



# 2021

ENVIRONMENTAL, SOCIAL  
& GOVERNANCE REPORT

FOCUSING ON A SUSTAINABLE FUTURE



**CARDINAL**  
ENERGY LTD.

## TABLE OF CONTENTS

- 3 Message from the CEO
- 4 About Cardinal
- 5 Climate Related Risk Strategy
- 6 Health & Safety
- 7 Environment
- 8 Emissions
- 10 Surface Footprint
- 11 Reclamation
- 12 Operational Enhancement & Asset Integrity
- 13 Asset Retirement
- 14 Corporate Governance
- 15 Community Focus
- 16 Indigenous Support
- 17 Primary Sponsorships
- 18 Employee-Driven Support
- 19 Performance Measures
- 20 Assumptions & Terms
- 21 Advisories

## ABOUT THIS REPORT

This report is Cardinal Energy Ltd.'s third Environmental, Social and Governance (ESG) report. This report outlines environmental, safety and social responsibilities that Cardinal Energy Ltd. is committed to as well as our initiatives that support this commitment. In this report, we have referenced various relevant standards and regulations for specific aspects of ESG reporting in jurisdictions in which we operate.

This report was approved by our executive team and Board of Directors. References to Cardinal, our, we, the Company and the Corporation used within this report refer to Cardinal Energy Ltd.

This report is intended to assist our stakeholders to better understand our commitment to operating in a responsible and sustainable manner. Additional disclosure is available from our audited financial statements and the associated Management Discussion and Analysis; Annual Information Form; Management Information Circular; and other publicly required information. All of these documents are available and can be accessed on our website at [www.cardinalenergy.ca](http://www.cardinalenergy.ca) or through SEDAR at [www.sedar.com](http://www.sedar.com).

Should there be questions regarding this report, please direct them to [info@cardinalenergy.ca](mailto:info@cardinalenergy.ca).





## OUR PLAN

The overall business climate for our industry has changed dramatically since our report last year. We continue to put strong emphasis on our Environmental, Social and Governance (“ESG”) responsibilities.

It is imperative that we continue to make ESG initiatives a pillar of our business.

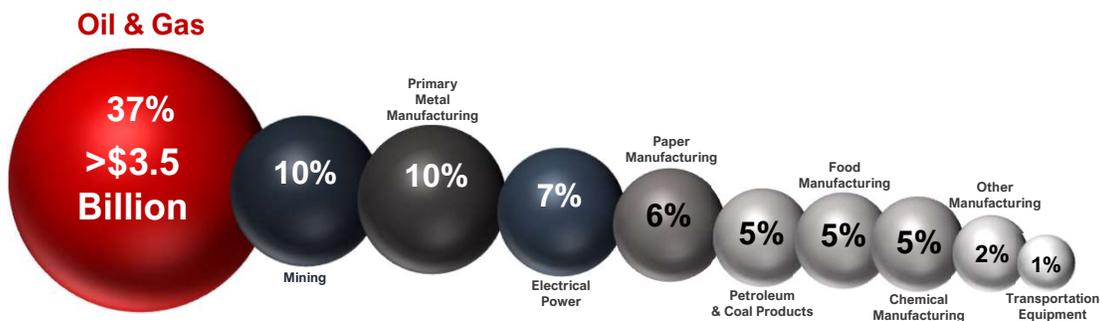
During 2020 and 2021, we took advantage of various government programs to focus on well and pipeline abandonments and facility decommissioning which, even in one of the toughest financial climates, enabled us to make significant progress on our long-term abandonment and reclamation efforts.

Over the past 24 months, Cardinal has invested approximately \$30 million in improving our environmental footprint. Our corporate focus in 2021 was to concentrate on our balance sheet, which will give us the ability long-term to make the right ESG decisions and enable us to fund initiatives to maintain and strengthen our overall ESG performance.

Our CO<sub>2</sub> sequestration at our Midale asset gives us a distinct advantage in achieving top quartile ESG performance. With this head start, we will continue to focus on continual improvement across all ESG categories. With increased commodity pricing we will continue to make ESG a pillar of our corporate philosophy.

**M. Scott Ratushny**  
*Chief Executive Officer*

### OIL & GAS IS THE LEADER AMONG CANADIAN INDUSTRIES FOR ENVIRONMENTAL PROTECTION SPENDING (\$9.7 BILLION TOTAL)<sup>1</sup>



<sup>1</sup> Source: Statistics Canada 2020



**Committed to maintaining sustainable growth through improving our environmental, health, safety and social performance**

## CARDINAL ENERGY

Since 2013, we have grown production from 1,400 barrels of oil equivalent per day (boe/d) to more than 20,000 boe/d. Our production base is made up of approximately 83% crude oil, 13% natural gas and 4% natural gas liquids. Since inception, our team has grown from 15 to 159 total employees and we have built a significant portfolio of long-life, sustainable assets.

