Vermilion Energy Inc.

Values Matter || 2022 CLIMATE (TCFD) REPORT

Excellence. Trust. Respect. Responsibility.

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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.

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Abbreviations & Terms

Term/Abbreviation	Definition
bbl(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
CO2e	carbon dioxide equivalents
EESG	Economic, Environmental, Social and Governance Issues
GHG	Greenhouse gas
GJ	Gigajoules
GRI	Global Reporting Initiative
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

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President's Message

I am pleased to introduce Vermilion Energy's ninth sustainability report, focusing on how we deliver the strategy and performance that shapes our purpose: to responsibly produce essential energy while delivering long-term value for our stakeholders.

The events of 2022 have highlighted the extent to which affordable and accessible energy is essential to our daily lives. At Vermilion, our response is to ask how we can contribute to solutions to an energy transition that is balanced by the energy security needed not just here at home, but by those around the globe.

Responsible Production

We anticipate governments to strengthen support for renewable forms of energy, and we support this. The past 12 months have shown that we must also provide a stable and reliable bridge, via responsibly produced oil and natural gas, to the time when renewable energy can provide the coverage and consistency needed.

Our contribution to the solutions comprises two phases. The first is providing reliable, responsible traditional energy, as our products are part of the domestic supply of energy in many countries where we operate. Reducing emissions is one of the clearest demonstrations of our commitment to responsibility. This includes our aspirational net zero goal and our near-term target: we have reduced Scope 1 emission intensity by 5% in the last two years, on track to reaching our 15 to 20% by 2025 target.

The investment to achieve this is currently part of our operating and maintenance budgets, but this will change as our emission reduction ambitions ramp up. In the meantime, this supports our disciplined capital approach, and our balance between debt reduction and return of capital.

Energy Evolution

Our second phase of support for the energy transition — or, evolution, as we believe that as the emission profiles of traditional fuels, especially natural gas, are reduced, their role as bridge fuels will continue — is exploring emerging technologies and energy sources. To manage the risks involved in early maturity projects, we are emphasizing technologies such as geothermal, biogas and hydrogen that are closely related to our existing operations, including the potential to repurpose existing infrastructure. We are partnering with organizations that have expertise in these areas, and using our project development process to provide careful risk management while these new technologies become implementable and cost-competitive at scale.

Indeed, partnerships reflect our belief that the broad and critical issues of supplying energy require all stakeholders to offer their expertise, support and solutions — along with a spirit of collaboration that recognizes the oil and natural gas industry as committed to solutions: deploying economically and technically feasible options, and researching those on the horizon.

Caring Culture

While climate-related issues are important, we have always believed that our staff and our communities are essential, not just as part of the ESG equation, but as integral elements in our success.

I am very proud of the way these came together in the past year. Our staff contributed to our matching campaign for the Red Cross's relief efforts for Ukraine, helping us toward a donation of $250,000. And in June, many staff lent helping hands to organizations around our operations, from homeless shelters to food banks, as part of our month of caring. These efforts reinforce our caring culture.

As you read this report, please share any comments or suggestions, including on the energy transition, via our dedicated email. We look forward to sharing the journey with you.

Sincerely,

Dion Hatcher
President

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. [102-15]

8.1 Sustain per capita economic growth

Economic & Operational Highlights

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.

In 2021, Vermilion produced 36.7 million operated boe of oil and natural gas, thereby investing:

- $188 million in wages and benefits to our employees
- $232 million in taxes and royalties in our operating jurisdictions
- $1.16 million in community support
- $53 million in protecting our environment, and
- $818 million to the 9,200+ entities in our supply chain

In the past 12 months, we've made two key acquisitions:

- 2022: Acquired Leucrotta Exploration Inc., providing us with 77,000 net acres of Montney mineral rights with an expected 20+ years of low-risk, self-funding, high-deliverability drilling inventory
- 2021: Entered into an agreement to acquire Equinor Energy Ireland Limited, which will increase our operated interest in Corrib to 56.5% upon closing, expected in H2 2022

Vermilion's 2022 guidance:

- 86,000 - 88,000 boe/d production[1]
- $500 million in capital expenditures

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.

Management and Evaluation

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 stakeholder, including external recognition (see the Awards section of this report), 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 staff (employees and contractors, as of December 2021) located 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. [102-29]

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. exposure to robust end markets that include:

- *North American-based midstream and downstream refiners*
- *Asia Pacific-based refining and lubricant markets*
- *European downstream refiners, and*
- *Key aggregators and utilities.* [102-6]

[1] Including Leucrotta, but excluding Corrib

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 naturally 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/gas production. As a result, these stimulations use a lower amount of pressure, water and other assorted products that are involved in those 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 people 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. [102-15]

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 102-11 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.

OUR SUSTAINABILITY VISION

Vermilion is an energy producer of choice for our key stakeholders:

Our people, shareholders, communities, governments and regulators, customers, partners and suppliers.

Sustainability Policy

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.

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.

Company Performance

From 2017 to 2020, Vermilion was recognized with a Leadership Level rating of A- in the CDP Climate submission. In 2021, consistent with overall scoring of the upstream oil and gas sector, we received a B. Vermilion also received a B for our CDP Water Security submission in 2020 and 2021.

Vermilion continued its"AA" rating in 2022, on a scale of AAA (leader) to CCC (laggard) in the MSCI ESG Ratings assessment, which reflects exposure to industry-specific ESG risks and the ability to manage those risks. [1] 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.

As of July 2022, Vermilion received ISS decile QualityScores of "1" for Environment and "2" for Social disclosures and transparency

In 2020, we were recognized by the Great Place to Work Institute® as a Best Workplace in Canada and Germany (Lower Saxony and Bremen Region).

We have been recognized annually for excellence in governance practices as part of the Globe and Mail annual Board Games survey since 2006. In 2021, we ranked 3rd in our peer group and 7th among Canadian oil and gas companies.

Our geothermal heat partnership with tomato growers in Parentis, France was recognized by the Government of France's 2013 Circular Economy Award for Industrial and Regional Ecology.

Year-over-year recognition by the Canadian Coalition for Good Governance for best practices for proxy disclosure in the area of corporate governance relating to directors' independence and benefits and perquisites. Golden Gavel Award recipient for Best Disclosure of Governance Practices and Approach to Executive Compensation by a small or mid-sized issuer.

About Our Report

Our 2022 Sustainability Report is Vermilion's ninth report on how we manage economic, environmental, social and governance (EESG) factors, including impacts, risks and opportunities, This report covers Vermilion's operated business units, including Canada, France, Netherlands, Germany, Ireland, Central and Eastern Europe Business Unit, Australia) and U.S. It also comprises two reports in one: a full sustainability report, and a Climate/ Task Force on Climate-related Financial Disclosures Report.

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 [102-49]

- 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 long-term projects.

Where updates of previously reported information were required, they are noted in our Performance Metrics. [102-48]

To support validation and review of the report, we engage with sustainability and socially responsible investment analysts on an ongoing basis to support our alignment with ESG frameworks and rating agency recommendations, best practices, and continuous improvement.

Specific data was independently audited or verified by the following organizations: GLJ Petroleum Consultants (reserves), Deloitte (financial); Jacobs (emissions metrics externally verified under ISO 14064-3). [102-56]

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. [102-9]

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 geothermal energy production, including geothermal cogeneration.	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 [102-40]

Exploration	Supply	Production	Transportation	Product Use
• Communities • Government • Investors • Employees • Partners • NGOs	• Suppliers • Employees • Investors • Communities	• Communities • Investors • Employees • Partners • Government • NGOs • Media	• Communities • Partners • Customers/end users • Investors • Government • NGOs	• Customers/end users • Investors • Government • NGOs • Media

Primary issues [102-44] (top three to five identified through stakeholder engagement and issues monitoring)

Exploration	Supply	Production	Transportation	Product Use
• Safety • Environment • Community relations • Regulation • Governance	• Safety • Environment • Efficiency • Supply chain management	• Safety • Environment, including GHG emissions • Community / government relations • Staff relations • Efficiency	• Transport safety • GHG emissions • Spills • Ethics • Stable supply	• Safety • Stable supply • GHG emissions • Cost • Regulation

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.[102-42 ,413-1]

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. [102-43]

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 – 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 following table details how we engage with our stakeholders, topics raised, and how we have responded.
102-40,102-42,102-43,102-44

Identifying Issues

To identify the topics relevant to our sustainability strategy and its integration within the business, 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
- ESG thought leaders, peer companies and media reports [102-15 102-46 102-47 103-1]

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	CDP Climate Change and Water Security Responses
Business updates, analyst conference calls	Reporting recommendations from TCFD, SASB (IFRS), ISSB and EU	Sustainability reporting evolution
Ongoing presentations to investor and industry conferences, with webcasts posted on external Vermilion website and intranet		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
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 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
Safety meetings, including both Vermilion staff and our contractors and partners	Access to opportunities	Focus on operational excellence
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	2021 implementation of our refreshed 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		Implementation of 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, ongoing	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 CDP 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

Material Issues

Environment — Social — Governance

Our issues are cross-referenced to SASB and GRI, and 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 2022 matrix reflects increasing importance for regulatory frameworks and community support, water management, biodiversity and supply chain risk.[102-49 102-46 102-47 103-1]

High

- Critical or immediate risk to health & safety, environment, financial performance, reputation, employee relations, community relations, or social license to operate
- Strong opportunity to significantly increase financial performance or operational efficiency
- Likely reflected in externally and internally stated policies and/or commitments

Medium

- Important but not critical risk; risk may be mid-term (2-6 years)
- Good opportunity to increase financial performance or operational efficiency
- Likely reflected in internally stated policies and/or commitments; may be included in external policies and/or commitments

Low

- Small or no risk; risk may be longer term (6-10 years)
- Does not apply in our geographic operating areas or to our business
- Small or no opportunity to increase financial performance or operational efficiency
- May or may not be reflected in policies and/or commitments

TCFD Report

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, launching our first CDP Climate submission and our first Sustainability Report encompassing ESG impacts in 2014, with data to 2012, aligned with the Global Reporting Initiative (GRI). We have since aligned our sustainability reporting with additional recommendations from the Task Force on Climate-related Financial Disclosure (TCFD), the Value Reporting Foundation (VRF) including the Sustainability Accounting Standards Board (SASB), and the International Sustainability Standards Board (ISSB).

