processes, applying the hazard-risk-mitigation process in every part of our business.

Risks are identified by key staff across our company, including our Operations, Finance, Health, Safety and Environment, Economics, Government and Public Relations,

and Sustainability teams at corporate, business unit and asset levels. These employees have significant experience, and use a wide array of inputs, including operational and facility assessments, technical and research reports, external stakeholder organizations, government policy and regulation changes, industry initiatives, community and landowner engagement, and non-governmental entity feedback.

The results are incorporated as specific risks into our Corporate Risk Register, which provides a consistent framework to ensure the effective tracking and communication of our material risks. Using our Risk Matrix as a prioritization tool, teams assess each risk's severity, likelihood, speed of onset, and vulnerability using scales from 1 to 5 for each factor, based on human, environment, financial, social license and cybersecurity impacts. In addition, risks such as commodity pricing, production and carbon taxes are stress-tested to identify the impact of changes over time.

Our sustainability materiality analysis, which assesses issues with impact for both the Company and our key stakeholders, is integrated into our ERM system using the Corporate Risk Register through a collaboration between Finance, HSE, Operations and Sustainability teams.

Every risk case includes whether climate-related risk is a contributing factor.

The results are reviewed annually at minimum by the responsible teams, and provided to the Executive Committee and the Board and its Committees as appropriate, who further review and assess the risks including interdependencies based on the company's risk tolerance.

## Managing Risks

Our risk management approach focuses on reducing the risk to a level as low as reasonably practicable, accepting the risk, and/or controlling it (such as insuring it). For example, if direct mitigation is not possible (e.g. changes in temperature extremes), we would adapt our business processes to reduce the potential impact (e.g. changing work hours to avoid extreme mid-day heat). In other situations (e.g. increasing risk of flood), we may take measures to protect against the risk (e.g. flood controls) while also insuring our operations.

Financial impact is deemed substantive if it could cause a business loss of more than \$10 million CAD (unrisks and before mitigation/recovery instruments). Substantive is defined further using the following thresholds:

- Has persistent but reversible, long-term effects on habitat, ecological communities, land, air or water. Escalations include irreversible effects on these elements, persistent reduction in sensitive ecosystem function, or effects beyond a regional or operations scale.
- Requires a specific asset to be shut in for unknown duration during regulatory or legal proceedings. Escalations include the permanent withdrawal of authority to operate.
- Reputational damage is national or international, or stakeholder concerns lead to regional or more widespread interruption of operations.

estimate Scope 1 and 2 emissions, associated carbon taxes and the impacts of emission reduction projects. We are now using this to support our planning of production, capital allocation, budgeting, target setting and merger, acquisition and divestment decisions.

## Emissions Long-Range Planning

To support climate risk identification and management, we previously developed a Carbon Liability Assessment Tool, with Scope 1 emissions quantification and regulatory information for each business unit. We assessed the price of carbon on both a realized cost and shadow pricing basis, and identified likely carbon pricing scenarios for all our operating areas.

Our internally developed Emissions Long-Range Planning Tool uses our 10-year projections of production to



# Targets & Metrics

## Metrics Used to Assess Sustainability- and Climate-Related Risks and Opportunities

Our reporting describes significant economic, environmental, social and governance measures, which are reported with reference to SASB/ISSB and GRI. These include but are not limited to:

- **Climate:** energy consumption and intensity; investment in and generation of renewable energy; greenhouse gas emission and intensity, including flaring and venting, and avoided emissions; and water withdrawal, including from areas of high baseline water stress, and discharge.
- **Environment:** Waste generation and management; Asset integrity and spills; abandonment and reclamation liabilities, and Environmental investment
- **Social:** Health and Safety; People; and Community investment
- **Governance:** Ethics

These metrics contribute to a sustainability contribution of 10% of

the Corporate Performance Scorecard for our Long-term Incentive Plan, comprised of progress towards our 2025 emission intensity reduction target and 2027 ARO liability reduction target, along with select ESG rating agency scores.

HSE metrics also comprise 10% of the scorecard for our Short-Term Incentive Plan. These are industry-typical leading and lagging indicators reflective of responsible, safe and sustainable operations:

- Leading indicators (inputs) focus on at-risk behaviours and are directly linked to injury and motor vehicle incident reduction initiatives and outcomes.
- Lagging indicators (outputs) include total recordable injuries, lost time injuries, motor vehicle incidents, and liquid spills and releases, which are assessed against internal and industry/peer benchmarks.

These plans apply to all employees, including our executive team.

Thus, sustainability- and climate-related performance is linked not only to executive but to all employee compensation, given that we use the same scorecard for every staff member. We report on this externally through our Proxy Statement and Information Circular each year.

We also track carbon pricing, and have identified actual and likely pricing scenarios for all of our operations based on current government policies and published research relating to the Paris Agreement. For example, in Canada, the 2022 carbon tax was \$50 per tCO<sub>2</sub>e, and in Ireland, carbon pricing was 81 € per tCO<sub>2</sub>e.

We also gain an external perspective on our performance via third-party ESG rating agencies, including:

- CDP Climate Change and Water Security: CDP Climate and Water scores of “A-” and “B” in 2022.
- ISS ESG QualityScore: Recognized as a leader in managing risk in our industry with a decile rating of “1” for Environmental and “2” for Social practices in June 2023.
- MSCI ESG Rating: In 2023, Vermilion maintained our AAA rating.
- S&P Global Corporate Sustainability Assessment: Vermilion was top of our peer group in the 2022 Assessment.
- Sustainalytics ESG Risk Rating, which is not permitted to be disclosed by issuers without a license, but which is publicly available on their website.

## Scope 1, 2 and 3 GHG Emissions Disclosure

We report Scopes 1, 2 and 3 emissions, which are externally verified under ISO 14064-3. Historical, corporate and business unit data can be found in our [Performance Metrics section](#).

## Targets and Performance

Vermilion has set two emission-related targets:

- Net zero emissions in our own operations, including Scope 1 and Scope 2 emissions, by 2050. We are transparent that this is an aspirational goal, and that we will build the plan to achieve this target over time.
- As a first step, we set a near-term target to reduce Scope 1 emissions intensity from our operations by 15 to 20% by 2025, using a baseline year of 2019. We intend to set new targets every five years at minimum, building on this foundation while exploring broader options, including the potential to reduce Scope 3 emissions.

We developed, and the Board approved, these targets following our climate scenario analysis and

extensive internal assessment. There are significant inherent uncertainties in how the energy transition will accelerate over the next three decades. Our intention is to manage these by focusing on responsible production of essential oil and natural gas for as long as these forms of energy are needed, while developing opportunities in other areas that are an economic and synergistic fit for our business.

Committing to an aspirational net zero target was important, but setting a company-wide nearer term target as the first step in creating a clear pathway was even more so. We looked at our own operations – from how we manage emissions data to options for emission reduction – and at how our peers and the majors are approaching this. From this, we identified emissions intensities and opportunities for reduction within our business units, and set our 2025 target.

This is being achieved, starting with our business units with higher emissions intensities, with an initial focus on efficiency, including process changes, venting reductions, instrumentation upgrades from gas to air and power efficiency options, along with improved metering and field measurements.

All of these factors are also being considered as we work on our net zero transition plan through 2023. Based on our scenario analyses, we have identified four key pillars to support both a Net Zero by 2050

target for Scope 1 and 2 emissions, and the establishment of our mid-term 2030 Scope and 2 emission intensity reduction target:

- **Reduce** emissions, with methane a priority, by reducing flaring, venting and fugitive emissions; driving operational and energy efficiencies; electrifying operations where grids are low-intensity; and assessing new technologies as they become viable.
- **Convert** higher emitting elements of our portfolio to lower intensity production, considering both divestment and end-of-life fields.
- **Adapt** our portfolio to new energy, considering carbon capture and storage, renewable energy associated with our core operations such as biogas, hydrogen and geothermal production, and other new technologies.
- **Offset** as a solution for the emissions that cannot be eliminated.

We anticipate that our plan will be complete in 2024, and that it will constitute a living document - one that will be updated as economic, technological and regulatory landscapes evolve.

Technology use is already driving significant operational efficiencies.



Details of our continued progress against these and previous targets are provided here:

Category	Target	Progress (see Energy and Emissions Reduction page for details)
Scope 1 – flaring and venting	Set in 2014: Reduce flaring emissions at our light-oil assets in southeast Saskatchewan acquired in 2014 by 50% by 2020	Achieved above target: 88% reduction in annual emissions as of end 2020
Scope 1 - methane	Set in 2014: Methane reduction target included in the target above to reduce flaring emissions at our light-oil assets in southeast Saskatchewan acquired in 2014 by 50% by 2020	Achieved above target: 86% reduction in annual methane emissions as of end of 2020
Scope 1 – flaring and venting	Set in 2014: Reduce flaring emissions at one of our major facilities in France by 65% by 2015	Achieved: 65% reduction in emissions (avoiding the flaring of 14,500 tCO <sub>2</sub> e annually) by implementing a gas export system
Scope 2 – renewable energy	Set in 2015: Exceed 5% of our total power consumption coming from renewable sources (and replacing traditionally generated electricity) by 2017	Achieved above target: Reduced Scope 2 emissions in Netherlands from 41% of our 2015 gross Scope 2 emissions to 2% in 2016 and 0% in 2017. This program has been extended through 2023, and has now been adopted in our Ireland and Germany business units.
Renewable Heat Energy Target	Set in 2015: Generate 31,380MWh of renewable geothermal energy annually in our France Business Unit from our Parentis battery’s tomato greenhouse project until at least 2035	Above Target: 2022 production was 59,144 MWh of geothermal energy from four sites
Scope 1- flaring and venting	Set in 2018: reduce the flaring and venting emissions, including methane, associated with the Spartan assets acquired in 2018 by 50% by 2024	Target exceeded in 2021 and assets partially divested in 2023.
Scope 1 – methane	Set in 2018: Similar to our 2014 acquisition of Elkhorn, this is a proportional target associated with our program to reduce methane emissions for our 2018 acquisition of Spartan by 50% by 2024.	Target exceeded in 2021 and assets partially divested in 2023.
Scope 1 GHG emissions	Set in 2021: Reduce Scope 1 intensity by 15-20% from our 2019 baseline year by 2025.	On track: 10% reduction achieved in 2022

# Approach to Methane Emissions

As one of the highest-impact greenhouse gases, methane is an important element in Vermilion's focus on climate-related risks and opportunities, particularly in reducing our greenhouse gas emissions from natural gas production. The economic viability of methane leakage prevention is important, with two factors influencing continuing developments: significant advancements in technology – fostered by government commitments surrounding climate change – and the cost of carbon. Combined, these will act to improve the technical ability and abatement costs associated with methane leak detection and the updating of older infrastructure that is prone to sources of methane.

We are actively pursuing options to reduce our methane emissions, supported by commitments from many of our operating regions. Alberta, for example was the first regional government in North America to commit to a methane emissions reduction target for the oil and gas sector – 45% by 2025 – and France has signed on to the World Bank's Zero Routine Flaring by 2030 Initiative.

Understanding that this is a developing area, we have teams in each business unit that monitor

regulatory development and share learnings with other business unit teams and corporate groups. We continue to assess our operations to determine areas where we can prevent methane releases and have a positive impact on our Scope 1 emission intensity reduction target. This also supports our participation in both voluntary and regulatory-driven methane reduction programs.

## Sources and Detection

Similar to any upstream oil and gas operation, the majority of methane emissions from Vermilion's operations stem from uncombusted venting or fugitive sources, and flared gas (which typically achieves 98% combustion efficiency).

Vermilion has emissions quantification programs in all operated business units. We also have fugitive emission programs in place that are managed through our operations groups in each business unit, with the exception of our offshore platform in our Australia operation (an oil asset with no natural gas production infrastructure). Our Leak Detection and Repair (LDAR) program varies between business units:

**Canada:** An expanded LDAR program was implemented in 2020, with effectively 100% of our operated Alberta facilities and multi-well pads

now assessed annually using optical gas imaging (OGI) technology. At our predominantly oil-producing Saskatchewan assets, OGI surveys are undertaken annually at our larger facilities in accordance with regulatory requirements. Routine checks for natural gas releases using a Forward-looking InfraRed (FLIR) camera are completed by operations personnel at our smaller Saskatchewan assets in conjunction with regular field visits. In addition to thermal imaging, Auditory, Visual and Olfactory (AVO) inspections are a standard component of operator field visits. Targeted identification of leaks during facilities work is also built into all turnaround activities.