**TOTAL PRODUCTION**  
**20,000+ BOE/D**



Our experienced and skilled team of 61 office and 98 field employees is fully committed to continually improving our environmental, health, safety and social performance as a fundamental pillar of maintaining sustainable growth.

### TOTAL EMPLOYEES

**61 Office**

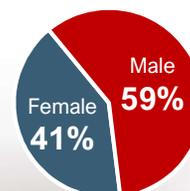


**98 Field**



### 2021 EMPLOYEE MIX

Calgary Office



## CLIMATE RELATED RISK STRATEGY

To date, Cardinal has taken significant steps towards sustainable growth, including, notably, the acquisition of the Midale Enhanced Oil Recovery (“EOR”) project in 2017. Cardinal believes we can make a positive contribution to efforts focused on meeting the world’s growing demand for energy, while also balancing our environmental footprint, emissions management and financial sustainability.

In all jurisdictions in which we operate, Cardinal is subject to both extensive regulation and taxation on our broader carbon dioxide equivalent emissions. The Company is currently taxed on emissions and fuel use throughout our operations. Cardinal has absorbed these incremental costs and have successfully laid the groundwork for carbon offset generation and business improvements throughout our operations that will enable our sustainability moving forward.

Over the past number of years, Cardinal sought to identify climate related risks to our business, as well as distinguish the opportunities that an evolving carbon market represents. In 2021, we’ve provided an update to our evolving strategy in how we are meeting those risks and seeking to leverage those opportunities.

### Cardinal’s Climate Related Risks

<i>Risk</i>	<i>How it Relates to Cardinal</i>	<i>How We’re Managing the Risk</i>
<b>Reputational</b>	Potential for regulatory and political uncertainty to adversely impact the broader Canadian energy sector, limiting access to global capital.	Transparent disclosure of material risks to our business. Targeting continuous improvement through effective corporate governance.
<b>Markets</b>	Potential for decreased demand due to dynamic market factors, lack of egress opportunity and availability of lower proved product from jurisdictions with less stringent regulatory bodies.	Transparency in ESG reporting and investor communications, participation in public policy dialogue, continue to leverage carbon sequestration and a healthy balance sheet.
<b>Technology</b>	Limitations on available technology and cost effectiveness of existing technology.	Rigorous business case assessments; participation in subsidized pilot programs, employing experts. Adopt new technologies once proven.
<b>Policy</b>	Uncertainty around regulations, taxation and regulatory framework.	Incorporation of carbon pricing analysis in reserves reporting and capital allocations.
<b>Physical</b>	Potential for changes to weather to impact Cardinal’s people, assets and supply chains.	Identification and monitoring of high risk assets, consideration of changing weather in project design, proactive supplier engagement.

### Cardinal’s Climate Related Opportunities

<i>Opportunity</i>	<i>How it Relates to Cardinal</i>	<i>How We’re Leveraging the Opportunity</i>
<b>Markets</b>	Opportunity to obtain new investment and capital.	Highlight Cardinal’s carbon sequestration in investor communications.
<b>Sustainability</b>	Potential to improve the sustainability of Cardinal’s low decline assets.	Projects that increase gas conservation, engine efficiency, generate power and minimize water use are reducing operating costs today and in the future. Focussed spending on asset retirement will improve our balance sheet.
<b>Revenue</b>	Cost reduction through efficiency improvements and potential revenue from carbon credits. Potential market premiums for climate differentiated product.	Installation of carbon credit generating equipment to offset taxation increases. Leveraging Midale CO <sub>2</sub> injection for increased production and reduced emissions.

## HEALTH & SAFETY

Cardinal strives for an injury-free workplace for all who undertake activities on our behalf. We promote a safety culture through systems, processes and continued learning to mitigate risks. Safety is a core element across the organization and is top-of-mind in everything we do.

Our approach to maintaining safe and reliable operations starts with our leadership team and is embodied by rigorous health and safety programs with ongoing process and occupational safety improvements. These include formal operator competency training in Standard Operating Procedures as well as for Site Specific Operating Procedures. Competency testing is continually maintained to ensure that individuals are adequately prepared prior to undertaking tasks. These competencies are updated and re-evaluated when a procedure changes and/or at the appropriate interval.

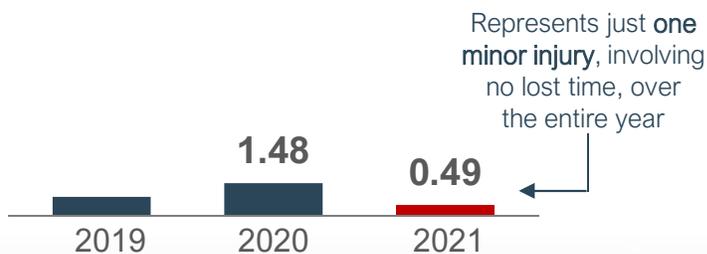
Learnings from all incidents, near-misses and hazard identifications are documented and shared throughout the Company, as part of our efforts to reduce the potential for re-occurrence.