Of note this year, we have maintained our discussion of Governance in this Circular and moved the discussion of Strategy, Risk Management, and Metrics and Targets to 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 (as referenced at sustainability.vermilionenergy.com, under “About Vermilion” and “Our Approach to Business”). The Board therefore 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;

Governance and Human Resources: corporate governance and performance, including ethics; and People practices, including diversity, succession and development;

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

Independent Reserves: reserves and production; and

Sustainability: energy transition, including emission reduction targets; and social impacts, including human rights, community investment, and government and other stakeholder relations.

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. In 2021, 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. This comprises the President, Executive Chairman, Vice President and Chief Financial Officer, Vice President, Business Development, Vice President, International and HSE, Vice President, North America, and Vice President, European Operations.

The President has direct responsibility for sustainability, including climate-related risks. Our Vice President, Sustainability reports to the President, 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 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 in short- (0-3 year), medium- (3-6 year) and long-term (6-50 year) horizons. These are described 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 annual CDP submissions provide additional information: see "Download Reports" at sustainability.vermilionenergy.com.

Issue	Description of Impacts[1]	Potential Financial Impact	Management Approach: Business, Strategy, Financial Planning
Short-term Transition Risks (0-3 Years)			
Policy and Legal: Increased Pricing of GHG Emissions e.g. Carbon Tax	Impact on Financial Performance: increased direct costs, impacting the Income and Cash Flow Statements Short-term: Carbon taxes are set to increase in several of our jurisdictions, resulting in increasing costs Canada: The Canadian Federal Greenhouse Gas Pollution Pricing Act has set carbon tax rates at $50 per tCO2e in 2022, rising to $170 by 2030. Ireland: EU Emissions Trading Scheme cap and trade system requires users to acquire carbon allowances to account for their emissions; Ireland carbon tax: €41 in 2022, increasing by €7.50/t annually to 2030 Germany: German National Emissions Trading System established in 2021; fixed cost of €30/t in 2022, increasing to €55/t by 2025 with market pricing from 2027 Netherlands: indirect carbon tax established in 2021; cost impact is limited Dynamic materiality: Carbon pricing is vulnerable to changes in governments and associated policy. We note a political focus in the EU, Canada, USA and Australia on a COVID-19 economic recovery that is both climate-focused and responsive to social justice issues such as labour practices, and the potential for carbon pricing in the US and Australia based on environmentally focused governments.	Financially material: without mitigation, carbon taxes could exceed $11MM/year by 2025 and $16.5MM by 2030 Sensitivity Analysis / Simulation: Based on existing carbon tax costs plus forecasting via government-announced or likely carbon pricing, which we input into our Emissions Long Range Planning Tool, the financial impact increases as follows (approximate figures, before mitigation): Canada: $2MM (2022) to $8MM (2025) Ireland EU ETS: $2.8MM (2021), 3.2MM (2025), $4 to 5MM (2030) Ireland Carbon Tax: $0.2MM/year 2021-2030 Germany: $.2MM in 2021	Mitigate – Financial Planning: Our exposure is mitigated in Canada by provincial responses to the federal Act, including Alberta's Technology Innovation and Emissions Reduction (TIER) regulation and Saskatchewan's Output-Based Pricing System (OBPS). We voluntarily opted into TIER, for example, which provides tax exemptions contingent on emissions reduction. However, these programs will evolve with the federal approach, with emission reduction requirements becoming more stringent over time. Mitigate – Strategy: Continue to reduce the energy and emissions intensity of our operations, supporting our carbon strategy's emission reduction targets (2025 and 2030), and: - Use of our Emissions Long Range Planning Tool to establish the tax reductions available compared to carbon abatement costs, analyze potential acquisitions and divestments, and allocate capital to emissions reduction projects - Develop an initial net zero strategy in 2023 to support our net zero by 2050 target, with business unit and operational input Accept – Strategy: In addition, we: - Track evolving taxation requirements - Engage external and in-house experts to support tax strategy development, including accepting the tax expense where carbon abatement costs are uneconomical
Policy and Legal: Enhanced Emissions-Reporting Obligations	Impact on Financial Performance: increased indirect costs, impacting the Income and Cash Flow Statements Impact on Financial Position: non-alignment potentially impacts access to capital and debt markets, equity price, creditworthiness and exposure to divestment risk Anticipating changes to and maintaining alignment with emissions reporting obligations is related to two distinct risks: 1. Jurisdictional emissions reporting: each of our operating regions has their own distinct reporting regime, many of which are changing annually to keep pace with additional expectations in this area 2. Sustainability reporting standards: we are managing the emergence of four standards that will impact reporting expectations, including data auditability, by 2025: International Sustainability Standards Board; European Sustainability Reporting Standards; Canadian Securities Administrators Climate-related Disclosure; and the US Securities and Exchange Commission Climate Disclosure	Operationally material: Jurisdictional and Securities compliance is non-discretionary Direct Measurement: Financial impact is measured in terms of staff time required to monitor and evaluate reporting obligations, and develop company responses to ensure we remain aligned, including quantification of emissions, and the data gathering and processing necessary to support and streamline these efforts. Staff time and data capacity is estimated at $0.5MM annually ($50K per BU and corporate office staff time; $100K data support).	Mitigate – Strategy: - In Canada, we implemented emission data gathering software in 2021 - Company-wide, we are improving and automating data gathering and processing capacity in 2022/2023 Accept – Strategy: - Monitor jurisdictional emissions reporting obligations on an ongoing basis - Engage stakeholders relating to emissions reporting obligations to better understand expectations - Work with industry associations such as Canadian Association of Petroleum Producers to review emerging standards and provide feedback to standard-setting bodies - Plan company response to ensure alignment

Issue	Description of Impacts[1]	Potential Financial Impact	Management Approach: Business, Strategy, Financial Planning
Policy and Legal: Mandates on and Regulation of Existing Products and Services: Changes in Climate-related Regulations, including Emissions, Water and the Environment Technology: Costs to reduce emissions	Impact on Financial Performance: increased direct costs to maintain compliance, including CAPEX, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to decrease asset value, impacting the balance sheet Emissions regulations are becoming more stringent in many of our regions, including: - Canada: Canada's 2030 Emissions Reduction Plan; Target to Reduce Methane from the Oil & Gas Sector by 40-45% by 2025 and 75% by 2030 (2012 baseline); Support for Global Methane Pledge - France: Hulot Law; Commitment to End Routine Flaring by 2030 - Netherlands: Plan to Reduce Nitrogen-based Pollution in line with EU rules Water regulations have become more restrictive in Germany, where drilling in Water Protection Zones is no longer permitted. We believe it is reasonable to expect more stringent water regulatory approaches in areas of Canada and France should drought conditions occur. Environmental regulations are evolving in the United States, particularly with respect to oil and gas leasing on federal lands, including lands offered for lease by the Bureau of Land Management, where leases were halted, then reinstated but with fewer acres available. While this did not impact our operations or planning, we monitor such regulatory changes to ensure our strategy manages them effectively.	Operationally Material: Jurisdictional compliance is non-discretionary Dynamic materiality: may increase financial materiality 2025-2030 Budgeting forecast tools: capital investment of $10MM will likely be required between 2021 and 2025 to meet our Scope 1 emission intensity 2025 target; however, significant portions of this incorporate operationally important upgrades that are economic based on efficiency gains or maintenance requirements. This phase of emission improvements also benefit by reducing carbon taxes in some jurisdictions. As we progress to emissions that are more challenging to reduce, it's likely that capital investments will need to increase; however, as carbon taxes also rise and carbon markets solidify, we expect abatement costs to be economical for many projects.	Mitigate – Strategy: Evolving regulatory requirements feed into our long-term business strategy, which incorporates carbon reduction, including energy efficiency, emission reduction, and new technologies and processes. This includes our two emission reduction targets. Tying in vented equipment to flaring infrastructure in Canada is an example of projects completed to address this risk; in Netherlands we have used NOx scrubbers and purchased NOx certificates for various drills. We work with external partners to further implement and develop emission reduction technologies that are economic, in part due to the potential generation of carbon credits. We have a careful, deliberate approach to project development, to mitigate the risk of investing in unsuccessful technologies. Mitigate – Financial Planning & Capital Allocation: - All Risk Register cases are assessed annually for potential sustainability-related impacts, including those climate-related - Emission reduction and water requirements and intensity are factors in budget decisions for capital and operating expenses - Emission and water intensity and other ESG considerations are factors in M&A and divestment decisions - Collateral considerations such as training are included in mitigation Accept: - In Germany, we have completed work with the local industry association in support of the government's ban on activity in Water Protection Zones - Regulations are monitored in all business units and reported quarterly to the Executive Committee and the Board