**France:** Quantitative LDAR programs vary annually. As this is an oil-dominated asset, the volume of natural gas and associated methane emitted is low. All operated well clusters are checked at least daily, and twice daily in more sensitive areas such as Parentis Lake. Pipeline routes are surveyed at weekly or monthly intervals depending on the sensitivity of the pipeline location and pipeline type. Process safety equipment, including pressure sensors and hydrocarbon detection equipment, is also installed on wellheads, cellars and pipeline infrastructure to detect leaks, shut-in production and alert operations personnel.

**Netherlands:** This natural gas-producing asset has a robust LDAR program, with effectively 100% of accessible flanges and potential leak points screened annually using thermal imaging technology.

**Australia:** This is an oil asset with no natural gas production infrastructure. Any associated gas is either utilized in on-platform processes to displace fuels we would have to bring from the mainland, such as diesel, or maintained within the process and reinjected into the formation it was produced from. While we do not complete a formal LDAR program for natural gas, any significant potential leak sources would be identified by our continuous gas detection monitoring system (line of sight and point source) or through on-platform crew visual inspections. Where required, equipment is repaired and pressure/leak tested prior to return to service.

**United States:** This predominantly oil asset has a comprehensive LDAR program that includes initial and semi-annual monitoring for fugitive emissions using a thermal camera at all well sites that are subject to EPA and/or Wyoming air permit requirements. In addition to point source identification, Vermilion has permanently mounted monitoring equipment at our major facilities that checks for the presence of natural gas outside of the process on an ongoing basis.

**Germany:** All producing oil and disposal wells are thoroughly checked at least twice per week. Wells that are not in production are checked monthly. In our operated gas assets, all well sites and facilities are checked five times per week. During these checks, all accessible flange connections are visually inspected for leaks. Field and transportation pipelines in our operated oil assets are inspected once per week in populated areas and once per month in unpopulated areas. Pipeline routes in our operated gas assets are checked every two months by walking in populated areas, and twice per year in unpopulated areas in accordance with regulatory requirements. Oil and gas transportation pipelines are also helicopter surveyed on a biweekly basis.

**Ireland:** In the first year of operation, a Differential Absorption LIDAR (DIAL) Survey was completed to survey for methane and VOC emissions. No significant emissions were observed from the areas measured. OGI surveys are completed on Corrib on a bi-annual basis and cover approximately 80% of accessible leak points. All identified leaks are managed through the operations weeps and seeps repair program. To date, 80% of all identified leaks are below the measurable leak detection rate for the High Flow Sampler.



# Energy and Emissions Management

The following projects highlight our progress in addressing energy efficiency and emissions reduction.

302-4 305-5

## Scope 1 Emissions

### Reducing Flaring and Venting in Southeast Saskatchewan

Following the 2014 purchase of light-oil assets in Southeast Saskatchewan, we made important improvements that reflect our focus on safety, sustainability and operational excellence. These included a target to reduce flaring and venting emissions by 50% by 2020, compared to a baseline of 2014. This was achieved above target, at 88%.

In May 2018, Vermilion completed the acquisition of Spartan Energy Corp. This increased Canadian production by approximately 30% relative to 2017. Similar to the 2014 acquisition, we set a target to reduce associated flaring and venting emissions by 50% by 2024, compared to 2018. This is being accomplished through a variety of gas conservation and recovery initiatives, including the construction of new infrastructure and implementation of enhanced operational practices and

technology, and as of 2021 had achieved beyond our target:

- Reduced absolute emissions/year by approximately 186,231 tCO<sub>2</sub>e, or 55% (compared to 2018 baseline of 340,926)
- Reduced absolute methane emissions/year by 78,189 tCO<sub>1</sub>e, or 57% (compared to 2018 baseline of 136,714)

These assets were partially divested in 2023.

### Carbon Capture and Storage in Weyburn, Saskatchewan

We have a non-operating financial interest in the Weyburn-Midale Carbon Capture and Storage facility in Saskatchewan. This is one of the world's largest carbon capture, utilization and storage projects, bringing in CO<sub>2</sub> from a utility in North Dakota to use in enhanced oil recovery (EOR), after which the CO<sub>2</sub> remains permanently sequestered in the field.

In 2022, our partnership accounted for 1,784 bbls day, or approximately 4% of our total production on an equity basis.

### CNG Replacement

In 2020, our Canadian operations worked with our vendors to trial the replacement of diesel or propane with compressed natural gas (CNG) for boilers and water heating for the drilling program in Alberta. This provided cost savings while also reducing CO<sub>2</sub> emissions by 27% for the program: 380 Tonnes, which is equivalent to taking 82 passenger vehicles off the road for a year.

The project has been expanded in subsequent years with CNG now representing approximately 40% of our North American drilling and completions fuel on an energy content basis.

### Power Generating Replacement in Canada

We are replacing traditional thermoelectric (TEG) power generating devices at remote production sites with hybrid solar/methanol fuel cell units. Unlike TEG units which run (and therefore consume fuel) continuously, the hybrid units run on demand only. Based on manufacturers specifications, this reduction in operating time is expected to result in a greater than 99% emissions reduction in relation to the TEG units.

Between 2017 and 2020, a total of 35 EFOY units were installed at 12

locations in Alberta. Based on the annual energy generation rates and a specified emissions reduction of approximately 8.2 kg CO<sub>2</sub>e/KWh, the operating EFOY units represented an estimated CO<sub>2</sub>e savings of approximately 100 tonnes in 2021.

### Additional Projects

In 2023, we continued a project initiated in 2019 to convert high-bleed pneumatic devices to low-bleed units. Based on the equipment supplier's data, this is expected to reduce vented emissions by approximately 5,000 tCO<sub>2</sub>e/year.

We have completed the installation of nine solar powered chemical injection pumps at our well site facilities in Alberta (fully funded by provincial grants). This project is expected to reduce Vermilion's emissions by 9,000 tCO<sub>2</sub>e/year

Due to a recent equipment upgrade in our German business unit, the existing natural gas production at three sites in Bergen (district of Celle) will be up to 70 percent more efficient. The increased production efficiency means an additional approximately 2,040 households can be reliably supplied with domestic natural gas annually. This natural gas production makes a valuable contribution to security of supply in Germany, and reduces import dependency and CO<sub>2</sub>-intensive transports from abroad.



## Flaring and Venting

### Gas Micro-Turbines

**France:** At our Vic Bilh site in 2021, we successfully piloted the use of micro-turbines that consume natural gas that would otherwise need to be incinerated. Since commissioning, the turbines have produced an average of 258 KWh and a maximum of 395 KWh, out of the 570 KWh required to operate the two oil wells associated with the gas byproduct, thus also decreasing our use of the national grid. Based on the Vic Bilh results, the micro-turbine project was expanded on a larger scale to Cazaux in 2023, with additional studies planned for Parentis and Vaudoy in 2024. The Cazaux installation is scheduled to be operational in Q4 2023 and is expected to generate approximately 40% of the electricity requirements for the Cazaux field (8 MWh).

### Incinerator Technology

**France:** At our battery in Parentis, where no regional gas gathering infrastructure exists to tie in our gas, Vermilion has installed high efficiency incinerator technology that has significantly reduced flaring while resulting in no noise, vibration or smoke.



## Scope 2 Emissions

### ISO 50001 Certification

**Germany:** Our German business unit is certified annually under ISO 50001 for Energy Management. This Standard provides a framework for developing, implementing and maintaining an energy management system that supports continual improvement in the efficient use of energy. We have developed an energy management practice that includes strategic planning, communication, procurement and design, verification, monitoring, internal audits, and corrective actions. As part of the certification process, we set energy reduction targets, and are externally audited on our progress.

### Purchase of Green Power

**Netherlands:** In 2016, Vermilion began purchasing 100% green power via Guarantees of Origin from our largest power provider. The Netherlands accounted for approximately 41% of Vermilion's gross Scope 2 emissions in 2015, and for 0% beginning in 2017. We have continued this program since.

**Expansion:** We began purchasing power from 100% renewable sources via our electricity provider in Ireland in 2021 and in Germany in 2023.

## Use of Solar Power

**Canada:** We have a program to install pump-off controllers at well sites so that the pump only operates when enough fluid is present. Annually, this is expected to reduce power consumption by approximately 17%, resulting in an estimated 10,000 kWh saving per year per well.

Additionally, an initial, full-scale trial of a solar remote power generating (EPODTM) unit was initiated in 2021. Capable of generating approximately 8 MWh/year, the EPODTM unit is expected to result in an annual CO2e savings of approximately 40 tonnes when compared to traditional, fuel-based power generation.

Other solar power initiatives that have been implemented include: installation of solar powered remote monitoring devices; installation of new solar equipment in conjunction with our DCET program; solar retrofits of legacy pumps; and, installation of solar-powered leak detection systems.

Collectively, these initiatives are expected to result in a further CO2e savings in excess of 100 tonnes/year.

**France:** In Parentis, we provided space for a partnership that installed solar panels over our parking areas, providing cover and generating grid power.

## Air Emissions

### Reduction of NOx Emissions

**Netherlands:** On our drilling operations beginning in 2019, we have reduced NOx emission exposure by approximately 10% compared to the base case, by using NOx scrubbers on our drills. We are using both NOx scrubbers and purchasing NOx certification via permanent withdrawal of agricultural NH3 emissions for other drills.

# Feature: Renewable Energy Projects in France

In 2008, Vermilion teamed up with four agricultural engineers who wanted to create an economically and ecologically viable greenhouse operation in which to grow tomatoes. The concept was to use geothermal energy from our Parentis oilfield's produced water to supply an industrial-sized tomato greenhouse operation. Today, this ongoing operation has catalyzed an entire agricultural sector, and we have expanded the concept to heating a residential neighbourhood, a microalgae producer, and a college in three additional communities in France. This represents strong partnerships developed over the years that represent added value for the areas that host our activities.<sup>203-2</sup>



In Parentis, our commitment to provide heat free-of-charge and free of carbon emissions for 25 years has made the greenhouse operation profitable to build and operate, which in turn has enabled our partners to expand, and attracted other business to the area.

We are incredibly proud of the role we played in this economic growth, with its social and environmental

benefits. Not only have we helped create new jobs in a new industry, we have effectively decoupled economic growth from greenhouse gas emissions for this sector.

Here's how it grew.

## It began with tomatoes

The mayor of Parentis brought Vermilion and the tomato growers together in the mid-2000s. The ensuing discussions led to the rezoning and issuance of related municipal permits, and the signing of our 25-year partnership agreement. Tom D'Aqui (the tomato-growing cooperative) built their first 10-hectare greenhouse next to our Parentis battery, we installed the heat exchange technology and brought the operation online in 2012, establishing that this model not only worked, but worked well.

## How our geothermal energy is sourced

- Vermilion's petroleum extraction process in the Parentis field produces a mix of oil, gas and water, which is naturally heated to around 60°C.
- Once the oil and gas are separated out, the heated water enters a "closed loop" system where heat

exchangers transfer its caloric energy to a second water system belonging to Tom d'Aqui (while ensuring fluids from the two water systems never come into contact).

- The second water system heats the Tom d'Aqui greenhouse located next to the Parentis battery.
- Vermilion reuses the produced water by pumping it back underground to maintain reservoir operating pressures and enhance production.

Within the overall agricultural sector listed above, the direct impact of our produced water geothermal system includes:

- 7,500 tonnes of tomatoes grown annually in 15 hectares of greenhouses
- 10,000 tonnes of greenhouse gases avoided each year
- 250 direct jobs

This system also allows the Tom d'Aqui greenhouse to be heated without carbon emissions, a key element in their certification as an eco-greenhouse. The project also reduces the cost of traditional tomato growing operations in the region, allowing the producers to

compete with warmer climate producers.

## Circular Economy Recognition from the Government of France

This shared focus on innovative technology and environmental responsibility earned our partnership the 2013 Circular Economy Award for Industrial and Regional Ecology from the French government, recognizing economically successful enterprises that operate within a circular economy.<sup>G4-OG2/3</sup>

## Expanding beyond

By demonstrating proof-of-concept, our partnership with Tom d'Aqui has been credited as being a catalyst for three new projects launched independently of Vermilion. It has also attracted other business to the area, creating an agricultural sector that has become an important factor within the region's economy. Our heat contributes 40% of the sector's needs; the other projects have been developed using recycled biomass, with the result that this is now the largest tomato production in France from non-fossil fuel sources, including:

- 15,000 tonnes of CO2 avoided every year
- 15,000 tonnes of fresh tomatoes produced annually

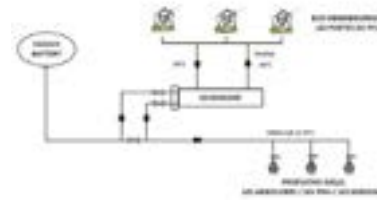
- 27 hectares of greenhouses built, comprising four greenhouses
- 350 long-term jobs created, and
- 37 million euros invested in economic diversification in a rural area.

a community centre and various sports facilities.