We continuously plan and practice effective responses to unlikely incidents, always prioritizing worker and community safety as well as environmental protection.

Included in our efforts to protect stakeholders, is our response to the current pandemic. As we head into its third year, we continue to maintain responsible measures.

### RECORDABLE INJURY FREQUENCY

Per 200,000 man-hours



### LOST-TIME INJURY FREQUENCY

Per 200,000 man-hours



***Cardinal achieved zero lost-time injuries in each of 2019, 2020 and 2021***



## THE ENVIRONMENT AS A STAKEHOLDER

We consider the environment as a stakeholder and an integral part our business and corporate citizenship.

We are firmly committed to operating in a responsible and sustainable manner. Our commitment requires considerations of impacts on the environment at each stage of development.

All activities are conducted safely and reliably to protect the public, minimize environmental impact, safeguard the health and well-being of employees and contractors, and protect our facilities and equipment from damage or loss.



**Emissions**



**Surface  
Footprint**



**Risk  
Mitigation**



**Asset  
Retirement**

**We are firmly committed to maximizing positive impacts on current and future generations and minimizing the impact our operations have on the environment**



# EMISSIONS

## Carbon Sequestration In Midale

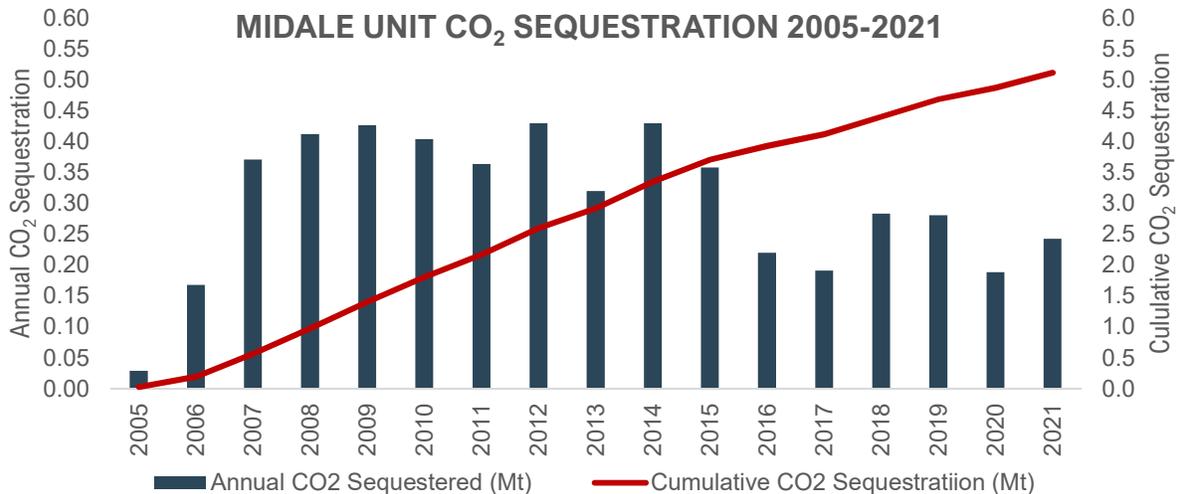
In 2021, Cardinal continued its operation of a best in class, carbon capture and storage project within the Midale unit in southeastern Saskatchewan. Cardinal operates and owns the majority share of the field, where we inject CO<sub>2</sub> from a North Dakota coal gasification project and safely store the CO<sub>2</sub> deep below surface, under layers of impermeable cap rock. This injected carbon dioxide, which would otherwise be in the atmosphere contributing to climate change, serves to increase production from a stable, low decline oil reservoir.

Approximately 242,000 tonnes of CO<sub>2</sub> was injected in the Midale Unit in 2021, a tonnage greater than the CO<sub>2</sub>e emissions Cardinal directly emitted from all of our Operations. Cardinal continues to prioritize CO<sub>2</sub> injection as a direct strategy to mitigate climate related risks. Cardinal increased CO<sub>2</sub> injection in 2021, and continues to pursue opportunities to take advantage of our position as being one of the very few organizations that have an operating project that is approved to directly inject CO<sub>2</sub> subsurface.

In 2019, 2020 and 2021, Cardinal injected 1.23 tonnes of CO<sub>2</sub> for every tonne of CO<sub>2</sub>e that was directly emitted from our operations. The CO<sub>2</sub> injection within the Midale unit has been shown to be an effective and safe method of CO<sub>2</sub> storage. Projects such as this are considered a key emissions reduction technology, and early demonstration and continued operation of CO<sub>2</sub> sequestration capability in the Midale Unit have been instrumental in Canada becoming a world leader in CO<sub>2</sub> sequestration technology. Since 2005 this project has injected over 5.1 million tonnes of CO<sub>2</sub>, which would have otherwise been released to atmosphere.