Issue	Description of Impacts[1]	Potential Financial Impact	Management Approach: Business, Strategy, Financial Planning
Short- to Medium-term Transition Risks (0-6 Years)			
Market, Legal and Reputation: Changing Customer Behaviour; Perception of Sector; Changing Market Signals; Exposure to Litigation; Increased Stakeholder Concern	Impact on Financial Position: potential to decrease share price and shareholder equity, impacting the balance sheet and restricting access to or increasing cost of credit of capital and debt These risks are allocated into one category, as they are deeply interconnected. We have seen significant negative perceptions of the oil and natural gas industry prevail over the past several years from various governments, communities, investor associations and other stakeholders. This can impact valuations, restrict licensing and permitting, lead to stakeholder concerns and opposition to our activities, and increase the risk of climate-related litigation. In 2022, however, energy security and affordability issues highlighted the importance of multiple energy forms being part of a deliberately planned energy transition that includes responsible oil and natural gas production – e.g. the European Union's decision to consider natural gas a transition fuel – to provide a bridge while renewable energies are building capacity. We expect current energy security concerns to maintain the need for oil and natural gas production while directing increased capital and urgency towards renewable energy in the short to medium term.	Financially material based on a proxy approach. The impact of decreased consumer confidence and perception is challenging to calculate; however, on a per share basis, the market impact of the loss of $1 per share would be approximately $162.4MM in enterprise value as of March 2022.	Mitigate – Business Model: Our business model prioritizes the responsible production of oil and natural gas to support energy security and accessibility. Our low-carbon strategy includes exploring new and evolving technologies and processes to identify synergistic fits for our business in both traditional and renewable energy production, particularly where have identified potential to repurpose our infrastructure to support the energy transition. We are focusing initially on geothermal and biogas, with early stage exploration of the potential for hydrogen and carbon capture, depending on the jurisdiction. Mitigate – Strategy: Based on stakeholder engagement, Vermilion believes that independent assessments of our operations by third parties demonstrate our responsible approach to production of essential energy. We have sought and achieved limited assurance of our Scope 1, 2 and 3 emissions data; Equitable Origin responsible gas producer certification for 3 sites in our West Pembina region in Canada, the AFNOR CSR Committed label in France, and the Business Working Responsibly Mark in Ireland. Accept: Our Public and Government Relations staff engage with a variety of key stakeholders in all business units to help inform their and our strategy development

Issue	Description of Impacts[1]	Potential Financial Impact	Management Approach: Business, Strategy, Financial Planning
Short- to Medium-term Physical Risks (0-6 Years)			
Acute: Increased Severity of Extreme Weather Events such as Cyclones, Floods, Wildfires, Windstorms	Impact on Operations and Financial Performance: increased direct costs to repair damage, increasing insurance costs as coverage premiums rise, decreased production due to facility shut-ins, both impacting the Income and Cash Flow Statements Impact on Financial Position: potential to decrease asset value, impacting the balance sheet Vermilion owns and operates an offshore platform in the Wandoo field off northwestern Australia, co-owns and operates the Corrib project off the Irish coast, and owns and operates oil fields in the coastal area of SW France. As climate effects such as hotter and drier conditions evolve, increased severe weather events have the potential to directly impact our offshore operations resulting in down time or damage to infrastructure, and can impact the downstream handling capacity of our partners, resulting in a limitation to the distribution and sale of our products. Onshore flooding and wildfires are an identified risk in other locations, including our Calgary corporate office (e.g. flooding occurred in 2013, now mitigated through various government projects) and our field locations (e.g. wildfires are already a known risk in Canada and France).	Financially Material based on Wandoo Platform Probabilistic Modelling (catastrophe model): Based on the value of the Wandoo Platform and a 1-in-10,000-year cyclonic event, the financial implications associated with damage are estimated at $470MM (impact after insurance). Scenario Analysis: The operational and financial impact of shutting-in assets (e.g. due to cyclones) is assessed using our Live Forecasting and Long-Range Planning Tools. E.g., based on 2021 production and netback data, Wandoo's impact would be $0.2MM per day, although business interruption insurance coverage could mitigate this.	Mitigate – Strategy: Our robust asset integrity program maintains our facilities to appropriate design specifications (e.g. at Wandoo, to CAT 5 hurricane force). Via our Emergency Response Plan and business continuity plans, we also have detailed protocols for monitoring, preparing for, and responding to severe weather events. Transfer: We purchase insurance as a mitigative measure to reduce the financial impact associated with damage to our assets due to severe weather events. Accept: We track evolving weather trends, such as cyclone season in Australia, wildfire seasons in Canada and the United States, and winter snowpack levels in Alberta.
Long-term Transition Risks (6-50 Years)			
Policy and Legal and Technology: Substitution of products and services with lower emissions options Mandates on and Regulation of Products and Services: e.g. bans on internal combustion engines, natural gas stoves & heating, etc.	Impact on Financial Performance: decreased sales and revenue of our traditional products, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to decrease asset value, impacting the balance sheet Although we see demand for oil and natural gas remaining robust in the short- to mid-term, it is likely to fall as the energy transition evolves and various alternatives for renewable energy options become technologically and economically feasible and accessible. This could impact the need for our products long-term, post 2030-2035 for oil, particularly as bans such as on ICE vehicles take effect. However, based on long-term demand and transition scenarios[2], demand for natural gas declines significantly less than oil towards 2050, and potentially remains robust as carbon reduction and removal technologies improve and scale up. As 2021 and 2022 have demonstrated, it will be critical to maintain adequate supplies of both oil and natural gas during the energy transition, to provide energy security and affordability.	Dynamic Materiality: could become financial material (2030-2035+) Scenario Analysis: 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, identifying and exploring potential opportunities that would mitigate the risk to our product mix.	Mitigate – Business Model 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 carefully 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; our deliberate approach to project development, with stage gates and off-ramps built in, is designed to minimize the risk and capital involved in investing in technology or processes in early stages of development.

Issue	Description of Impacts[1]	Potential Financial Impact	Management Approach: Business, Strategy, Financial Planning
Long-term Physical Risks (6-50 Years)			
Chronic: Changes in Temperature Extremes, Including Rising Mean Temperatures	Impact on Operations and Financial Performance: increased direct costs, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to decrease asset value, impacting the balance sheet A decrease or increase in temperature extremes (i.e. lower seasonal lows, higher seasonal highs) could result in an increase in fuel gas for a variety of equipment, along with additional equipment (e.g. building and line heaters). This would require additional resources (infrastructure) and increase emissions. Temperature extremes could also increase capital costs associated with drilling, completion and workover operations due to increased timelines, decreased productivity, equipment breakdown, etc. For example, warmer winters decrease our ability to access lands and increase construction capital requirements for our Canadian operations.	Not currently forecast as financially or operationally material Modelling: The financial implications on an annual basis are difficult to quantify; however, the most significant financial implications would result from shutdowns in drilling or completions locations. The estimated average cost is $0.14MM per day of delay in Canada.	Mitigate – Strategy: We reduce the potential impact related to access in remote assets by using multi-well pads wherever possible. This significantly decreases capital considerations in the event that limited frost days occurred, while reducing the aerial impact of these activities, minimizing habitat fragmentation and reducing carbon emissions associated with lease construction and equipment mobilization. We also plan our activity at appropriate times of year as weather conditions allow (i.e drill in winter if summer temps become extreme) Accept: As weather extremes cannot be controlled, we will continue to monitor this risk in all our jurisdictions on a case-by-case basis.
Chronic: Changes In Precipitation Patterns and Extreme Variability in Weather Patterns	Impact on Operations and Financial Performance: increased direct costs, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to decrease asset value, impacting the balance sheet Vermilion holds assets inland, in coastal regions and offshore where a change in precipitation could negatively impact operations due to drought or flooding. Flooding could result in limited access to locations / facilities, and poses a risk to our corporate headquarters (significantly mitigated since flooding occurred 2013). Alternatively, drought conditions could impact the availability of surface and / or groundwater, which Vermilion, in part, relies on for drilling and completion activities, and could negatively impact forecasted growth by increasing timelines and capital costs to bring new infrastructure onto production. This could also increase the likelihood of wildfires.	Financially material Asset-specific hazard identification: The financial implications of a one-time event (e.g. wildfire) are assessed on a case-specific basis, and are estimated to be greater than $10MM.	Mitigate – Strategy: - As these incidents are out of Vermilion's control, we take all measures possible to ensure effective emergency response to extreme weather events, to ensure the protection of the health and safety of our workers, contractors and the public, the protection of the environment and limitation of financial impact of the event. - In the case of a longer term extreme precipitation event or drought, Vermilion would implement water management programs to reduce our reliance on fresh water sources to limit the potential impact on operations. - In the event of a wildfire, we would eliminate water diversion and/or shut-in production to protect the health and safety of our workers, and the community. - We invest >$0.5MM in emergency response training annually. Transfer: We maintain insurance coverage for natural disasters such as wildfires with specific deductibles, under which we self-insure.
Chronic: Rising Sea Levels	Impact on Operations and Financial Performance: increased direct costs, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to decrease asset value, impacting the balance sheet Vermilion owns and operates assets in the Netherlands, where we have assessed the potential risk associated with rising sea levels. This could physically impact our operations due to issues such as flooding, transportation difficulties and supply chain interruptions. Rising sea levels also pose a threat related to the salinization of groundwater.	Not currently forecast as financially or operationally material in the short or medium term; could potentially be material in the longer term Asset-specific hazard identification: We have estimated that a rise in sea level could have a maximum foreseeable financial impact of $107MM at our main gas processing facility Garijp (GTC) in the Netherlands, caused by an extreme 1-in-10,000-years tide/extreme wind event, and including physical damage, environmental clean-up, third-party liability and business interruption.	Transfer: We maintain insurance coverage for natural disasters such as flooding with specific deductibles, under which we self-insure. Accept: Other than conventional berm protection, there is no measure available to protect Vermilion's assets in the Netherlands if water levels rise to a level resulting in one of our main facilities being flooded by sea water. Based on Vermilion's assessment of the probability of these events occurring over the next 5 years being less than 0.05%, we have accepted this level of risk exposure. We review this risk in our annual risk management process.