The technology works the same way as in our greenhouse partnership:

- Vermilion produces oil from three fields in the Arcachon Basin (part of the Aquitaine Basin): Les Mimosas, Les Pins and Les Arbousiers. The production is gathered in a central battery where approximately 1,000 m<sup>3</sup>/day of water at a temperature of 70 degrees Celsius is produced along with the oil.
- A heat exchanger on our battery allows the transfer of the energy from the produced water to the eco-neighborhood, producing up to 80% of the heat needed; the remaining 20% will be supplied by the use of gas resulting from biomass, thanks to a COFELY/ENGIE boiler.



## Sharing Our Expertise

Based on our success, we supported AVENIA, an industry partnership that advises the French government on energy, to launch an industry and country-wide study to identify the potential for waste energy use from oil and gas operations. In addition to contributing financial support, we provided the expertise of our people, and actively encouraged other companies to participate. The results were shared following a detailed review by AVENIA.

## Moving from Agriculture to Housing, in La-Teste

We are using a similar geothermal concept to support an Eco-Neighborhood in La-Teste. This 30-year partnership with the city and the French land developer Pichet is using our geothermal energy to heat 550 apartments, saving 50% of the heating bill for the residents and 500 tonnes per year of CO<sub>2</sub>. The community, which has reserved one third of the apartments for low-income social housing, also features

## Advancing to New Projects

In 2021, we established a third geothermal application in France. Our Vic Bilh asset is providing geothermal heat to a nearby Fleur de Vie facility that produces high quality spirulina, a microalgae with a wide variety of uses.

In addition, our Les Pins asset began providing geothermal heat to Arcachon school in late 2021.



# Feature: Renewable Energy Projects in The Netherlands

As a key part of the low-carbon transition, Vermilion is leveraging the proof-of-concept established in France to develop alternative energy projects in our operations in The Netherlands. There, the Dutch Energy Agreement (DEA) targeted a 400% increase in renewable energy contribution from 4% in 2013 to 16% in 2023. We are playing an important role by demonstrating that, beyond using natural gas as a lower carbon transition fuel, synergies exist between natural gas production and green or renewable energy. We are also using our core business, based on geoscience expertise and our existing infrastructure, to investigate several important avenues for supporting the DEA's target.

## Biogas Production

In Harlingen, we have partnered with SPF Group, a producer of sustainable fuels, to investigate the use of our Harlingen Treatment Centre location for their biogas production site. The location includes a quay that makes it possible to receive raw materials via water, thereby limiting truck transportation, and it offers existing buildings instead of new builds, which supports the sustainability principle that all parties involved are pursuing. It can also make use of Vermilion's extensive gas infrastructure there. SPF Group has located their head office at our location.

## Combined Gas and Geothermal Exploration

This work in Noord Holland focused on developing geothermal assessment plans on new gas drilling prospects so that a single drilling operation can address the potential of both natural gas and geothermal energy opportunities. It makes good economic sense: geothermal projects are currently economically viable only in very good reservoirs and with subsidies. Combining gas and geothermal exploration increases the return on investment significantly; however, current regulations do not allow for this combined approval approach.

## The Green Deal: Ultra Deep Geothermal Energy

Vermilion was one of seven companies to partner with the Dutch government, EBN (a natural gas exploration and production company owned by the government) and TNO (a Dutch non-profit for applied scientific research) to investigate ultra-deep (4,000 metres) geothermal energy that would produce the high heat needed by industrial energy customers.

As part of our participation, we undertook a geological evaluation of the available 3D seismics. From this, we have concluded that the required Dinantien carbonate platform in Heerenveen is probably not present. So, although we certainly see the possibilities for ultra-deep geothermal in the Netherlands, we consider the opportunities for the successful development of a project at this specific location in Heerenveen within the frameworks outlined to be too small. While the project identified that this is not currently practical in our area of operation, our participation demonstrates our partnership approach to developing new products and services through research and development.

## Gas to Geothermal Energy Conversion

Our project to convert two of our depleted gas wells in Middenmeer, in North Holland, to geothermal production is on hold while the technical and economical aspects are further analyzed.



# External Associations, Initiatives and Advocacy

We recognize the need to ensure that our advocacy efforts reflect our business strategy, particularly on climate change and the energy transition. We engage directly with government representatives when we believe we can make a difference in policy and regulation to support oil and natural gas companies as partners in the energy transition.

We also participate in government industry working groups, often at government request to provide technical expertise as one of many stakeholder positions considered prior to regulatory changes.

We are committed to transparency in our advocacy efforts, including:

- Participating in advocacy registries wherever required
- Providing summaries of our advocacy positions, and
- Listing our membership in key trade and industry associations.

## Climate Position

Vermilion supports the goals of the Paris Agreement and governments' actions, including public policies, to develop and implement related climate change policy and regulation, while recognizing the critical role that oil and natural gas will play during the energy transition to ensure accessible and affordable energy supplies.

While oil and gas resources are still needed during the energy transition, the provision of clear, stable and reasonable regulations will allow energy producers such as Vermilion to continue to operate in an environmentally and socially responsible manner.

We believe that domestic energy supply should be prioritized over importing oil and gas, for its contributions to national energy security, the economic benefits it provides to local communities through employment and local investment, its compliance with stringent safety, environmental and workplace regulations, and the lower carbon footprint it often provides.

## Lobbying Policy

In 2023, we implemented our lobbying policy, which describes our management system for direct and indirect (trade and industry association) advocacy.

**Governance:** Each business unit leader is responsible for positions and activities in their region; Vermilion's Executive Committee is responsible for corporate positions and company-wide lobbying activities. Only those individuals specifically designated as spokespersons or representatives may advocate on behalf of the company.

**Review process:** We annually review our direct lobbying activities, including any required advocacy registries:

**France:** [The High Authority for the Transparency of Public Life Report.](#)

**Ireland:** [Quarterly reporting to the Register of Lobbying.](#)

We also annually review all trade and industry associations to which we belong, for alignment of activities and organizations with the Paris Agreement and with our Climate Position. We use a scale between fully aligned and misaligned for each. If misalignments are identified, we engage with the association to understand and influence the issue. We consider cancelling membership only if no improvement proves likely.

We provide our Executive Committee and Board of Directors with a report summarizing our reviews, including misalignment and recommendations.

**Results:** In 2022, two associations had no commitment or equivalent to the Paris agreement, one of which also had lobbying activities misaligned with Paris. We are engaging with one association, and considering membership withdrawal in the other. Fees paid in 2022 included: **External lobbyists:** \$78,000; and **Memberships in associations that also lobby:** \$1.26 million.

## Summary of Advocacy Positions

**Global:** support for the role of responsibly produced oil and natural gas to provide affordable and dependable energy as a bridge to greater reliance on renewable fuels; opposition to the European Union Solidarity Contribution as not following EU policy, unfairly and retroactively targeting a single sector and disregarding the risk and reward relationship for hydrocarbon producers and the low European natural gas pricing since 2015 and particularly in 2020

**France:** support for the transformation of extractive sectors to serve our regions

**Netherlands:** advocacy for the role of small natural gas fields during the energy transition, including government adherence to legal timelines for permitting, and distribution of royalties to local communities

**Ireland:** support for the role of natural gas in improving domestic energy security during the energy transition, including as lower carbon than imported gas, for the government's 2050 net zero carbon targets, and for the potential use of our infrastructure for blue or green hydrogen

**Germany:** completed working with government and the extractive industry to support a new regulatory approach to working in water protection zones; finalized working with industry and ministries on new deep drilling regulation

**Central and Eastern Europe:** advocacy for permitting and progressing projects in a timely fashion

## Membership in Key Business and Industry Associations

Association	Details
Australian Institute of Petroleum	Promotes industry self-regulation and effective dialogue with government and the community; includes the Australian Marine Oil Spill Centre
Australian Petroleum Production & Exploration Association	Represents Australia's oil and gas exploration and production industry
Australian Resources Energy Group	Policy and advocacy focused on the Australian resources, energy and supply industry
Budapest Chamber of Commerce and Industry	Supports the development of the Hungarian economy representing the general and joint interests of its member business organizations
Business in the Community Ireland	Purpose to inspire and enable businesses to bring about a sustainable, low carbon economy and a more inclusive society where everyone thrives
BVEG - Federal Association of Natural Gas, Petroleum and Geoenery	Represents the interests of German oil and gas producers, underground storage facility operators and service providers active in the industry
Canadian Association of Petroleum Producers	Represents the Canadian upstream oil and natural gas industry; advocates for and enables economic competitiveness and safe, environmentally and socially responsible performance
Element NL - Dutch oil and gas explorer and producer association	Represents and advocates for the Dutch oil and gas explorer and producer association; works to continuously improve practices related to safety, environment and public acceptance
Energy and Equipment Materials Users Association	Focused on supporting its member companies with safety, efficiency and compliance good practice
Emsachse	Multi-sector collaboration to address joint economic challenges and interests in the Ems-Axis growth region
Energy Sector Sustainability Leadership Initiative	Calgary-based voluntary working group on energy sector sustainability best practices
Eurogas	Represents the European gas sector; aims to strengthen the role of gas in the energy mix through ongoing dialogue
France-Canada Chamber of Commerce	Promotes business activities between Canada and France
French FAB	Promotes the French industrial ecosystem, including responsible business practices
Geothermal Forum Lower Saxony	Platform for the exchange and preparation of information for the geothermal industry
Geothermie Nederland	Trade association for geothermal energy, committed to the availability of sustainable and affordable heat for citizens and businesses
German Society for Petroleum and Coal Science Technology (DGMK)	Promotes and advances science, research, technology and continuing education relating to fossil fuels
Ibec	Ireland lobby and business representative group focused on a positive climate for business and employers
Irish Offshore Operators' Association (IOOA)	Represents the Irish offshore oil and gas industry, providing a common approach to issues such as safety, the environment, legislation and employment; advocates for the development of oil and gas exploration and production in Ireland's waters
Hungarian Mining Association (MBSZ)	Represents all sectors of the mining industry in Hungary
MEDEF	Network of entrepreneurs in France
Petroleum Association of Wyoming (PAW)	Dedicated to the betterment of the state's oil and gas industry, including government advocacy on the responsible development of oil and gas
Pole AVENIA	Voluntary competitiveness cluster with many programs related to supporting geothermal development in France
Saskatchewan Petroleum Industry Government Environmental Committee	Government and industry cooperative approach to ensure the continued growth of the oil and natural gas industry in a manner that minimizes adverse environmental effects
Union française des industries pétrolières	Represents the petroleum industry; provides the French government with ongoing industry feedback on various European Union directives/initiatives
Western Energy Alliance	Represents companies engaged in environmentally responsible exploration and production of oil and natural gas in the western United States