# 1.23 tonnes

*of CO<sub>2</sub> equivalent sequestered  
for every tonne of CO<sub>2</sub> equivalent emitted*



## Emissions Reductions

In addition to CO<sub>2</sub> injection at Midale, Cardinal proactively implemented emission reduction projects during 2021, including conversion of pneumatic devices from high to low bleed, installation of instrument air equipment and an enclosed combustor installation to target reduction of methane and vented gas emissions. An example of one Southern Alberta site's pneumatic equipment upgrade is displayed below, alongside the associated emissions reductions from all of the 80 emissions reductions projects executed in 2021. Cardinal also secured both provincial and federal funding for emission reduction projects, including vapor recovery unit installations, to reduce vented tank top emissions. Cardinal continues to take steps to reduce methane released to the atmosphere by limiting vented emissions through proactive leak detection and maintenance. Methane has a global warming potential 25 times that of carbon dioxide, and is the primary constituent of vented natural gas, and therefore has been the target of the above described vent gas reduction projects. Cardinal is also now generating regulated carbon offsets. We are proactively engaged in the development of Carbon Markets, as these emerging markets develop due to consumer demand and a global desire to lower global greenhouse gas emissions.

**PRIOR INSTALLATION:**



**UPGRADED SITE:**



# 2,198 tonnes

*of CO<sub>2</sub> equivalent emissions reductions during 2021 from executed projects*





## SURFACE FOOTPRINT

Cardinal strives to be a steward of our land, water and community. Our new developments include multi-well pad drilling and wells completed on pre-existing surface leases, thus minimizing environmental disturbances wherever possible.

- Pre-site assessments are completed prior to development to assess and minimize potential environmental impacts.
- We carefully plan our development activities to reduce the potential impacts to sensitive wildlife.
- Long reach or multiple horizontal legs are part of our development strategy, minimizing our surface footprint in land usage and surface infrastructure.
- We interface with landowners, community and First Nations prior to development.



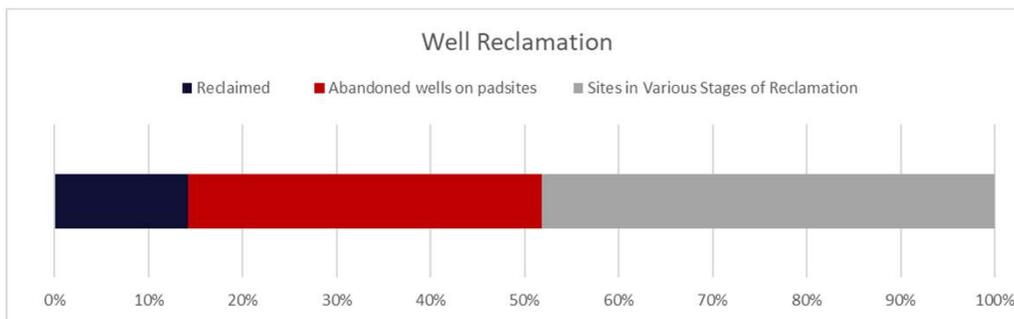
The majority of Cardinal's production is supported by recycled produced water injection, or injection of captured carbon dioxide. This use of fresh water amounts to just 0.1% of all surface water allocated to conventional oil and gas in Alberta and our withdrawal licenses are approved in a region that is at low risk of water shortage.

## Reclamation

Reclamation is a multi-year process, which ultimately results in a reclamation certificate from the regulating body confirming the surface has been returned to its pre-disturbance condition.

606 sites are currently under active reclamation/restoration. In 2021, Cardinal reclaimed 88 sites, including a multi-well oil battery facility.

More than 50% of our abandoned wells have been fully reclaimed, in a vegetation monitoring phase, or reside on a multi-well padsite which will be reclaimed when all activity on the site has ceased.



**A 13 Well Pad Being Reclaimed Near Wainwright, AB**



**Completed Restoration of a Well and Access Road in Saskatchewan**



## OPERATIONAL ENHANCEMENT & ASSET INTEGRITY

Throughout the course of recent world events and unprecedented volatility in commodity markets, Cardinal has placed a rigorous focus on reducing financial risk, which will continue into 2022 and beyond. We are proud to be a financially prudent company, delivering substantial value to our stakeholders.

A significant component of managing financial and environmental risk as an energy company is managing the integrity of our assets in the face of a changing climate and dynamic physical environment.

Since 2016, Cardinal has invested heavily in ensuring the integrity of our pipeline network and associated production and we have worked hard to ensure that non-essential infrastructure doesn't present a risk.