Issue	Description of Impacts[1]	Potential Financial Impact	Management Approach: Business, Strategy, Financial Planning
Short-term Opportunities (0-3 Years)			
Products and Services, Energy Source and Resilience: Development of New and Low-Emission Products and Services through R&D and Innovation; use of new technologies; and participation in renewable energy programs	Impact on Financial Performance: increased R&D costs and increased revenue, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to decrease liabilities, impacting the balance sheet The long-term transitional risk associated with the substitution of low-carbon products, also provides an opportunity to participate in their development. For example, we are evaluating the potential to reuse our current infrastructure to provide alternative products, such as biogas or hydrogen, and to develop new products such as geothermal energy, creating new revenue streams. An example of this opportunity is the geothermal heat we are providing from the produced water in our oil operations in France to support sustainable agriculture, residential and education projects near our operations.	Potential for Financial Materiality These opportunities are medium- to long-term from the perspective of revenue generation, but short-term for the launch of R&D. As they are in the early stages of assessment, it is difficult to quantify the financial impact, but it is estimated at up to $2.0MM per year in revenue. Potential also exists for significant cost adjustments to ARO, as assets slated for abandonment would be repurposed to enable them to continue to generate energy.	Business Model: 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, along with memberships in geothermal associations in Netherlands and Germany. We have also developed clear criteria for approving the move of these ideas into and through our project development process, which provides clear gates and criteria for considering and implementing such projects. Another example is our partnership in Hylight, a 3-year project in Ireland that aims to provide the knowledge, data and tools to guide the cost-effective decarbonisation and roadmaps for sustainable large-scale implementation of hydrogen technologies.
Markets: Access to New Markets	Impact on Financial Performance: increased revenue, impacting the Income and Cash Flow Statements 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 3,810 bbl/d of low sulphur crude oil that meets the needs of refineries to comply with IMO regulations.	Our Wandoo crude is primarily sold to lubricant producers; however, greater proportions may become available to the low sulphur fuel oil market for refining or blending directly in 2023. A financial impact would be available closer to that date.	Strategy: Vermilion continues to access local markets for our low sulphur production. Financial Planning: Our Marketing group works with Operations to ensure Vermilion meets its contractual obligation with our buyers in terms of volumes, delivery dates and crude quality, thus maintaining our reputation of being a reliable source of low sulphur feedstock to refineries.
Products and Services: Ability to Diversify Business Activities; Shift in Consumer Preferences	Impact on Financial Performance: increased direct costs of certification, increased revenue from premium pricing, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to increase asset value, impacting the balance sheet 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 producer of choice, providing us with opportunities not available to other organizations.	Potential for Financial Materiality The financial impact of changing consumer preferences is difficult to quantify. We foresee revenue opportunities in two distinct areas. 1. In our customers 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 $31MM/year based on $1 at 2021 production levels. 2. Access to more stringent markets, supported by our environmental and sustainability performance. Vermilion has entered into the German, Hungarian, Croatian and Slovak oil and gas operations in the past decade, which our sustainability performance has supported.	Strategy: Based on stakeholder engagement, Vermilion believes that independent assessments of our operations by third parties demonstrate our responsible approach to production of essential energy, and have the potential to generate a 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 and our use of methane performance certificates; while we are currently realizing a small premium associated with the sale of responsibly produced natural gas, future consumer preferences may demand that all fuels be certified – we will be in a strong position should that evolve.

Issue	Description of Impacts[1]	Potential Financial Impact	Management Approach: Business, Strategy, Financial Planning
Medium-term Opportunities (3-6 Years)			
Energy Source: Voluntary Participation in Carbon Market	Impact on Financial Performance: increased revenue, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to increase asset value, impacting the balance sheet Under the EU ETS Directive in effect to 2030, we anticipate an active demand market for the offset credits generated at some of Vermilion's sustainability initiatives. This shift in the cap and trade scheme may provide opportunities for Vermilion to generate certified energy reduction / offset credits through our geothermal projects in France.	Vermilion is not accounting for any short term financial impact while the carbon market and international regulations around carbon offsets are developed through 2022-23 and beyond. This may move into a short-term opportunity based on the final versions.	Strategy: We are currently evaluating the benefit that certified offset credits from various emission reduction projects across our operations could provide. 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.
Products and Services: Shift in Consumer Preferences	Impact on Financial Performance: increased revenue, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to increase asset value, impacting the balance sheet Under the Canadian Environmental Protection Act and based on commitments made by the Canadian and Alberta governments and energy utilities relating to COP21, coal-fired power generation is being replaced by with natural gas. 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 change on gas pricing is anticipated to be low, increasing to medium in the medium- to long-term; however, it is difficult to isolate it from other forces in the energy pricing market. As a natural gas producer, Vermilion would benefit from an increase in marketable prices for natural gas in our Canadian operations. Based on 2021 production, an increase in gas price of $1 per MCF would increase annual sales by approximately $85MM.	Strategy: As we move further into the energy transition, we foresee natural gas playing an impactful role as a less carbon intense fuel than 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, and our 2022 acquisition of Leucrotta, providing us with access to natural gas in the Montney in NE British Columbia and NW Alberta. Vermilion's marketing team also actively pursues options for our natural gas production that enable Vermilion to achieve the optimum netbacks on production.
Long-term Opportunities (6-50 Years)			
Energy Source: Shift Toward Decentralized Energy Generation	Impact on Financial Performance: increased revenue, impacting the Income and Cash Flow Statements Impact on Financial Position: potential to increase asset value, impacting the balance sheet 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 in Europe 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.	On an operating netback (sales) basis, based on 2021 data, the financial premium of our non-Canadian assets was $525MM	Vermilion continues to assess where we can access local markets for our production, and to communicate to regional and national governments the importance of domestic supply to support energy security and affordability. We also have exploration and development programs in regions with relatively low energy production as compared to consumption (e.g. Hungary).

Notes:

(1) Risk summary is based on our fiscal year 2021 environmental reporting. Fiscal year 2022 environmental reporting will be available in mid-2023.

(2) Executive summary – World Energy Outlook 2021 – Analysis - IEA ; Global Energy Outlook 2022: Turning Points and Tension in the Energy Transition (rff.org)

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 examined two energy transitions 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 2ºC. 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 and beyond, 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, below, for more information.

Our strategy to ensure our resilience under various scenarios 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: Alternative energy. 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.

In addition, we identified two further pillars of our sustainability strategy that are integral to managing 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.

Risk Management

Vermilion's board and senior leadership provide risk oversight, including for sustainability-related risks such as climate.[102-30]

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 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.

Our staff help develop systems, standards and procedures. 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, communities and landowners, and non-governmental entities.

The results are incorporated 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 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.

Every risk case has also been assessed to determine where sustainability- or climate-related risk is a contributing factor. The results are provided annually at minimum to senior management, the Executive Committee and the Board and its Committees as appropriate, who further assess the risks including interdependencies.

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 our Finance, HSE, Operations and Sustainability teams.

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 (unrisked 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.

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.

In 2021 and 2022, we developed and piloted a an Emissions Long-Range Planning Tool, which uses our 10-year projections of production to estimate our Scope 1 and 2 emissions, associated carbon taxes, and 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.

Targets & Metrics

Sustainability- and Climate-Related Risks and Opportunities

Our sustainability reporting describes significant economic, environmental, social and governance measures, which are reported with reference to CDP, SASB 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; and Environmental investment
- **Social:** Health and Safety; People; and Community investment
- **Governance:** Ethics

These metrics contribute to our performance for CDP Climate, S&P Global Corporate Assessment and Sustainalytics scores, which comprise 10% of the Corporate Performance Scorecard for our Long-term Incentive Plan. In addition, HSE metrics comprise 25% 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) include elements such as HSE inspections and audits, finding closeout, compliance and regulatory inspections, and emergency response exercises.
- Lagging indicators (outputs) include elements such as lost time incidents, total recordable injuries, motor vehicle accidents, and liquid spills and releases. These plans apply to all employees, including our executive team.

Thus, sustainability- and climate-related performance is linked not only to executive but also 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 2021 carbon tax was $40 per tCO2e, and in Ireland, carbon pricing was 52 € per tCO2e. Further information is available in the Strategy section and in our CDP Climate submission, available at sustainability.vermilionenergy.com in the Download Reports section.

In addition, we benchmark our performance via third-party ESG rating agencies, including:

- CDP Climate Change and Water Security: CDP Climate and Water scores of “B” in 2021 have us tied for the top decile for our industry
- 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. A decile score of “1” indicates lower governance risk, while “10” indicates higher risk.
- MSCI ESG Rating: In 2022, Vermilion maintained our AA rating.
- S&P Global Corporate Sustainability Assessment: Vermilion was top of our peer group in the 2021 Assessment, and was selected for inclusion in The Sustainability Yearbook 2022, reflecting sustainability performance within the top 15% of our industry.
- Sustainalytics ESG Risk Rating, which is available on the Sustainalytics 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 announced two emission-related targets in 2021:

- A commitment to 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 second target.

This will be 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. Going forward, we will be setting new targets every five years, building on this foundation while exploring broader options, including the potential to reduce Scope 3 emissions.

We will track our performance using Scope 1 and 2 absolute and intensity emission metrics.