# Index

## International Sustainability Standards Board - Sustainability Accounting Standards Board

Topic	Metric	Code	Aligned	Context	Page / Performance Metrics
<b>Greenhouse Gas Emissions</b>	Scope 1, methane	EM-EP-110a.1	Substantial	Currently based on throughput operational control	PM - Energy & Emissions
	Scope 1 flaring & venting	EM-EP-110a.2	Substantial	Reported as flared, vented and fugitive emissions	PM - Energy & Emissions
	Emissions strategy and targets	EM-EP-110a.3	Full	TCFD report - Strategy; Targets and metrics	<a href="#">22, 35</a>
<b>Air Quality</b>	Air emissions	EM-EP-120a.1	Partial	NOx, VOCs, PM tracked in most business units	PM - Energy & Emissions
<b>Water Management</b>	Freshwater withdrawn and consumed	EM-EP-140a.1	Full		PM - Water
	Produced water and flowback generated	EM-EP-140a.2	Substantial	Flowback not reported	PM - Water
	Public disclosure - frac fluids	EM-EP-140a.3	Full		PM - Energy & Emissions
	Water quality at frac sites	EM-EP-140a.4	None	Water monitored, but not yet tracked for reporting	
<b>Biodiversity Impacts</b>	Policies and Practices	EM-EP-160a.1	Full		<a href="#">75-87</a>
	Volume and # of spills	EM-EP-160a.2	Substantial	No spills in Arctic; shoreline spills not tracked; volume recovered not reportable	PM - Water
	Reserves near protected sites	EM-EP-160a.3	None	Not yet tracked	
<b>Human Rights</b>	% of reserves in or near areas of conflict	EM-EP-210a.1	Full	Zero - no reserves in or near areas of conflict	
	% of reserves in or near Indigenous land	EM-EP-210a.2	Full	60% of total proved + probable reserves are in Canada, in traditional Indigenous territories	Annual Information Form
	Engagement & due diligence	EM-EP-210a.3	Substantial	Approach to human rights & stakeholder engagement	<a href="#">17, 91,</a> <a href="#">17, 88-102</a>
<b>Community Relations</b>	Processes to manage rights & interests	EM-EP-210b.1	Full		
	Non-technical delays	EM-EP-210b.2	Full	No delays outside regulatory processes	
<b>Workforce Health &amp; Safety</b>	TRIF, fatalities, NMFR, Training	EM-EP-320a.1	Substantial	All reported except near miss frequency rate	PM - Safety
	Management systems - safety culture	EM-EP-320a.2	Full		<a href="#">71-75</a>
<b>Reserves &amp; CAPEX</b>	Reserve sensitivity to carbon pricing	EM-EP-420a.1	Partial	Emissions long-range planning tool incorporates planned production to 2030 including carbon pricing	<a href="#">35</a>
	CO2 emissions in proved reserves	EM-EP-420a.1	None	Not yet tracked	
	Investment in renewable energy	EM-EP-420a.3	Full		PM - Energy & Emissions
	CAPEX strategy discussion	EM-EP-420a.4	Substantial	TCFD Strategy section - Risks & Opportunities	<a href="#">25-33</a>
<b>Ethics &amp; Transparency</b>	Reserves in TI CPI 20 lowest countries	EM-EP-510a.1	Full	No reserves in countries with 20 lowest rankings	
	Management system	EM-EP-510a.2	Full		<a href="#">52</a>
<b>Legal &amp; Regulatory</b>	Positions on E&S factors	EM-EP-530a.1	Full		<a href="#">45</a>
<b>Critical Incident Risk</b>	Process Safety events	EM-EP-540a.1	Full		PM-Asset Integrity
	Management systems	EM-EP-540a.2	Full		<a href="#">63</a>
<b>Activity Metric</b>	Production of oil and gas	EM-EP-000.A	Full	Annual Reports + Sustainability Report	PM-Energy & Emissions

# Performance Metrics

	2018	2019	2020	2021	2022	Context	GRI/SASB
<i>ACTIVITY METRICS: OPERATIONS AND RESERVES</i>							
Number of operations (operated business units)	8	8	8	8	8		102-7
Production – total: boe/d based on financial control	87,270	100,357	95,190	85,408	85,187		EM-EP-000.A
Production – crude oil: bbls/d	39,182	47,902	43,421	38,143	37,530		EM-EP-000.A
Production - NGLs: bbls/d	6,366	7,984	8,937	8,325	7,961		EM-EP-000.A
Production – natural gas: mmcf/d	250	267	257	234	238		EM-EP-000.A
Annual Production - Operated facility throughput: boe	29,440,819	44,680,354	42,202,207	36,865,352	35,634,107	Use for intensity calculations	EM-EP-000.A
Total proved + probable reserves, gross: mboe	488,145	501,233	466,603	481,007	522,790		GRI 11
Number of offshore sites (producing net wells)					23	Australia and Ireland	EM-EP-000.B
Number of terrestrial sites (producing net wells)					2,836	All other BUs	EM-EP-000.C



	2018	2019	2020	2021	2022	Context	GRI/SASB
<b>ECONOMIC IMPACT</b>							
<b>Gross petroleum and natural gas sales: \$M</b>	<b>1,678,117</b>	<b>1,689,863</b>	<b>1,119,545</b>	<b>2,079,761</b>	<b>3,476,394</b>		201-1
Canada	671,172	828,070	569,191	901,775	1,344,284		201-1
France	360,602	326,699	182,292	279,263	365,431		201-1
Netherlands	165,916	112,857	65,575	295,723	562,857		201-1
Germany	82,449	57,312	34,210	131,935	481,260		201-1
Ireland	205,150	104,274	58,446	214,425	324,345	2019: First full year of Corrib operatorship	201-1
Central & Eastern Europe	3,630	797	1,933	1,211	10,797		201-1
Australia	150,733	184,490	141,452	143,014	221,187		201-1
United States	38,465	75,364	66,446	112,415	166,233		201-1
<b>Operating costs, excludes transportation, royalties and G&amp;A: \$M</b>	<b>357,014</b>	<b>440,078</b>	<b>417,251</b>	<b>413,022</b>	<b>489,034</b>		201-1
Canada	177,499	242,790	218,596	215,387	240,899		201-1
France	54,690	61,281	57,128	52,147	57,588		201-1
Netherlands	26,681	32,125	32,410	35,269	45,903		201-1
Germany	23,048	24,970	20,732	27,149	41,523		201-1
Ireland	15,366	12,431	15,232	14,889	16,580	2019: First full year of Corrib operatorship	201-1
Central & Eastern Europe	110	301	464	441	1,691	As per Annual Report: CEE and Corp combined	201-1
Australia	53,199	49,810	54,581	50,748	57,478		201-1
United States	6,421	16,370	18,108	16,992	27,372		201-1
<b>Employee wages and benefits: \$M</b>	<b>174,831</b>	<b>201,581</b>	<b>207,390</b>	<b>187,591</b>	<b>193,707</b>	Permanent staff; does not include contractors	201-1
Canada	93,750	109,468	117,878	99,741	107,079	CBU and Corporate	201-1
France	23,733	22,103	21,165	20,149	20,780		201-1
Netherlands	15,080	15,049	16,623	15,815	16,841		201-1
Germany	6,846	5,929	5,368	4,824	5,419		201-1
Ireland	1,809	14,981	15,071	15,405	15,408	2019: First full year of Corrib operatorship	201-1
Central & Eastern Europe	1,171	1,638	1,116	1,137	1,186	CEE	201-1
Australia	26,016	23,950	20,304	24,036	19,704		201-1
United States	6,426	8,462	9,865	6,484	7,290		201-1
<b>Dividends declared and shares repurchased: \$M</b>	<b>388,111</b>	<b>427,311</b>	<b>90,067</b>	<b>0</b>	<b>117,428</b>	Dividends suspended in 2020; reinstated in 2022	201-1
<b>Interest payments: \$M</b>	<b>72,759</b>	<b>81,377</b>	<b>75,077</b>	<b>73,075</b>	<b>82,858</b>		201-1
<b>Taxes paid: \$M</b>	<b>43,577</b>	<b>52,230</b>	<b>14,341</b>	<b>45,854</b>	<b>449,330</b>		201-1
Canada	513	406	(71)	(1,522)	223,979	Canada + EU Solidarity Contribution/Windfall Tax	201-1
France	15,084	21,431	141	(9,120)	29,889		201-1
Netherlands	16,561	(3,961)	(3,774)	46,567	150,647		201-1
Germany	0	0	0	0	31,513		201-1
Ireland	0	0	0	0	0		201-1
Central & Eastern Europe	0	0	0	0	0		201-1
Australia – includes PRRT and corporate taxes	11,419	34,354	18,045	9,929	13,302		201-1
United States	0	0	0	0	0		201-1
<b>Royalties paid: \$M</b>	<b>152,167</b>	<b>163,666</b>	<b>106,554</b>	<b>186,122</b>	<b>306,017</b>		201-1
Canada	84,696	94,079	54,961	113,651	196,005		201-1

	2018	2019	2020	2021	2022	Context	GRI/SASB
France	46,781	43,895	32,069	37,666	40,353		201-1
Netherlands	3,181	1,469	444	873	512		201-1
Germany	6,626	5,264	990	2,847	21,232		201-1
Ireland	0	0	0	0	0		201-1
Central & Eastern Europe	813	253	644	338	3,488	As per Annual Report: CEE and Corp combined	201-1
Australia	0	0	0	0	0	See PRRT and taxes above	201-1
United States	10,070	18,706	17,446	30,747	44,427		201-1
<b>Investment in our Communities (also see communities metrics): \$M</b>	<b>1,587</b>	<b>1,907</b>	<b>1,447</b>	<b>1,162</b>	<b>2,046</b>		201-1
Canada	908	1,249	838	608	1,433	Includes corporate program costs	201-1
France	155	174	160	116	115		201-1
Netherlands	277	153	111	238	210		201-1
Germany	68	131	88	53	78		201-1
Ireland	70	104	118	124	150	2019: First full year of Corrib operatorship	201-1
Central & Eastern Europe	4	3	61	5	7		201-1
Australia	88	75	68	-	4		201-1
United States	17	18	2	18	49		201-1
<b>Direct economic value distributed: \$M</b>	<b>1,190,046</b>	<b>1,368,150</b>	<b>912,127</b>	<b>906,826</b>	<b>1,640,420</b>	Total: operating costs through community investment above	201-1
Economic value distributed in Canada	357,366	447,992	392,202	427,865	769,395		201-1
Economic value distributed in France	140,443	148,884	110,663	100,958	148,725		201-1
Economic value distributed in Netherlands	61,780	44,835	45,814	98,762	214,113		201-1
Economic value distributed in Germany	36,588	36,294	27,178	34,873	99,765		201-1
Economic value distributed in Ireland	17,245	27,516	30,421	30,418	32,138	2019: First full year of Corrib operatorship	201-1
Economic value distributed in CEE	2,098	2,195	2,285	1,921	6,372		201-1
Economic value distributed in Australia	90,722	108,189	92,998	84,713	90,488		201-1
Economic value distributed in US	22,934	43,556	45,421	54,241	79,138		201-1
Economic value distributed: dividends, share repurchase & interest	460,870	508,688	165,144	73,075	200,286	Dividends suspended in 2020; reinstated in 2022	201-1
ARO (asset retirement obligations) settled: \$M	15,765	19,442	14,278	28,525	37,514		201-1

MATERIAL TOPIC	2018	2019	2020	2021	2022	Context	GRI
<b>GOVERNANCE</b>							
Ratio of annual total compensation of highest-paid individual to median annual total compensation all permanent employees	41.3	39.5	29.1	29.2	19.0	Compensation includes base salary, short & long term incentive plans & allowances (e.g., holiday pay); not broken down by highest paid individual per country due to privacy regulations	102-38
Ratio of % change in CEO compensation to % change in employee median compensation	17:1	(2:1)	(3:1)	(1:1)	(1.27):1	Executive structure changed 2020, 2022, 2023 as per Information Circulars	102-39
<b>ETHICS</b>							
Requests for advice on ethical behaviour via corporate secretary	0	0	0	0	0		102-17
Concerns expressed via whistleblower line	0	5	3	1	4	All concerns were reviewed; 3 were investigated	102-17,102-34
Violations of rights, including those of Indigenous peoples	0	0	0	0	0		411-1
Legal actions regarding anti-competitive behaviour	0	0	0	0	0		206-1
Fines for non-compliance with laws & regulations (\$)	0	0	0	0	0		206-1,307-1,419-1
Political donations, financial or in-kind (\$)	0	80	0	0	0	2019: tax receipt received for attendance at a community dinner that was also a political fundraiser; internal guidance and training updated to specify non-attendance at such events	415-1
<b>ANTI-CORRUPTION</b>							
% of operations assessed for risks related to corruption	100	100	100	100	100	Using Transparency International Corruption Perception Index	205-1
% proved + probable reserves: countries with 20 lowest rankings					0	Using Transparency International Corruption Perception Index	EM-EP-510.1
# of governance body communicated to on anti-corruption	10	10	9	9	10	Annual conduct policy acknowledgement	205-2
% of governance body communicated to on anti-corruption	100	100	100	100	100	Annual conduct policy acknowledgement	205-2
# of employees communicated to on anti-corruption	553	730	746	716	740	Annual conduct policy acknowledgement	205-2
% of employees communicated to on anti-corruption	99	100	100	100	100	Regional breakdown not required due to high coverage	205-2
# of contractors communicated to on anti-corruption	265	326	215	232	230	Annual conduct policy acknowledgement	205-2
% of contractors communicated to on anti-corruption	99	100	100	100	100	Regional breakdown not required due to high coverage	205-2
% of business partners communicated to on anti-corruption	100	100	100	100	100	Business partners defined as joint venture partners	205-2
# of governance body trained on anti-corruption	10	10	9	9	10		205-2
% of governance body trained on anti-corruption	100	100	100	100	100		205-2
# of employees and contractors trained on anti-corruption	266	301	41	68	86	New hire onboarding plus position-specific, in-depth training; 2019+ decrease reflects lower new hire numbers	205-2
% of employees and contractors trained on anti-corruption	26	29	4	7	9%		205-2
Confirmed incidents of corruption	0	0	0	0	0		205-2