A few of the ways Cardinal has invested, to ensure the ongoing safety of the environment and all of our stakeholders:

- Inline inspections are conducted using “smart pigs” or intelligent inspection tools, to identify potential failure points before they occur. Pipelines deemed high risk are abandoned.
- Aerial or remote surveillance is used to monitor pipeline right of ways, waterbodies and sensitive areas with helicopters and drones. Real time surveillance is conducted with cameras at our larger facilities.
- By using technology to aid us, we can shut down pipelines, pumps or whole facilities when pressure drops are encountered. Berm switches, tank high level switches and pressure switches are all employed as a part of emergency shut down systems.



## ASSET RETIREMENT

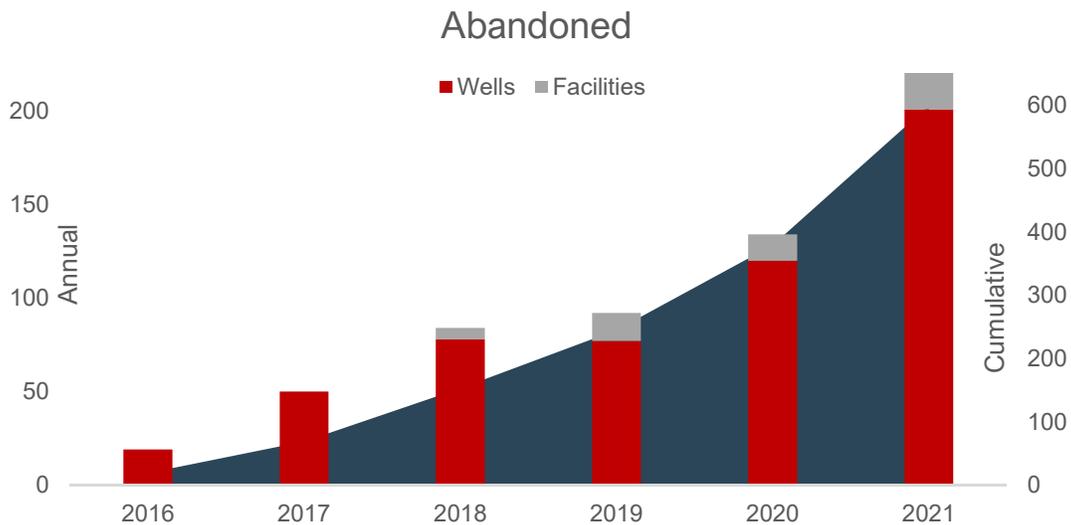
Cardinal is committed to the restoration of its leased lands to return them to their natural state. We recognize the importance of timely Asset Retirement Obligation (“ARO”) and disciplined management of inactive assets. Annually, funds are committed to continue with responsible decommissioning, abandonment and reclamation programs. There is a focus on site closure for inactive sites, as well as maintaining these sites in a safe and compliant state in the interim to minimize risk to the public and to the environment. 2021 was the Company’s most substantial ARO program to date.

### Commitment To Spend

Cardinal has committed to meet and exceed any regulatory requirements for ARO spending. The nature of our low decline, long life assets provides for predictable future cash flow in excess of 50 years, resulting in a manageable spending commitment every year.

Cardinal continues to participate in the federal Site Rehabilitation Programs (“SRP”) having been approved for approximately \$24 million in funding to date and have spent 85% of these funds by year end 2021.