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 tCO2e 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 2022, and was adopted in our Ireland Business Unit in 2021.
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: 2021 production was 57,985 MWh of geothermal energy primarily from the Parentis site, with additional input from the La Teste site, and two other sites that launched in late 2021
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	On track: 55% reduction achieved in 2021
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.	On track: 57% achieved in 2021
Scope 1 GHG emissions	Set in 2021: Reduce Scope 1 intensity by 15-20% from our 2019 baseline year by 2025.	On track: 5% reduction achieved in 2021

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 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 venting, flaring (which typically achieves 98% combustion efficiency), storage and process/instrumentation.

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 CH4 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 is currently tracking beyond the target:

- Reduced absolute emissions/year by approximately 186,231 tCO2e, or 55% (compared to 2018 baseline of 340,926)
- Reduced absolute methane emissions/year by 78,189 tCO1e, or 57% (compared to 2018 baseline of 136,714)

These assets would have been in production regardless of whether we were the operators. Our philosophy is that if we bring higher emissions profiles into the company, we seek to improve them.

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 CO2 from a utility in North Dakota to use in enhanced oil recovery (EOR), after which the CO2 remains permanently sequestered in the field. In 2021, our partnership accounted for 2,065 bbls day, or approximately 4% of our total production on an equity basis.

CNG Replacement for Diesel and Propane in Canada

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 CO2 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 therefore continued in our drilling and completions program.

Given the success of the trial, the project was continued into 2021 with CNG now representing approximately 20% of our 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 manufactures 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 CO2e/KWh, the operating EFOY units represented an estimated CO2e savings of approximately 100 tonnes in 2021.

Additional Projects

Continuing a project initiated in 2019, we converted an additional 69 high-bleed pneumatic devices to low-bleed units in 2020. Based on the equipment supplier's data, this is expected to reduce vented emissions by approximately 4,804 tCO2e/year.

Installation of a HB2LB Pneumatic device in Canada in 2020 with an estimated reduction of 40,600 tonnes/yr CO2 equivalent.

We 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 tCO2e/year.

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.

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. Because the incinerator runs at a much higher temperature (900°C instead of 400-500°C) and combusts the gas in a much taller, 9-metre stack, significantly more of the gases – such as methane, sulphur oxides and nitrogen oxides – are safely incinerated, minimizing the gas that has to be flared.

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 through 2022.

Ireland: We began purchasing power from 100% renewable sources via our electricity provider in 2021.

Power Efficiency

Canada: Replacement of traditional thermoelectric (TEG) power generating devices at remote production sites to hybrid solar/ methanol fuel cell units: Unlike TEG units that run (and therefore consume fuel) continuously, the hybrid units run on demand only. Based on manufacturer 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 CO2e/KWh, the operating EFOY units represented an estimated CO2e savings of approximately 100 tonnes in 2021.

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 60 tonnes when compared to traditional, fuel-based power generation.

Other solar power initiatives that were implemented in 2021 include: installation of solar powered remote monitoring devices; installation of new solar equipment in conjunction with our 2021 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 of approximately 20 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 three drilling operations completed between 2019 and 2021, we reduced NOx emission exposure associated with our Netherlands operation by 960 kg NOx, or 10% compared to the base case, by using NOx scrubbers on our drills. We anticipate 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.[203-2]

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 catalyzing 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 heating 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.[G4-OG2/3]

Expanding beyond

In Parentis, our commitment to provide heat free-of-charge and free of carbon emissions for 25 years made the Tom d'Aqui greenhouse operation profitable to build and operate, which has enabled the cooperative to expand their business to other locations nearby. 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

We are incredibly proud of the role we played in catalyzing 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.

Sharing Our Expertise

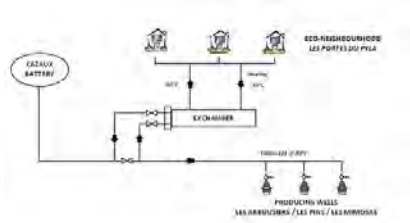
Based on our success, we supported AVENIA, an industry partnership that advises the French government on energy, to launch an industry and country-wide study to identify the potential for waste energy use from oil and gas operations. In addition to contributing financial support, we provided the expertise 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 recycled geothermal energy to heat 550 apartments, saving 50% of the heating bill for the residents and 500 tonnes per year of CO2. The community, which has reserved one third of the apartments for low-income social housing, also features 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 m3/ 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.



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 Archachon college in late 2021.

Feature: Low-Carbon 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) is targeting 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, which 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. As of June 2022, SPF Group has located their head office at our location.

Combined Gas and Geothermal Exploration

This work in Noord Holland focuses 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.

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 with respect to climate change and the energy transition. We engage directly with government representatives when we believe we can make a difference in creating policy and regulation decisions to support the participation of oil and natural gas companies in the energy transition, so that we can be part of the solution.

Vermilion supports the goals of the Paris agreement and governments' actions 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.

Our position is that 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.

We are aware that the trade and industry associations we belong to may, as part of their roles, represent their membership by advocating for government policy and regulations. We monitor that advocacy to ensure that it fairly represents our position and the goals of the Paris agreement.

To support this, we annually review all memberships to assess alignment, and provide our Executive Committee and Board of Directors Sustainability Committee with a summary, including misalignment and recommendations. In 2022, three associations had no commitment or equivalent to the Paris agreement, and one had lobbying activities misaligned with Paris. When there are discrepancies between the organization's position and ours, we engage with the association to understand and influence the issue. We consider withdrawal of membership only if no improvement proves likely.

In 2021, we did not engage lobbying firms to acto on our behalf. Our membership fees in industry and trade organizations totalled $1.7 million.

We actively participate in government industry working groups, often at government request. These are generally designed to seek our expertise on technical aspects, and use our input as one of many stakeholder positions to be considered prior to setting out regulatory or legislative 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 industry and other associations

Advocacy Registries

We provide reporting on our engagements with public officials based on the regulations in place in our regions; these include:

France: Vermilion's report for the High Authority for the Transparency of Public Life Report.

Ireland: Quarterly reporting to the Register of Lobbying.

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*

France: *support for the transformation of industrial and extractive sectors in the service of the regions*

Netherlands: *advocacy for the role of small natural gas fields during the energy transition, including government adherence to legal timelines for permitting to support gas production, and advocacy that part of the revenues from gas production should be invested locally*

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 the Corrib 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 BVEG, 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
Ambes Regional Water Basin Committee	Our Ambes superintendent has been elected as a voluntary member of this basin committee, having a key role in two commissions: the Littoral Commission and the Industry Commission. The committee brings together a wide range of regional stakeholders focused on the health of the water basin.
Australian Institute of Petroleum (AIP)	Vermilion is a member of AIP, which was formed in 1976 to promote industry self-regulation and effective dialogue between the oil industry, the government and the community.
Australian Marine Oil Spill Centre (AMOSC)	A not-for-profit subsidiary of the Australian Institute of Petroleum, AMOSC operates Australia's marine oil spill response equipment stockpile on 24 hour stand-by for rapid response anywhere around the Australian coast.
Australian Petroleum Production & Exploration Association (APPEA)	Vermilion is an active member of APPEA, which represents Australia's oil and gas exploration and production industry. Our Managing Director in Australia has been a long-time director on the APPEA board, and previously served as the board's Chair.
Australian Resources Energy Group	As a member-based organization, AMMA's work in policy and advocacy directly shapes the Australian resources, energy and supply industry.
Bordeaux Maritime and Port Club	Promotes and supports Bordeaux maritime activity, and fosters the economic development of the port of Bordeaux
Business in the Community Ireland	A movement for sustainable change in business, with a purpose to inspire and enable businesses to bring about a sustainable, low carbon economy and a more inclusive society where everyone thrives.
Budapest Chamber of Commerce and Industry	Supports the development and organization of the Hungarian economy representing the general and joint interests of its member business organizations.
Federal Association of Natural Gas, Petroleum and Geoenergy (BVEG)	BVEG 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 (CAPP)	CAPP's mission, on behalf of the Canadian upstream oil and natural gas industry, is to advocate for and enable economic competitiveness and safe, environmentally and socially responsible performance.
Dutch oil and gas explorer and producer association (NOGEPA)	Vermilion is an active member of the Dutch oil and gas explorer and producer association. We participate in several workgroups and sub-committees, working closely with other industry representatives to continuously improve our practices related to safety, environment and public acceptance.
Energy Sector Sustainability Leadership Initiative	This voluntary working group focused on sustainability benchmarking within the oil and gas industry in Calgary when it launched in 2013, and has since transitioned into a focus on energy sector sustainability best practices. Vermilion chaired the initiative in 2017, and has continued as an active member since then
Eurogas	Eurogas is an association representing the European gas wholesale, retail and distribution sectors, which aims to strengthen the role of gas in the energy mix through ongoing dialogue with European industry players, global gas producers, and relevant institutions and organizations
EVOLEN (France)	Supports oil, gas and new energy players in the development of responsible, sustainable, and economical solutions to ensure access to energy for all, and accelerate the energy transition
French FAB	An organization to promote French 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)	The purpose of DGMK is to promote and advance science, research, technology and continuing education relating to fossil fuels.
Emsachse	Vermilion is a member of Emsachse, a multi-sector collaboration designed to address joint challenges and interests in the Ems-Axis growth region. This alliance of companies, municipalities, educational institutions, chambers and associations throughout East Frisia aims is to raise the profile of a common economic region while at the same time strengthening economic growth and creating additional jobs.
Energy and Equipment Materials Users Association (EEMUA)	Vermilion joined EEMUA, which is focused on supporting its member companies with safety, efficiency and compliance good practice, in 2018.
France-Canada Chamber of Commerce	Vermilion began serving on the Board of Directors in 2012. The Chamber of Commerce promotes business activities between Canada and France.
Geothermal Forum Lower Saxony	The Geothermal Forum provides a platform for the exchange and preparation of information for the geothermal industry.