MATERIAL TOPIC - ASSET INTEGRITY & SPILLS (RELEASES)	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for intensity calculations to ensure numerator/denominator alignment	
<b>ASSET INTEGRITY AND PROCESS SAFETY</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>		<b>GRI 11</b>
<b>Number of Tier 1 process safety events</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0.16 per 1,000,000 employee + contractor hours worked (per Safety Metrics)</b>	<b>EM-EP-540a.1</b>
Canada	0	0	0	0	0		
France	0	0	0	0	0		
Netherlands	0	0	0	0	0		
Australia	0	0	0	0	0		
United States	0	0	0	0	1		
Germany	0	0	0	0	0		
Central and Eastern Europe - Hungary	0	0	0	0	0		
Ireland	0	0	0	0	0		
<b>Number of Tier 2 process safety events</b>	<b>96</b>	<b>162</b>	<b>89</b>	<b>61</b>	<b>N/A</b>	<b>Recalibration of Tier 2 definition in progress 2022-2023</b>	<b>GRI 11</b>
<b>SPILLS (RELEASES)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>All spills, including &lt; 1 bbl or 0.16m3, and those contained behind impermeable secondary containment; Units switched from m3 to bbl in 2020 IAW SASB; Zero spills in Arctic</b>	<b>EM-EP-160a.2</b>
<b>Number of significant spills, defined as included in financial statements due to resulting liabilities</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>No significant spills requiring reporting in financial statements 2012-2022</b>	<b>306-3</b>
<b>Total number of all spills</b>	<b>268</b>	<b>456</b>	<b>420</b>	<b>371</b>	<b>387</b>		<b>306-3</b>
Canada	159	281	280	244	250		
France	61	51	50	46	35		
Netherlands	18	35	26	36	24		
Australia	10	8	8	9	15		
United States	6	63	38	27	39		
Germany	14	7	8	6	7		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	1		
Ireland	0	11	10	3	16		
<b>Volume of all spills: bbl</b>	<b>4,858</b>	<b>9,377</b>	<b>16,375</b>	<b>3,216</b>	<b>6,401</b>	<b>Breakout into hydrocarbon, produced water and other began in 2019</b>	<b>306-3</b>
Canada	4,630	7,667	15,825	2,971	4,494		
France	95	541	195	76	243		
Netherlands	75	39	65	74	18		
Australia	1	54	0	1	5		
United States	48	1,068	242	90	1,503		
Germany	9	7	46	4	137		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		
Ireland	0	3	1	0.1	1		
<b>Volume of spills - Hydrocarbon Liquids: bbl</b>		<b>469</b>	<b>1,226</b>	<b>258</b>	<b>2,146</b>		<b>EM-EP-160a.2</b>
Canada		340	962	192	1,793		
France		30	164	38	168		
Netherlands		0	5	1	1		
Australia		15	0	1	3		
United States		81	94	25	180		
Germany		0	0	0	0.3		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		

MATERIAL TOPIC - ASSET INTEGRITY & SPILLS (RELEASES)	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for intensity calculations to ensure numerator/denominator alignment	
Ireland		2	1	0.1	0.8		
<b>Volume of spills - Produced Water: bbl</b>		<b>8,763</b>	<b>14,908</b>	<b>2,886</b>	<b>4,063</b>		
Canada		7,289	14,668	2,775	2,699		
France		460	31	38	66		
Netherlands		19	19	8	2		
Australia		2	0	0	2		
United States		986	148	65	1,173		
Germany		6	42	0	121		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	0	0	0.2		
<b>Volume of spills - Other: bbl</b>		<b>145</b>	<b>241</b>	<b>72</b>	<b>192</b>		
Canada		38	195	4	2		
France		50	0	0	9		
Netherlands		20	41	64	15		
Australia		36	0	0	0		
United States		0	0	0	150		
Germany		0	5	3	16		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	0	0	0		

MATERIAL TOPIC: ENERGY & EMISSIONS	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
<b>Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level.</b>							
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes as referenced in CDP submissions: boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,680,354	42,202,207	36,865,352	35,634,107	Use for energy and emissions intensity calculations to ensure numerator/denominator alignment	
<b>ENERGY</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>		
<b>Scope 1: Energy consumption within organization, non-renewable (natural gas, propane liquid, diesel fuel and vehicle fuel): GJ</b>	<b>4,132,866</b>	<b>5,554,821</b>	<b>5,172,331</b>	<b>4,806,111</b>	<b>4,388,587</b>		<b>302-1</b>
Canada	2,809,879	3,592,038	3,223,562	2,907,176	2,496,328		
France	0	0	3,143	6,280	12,839		
Netherlands	60,390	72,585	73,037	74,841	70,352		
Australia	864,934	722,623	843,308	813,213	815,819		
United States	199,893	204,576	111,857	78,669	63,807		
Germany	120,844	135,350	108,675	112,212	101,099		
Central and Eastern Europe - Hungary and Croatia	2,932	9,236	5,119	16,544	0		
Ireland	73,996	818,413	803,630	797,175	828,343		
<b>Energy intensity ratio Scope 1: GJ/boe</b>	<b>0.14</b>	<b>0.12</b>	<b>0.12</b>	<b>0.13</b>	<b>0.12</b>		<b>302-3</b>
<b>Scope 2: Energy consumption outside organization, non-renewable (electricity): GJ</b>	<b>1,403,021</b>	<b>2,077,646</b>	<b>1,232,392</b>	<b>1,049,524</b>	<b>1,243,976</b>	<b>1 MWh = 3.6 GJ</b>	<b>302-2</b>
Canada	750,356	1,352,186	1,117,288	973,345	1,125,289		
France	623,641	679,640	60,296	16,762	40,973	2020, 2021 and 2022 reflect renewable energy breakout	
Netherlands	0	0	0	0	0	Guarantees of Origin green electricity 2017-2022; electricity consumed 2022 = 80,382 MWh	
Australia	669	587	383	463	476		
United States	10,969	30,803	45,119	45,273	52,198		
Germany	17,369	11,592	6,853	13,470	24,814	2020, 2021 and 2022 reflect renewable energy breakout	
Central and Eastern Europe - Hungary and Croatia	17	0	229	210	227		
Ireland	0	2,838	2,224	0	0	All purchased electricity from renewable fuels in 2021 & 2022; electricity consumed 2022 = 533.8 MWh	
<b>Energy intensity ratio Scope 2: GJ/boe</b>	<b>0.05</b>	<b>0.05</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>		<b>302-3</b>
<b>Energy intensity ratio Scope 1+2: GJ/boe</b>	<b>0.19</b>	<b>0.17</b>	<b>0.15</b>	<b>0.16</b>	<b>0.16</b>	<b>2014+: operated battery energy use/operated battery production</b>	<b>302-3</b>
<b>Renewable energy</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>		
<b>Total amount invested in renewable energy, CAD</b>	<b>\$1,306,667</b>	<b>\$446,778</b>	<b>\$568,182</b>	<b>\$2,887,512</b>	<b>\$1,771,725</b>		
Canada	\$391,000	\$220,000	\$230,000	\$2,461,000	\$696,080	Assorted solar including DCET, pump retrofits, leak detection and remote monitoring	
France	\$312,000	\$190,000	\$270,000	\$388,455	\$800,508	4 geothermal from produced water projects; turbine pilot; hydrogen research	
Netherlands	\$603,667	\$36,778	\$68,182	\$23,680	\$215,379	Harlingen biogas project	
Australia	\$0	\$0	\$0	\$0	\$0		
United States	\$0	\$0	\$0	\$0	\$0		
Germany	\$0	\$0	\$0	\$0	\$0		
Central and Eastern Europe - Hungary and Croatia	\$0	\$0	\$0	\$0	\$49,758	Solar panels and batteries for Ceric and Berak wellsites; operational in 2024	
Ireland	\$0	\$0	\$0	\$14,377	\$10,000	Hydrogen research	
<b>Renewable energy investment: % of capital expenditure</b>	<b>0.3</b>	<b>0.1</b>	<b>0.2</b>	<b>0.8</b>	<b>0.5</b>		
<b>Renewable energy GHG emissions avoided: tCO2e</b>	<b>24,566</b>	<b>24,623</b>	<b>18,993</b>	<b>18,635</b>	<b>19,349</b>		
<b>Renewable energy generated by source (actual energy content transferred): MWh</b>	<b>77,088</b>	<b>77,095</b>	<b>59,330</b>	<b>58,004</b>	<b>59,197</b>		<b>302-1</b>
Canada	0	7	11	19	53		
France	77,088	77,088	59,319	57,985	59,144	Tom d'Aqui greenhouses/ Eco-neighborhood Arcachon / Turbines VBH2 / Fleur de Vie Vic Bilh/ Condorcet	
Netherlands	0	0	0	0	0		

MATERIAL TOPIC: ENERGY & EMISSIONS	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
<b>Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level.</b>							
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes as referenced in CDP submissions: boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,680,354	42,202,207	36,865,352	35,634,107	Use for energy and emissions intensity calculations to ensure numerator/denominator alignment	
Australia	0	0	0	0	0		
United States	0	0	0	0	0		
Germany	0	0	0	0	0		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		
Ireland	0	0	0	0	0		
EMISSIONS	2018	2019	2020	2021	2022		GRI
Percentage of total emissions under emissions-limiting regulations		91%	89%	87%	100%	All BUs operate in regions under some form of emissions limiting regulations: e.g. EU ETS, carbon taxes, carbon pricing, methane regulations, etc.	EM-EP-110a.1.4
Scope 1 gross direct GHG emissions: tonne	742,175	858,823	793,203	648,337	616,184		EM-EP-110a.2 305-1
CO <sub>2</sub> Scope 1 emissions (excluding CH <sub>4</sub> and N <sub>2</sub> O): tonne	456,817	555,687	531,078	466,472	416,262	Hydrofluorocarbons, Perfluorocarbons, Sulfur hexafluoride, VOCs, particulates not tracked	305-1
Canada	300,947	374,495	354,167	283,298	241,688		
France	61,169	64,419	56,764	65,665	62,414		
Netherlands	15,198	11,403	8,393	6,803	5,035		
Australia	46,587	42,024	50,209	50,627	46,476		
United States	19,152	15,409	13,253	11,949	12,909		
Germany	9,710	4,069	7,262	6,408	6,111		
Central and Eastern Europe - Hungary and Croatia	285	2,260	357	1,146	0		
Ireland	3,769	41,608	40,673	40,576	41,628		
<b>Methane: tCO<sub>2</sub>e</b>	<b>284,762</b>	<b>302,027</b>	<b>261,051</b>	<b>180,987</b>	<b>199,123</b>		<b>GRI 11.1.5</b>
Canada	241,279	258,500	216,739	144,005	168,345		
France	10,197	8,499	8,752	8,009	6,932		
Netherlands	5,318	4,018	5,215	3,265	2,983		
Australia	16,961	18,601	21,373	18,655	11,112		
United States	1,468	3,981	4,436	4,739	4,684		
Germany	9,101	7,492	3,284	1,763	4,438		
Central and Eastern Europe - Hungary and Croatia	384	244	656	1.2	0		
Ireland	54	692	597	550	628		
<b>Methane as a % of total Scope 1 direct GHG emissions</b>	<b>38</b>	<b>35</b>	<b>33</b>	<b>28</b>	<b>32</b>		<b>EM-EP-110a.1.3</b>
<b>Nitrous Oxide (N<sub>2</sub>O): tCO<sub>2</sub>e</b>	<b>596</b>	<b>1,109</b>	<b>1,073</b>	<b>878</b>	<b>799</b>		<b>305-2</b>
Canada	378	465	505	290	310		
France	107	547	428	462	361		
Netherlands	22	7	28	12	10		
Australia	82	68	90	104	96		
United States	5	16	18	3	19		
Germany	2	1	4	4	4		
Central and Eastern Europe - Hungary and Croatia	0	5	0	3	0		
Ireland	0	0	0	0	0		
<b>Scope 1 GHG emissions intensity, oil and gas production: tCO<sub>2</sub>e/boe</b>	<b>0.025</b>	<b>0.019</b>	<b>0.019</b>	<b>0.018</b>	<b>0.017</b>	2014+: operated battery Scope 1 emissions/operated battery production	<b>305-4</b>
<b>Total Scope 2 GHG emissions: tCO<sub>2</sub>e</b>	<b>173,847</b>	<b>288,345</b>	<b>247,144</b>	<b>214,778</b>	<b>218,839</b>		<b>305-2</b>
Canada	160,369	269,349	222,010	194,319	192,833		
France	11,444	6,808	8,628	2,661	6,617		