### 600 wells abandoned since 2016



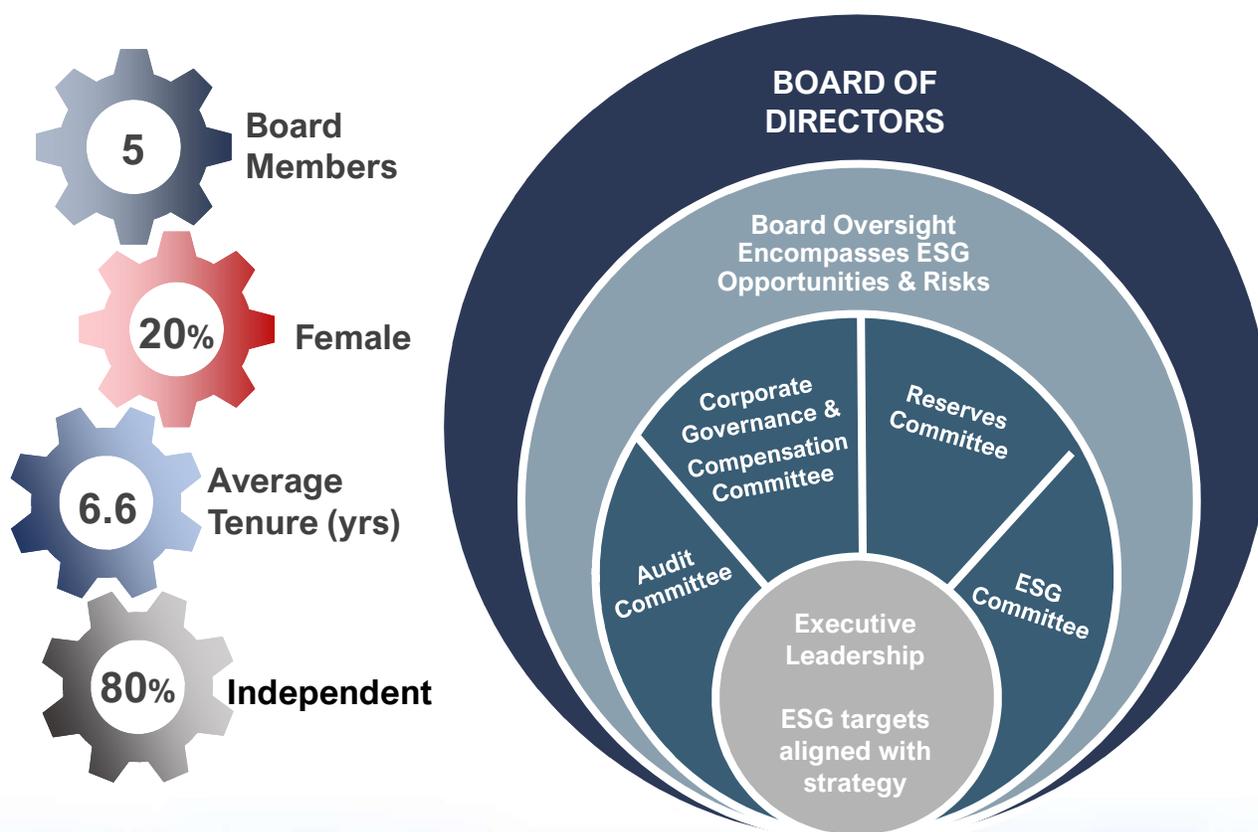
\* Includes those wells cut and capped at surface, excludes additional wells which have been downhole abandoned only.

## CORPORATE GOVERNANCE

Cardinal upholds its core values of accountability, trust, respect and integrity. Our Board of Directors is responsible for the stewardship of Cardinal and has four committees: the Audit Committee; the Environment, Social & Governance Committee; the Corporate Governance & Compensation Committee; and the Reserves Committee.

Our culture of ethical practices is ensured through our Whistleblower Policy. Managed by CanaGlobe, Cardinal's whistleblower program allows for impartial, third-party review.

More information about the mandates of each committee can be found on our website at [www.cardinalenergy.ca](http://www.cardinalenergy.ca).



*Cardinal believes that good governance stems from a culture that is committed to conducting our business responsibly and with integrity*



## COMMUNITY FOCUS

Cardinal operates within many geographically diverse areas in Alberta and Saskatchewan and in 2021 added operations within British Columbia with the acquisition of Venturion Oil. Cardinal continued its commitment to working with local stakeholders and contractors across all of its operations in 2021.

Cardinal maintains valuable relationships with contractors in all of its core areas, including several indigenous owned service providers. In 2021, Cardinal sought to expand on several existing contractor partnerships and broach new relationships to expand on capacity. In doing so, Cardinal engaged several First Nations owned businesses, with a focus on integrating those businesses into asset retirement workflow. Since inception, Cardinal has steadily increased spending with First Nations owned businesses and 2021 marked a record spend with those entities.

### Cardinal's focus on community investment reflects our core value of sustainable growth

In 2021, Cardinal sought to reduce operating costs related to waste disposal from our House Mountain Field, located near Swan Hills, Alberta. Thus, we engaged Kanaskiy Services, Ltd. a specialized waste disposal company and certified Aboriginal business based out of Kinuso, Alberta and owned by the Swan River First Nation.