Association	Details
Irish Offshore Operators' Association (IOOA)	Founded in 1995, the IOOA is a representative organization for the Irish offshore oil and gas industry. By cooperating and providing a common approach to issues such as safety, the environment, legislation and employment, the IOOA pro-actively assists in the development of oil and gas exploration and production in Ireland's waters.
Hungarian Mining Association (MBSZ)	Vermilion is a member of the MBSZ, an advocacy organization representing all sectors of the mining industry.
MEDEF	MEDEF is the leading network of entrepreneurs in France.
Petroleum Association of Wyoming (PAW)	PAW is a statewide trade association dedicated to the betterment of the state's oil and gas industry. The association seeks to educate all levels of government about the responsible development of oil and gas to ensure the industry's continued vitality.
Pole AVENIA Geosciences Innovation Valley	Vermilion began serving on the Board of Directors of this voluntary competitiveness cluster in 2013; AVENIA has many programs related to supporting geothermal development in France and optimizing recovery from existing hydrocarbon reservoirs. It brings together companies, research laboratories and schools, and also involves governments and local organizations
Saskatchewan Petroleum Industry Government Environmental Committee	SPIGEC was formed in 1992, and responds to the need for government and industry to work cooperatively to resolve provincial environmental management issues. SPIGEC's overriding goal is to ensure the continued growth of the oil and natural gas industry with development proceeding in a manner that minimizes adverse environmental effects.
UFIP (Union française des industries pétrolières)	UFIP is the French industry association for the petroleum industry, including companies operating in France in one of the oil and gas industry's three major segments: exploration and production, refining, and marketing. It provides the French government with ongoing industry feedback on various European Union directives/initiatives.
Western Energy Alliance	Western Energy Alliance is a nonprofit trade association representing companies engaged in all aspects of environmentally responsible exploration and production of oil and natural gas in the western United States.

Performance Metrics

Larger PDFs are available online at sustainability.vermilionenergy.com in the Performance Metrics section

MATERIAL TOPIC: ENERGY & EMISSIONS	2017	2018	2019	2020	2021	CONTEXT	GRI/SASB
Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level. In 2020, we added production data that provides improved comparability for related intensities back to 2014, to support external ESG analysis.							
Annual Production - Annual Report figure, financial control: boe	24,827,665	31,853,185	36,630,232	34,839,540	31,173,190		
Annual Production - Annual Report minus non-operated volumes as referenced in CDP submissions: boe	21,273,660	28,712,829	36,604,811	34,723,518	31,154,575	**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	19,102,132	29,440,819	44,680,354	42,202,207	36,865,352	**Use for energy and emissions intensity calculations to ensure numerator/denominator alignment**	
ENERGY	**2017**	**2018**	**2019**	**2020**	**2021**		
Scope 1: Energy consumption within organization, non-renewable (natural gas, propane liquid, diesel fuel and vehicle fuel): GJ	**2,975,227**	**4,132,866**	**5,554,821**	**5,172,331**	**4,806,111**		**302-1**
Canada	1,929,996	2,809,879	3,592,038	3,223,562	2,907,176		
France	20,583	0	0	3,143	6,280		
Netherlands	77,023	60,390	72,585	73,037	74,841		
Australia	812,226	864,934	722,623	843,308	813,213		
United States	114,077	199,893	204,576	111,857	78,669		
Germany	21,323	120,844	135,350	108,675	112,212		
Central and Eastern Europe - Hungary and Croatia		2,932	9,236	5,119	16,544		
Ireland		73,996	818,413	803,630	797,175		
Energy intensity ratio Scope 1: GJ/boe		**0.14**	**0.12**	**0.12**	**0.13**		
Scope 2: Energy consumption outside organization, non-renewable (electricity): GJ	**833,841**	**1,403,021**	**2,077,646**	**1,232,392**	**1,049,524**	**1 MWh = 3.6 GJ**	**302-2**
Canada	232,346	750,356	1,352,186	1,117,288	973,345		
France	581,926	623,641	679,640	60,296	16,762	2020 and 2021 reflect remewable energy breakout	
Netherlands	0	0	0	0	0	Guarantees of Origin green electricity 2017-2021; electricity consumed 2021 = 84,674 MWh	
Australia	727	669	587	383	463		
United States	4,229	10,969	30,803	45,119	45,273		
Germany	14,612	17,369	11,592	6,853	13,470	2020 and 2021 reflect remewable energy breakout	
Central and Eastern Europe - Hungary and Croatia		17	0	229	210		
Ireland		0	2,838	2,224	0	Purchase of electricity from renewable fuels 2021; electricity consumed 2021 = 792.9 MWh	
Energy intensity ratio Scope 2: GJ/boe		**0.05**	**0.05**	**0.03**	**0.03**		
Energy intensity ratio Scope 1+2: GJ/boe	**0.20**	**0.19**	**0.17**	**0.15**	**0.16**	**2012-2013: operated battery energy use/operated and financial production 2014+: operated battery energy use/operated battery production**	**302-3**
Renewable energy	**2017**	**2018**	**2019**	**2020**	**2021**		
Total amount invested in renewable energy, CAD	**$446,385**	**$1,306,667**	**$446,778**	**$568,182**	**$2,887,512**		**OG2**
Canada	$0	$391,000	$220,000	$230,000	$2,461,000	DCET solar panels, 16-31 EPOD, solar pump retrofits, RTO remote monitoring devices, existing EFOY	
France	$12,000	$312,000	$190,000	$270,000	$388,455	4 geothermal from produced water projects; turbine pilot; hydrogen research	
Netherlands	$434,385	$603,667	$36,778	$68,182	$23,680		
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		
Ireland		$0	$0	$0	$14,377	hydrogen research	
Renewable energy investment: % of capital expenditure	**0.1**	**0.3**	**0.1**	**0.2**	**0.8**		**OG2**
Renewable energy GHG emissions avoided: tCO2e	**22,333**	**24,566**	**24,623**	**18,993**	**18,635**		**OG3, OG4, OG5**
Renewable energy generated by source (actual energy content transferred): MWh	**70,080**	**77,088**	**77,095**	**59,330**	**58,004**		
Canada	0	0	7	11	19		
France	70,080	77,088	77,088	59,319	57,985		
Netherlands	0	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		
Ireland		0	0	0	0		
EMISSIONS	**2017**	**2018**	**2019**	**2020**	**2021**		**GRI**
Percentage of total emissions under emissions-limiting regulations			**91%**	**89%**	**87%**	**All BUs except US & Australia operate in regions under some form of emissions limiting regulations: e.g. EU ETS, carbon taxes, carbon pricing**	**EM-EP-110a.1.4**
Scope 1 gross direct GHG emissions: tonne	**344,186**	**742,175**	**858,823**	**793,203**	**648,337**		**305-1**
CO_2 Scope 1 emissions (excluding CH4 and N2O): tonne	**278,143**	**456,817**	**555,687**	**531,078**	**466,472**	**Hydrofluorocarbons, Perfluorocarbons, Sulfur hexafluride, VOCs, particulates not tracked**	**305-1, SS**