MATERIAL TOPIC: ENERGY & EMISSIONS	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
<b>Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level.</b>							
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
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Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,680,354	42,202,207	36,865,352	35,634,107	Use for energy and emissions intensity calculations to ensure numerator/denominator alignment	
Netherlands	0	0	0	0	0		
Australia	130	114	73	88	90		
United States	787	10,231	14,425	13,856	15,088		
Germany	1,090	1,575	1,735	3,845	4,200		
Central and Eastern Europe - Hungary and Croatia	1	0	11	10	11		
Ireland	25	268	262	0	0		
Scope 2 GHG emissions intensity: tCO2e per boe	0.006	0.006	0.006	0.006	0.006	2014+: operated battery Scope 2 emissions/operated battery production	305-4
Scope 1+2 GHG emissions intensity: tCO2e per boe	0.031	0.026	0.025	0.023	0.023	2014+: operated battery Scope 1+2 emissions/operated battery production	305-4
Scope 3 Gross other indirect GHG emissions: tCO2e	12,408,270	14,188,122	13,226,527	11,631,963	11,682,455		305-3
Biogenic CO <sub>2</sub> Scope 3 emissions	0	0	0	0	0		305-3
Purchased goods and services					79,047	Categories previously publicly reported in CDP Climate annual submissions; added to this report in 2022	
Capital goods					45,917		
Fuel and energy-related activities not included in Scope 1 or 2					197,814		
Upstream transportation and distribution					109,222		
Waste generated in operations					6,649		
Business travel					3,401		
Employee commuting					1,020		
Downstream transportation and distribution					55,671		
Processing of sold products					600,529		
Use of sold products	11,311,601	12,937,168	12,176,323	10,624,199	10,584,186		305-3
Emissions of ozone-depleting substances	0	0	0	0	0		305-6
NOx: tonne	29	2,136	1,190	977	1,579		EM-EP-120a.1 305-7
Canada	Not Tracked	1,912	1,011	818	1,193	From NPRI reporting	
France	22	51	45	50	46		
Netherlands	7	2	4	2	2		
Australia	Not Tracked	171	131	104	336		
United States	Not Tracked	Not Tracked	Not Tracked	Not Tracked	Not Tracked		
Germany	Not Tracked	Not Tracked	Not Tracked	2	2		
Central and Eastern Europe - Hungary and Croatia	Not Tracked	Not Tracked	Not Tracked	Not Tracked	0		
Ireland	Not Tracked	Not Tracked	Not Tracked	Not Tracked	Not Tracked		
SO <sub>2</sub> : tonne	736	2,488	2681	2219	1871		EM-EP-120a.1 305-7
Canada	198	1,800	1,935	1,360	1,059	From 2022 NPRI reporting, SO <sub>2</sub> recalculated based on measured H <sub>2</sub> S	
France	538	682	737	851	803		
Netherlands	0	0	0	0	0		
Australia	-	-	1	1	1		
United States	-	5	8	7	8		
Germany	-	-	-	-	-		
Central and Eastern Europe - Hungary and Croatia	-	-	-	-	0		
Ireland	-	-	-	-	-		
Volatile Organic Compounds (VOCs) (non-methane): tonne		68	145	621	938	Volatile organic compounds that participate in atmospheric photochemical reactions; excludes carbon monoxide, carbon dioxide and methane	EM-EP-120a.1 305-7



MATERIAL TOPIC: ENERGY & EMISSIONS	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
<b>Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level.</b>							
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes as referenced in CDP submissions: boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,680,354	42,202,207	36,865,352	35,634,107	Use for energy and emissions intensity calculations to ensure numerator/denominator alignment	
Canada		68	Not Tracked	138	455	From NPRI reporting	
France		Not Tracked	128	181	225		
Netherlands		Not Tracked	13	19	11		
Australia		Not Tracked	Not Tracked	Not Tracked	Not Tracked		
United States		Not Tracked	Not Tracked	278	245		
Germany		Not Tracked	4	5	3		
Central and Eastern Europe - Hungary and Croatia		Not Tracked	Not Tracked	Not Tracked	0		
Ireland		Not Tracked	Not Tracked	Not Tracked	Not Tracked	Ireland is below the regulatory reporting threshold for NMVOC	
<b>Particulate Matter (PM10): tonne</b>						<b>Airborne finely divided solid or liquid material with an aerodynamic diameter ≤ 10 micrometers</b>	<b>EM-EP-120a.1 305-7</b>
Canada		125	219	9	106	From NPRI reporting	
France		Not Tracked	3	2	2		
Netherlands		Not Tracked	Not Tracked	Not Tracked	Not Tracked		
Australia		Not Tracked	8	12	13		
United States		Not Tracked	Not Tracked	Not Tracked	Not Tracked		
Germany		Not Tracked	Not Tracked	Not Tracked	Not Tracked		
Central and Eastern Europe - Hungary and Croatia		Not Tracked	Not Tracked	Not Tracked	0		
Ireland		Not Tracked	Not Tracked	Not Tracked	Not Tracked		
<b>FLARING AND VENTING</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>		<b>EM-EP-110a.2</b>
<b>Volume of flared hydrocarbon: e3m3/yr</b>	<b>69,906</b>	<b>78,962</b>	<b>83,116</b>	<b>66,563</b>	<b>58,260</b>	<b>Note that all flared volumes are reported, not just continuous flares</b>	<b>11.1.5</b>
Canada	45,455	55,526	62,108	42,144	36,437		
France	21,261	20,123	17,797	20,456	17,377		
Netherlands	201	235	236	287	250		
Australia	788	1,351	1,413	1,688	1,722		
United States	1,858	780	1,379	1,713	2,172		
Germany	289	23	31	58	218		
Central and Eastern Europe - Hungary and Croatia	32	763	0	0	0		
Ireland	22	161	152	206	84		
<b>Volume of continuously vented hydrocarbon: e3m3/yr</b>	<b>12,318</b>	<b>14,222</b>	<b>9,758</b>	<b>10,441</b>	<b>10,064</b>		<b>11.1.5</b>
Canada	9,447	11,424	6,968	8,442	8,622		
France	847	729	765	696	634		
Netherlands	260	62	189	66	58		
Australia	1,097	1,390	1,446	1,158	597		
United States	25	48	45	24	74		
Germany	617	526	275	21	47		
Central and Eastern Europe - Hungary and Croatia	21	11	37	0	0		
Ireland	3	33	33	33	33		
<b>Flaring/Venting Intensity based on production: e3m3/boe</b>	<b>0.0028</b>	<b>0.0021</b>	<b>0.0022</b>	<b>0.0021</b>	<b>0.0019</b>	<b>2012-2013: operated battery flaring and venting/operated and financial production 2014+: operated battery flaring and venting emissions/operated battery production</b>	<b>11.1.5</b>
<b>Hydraulic Fracturing</b>						<b>Hydraulic fracturing used in Canadian and US operated production</b>	
Percentage of global production from hydraulic fracturing	40	42	37	49	51	% is approximate based on 100% frac'd in US, estimated 73% in Canada, and 0% in Europe and Australia	
<b>Percentage of public disclosure of hydraulic fracturing fluids</b>						<b>All fracturing fluids are disclosed through FracFocus</b>	

MATERIAL TOPIC: ENERGY & EMISSIONS	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
<b>Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level.</b>							
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes as referenced in CDP submissions: boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,680,354	42,202,207	36,865,352	35,634,107	Use for energy and emissions intensity calculations to ensure numerator/denominator alignment	
Canada		100	100	100	100		EN-EP-140a.3
United States		100	100	100	100	No proprietary blends used	
<b>Enhanced Oil Recovery from Carbon Capture and Storage</b>						<b>Based on non-operated production</b>	
Volume of oil and NGLs produced from CCS ops: bbls/d, equity basis	2,321	2,045	2,098	1,753	1,784	Weyburn Carbon Capture and Storage project: non-operated	
CCS ops percentage of total (global) oil and NGLs produced: equity basis	5	4	4	4	4	Global oil & NGLs 2022 Equity/Financial Control: 45,491 bbl/d Global oil & NGLs 2021 Equity/Financial Control: 46,468 bbl/d Global oil & NGLs 2020 Equity/Financial Control: 52.538 bbl/d	

MATERIAL TOPIC: ENVIRONMENTAL INVESTMENT & SUPPLY CHAIN	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for intensity calculations to ensure numerator/denominator alignment	
<b>INVESTMENT IN ENVIRONMENTAL PROTECTION</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>		
<b>Total environmental protection investment: \$CAD</b>	<b>\$44,149,540</b>	<b>\$55,393,529</b>	<b>\$55,100,067</b>	<b>\$58,357,203</b>	<b>\$61,857,935</b>		
Canada	\$18,136,607	\$24,419,157	\$22,676,290	\$31,029,562	\$34,294,129		
France	\$10,624,294	\$11,531,615	\$16,830,423	\$11,673,948	\$11,355,080		
Netherlands	\$7,683,371	\$11,432,724	\$8,017,014	\$9,823,706	\$8,591,943		
Australia	\$787,939	\$1,512,341	\$2,009,973	\$728,905	\$1,684,495		
United States	\$2,469,513	\$1,050,959	\$710,428	\$533,852	\$1,589,982		
Germany	\$850,680	\$1,013,264	\$502,695	\$556,673	\$956,980		
Central and Eastern Europe - Hungary and Croatia	\$66,879	\$0	\$2,925	\$991,806	\$711,836		
Ireland	\$3,530,258	\$4,433,469	\$4,350,320	\$3,018,750	\$2,673,491		
<b>Waste disposal, emissions treatment, remediation</b>	<b>\$17,138,106</b>	<b>\$24,943,941</b>	<b>\$25,668,622</b>	<b>\$18,605,389</b>	<b>\$20,848,095</b>		
Canada	\$4,087,067	\$9,504,433	\$6,702,516	\$7,014,897	\$8,687,308		
France	\$3,311,501	\$5,560,217	\$9,996,283	\$5,601,357	\$5,696,398		
Netherlands	\$3,594,031	\$4,975,903	\$4,760,879	\$2,391,442	\$1,842,105		
Australia	\$380,624	\$392,383	\$240,390	\$138,168	\$566,375		
United States	\$2,094,305	\$192,859	\$81,722	\$84,476	\$376,750		
Germany	\$73,440	\$284,843	\$75,678	\$174,047	\$705,542		
Central and Eastern Europe - Hungary and Croatia	\$66,879	\$0	\$2,925	\$565,737	\$683,667		
Ireland	\$3,530,258	\$4,033,303	\$3,808,229	\$2,635,264	\$2,289,951		
<b>Prevention and environmental management costs</b>	<b>\$11,135,296</b>	<b>\$14,704,369</b>	<b>\$15,780,459</b>	<b>\$9,503,646</b>	<b>\$10,005,530</b>		
Canada	\$7,151,105	\$9,603,658	\$8,980,255	\$5,812,518	\$5,810,794		
France	\$670,348	\$811,168	\$1,644,063	\$1,247,458	\$1,139,960		
Netherlands	\$2,236,031	\$1,689,806	\$1,788,745	\$807,726	\$721,916		
Australia	\$407,315	\$1,119,958	\$1,769,583	\$590,737	\$1,118,120		
United States	\$375,207	\$858,100	\$628,705	\$259,206	\$551,593		
Germany	\$295,290	\$221,513	\$427,017	\$358,098	\$251,438		
Central and Eastern Europe - Hungary and Croatia	\$0	\$0	\$0	\$44,418	\$28,169		
Ireland	\$0	\$400,166	\$542,091	\$383,486	\$383,540		
<b>Discharge of Abandonment</b>	<b>\$15,876,138</b>	<b>\$15,745,220</b>	<b>\$13,650,986</b>	<b>\$30,248,169</b>	<b>\$31,004,310</b>		
Canada	\$6,898,435	\$5,311,067	\$6,993,519	\$18,202,148	\$19,796,026		
France	\$6,642,445	\$5,160,230	\$5,190,078	\$4,825,133	\$4,518,722		
Netherlands	\$1,853,309	\$4,767,015	\$1,467,390	\$6,624,538	\$6,027,922		
Australia	\$0	\$0	\$0	\$0	\$0		
United States	\$0	\$0	\$0	\$190,170	\$661,640		
Germany	\$481,950	\$506,907	\$0	\$24,529	\$0		
Central and Eastern Europe - Hungary and Croatia	\$0	\$0	\$0	\$381,650	\$0		
Ireland	\$0	\$0	\$0	\$0	\$0		
Canadian federal funding leveraged through Abandonment and Reclamation work					\$16,733,522		
<b>Fines for environmental non-compliance</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>		<b>307-1</b>
<b>SUPPLY CHAIN</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>		
<b>Number of new vendors that we pre-qualified using HSE criteria</b>				<b>208</b>	<b>73</b>		
Canada				159	166		