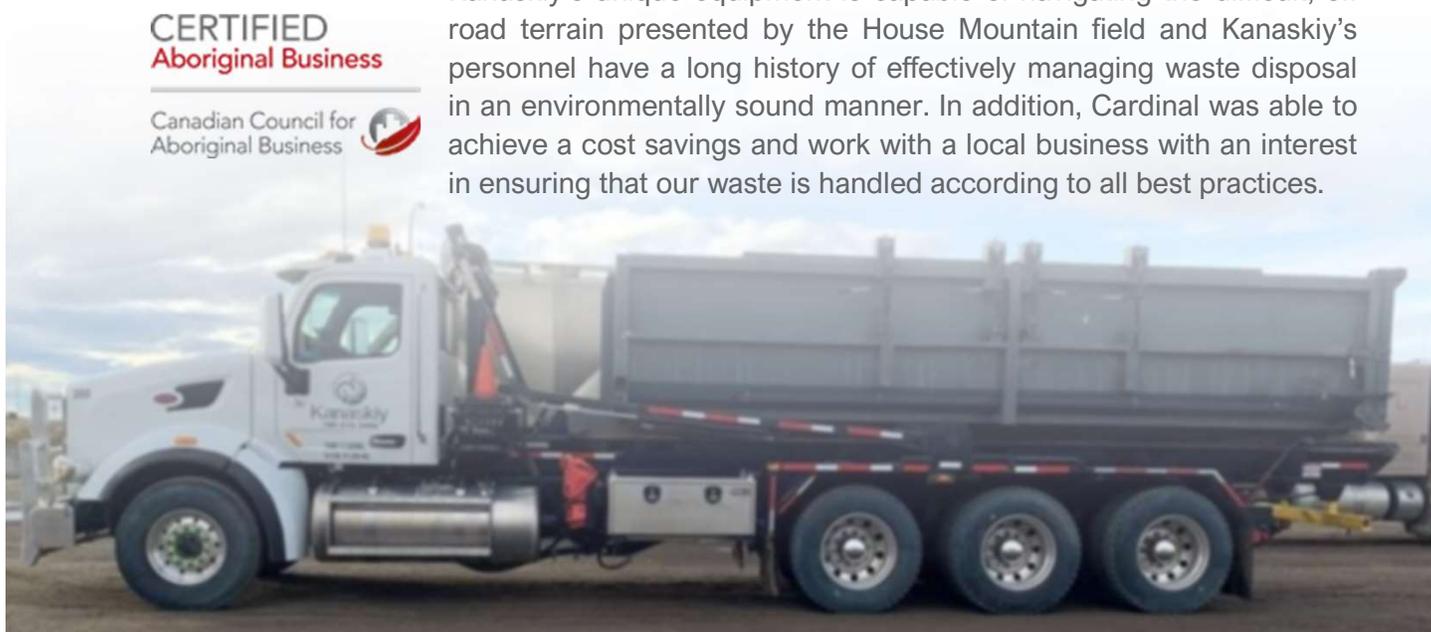


**CERTIFIED**  
**Aboriginal Business**

Canadian Council for  
Aboriginal Business



Kanaskiy's unique equipment is capable of navigating the difficult, off road terrain presented by the House Mountain field and Kanaskiy's personnel have a long history of effectively managing waste disposal in an environmentally sound manner. In addition, Cardinal was able to achieve a cost savings and work with a local business with an interest in ensuring that our waste is handled according to all best practices.



## INDIGENOUS SUPPORT

Cardinal strongly believes that as a partner with various First Nations living in and around our areas of operation, Cardinal has a role to play in addressing the challenges faced by individuals living in remote areas, particularly our core area of Slave Lake. As a meaningful way to acknowledge and promote reconciliation with First Nations on **National Day for Truth and Reconciliation**, Cardinal was pleased to provide tangible support to the Indigenous community where we operate.

In recognition of Truth and Reconciliation Day, Cardinal pledged financial assistance to help with the first-year costs of this program in addition to our ongoing collaboration with the Slave Lake Homeless Coalition to advance permanent solutions.

The **Slave Lake Homeless Coalition** has a goal to provide services for those experiencing homelessness, with the long-term goal of implementing Housing First for Slave Lake and ending homelessness. The first step has been to set up a Temporary Shelter Program, with a goal of establishing a permanent facility.





*Our charitable giving is focused on **four distinct programs**, including sponsorships to the Stars Foundation and CUPS, our Christmas program, our matching donation program and employee-driven support in areas where we operate. Each of these programs encourages employees to consider the needs of their community, and to give back through financial aid as well as volunteering, with a focus on making meaningful contributions to the communities in which we operate.*

## **PRIMARY SPONSORSHIPS**

The Stars Foundation provides emergency medical care and transportation to critically ill or injured patients across Alberta, Saskatchewan and Manitoba. The emergency air ambulance service delivered by STARS provides a lifeline for many of those working and living in remote areas. STARS is a charitable, not-for-profit organization that relies on government, corporate and community support. Cardinal is proud to be an ongoing supporter of STARS.

Since 1989, CUPS has helped Calgarians overcome adversity and build resilience that spans generations. In 2018, CUPS was named one of Canada's Top 10 Impact Charities by Charity Intelligence for the second year in a row. Through integrated healthcare, education and housing, CUPS and its partners will assist adults and families in Calgary that are living with the adversity of poverty and a history of traumatic events to become self-sufficient.