MATERIAL TOPIC: ENERGY & EMISSIONS	2017	2018	2019	2020	2021	CONTEXT	GRI/SASB
Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level. In 2020, we added production data that provides improved comparability for related intensities back to 2014, to support external ESG analysis.							
Annual Production - Annual Report figure, financial control: boe	24,827,665	31,853,185	36,630,232	34,839,540	31,173,190		
Annual Production - Annual Report minus non-operated volumes as referenced in CDP submissions: boe	21,273,660	28,712,829	36,604,811	34,723,518	31,154,575	**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	19,102,132	29,440,819	44,680,354	42,202,207	36,865,352	**Use for energy and emissions intensity calculations to ensure numerator/denominator alignment**	
Canada	133,430	300,947	374,495	354,167	283,298	Increase reflects acquisition of Saskatchewan assets partial year 2018 and full year 2019	
France	63,197	61,169	64,419	56,764	65,665		
Netherlands	23,954	15,198	11,403	8,393	6,803		
Australia	42,409	46,587	42,024	50,209	50,627		
United States	13,693	19,152	15,409	13,253	11,949		
Germany	1,460	9,710	4,069	7,262	6,408		
Central and Eastern Europe - Hungary and Croatia		285	2,260	357	1,146		
Ireland		3,769	41,608	40,673	40,576	Increase reflects Corrib change to operating control ~1 month in 2018 and full year 2019	
Methane: tCO2e	**65,782**	**284,762**	**302,027**	**261,051**	**180,987**		**SS**
Canada	30,847	241,279	258,500	216,739	144,005		
France	9,236	10,197	8,499	8,752	8,009		
Netherlands	8,315	5,318	4,018	5,215	3,265		
Australia	13,611	16,961	18,601	21,373	18,655		
United States	370	1,468	3,981	4,436	4,739		
Germany	3,403	9,101	7,492	3,284	1,763		
Central and Eastern Europe - Hungary and Croatia		384	244	656	1		
Ireland		54	692	597	550	Increase reflects Corrib change to operating control ~1 month in 2018 and full year 2019	
Methane as a % of total Scope 1 direct GHG emissions		**38**	**35**	**33**	**28**		**EM-EP-110a.1.3**
Nitrous Oxide (N_2O): tCO2e	**260**	**596**	**1,109**	**1,073**	**878**		**SS**
Canada	99	378	465	505	290		
France	102	107	547	428	462		
Netherlands	0	22	7	28	12		
Australia	57	82	68	90	104		
United States	1	5	16	18	3		
Germany	1	2	1	4	4		
Central and Eastern Europe - Hungary and Croatia		0	5	0	3		
Ireland		0	0	0	0		
Scope 1 GHG emissions intensity, oil and gas production: tCO2e/boe	**0.018**	**0.025**	**0.019**	**0.019**	**0.018**	**2012-2013: operated battery Scope 1 emissions/operated and financial production 2014+: operated battery Scope 1 emissions/operated battery production**	**305-4**
Total Scope 2 GHG emissions: tCO2e	**60,904**	**173,847**	**288,345**	**247,144**	**214,778**		**305-2**
Canada	55,088	160,369	269,349	222,010	194,319	Increase reflects acquisition of Saskatchewan assets partial year 2018 and full year 2019	
France	8,959	11,444	6,808	8,628	2,661		
Netherlands	(4,328)	0	0	0	0		
Australia	141	130	114	73	88		
United States	308	787	10,231	14,425	13,856		
Germany	735	1,090	1,575	1,735	3,845		
Central and Eastern Europe - Hungary and Croatia		1	0	11	10		
Ireland		25	268	262	0		
Scope 2 GHG emissions intensity: tCO2e per boe	**0.003**	**0.006**	**0.006**	**0.006**	**0.006**	**2012-2013: operated battery Scope 2 emissions/operated and financial production 2014+: operated battery Scope 2 emissions/operated battery production**	**305-5**
Scope 1+2 GHG emissions intensity: tCO2e per boe	**0.021**	**0.031**	**0.026**	**0.025**	**0.023**	**2012-2013: operated battery Scope 1+2 emissions/operated and financial production 2014+: operated battery Scope 1+2 emissions/operated battery production**	
Scope 3 Gross other indirect GHG emissions: tCO2e	**8,393,391**	**12,408,270**	**14,188,122**	**13,226,527**	**11,631,963**		**305-3**
Biogenic CO_2 Scope 3 emissions	0	0	0	0	0		305-3
Estimated Scope 3 associated with product end use: tCO2e	7,674,486	11,311,601	12,937,168	12,176,323	10,624,199		SS
Emissions of ozone-depleting substances	**0**	**0**	**0**	**0**	**0**		**305-6**
Nox: tonne	**26**	**29**	**2,136**	**1,190**	**977**		**305-7**
Canada	Not Tracked	Not Tracked	1,912	1,011	818		
France	18	22	51	45	50		
Netherlands	7	7	2	4	2		
Australia	Not Tracked	Not Tracked	171	131	104		
United States	Not Tracked	Not Tracked	Not Tracked	Not Tracked	Not Tracked		
Germany	Not Tracked	Not Tracked	Not Tracked	Not Tracked	2		
Central and Eastern Europe - Hungary and Croatia		Not Tracked	Not Tracked	Not Tracked	Not Tracked		
Ireland		Not Tracked	Not Tracked	Not Tracked	Not Tracked		
SO2: tonne	**675**	**736**	**2,488**	**2681**	**2219**		**305-7**

MATERIAL TOPIC: ENERGY & EMISSIONS	2017	2018	2019	2020	2021	CONTEXT	GRI/SASB
Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level. In 2020, we added production data that provides improved comparability for related intensities back to 2014, to support external ESG analysis.							
Annual Production - Annual Report figure, financial control: boe	24,827,665	31,853,185	36,630,232	34,839,540	31,173,190		
Annual Production - Annual Report minus non-operated volumes as referenced in CDP submissions: boe	21,273,660	28,712,829	36,604,811	34,723,518	31,154,575	**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	19,102,132	29,440,819	44,680,354	42,202,207	36,865,352	**Use for energy and emissions intensity calculations to ensure numerator/denominator alignment**	
Canada	166	198	1800	1,935	1,360	2019 and 2020 updated in 2022 (revised calculation)	
France	509	538	682	737	851		
Netherlands	0	0	0	0	0		
Australia	0	0	0	0.7	0.9		
United States	0	0	5	8	7		
Germany	0	0	0	0	0		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	0	0	0		
Volatile Organic Compounds (VOCs) (non-methane): tonne						**Volatile organic compounds that participate in atmospheric photochemical reactions; excludes carbon monoxide, carbon dioxide and methane**	**305-7**
Canada			68	Not Tracked	138		
France			Not Tracked	128	181		
Netherlands			Not Tracked	13	19		
Australia			Not Tracked	Not Tracked	Not Tracked		
United States			Not Tracked	Not Tracked	278		
Germany			Not Tracked	4	5		
Central and Eastern Europe - Hungary and Croatia			Not Tracked	Not Tracked	Not Tracked		
Ireland			Not Tracked	Not Tracked	Not Tracked	Ireland is below the regulatory reporting threshold for NMVOC.	
Particulate Matter (PM10): tonne						**Airborne finely divided solid or liquid material with an aerodynamic diameter ≤ 10 micrometers**	**305-7**
Canada			125	219	9		
France			Not Tracked	3	2		
Netherlands			Not Tracked	Not Tracked	Not Tracked		
Australia			Not Tracked	8	12		
United States			Not Tracked	Not Tracked	Not Tracked		
Germany			Not Tracked	Not Tracked	Not Tracked		
Central and Eastern Europe - Hungary and Croatia			Not Tracked	Not Tracked	Not Tracked		
Ireland			Not Tracked	Not Tracked	Not Tracked		
FLARING AND VENTING	**2017**	**2018**	**2019**	**2020**	**2021**		
Volume of flared hydrocarbon: e3m3/yr	**35,920**	**69,906**	**78,962**	**83,116**	**66,563**	**Note that all flared volumes are reported, not just continous flares**	**OG6**
Canada	12,023	45,455	55,526	62,108	42,144	Increase reflects acquisition of Saskatchewan assets partial year 2018 and full year 2019	OG6
France	21,492	21,261	20,123	17,797	20,456		OG6
Netherlands	472	201	235	236	287		OG6
Australia	309	788	1,351	1,413	1,688		OG6
United States	1,561	1,858	780	1,379	1,713		OG6
Germany	64	289	23	31	58		OG6
Central and Eastern Europe - Hungary and Croatia		32	763	0	0		OG6
Ireland		22	161	152	217		OG6
Volume of continuously vented hydrocarbon: e3m3/yr	**3,256**	**12,318**	**14,222**	**9,758**	**10,441**		**OG6**
Canada	648	9,447	11,424	6,968	8,442	Increase reflects acquisition of Saskatchewan assets partial year 2018 and full year 2019	OG6
France	773	847	729	765	696		OG6
Netherlands	194	260	62	189	66		OG6
Australia	919	1,097	1,390	1,446	1,158		OG6
United States	9	25	48	45	24		
Germany	713	617	526	275	21		OG6
Central and Eastern Europe - Hungary and Croatia		21	11	37	0		OG6
Ireland		3	33	33	35		OG6
Flaring/Venting Intensity based on production: e3m3/boe	**0.0021**	**0.0028**	**0.0021**	**0.0022**	**0.0021**	**2012-2013: operated battery flaring and venting/operated and financial production 2014+: operated battery flaring and venting emissions/operated battery production**	**OG6**
Hydraulic Fracturing						**Hydraulic fracturing used in Canadian and US operated production**	
Percentage of global production from hydraulic fracturing		40	42	37	49	% is approximate based on 100% fracked in US, estimated 51% in Canada, and 0% in Europe and Australia.	

MATERIAL TOPIC: ENERGY & EMISSIONS	2017	2018	2019	2020	2021	CONTEXT	GRI/SASB
Methodology Note: all energy and emissions data, unless specifically noted otherwise, are based on operational control at the battery level. In 2020, we added production data that provides improved comparability for related intensities back to 2014, to support external ESG analysis.							
Annual Production - Annual Report figure, financial control: boe	24,827,665	31,853,185	36,630,232	34,839,540	31,173,190		
Annual Production - Annual Report minus non-operated volumes as referenced in CDP submissions: boe	21,273,660	28,712,829	36,604,811	34,723,518	31,154,575	**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	19,102,132	29,440,819	44,680,354	42,202,207	36,865,352	**Use for energy and emissions intensity calculations to ensure numerator/denominator alignment**	
Percentage of public disclosure of hydraulic fracturing fluids						**All fracturing fluids are disclosed through FracFocus**	
Canada			100	100	100		EN-EP-140a.3
United States			100	100	100	No proprietary blends used	
Enhanced Oil Recovery from Carbon Capture and Storage						**Based on non-operated production**	
Volume of oil and NGLs produced from CCS ops: bbls/d, equity basis		2,321	2,045	2,098	2,065	Weyburn Carbon Capture and Storage project: non-operated	
CCS ops percentage of total (global) oil and NGLs produced: equity basis		5	4	4	4	Global oil & NGLs 2018 Equity/Financial Control: 45,548 bbl/d Global oil & NGLs 2019 Equity/Financial Control: 55,886 bbl/d Global oil & NGLs 2020 Equity/Financial Control: 52,358 bbl/d	