MATERIAL TOPIC: ENVIRONMENTAL INVESTMENT & SUPPLY CHAIN	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for intensity calculations to ensure numerator/denominator alignment	
France				10	24		
Netherlands				0	0	No new vendors in 2022	
Australia				8	3		
United States				20	30		
Germany				4	7		
Central and Eastern Europe - Hungary and Croatia				3	4		
Ireland				4	5		
<b>% of new vendors screened (pre-qualified using health, safety and environmental criteria)</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>All new contractors require HSE pre-qualification to access Vermilion sites</b>	<b>S&amp;P Global</b>
Canada				100	100		
France				100	100	New 2022 vendors working on Vermilion sites, not material vendors	
1197				n/a	n/a	No new vendors in 2022	
Australia				100	100		
United States				100	100		
Germany				100	100		
Central and Eastern Europe - Hungary and Croatia				100	100		
Ireland				100	100		
<b>Number of vendors that we qualify (new vendors), inspect and work with (existing vendors) to improve performance on HSE matters</b>		<b>361</b>	<b>948</b>	<b>1,042</b>	<b>1,197</b>	<b>New reporting in 2019</b>	<b>S&amp;P Global</b>
Canada		108	717	754	816		
France		15	70	87	160	Vendors working on Vermilion sites with HSE Prevention Plan	
Netherlands		10	10	10	10		
Australia		6	6	25	28		
United States		178	121	141	142		
Germany		38	18	6	7		
Central and Eastern Europe - Hungary and Croatia		2	2	15	29		
Ireland		4	4	4	5		
<b>% of existing vendors that we inspect and work with to improve performance on HSE matters</b>							
Canada				100	100		
France				37	64	160 existing vendors of 221 vendors on Vermilion sites with HSE Prevention Plan	
Netherlands				100	100		
Australia				100	100		
United States				100	100		
Germany				100	100		
Central and Eastern Europe - Hungary and Croatia				100	100		
Ireland				100	100		

MATERIAL TOPIC - WASTE	2018	2019			2020			2021			2022			CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185			36,630,232			34,839,540			31,173,190			31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829			36,604,811			34,723,518			31,154,575			31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819			44,708,966			42,202,207			36,865,352			35,634,107	Use for intensity calculations to ensure numerator/denominator alignment	
WASTE	2018	2019			2020			2021			2022			Waste disposal data based on direct confirmation or information provided by the waste disposal contractor	GRI
		Hazardous	Non-Hazardous	Total	Hazardous	Non-Hazardous	Total	Hazardous	Non-Hazardous	Total	Hazardous	Non-Hazardous	Total	2019+ reporting breaks out hazardous and non-hazardous waste	
Waste by type and disposal method - Total: metric tonne	151,230	17,637	118,483	136,120	19,973	74,107	94,079	16,224	138,050	154,273	20,948	121,207	142,155		306-3
Canada	56,140	8,010	70,667	78,677	8,927	57,550	66,477	11,081	98,163	109,245	3,087	79,848	82,935		
France	4,505	1,384	2,589	3,972	619	1,754	2,372	319	224	543	517	1,145	1,662		
Netherlands	58,003	7,694	0	7,694	9,693	0	9,693	4,179	98	4,277	12,652	177	12,829		
Australia	665	89	465	554	163	156	319	453	123	576	234	83	316		
United States	28,578	0	37,753	37,753	0	14,539	14,539	0	38,895	38,895	0	26,577	26,577		
Germany	602	304	2,201	2,505	296	18	315	110	373	483	4,406	81	4,487		
Central and Eastern Europe - Hungary and Croatia	877	0	0	0	0	0	0	0	0	0	0	11,926	11,926		
Ireland	1,860	156	4,808	4,965	274	91	365	81	174	255	53	1,370	1,423		
Reuse: metric tonne	585	0	11	11	0	4	4	0	14	14	0	22	22		306-4
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0		
France	0	0	0	0	0	0	0	0	0	0	0	0	0		
Netherlands	562	0	0	0	0	0	0	0	0	0	0	0	0		
Australia	23		11	11	0	4	4	0	4	4	0	4	4	Wooden pallets	
United States	0	0	0	0	0	0	0	0	0	0	0	0	0		
Germany	0	0	0	0	0	0	0	0	10	10	0	18	18		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0		
Recycling: metric tonne	49,422	1,150	5,078	6,228	1,617	1,882	3,498	1,444	437	1,881	2,458	2,626	5,084		306-4
Canada	13	0	42	42	0	45	45	9	4	13	15	0	15		
France	305	139	46	185	223	1,727	1,950	16	209	225	65	1,084	1,150		
Netherlands	48,956	1,005	0	1,005	1,357	0	1,357	1,414	78	1,491	2,372	154	2,526		
Australia	143	2	71	73	5	60	65	3	85	88	4	41	45		
United States	0	0	136	136	0	0	0	0	5	5	0	22	22		
Germany	0	0	2	2	0	0	0	0	18	18	0	21	21		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ireland	5	4	4,781	4,785	32	49	81	2	39	42	2	1,304	1,306		
Recovery, including energy recovery: metric tonne	301	289	3	292	47	14	61	194	19	213	367	10	376		306-4
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0		
France	0	0	0	0	0	0	0	0	0	0	0	0	0		
Netherlands	0	137	0	137	2	0	2	194	9	203	106	10	116		
Australia	0			0	0	0	0	0	0	0	0	0	0		
United States	0	0	0	0	0	0	0	0	0	0	0	0	0		
Germany	301	152	3	155	45	14	59	0	10	10	260	0	260		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ireland	0			0	0	0	0	0	0	0	0	0	0		
Incineration: metric tonne	1,374	2,122	46	2,168	850	64	914	1,005	141	1,146	873	158	1,031		306-5
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0		
France	1,042	1,244	16	1,260	388	18	406	303	15	318	451	61	512		
Netherlands	23	573	0	573	7	0	7	528	12	540	305	14	319		
Australia	0	0	0	0	0	0	0	0	0	0	0	0	0		
United States	0	0	0	0	0	0	0	0	0	0	0	0	0		
Germany	301	152	3	155	238	4	242	95	5	100	66	42	108		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ireland	8	153	27	180	217	42	259	79	110	189	51	41	92		
Deep well injection: metric tonne	51,514	7,272	77,670	84,942	9,446	41,496	50,942	9,345	93,832	103,177	11,151	68,320	79,471		306-5
Canada	15,365	1,683	41,262	42,945	2,672	28,563	31,235	9,325	61,569	70,894	885	48,557	49,442		

MATERIAL TOPIC - WASTE	2018	2019		2020		2021		2022		CONTEXT	GRI/SASB			
Annual Production - Annual Report figure, financial control: boe	31,853,185		36,630,232		34,839,540		31,173,190		31,093,255					
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829		36,604,811		34,723,518		31,154,575		31,058,580	2018: excludes ~11 months non-op from IBU				
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819		44,708,966		42,202,207		36,865,352		35,634,107	Use for intensity calculations to ensure numerator/denominator alignment				
France	0	0	0	0	0	0	0	0	0					
Netherlands	8,462	5,589	5,589	6,774	0	6,774	21	0	21	6,451	0	6,451		
Australia	0	0	0	0	0	0	0	0	0	0	0	0		
United States	27,687	0	36,408	36,408	0	12,933	12,933	0	32,263	32,263	0	19,763	19,763	
Germany	0	0	0	0	0	0	0	0	0	3,815	0	3,815		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0	0	0	0	0	0	0	0		
Ireland	0	0	0	0	0	0	0	0	0	0	0	0		
<b>Landfill: metric tonne</b>	<b>41,397</b>	<b>365</b>	<b>34,082</b>	<b>34,447</b>	<b>376</b>	<b>28,857</b>	<b>29,233</b>	<b>1,039</b>	<b>34,249</b>	<b>35,289</b>	<b>804</b>	<b>15,514</b>	<b>16,318</b>	<b>306-5</b>
Canada	35,979	222	29,175	29,397	205	28,750	28,955	540	33,892	34,432	274	15,455	15,729	
France	3,151	0	2,527	2,527	8	8	16	0	0	0	0	0	0	
Netherlands	0	56	0	56	5	0	5	49	0	49	40	0	40	
Australia	499	87	383	470	158	92	250	450	33	483	230	37	267	
United States	891	0	17	17	0	8	8	0	13	13	0	22	22	
Germany	0	0	1,980	1,980	0	0	0	0	311	311	260	0	260	
Central and Eastern Europe - Hungary and Croatia	877	0	0	0	0	0	0	0	0	0	0	0	0	
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>On-site storage: metric tonne</b>	<b>0</b>	<b>334</b>	<b>1,405</b>	<b>1,739</b>	<b>1,587</b>	<b>1,341</b>	<b>2,928</b>	<b>1,989</b>	<b>6,659</b>	<b>8,648</b>	<b>3,382</b>	<b>3,260</b>	<b>6,642</b>	<b>306-5</b>
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	
France	0	0	0	0	0	0	0	0	0	0	0	0	0	
Netherlands	0	334	0	334	1,549	0	1,549	1,974	0	1,974	3,378	0	3,378	
Australia	0	0	0	0	0	0	0	0	0	0	0	0	0	
United States	0	0	1,192	1,192	0	1,341	1,341	0	6,614	6,614	0	3,235	3,235	
Germany	0	0	213	213	13	0	13	15	20	35	5	0	5	
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ireland	0	0	0	0	25	0	25	0	25	25	0	25	25	NORM waste
<b>Other – Oilfield Waste Processing: metric tonne</b>	<b>6,637</b>	<b>6,105</b>	<b>188</b>	<b>6,293</b>	<b>6,050</b>	<b>449</b>	<b>6,499</b>	<b>1,208</b>	<b>2,698</b>	<b>3,905</b>	<b>1,913</b>	<b>31,298</b>	<b>33,211</b>	<b>306-2</b>
Canada	4,783	6,105	188	6,293	6,050	192	6,242	1,208	2,698	3,905	1,913	15,836	17,749	
France	6	0	0	0	0	0	0	0	0	0	0	0	0	
Netherlands	0	0	0	0	0	0	0	0	0	0	0	0	0	
Australia	0	0	0	0	0	0	0	0	0	0	0	0	0	
United States	0	0	0	0	0	257	257	0	0	0	0	3,536	3,536	
Germany	0	0	0	0	0	0	0	0	0	0	0	0	0	
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0	0	0	0	0	0	0	11,926	11,926	
Ireland	1,848	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Weight of hazardous waste shipped internationally: metric tonne</b>	<b>90</b>	<b>206</b>		<b>206</b>	<b>270</b>	<b>0</b>	<b>270</b>	<b>147</b>	<b>0</b>	<b>147</b>	<b>57</b>	<b>0</b>	<b>57</b>	<b>306-5</b>
Canada	0	0		0	0		0	0		0	0		0	
France	0	0		0	0		0	0		0	0		0	
Netherlands	69	0		0	0		0	0		0	0		0	
Australia	0	0		0	0		0	0		0	0		0	
United States	0	0		0	0		0	0		0	0		0	
Germany	0	0		0	0		0	0		0	0		0	
Central and Eastern Europe - Hungary and Croatia	0	0		0	0		0	0		0	0		0	
Ireland	20	206		206	270		270	147		147	57		57	
<b>DRILL MUD AND CUTTINGS</b>	<b>2018</b>	<b>2019</b>		<b>2020</b>		<b>2021</b>		<b>2022</b>						<b>GRI 11</b>
Drill mud & cuttings produced using non-aqueous drilling fluid, onshore disposal to controlled sites: tonne	14,970		14,710		17,184		12,549		11,694					
Canada	14,212		9,311		17,184		11,881		10,622					
France	758		854		0		0		0				0	No drilling activities in FBU