MATERIAL TOPIC: WATER, INCLUDING PRODUCED WATER	2017	2018	2019	2020	2021	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	24,827,665	31,853,185	36,630,232	34,839,540	31,173,190		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	21,273,660	28,712,829	36,604,811	34,723,518	31,154,575	**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	19,102,132	29,440,819	44,708,966	42,202,207	36,865,352	**Use for water intensity calculations to ensure numerator/denominator alignment**	
WATER WITHDRAWALS	**2017**	**2018**	**2019**	**2020**	**2021**		**GRI**
Total water withdrawal including produced water: ML	**25,880**	**43,041**	**70,158**	**67,202**	**65,605**	**From 2012-2018, Vermilion reported the production and re-use of produced water separate from water withdrawn from other sources. For 2019 data onwards, we have updated our reporting to more closely align with CDP's definitions, reflecting our first CDP Water Security submission and also informed by GRI 303 (2018) and SASB EM-EP-140a.1 and 2. This includes metrics conversion from m3 to ML (ML = m3/1000).**	
Canada	2,441	17,833	39,234	34,852	31,638		
France	14,407	15,730	14,863	13,903	13,709		
Netherlands	41	46	25.4	24.6	14.9		
Australia	8,400	8,795	15,270	17,386	18,912		
United States	90	108	326	384	302		
Germany	502	526	397	628	1,005		
Central and Eastern Europe - Hungary and Croatia		1	4	1.6	0.9		
Ireland		2	36	24	24		
Total water withdrawal excluding produced water: ML	**821**	**767**	**7,009**	**8,248**	**9,590**	**85% of water withdrawal is produced water**	**303-1**
Canada	82	113	187	141	154		
France	504	625	494	581	420		
Netherlands	30	27	11	4.6	5.4		
Australia	183	0	6,189	7,398	8,949		
United States	23	0	106	109	51		
Germany	0	0	3	1.7	0.7		
Central and Eastern Europe - Hungary and Croatia		1	4	1.6	0.9		
Ireland		2	16	12	9		
Total Water Withdrawal including produced water, by source							
Surface/Freshwater, including rainwater, wetlands, rivers, lakes: ML	**12**	**16**	**44**	**12**	**124**	**Total dissolved solids <10,000mg/L**	**303-1**
Canada	12	16	40	12	124	2021 increase offset by reduction in use of renewable groundwater	
France	0	0	0	0	0		
Netherlands	0	0	4	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		
Ireland		0	0	0	0		
Surface/Brackish water, including oceans: ML	**183**	**213**	**198**	**7,398**	**8,949**	**Total dissolved solids >10,000mg/L**	
Australia	183	213	6,189	7,398	8,949	Only applicable in Australia	
Groundwater - renewable: ML	**569**	**700**	**622**	**691**	**436**	**Generally shallower groundwater resources that can be replenished/recharged within ~50 years**	**303-1**
Canada	62	82	128	116	22		
France	494	618	494	575	414		
Netherlands	12	1	0	0	0		
Australia	0	0	0	0	0		
United States	0	0	0	0	0		
Germany		0	0	0.5	0		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	0	0	0		
Groundwater - non-renewable, excluding produced water: ML	**23**	**47**	**106**	**109**	**109**	**Generally deeper groundwater resources that have negligible recharge within ~50 years**	
United States	23	47	106	109	50		
Groundwater - non-renewable, produced water: ML	**25,059**	**42,274**	**63,148**	**58,955**	**56,016**	**Includes formation water, flow-back water and condensation water**	
Canada	2,359	17,720	39,047	34,711	31,484		
France	13,903	15,105	14,370	13,322	13,289		
Netherlands	11	20	14	20	9.5		
Australia	8,217	8,795	9,082	9,988	9,963		
United States	67	108	221	275	251		
Germany	502	526	395	626	1,004		

MATERIAL TOPIC: WATER, INCLUDING PRODUCED WATER	2017	2018	2019	2020	2021	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	24,827,665	31,853,185	36,630,232	34,839,540	31,173,190		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	21,273,660	28,712,829	36,604,811	34,723,518	31,154,575	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	19,102,132	29,440,819	44,708,966	42,202,207	36,865,352	Use for water intensity calculations to ensure numerator/denominator alignment	
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	20	12	15		
Third-party sources - Municipal water supplies or utilities: ML	**18**	**51**	**49**	**38**	**29**		**303-1**
Canada	7	15	19	13	7		
France	10	7	0	6	6		
Netherlands	0	26	8	4.6	5.4		
Australia	0	0	0	0	0		
United States	1	0	0	0.3	0.3		
Germany	0	0	2.2	1.2	0.7		
Central and Eastern Europe - Hungary and Croatia		1	4	1.6	0.9		
Ireland		2	16	11.5	9.4		
Total Freshwater Withdrawal = renewable groundwater + surface water + third party potable sources: ML	**598**	**767**	**715**	**741**	**590**		
Total freshwater intensity: ML/operated boe	**0.000031**	**0.000026**	**0.000016**	**0.000018**	**0.000016**		
Water sources significantly affected by water withdrawal: #	**0**	**0**	**0**	**0**	**0**	**Defined as sustained inability to meet human &/or ecological requirements of availability, quality or accessibility**	**303-2**
Water recycled and reused = reduction in water use: ML	**0**	**0**	**0**	**0**	**0**		**303-2**
Water recycled and reused: %	**0%**	**0%**	**0%**	**0%**	**0%**	**Based on water withdrawals excluding produced water**	**303-3**
WATER DISCHARGE	**2017**	**2018**	**2019**	**2020**	**2021**	**Effective 2019, water discharge is reported in alignment with CDP definitions for destinations**	
Total water discharge all destinations, including produced water: ML			**70,158**	**67,203**	**65,603**		
Canada			39,234	34,847	31,638		
France			14,863	13,903	13,709		
Netherlands			25.4	24.6	12.9		
Australia			15,270	17,386	18,912		
United States			326	384	302		
Germany			397	630	1,005		
Central and Eastern Europe - Hungary and Croatia			4	3.9	0.9		
Ireland			36	24	24		
Total water discharge excluding produced water: ML	**8,269**	**8,896**	**6,484**	**7,667**	**9,168**		
Canada	0	15	181	136	154		
France	0	0	0	0	0		
Netherlands	51	58	20	4.6	3		
Australia	8,217	8,795	6,189	7,398	8,949		
United States	0	0	51	109	51		
Germany	0	0	3	4	0.7		
Central and Eastern Europe - Hungary and Croatia		0	4	4	0.9		
Ireland		28	36	12	9		
Surface/Freshwater, including rainwater, wetlands, rivers, lakes: ML			**0**	**0**	**0**		
Surface/Brackish water, including oceans: ML			**15,272**	**17,386**	**18,912**		
Australia			15,270	17,386	18,912		
Ireland			2.1	0	0	No produced water discharged offshore in 2020 or 2021	
Groundwater - renewable: ML			**3**	**2**	**11**		
Canada			3	2	11		
France			0	0	0		
Netherlands			0	0	0		
Australia			0	0	0		
United States			0	0	0		
Germany			0	0	0		
Central and Eastern Europe - Hungary and Croatia			0	0	0		
Ireland			0	0	0		
Groundwater - non-renewable, excluding produced water: ML			**0**	**0**	**0**		
United States			0	109	32		
Groundwater - non-renewable, produced water: ML			**54,592**	**48,910**	**46,005**		

MATERIAL TOPIC: WATER, INCLUDING PRODUCED WATER	2017	2018	2019	2020	2021	CONTEXT	GRI/SASB
Annual Production - Annual Report figure, financial control: boe	24,827,665	31,853,185	36,630,232	34,839,540	31,173,190		
Annual Production - Annual Report minus non-operated volumes (CDP): boe	21,273,660	28,712,829	36,604,811	34,723,518	31,154,575	**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	19,102,132	29,440,819	44,708,966	42,202,207	36,865,352	**Use for water intensity calculations to ensure numerator/denominator alignment**	
Canada			39,053	34,681	31,442		
France			14,863	13,322	13,289		
Netherlands			5	6	0.02		
Australia			0	0	0		
United States			276	275	270		
Germany			395	626	1,004		
Central and Eastern Europe - Hungary and Croatia			0	0	0		
Ireland			0	0	0		
Third-party facilities - Municipal or Private: ML			**289**	**792**	**643**		
Canada			178	165	184		
France			0	581	420		
Netherlands			20	19	13		
Australia			0	0	0		
United States			51	0.5	0.5		
Germany			2.2	1.7	0.7		
Central and Eastern Europe - Hungary and Croatia			4	1.6	0.9		
Ireland			34	24	24		
Other - Water still in storage - NL only			**0**	**0**	**2**		
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:							**OG5**
Reused: % and volume	**0**	**0**	**0**	**0**	**0**		**OG5**
Recycled: %	**0**	**0**	**0**	**0**	**0**		
Recycled - volume: ML	**0**	**1**	**0**	**0**	**0**		**OG5**
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	0		
Germany	0	1	0	0	0		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	0	0	0		
Reinjected: %	**67**	**79**	**86**	**83**	**82**		
Reinjected - volume: ML	**16,796**	**33,450**	**54,037**	**48,840**	**46,028**		**OG5**
Canada	2,338	17,728	39,047	34,711	31,484		
France	13,903	15,105	14,370	13,222	13,289		
Netherlands	4	9	5	6	0.02		
Australia	0	0	0	0	0		
United States	49	83	221	275	251		
Germany	502	526	395	626	1,004		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0	0	0	0		
Hydrocarbon discharged within produced water: tonnes	**115**	**70**	**73**	**117**	**99**	**Refers to discharges to surface water or renewable (shallow) groundwater**	**OG5**
Canada	0	0	0	0	0		OG6
France	0	0	0	0	0		OG6
Netherlands	0	0	0	0	0		OG6
Australia	115	70	73	117	99		OG6
United States	0	0	0	0	0		OG6
Germany	0	0	0	0	0		
Central and Eastern Europe - Hungary and Croatia		0	0	0	0		
Ireland		0.4	0	0	0		
Annual Water Consumption: ML			**0**	**0**	**0**	**Total water withdrawals - total water discharges**	
Percentage of workers with fully-functioning, safely managed WASH (water, sanitation and hygiene facilities)			**100**	**100**	**100**	**New data reported beginning in 2019 to align with CDP**	

For more information, visit sustainability.vermilionenergy.com, or email sustainability@vermilionenergy.com