MATERIAL TOPIC - WASTE	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for intensity calculations to ensure numerator/denominator alignment	
Netherlands	0	885	0	668	905		
Australia	0	0	0	0	0		
United States	0	0	0	0	0		
Germany	0	0	0	0	168		
Central and Eastern Europe - Hungary and Croatia	0	3,660	0	0	0		
Ireland	0	0	0	0	0	No drilling activities in IBU	
Non-Aqueous drilling fluid re-used at another location (i.e. recovered and transported invert): m3	2,182	0	0	0	1,944		
United States	0	0	0	0	1,944		
Drill mud & cuttings produced using aqueous drilling fluid, onshore disposal to controlled sites: tonne	9,754	12,391	5,872	11,016	12,745		
Canada	4,837	5,689	5,088	6,890	5,777		
France	3,148	2,527	0	0	0		
Netherlands	0	250	43	1,167	585		
Australia	0	0	0	0	0		
United States	891	0	0	289	0		
Germany	0	3,925	0	289	1,251		
Central and Eastern Europe - Hungary and Croatia	877	0	742	2,671	5,132		
Ireland	0	0	0	0	0		
Drill mud & cuttings produced using aqueous drilling fluid, disposal at Vermilion controlled location: tonne	8,620	16,110	17,389	20,398	17,856		
Canada	6,648	14,918	16,048	12,830	11,756		
France	0	0	0	0	0		
Netherlands	0	0	0	0	0		
Australia	1,972	0	0	0	2,865		
United States	0	1,192	1,341	7,568	3,235		
Germany	0	0	0	0	0		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		
Ireland	0	0	0	0	0		
Verification / Certification							S&P Global
Sites where waste data is third-party verified							
Canada			Yes	Yes	Yes		
France			Yes	Yes	Yes		
Netherlands			Yes	Yes	Yes		
Ireland			No	Yes	Yes		
Sites where waste management is ISO 14001 certified							
Canada			Yes	Yes	Yes	Waste contractor is ISO14001 certified	
Australia			Yes	Yes	Yes	Waste contractor is ISO14001 certified	
Germany			Yes	Yes	Yes	Waste contractor is ISO14001 certified	
Ireland			Yes	Yes	Yes	Waste contractor is ISO14001 certified	
Sites where hazardous waste management is HAZWOPER certified							
Ireland			Yes	Yes	Yes		

MATERIAL TOPIC: WATER, INCLUDING PRODUCED WATER	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2015-2016: excludes non-op volumes from GBU & IBU; 2017: excludes non-op from IBU; 2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for water intensity calculations to ensure numerator/denominator alignment	
<b>WATER WITHDRAWALS</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>		
Total water withdrawal including produced water: ML	43,041	70,158	67,202	65,605	62,602	Until 2018, the production and re-use of produced water was reported separately from water withdrawn from other sources. For 2019+, reporting aligned with CDP's definitions & informed by GRI 303 (2018) and SASB EM-EP-140a.1 and 2; included conversion from m3 to ML (ML = m3/1000)	EM-EP-140a.1 303-3
Canada	17,833	39,234	34,852	31,638	30,580		
France	15,730	14,863	13,903	13,709	12,982		
Netherlands	46	25	25	15	13		
Australia	8,795	15,270	17,386	18,912	17,500		
United States	108	326	384	302	393		
Germany	526	397	628	1,005	1,109		
Central and Eastern Europe - Hungary and Croatia	1.1	3.9	1.6	0.9	2.5		
Ireland	2	36	24	24	23.1		
Total water withdrawal excluding produced water: ML	767	7,009	8,248	9,590	9,763	Approximately 85% of water withdrawal is produced water	303-3
Canada	113	187	141	154	334		
France	625	494	581	420	420		
Netherlands	27	11	5	5	7		
Australia	0	6,189	7,398	8,949	8,992		
United States	0	106	109	51	0.32		
Germany	0	3	1.7	0.7	1.0		
Central and Eastern Europe - Hungary and Croatia	1.1	3.9	1.6	0.9	2.5		
Ireland	2	16	12	9	7.8		
<b>Total Water Withdrawal including produced water, by source</b>							
Surface/Freshwater, including rainwater, wetlands, rivers, lakes: ML	16	44	12	124	312	Total dissolved solids <10,000mg/L	EM-EP-140a.1
Canada	16	40	12	124	312	2021 increase offset by reduction in renewable groundwater; 2022 increase due to new Mica operations	
France	0	0	0	0	0		
Netherlands	0	4	0	0	0		
Australia	0	0	0	0	0		
United States	0	0	0	0	0		
Germany	0	0	0	0	0		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		
Ireland	-	0	0	0	0		
Surface/Brackish water, including oceans: ML	213	198	7,398	8,949	8,992	Total dissolved solids >10,000mg/L	
Australia	213	6,189	7,398	8,949	8,992	Only applicable in Australia	
Groundwater - renewable: ML	700	622	691	436	425	Generally shallower groundwater resources that can be replenished/recharged within ~50 years	EM-EP-140a.1
Canada	82	128	116	22	13		
France	618	494	575	414	412		
Netherlands	1	0	0	0	0		
Australia	0	0	0	0	0		
United States	0	0	0	0	0		
Germany	0	0	0	0	0		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		
Ireland	0	0	0	0	0		
Groundwater - non-renewable, excluding produced water: ML	47	106	109	50	0	Generally deeper groundwater resources that have negligible recharge within ~50 years	



MATERIAL TOPIC: WATER, INCLUDING PRODUCED WATER	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2015-2016: excludes non-op volumes from GBU & IBU; 2017: excludes non-op from IBU; 2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for water intensity calculations to ensure numerator/denominator alignment	
United States	47	106	109	50	0		
Groundwater - non-renewable, produced water: ML	42,274	63,148	58,955	56,016	52,838	Includes formation water, flow-back water and condensation water	
Canada	17,720	39,047	34,711	31,484	30,246		
France	15,105	14,370	13,322	13,289	12,562		
Netherlands	20	14	20	9	7		
Australia	8,795	9,082	9,988	9,963	8,508		
United States	108	221	275	251	393	2022 includes third-party produced water volumes (East Finn, Kissack, Tall Grass)	
Germany	526	395	626	1,004	1,108		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		
Ireland	0	20	12	15	15.3		
Third-party sources - Municipal water supplies or utilities: ML	51	49	38	29	35		EM-EP-140a.1
Canada	15	19	13	7	9		
France	7	0	6	6	8		
Netherlands	26	8	5	5	7		
Australia	0	0	0	0	0		
United States	0	0	0	0	0		
Germany	0.1	2.2	1.2	0.7	1.0		
Central and Eastern Europe - Hungary and Croatia	1.1	3.9	1.6	0.9	2.5		
Ireland	2	16	12	9	7.8		
Total Freshwater Withdrawal = renewable groundwater + surface water + third party potable sources: ML	767	715	741	590	772		EM-EP-140a.1 303-3
Total freshwater intensity: ML/operated boe	0.000026	0.000016	0.000018	0.000016	0.000022	Freshwater defined as surface/freshwater + groundwater renewable + third-party sources	
Water sources significantly affected by water withdrawal: #	0	0	0	0	0	Sustained inability to meet human &/or ecological requirements of availability, quality or accessibility	303-1
Water recycled and reused = reduction in water use: ML	0	0	0	0	0		303-1
Water recycled and reused: %	0%	0%	0%	0%	0%	Based on water withdrawals excluding produced water	303-3
WATER DISCHARGE	2018	2019	2020	2021	2022	Effective 2019, water discharge is reported in alignment with CDP definitions for destinations	303-4
Total water discharge all destinations, including produced water: ML		70,158	67,203	65,603	62,599		
Canada		39,234	34,847	31,638	30,580		
France		14,863	13,903	13,709	12,982		
Netherlands		25	25	13	10		
Australia		15,270	17,386	18,912	17,500		
United States		326	384	302	393	2022 includes third-party produced water volumes (East Finn, Kissack, Tall Grass)	
Germany		397	630	1,005	1,109		
Central and Eastern Europe - Hungary and Croatia		3.9	3.9	0.9	2.5		
Ireland		36	24	24	23.1		
Total water discharge excluding produced water: ML	8,896	6,484	8,248	9,168	9,760		
Canada	15	181	136	154	334		
France	0	0	581	420	420		
Netherlands	58	20	5	3	4		
Australia	8,795	6,189	7,398	8,949	8,992		
United States	0	51	109	51	0.3		
Germany	0	2.6	4.0	0.7	1.0		
Central and Eastern Europe - Hungary and Croatia	0	3.9	3.9	0.9	2.5		

MATERIAL TOPIC: WATER, INCLUDING PRODUCED WATER	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2015-2016: excludes non-op volumes from GBU & IBU; 2017: excludes non-op from IBU; 2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for water intensity calculations to ensure numerator/denominator alignment	
Ireland	28	36	12	9	7.8		
Surface/Freshwater, including rainwater, wetlands, rivers, lakes: ML		0	0	0	0		
United States		0	0	0	0.18		
Surface/Brackish water, including oceans: ML		15,272	17,386	18,912	17,500		
Australia		15,270	17,386	18,912	17,500		
Ireland		2	0	0	0	No produced water discharged offshore in 2020, 2021 or 2022	
Groundwater - renewable: ML		3	2	11	65		
Canada		3.3	2.3	11	65		
France		0	0	0	0		
Netherlands		0	0	0	0		
Australia		0	0	0	0		
United States		0	0	0	0		
Germany		0	0	0	0		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	0	0	0		
Groundwater - non-renewable, excluding produced water: ML		0	109	32	0		
United States		0	109	32	0		
Groundwater - non-renewable, produced water: ML		54,592	48,910	46,005	44,275		EM-EP-140a.1
Canada		39,053	34,681	31,442	30,207		
France		14,863	13,322	13,289	12,562		
Netherlands		5	6	0	6		
Australia		0	0	0	0		
United States		276	275	270	393	2022 includes third-party produced water volumes (East Finn, Kissack, Tall Grass)	
Germany		395	626	1,004	1,108		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	0	0	0		
Third-party facilities - Municipal or Private: ML		289	792	643	759		
Canada		178	165	184	308		
France		0	581	420	420		
Netherlands		20	19	13	4		
Australia		0	0	0	0		
United States		51	0.5	0.5	0.3		
Germany		2.2	1.7	0.7	1.0		
Central and Eastern Europe - Hungary and Croatia		3.9	1.6	0.9	2.5		
Ireland		34	24	24	23		
Other - Water still in storage - NL only		0	0	2	3		
Water bodies significantly affected by discharges of water	0	0	0	0	0	Defined as sustained inability to meet human &/or ecological requirements of availability, quality, accessibility	306-5
Volume and % of produced water by disposal method:							
Reused: % and volume	0	0	0	0	0		GRI 11.6.5
Recycled: %	0	0	0	0	0		GRI 11.6.5
Recycled - volume: ML	1	0	0	0	0		GRI 11.6.5
Canada	0	0	0	0	0		
France	0	0	0	0	0		

MATERIAL TOPIC: WATER, INCLUDING PRODUCED WATER	2018	2019	2020	2021	2022	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	31,853,185	36,630,232	34,839,540	31,173,190	31,093,255		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	28,712,829	36,604,811	34,723,518	31,154,575	31,058,580	2015-2016: excludes non-op volumes from GBU & IBU; 2017: excludes non-op from IBU; 2018: excludes ~11 months non-op from IBU	
Annual Production - Operated facility throughput including third-party volumes: boe	29,440,819	44,708,966	42,202,207	36,865,352	35,634,107	Use for water intensity calculations to ensure numerator/denominator alignment	
Netherlands	0	0	0	0	0		
Australia	0	0	0	0	0		
United States	0	0	0	0	0		
Germany	1	0	0	0	0		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		
Ireland	0	0	0	0	0		
<b>Reinjected: %</b>	<b>79</b>	<b>86</b>	<b>83</b>	<b>82</b>	<b>84</b>		<b>GRI 11.6.5</b>
<b>Reinjected - volume: ML</b>	<b>33,450</b>	<b>54,037</b>	<b>48,840</b>	<b>46,028</b>	<b>44,274</b>		<b>GRI 11.6.5</b>
Canada	17,728	39,047	34,711	31,484	30,207		
France	15,105	14,370	13,222	13,289	12,562		
Netherlands	9	5	6	0	6		
Australia	0	0	0	0	0		
United States	83	221	275	251	393	2022 includes third-party produced water volumes (East Finn, Kissack, Tall Grass)	
Germany	526	395	626	1,004	1,107		
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		
Ireland	0	0	0	0	0		
<b>Hydrocarbon discharged within produced water: tonnes</b>	<b>70</b>	<b>73</b>	<b>117</b>	<b>99</b>	<b>68</b>	Refers to discharges to surface water or renewable (shallow) groundwater	<b>EM-EP-140a.3</b>
Canada	0	0	0	0	0		GRI 11.6.5
France	0	0	0	0	0		GRI 11.6.5
Netherlands	0	0	0	0	0		GRI 11.6.5
Australia	70	73	117	99	68.1		GRI 11.6.5
United States	0	0	0	0	0		GRI 11.6.5
Germany	0	0	0	0	0		GRI 11.6.5
Central and Eastern Europe - Hungary and Croatia	0	0	0	0	0		GRI 11.6.5
Ireland	0	0	0	0	0		GRI 11.6.5
<b>Annual Water Consumption: ML</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	Total water withdrawals - total water discharges	<b>303-5</b>
<b>Percentage of workers with fully-functioning, safely managed WASH (water, sanitation and hygiene facilities)</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	New data reported beginning in 2019 to align with CDP	<b>CDP</b>