When making long-term contributions, Cardinal selects organizations that offer **highly impactful programs**

## EMPLOYEE-DRIVEN SUPPORT

As part of Cardinal's charitable donation policy, a percentage of the funding earmarked for charities is directed to support civic organizations and foundations within the communities in which we operate. The program's goal is to help registered charities and organizations that directly benefit members of the local community, and to assist groups that would not normally attract funding. Some of the organizations that Cardinal supported in 2021 include:

- Medicine Hat Women's Shelter
- Brooks Food Bank
- Prairies Rose School Division
- Means for Mom's Society
- Halo Rescue
- Beaver County Victim Services
- Irma Fire Fighter's Association
- Beaverlodge Fire Department
- Slave Lake Hospital Auxiliary
- Slave Lake & District COC Riverboat Daze
- Swan River First Nation
- Sawridge First Nation
- Landon Persson Memorial Fund
- CJ Shurter School
- Tennille's Hope Kitchen
- Grizzly Firefighter's Association
- Weyburn Group Home Society
- Weyburn Humane Society
- Family Place – Weyburn
- Big Brothers/Sisters Estevan
- Inclusion Weyburn
- Envision
- Lesser Slave Watershed Council



Cardinal employee, Dave LaFrance (left) and LSWC Executive Director, Meghan Payne (right)

*Employees are encouraged to submit funding requests that are **specific to each of our operating areas.***

## PERFORMANCE MEASURES

	2021	2020	2019
<b>PRODUCTION</b>			
Total production (boe/d)	19,090	18,442	20,319
<b>AIR EMISSIONS</b>			
Direct GHG emissions (10 <sup>3</sup> tonnes CO <sub>2</sub> e) <sup>1</sup>	231	160	188
GHG sequestered (10 <sup>3</sup> tonnes CO <sub>2</sub> e)	242	188	280
GHG emissions intensity (tonnes CO <sub>2</sub> e per boe) <sup>1</sup>	0.033	0.024	0.025
Indirect GHG emissions (10 <sup>3</sup> tonnes CO <sub>2</sub> e) <sup>1</sup>	228	259	277
Flared natural gas (10 <sup>3</sup> m <sup>3</sup> /yr)	12,404	7,873	8,428
Vented natural gas (10 <sup>3</sup> m <sup>3</sup> /yr)	4,178	3,727	5,609
Methane emissions (10 <sup>3</sup> tonnes CO <sub>2</sub> e) <sup>1</sup>	66	NPR <sup>4</sup>	NPR <sup>4</sup>
<b>SPILLS</b>			
Reportable spills <sup>3</sup>	13	15	29
<b>PERSONAL SAFETY</b>			
Recordable injuries <sup>4</sup>	1	3	2
Recordable injury frequency (per 200,000 man-hours)	0.49	1.48	0.87
Lost time injuries	-	-	-
Lost time injury frequency (per 200,000 man-hours)	-	-	-
Fatalities	-	-	-
<b>PEOPLE</b>			
Total staff (employees & contractors)	198	190	214
Gender diversity (% female)	20%	15%	15%

1) Air emissions are calculated using industry standards and best practices in the associated jurisdiction for which our Operations take place (including Western Climate Initiative for British Columbia, Alberta Greenhouse Gas Quantification Methodologies under the TIER Regulation for Alberta, The Management and Reduction of Greenhouse Gases for Saskatchewan, and Environment and Climate Change Canada's National Inventory Report). Emissions quantification methodologies were revised during 2021 to align with several changes to these recognized industry standards, and in doing so were responsible for the vast majority of the apparent year-over-year emissions increase. As an example, the direct emissions increase from 2019 levels would have only been 1%, as compared to the above indicated 23%, had current emissions quantification methodology been applied in 2019.

2) Spills reported to a regulatory agency, as required in the jurisdiction where a spill occurs, excluding fresh water spills.

3) Recordable injuries include fatalities, permanent total disabilities, lost work cases, restricted work cases and medical treatment cases.

4) Not previously reported





## ASSUMPTIONS & TERMS

**Abandoned (facilities)** – The permanent removal and dismantling of all surface infrastructure

**Abandoned (pipelines)** – A pipeline that has been physically disconnected from an active pipeline system, purged of any hydrocarbon substance or salt water, filled with fresh water, air or inert gas, and physically sealed on all ends

**Abandoned (wells)** – Well abandonment requires: the plugging of any completed production zones; isolation of all porous and groundwater zones; filling the well with non-saline water, or other noncorrosive fluid; assessing to ensure its long-term integrity; and finally cutting the well casing a minimum of one meter below the surface and placing a vented cap on top of the well casing

**CO<sub>2</sub>e** – Carbon dioxide equivalent

**Direct emissions** – Are from sources that are owned and operated by Cardinal, such as fuel for engines and heaters, flares, methane venting from pneumatics and fugitive emissions

**GHG** – Greenhouse gas

**Indirect emissions** – Are GHG emissions related to sources of purchased electricity or heat

**Sequester** – The process of capturing and storing atmospheric carbon dioxide as a means of reducing its presence in the atmosphere and mitigating global climate change

## ADVISORIES

We have taken care to ensure the information in this report is accurate. However, this report includes aspirational goals and estimates, which will differ from actual results, and is for informational purposes only. We disclaim any liability whatsoever for errors or omissions. Further, some information in this report may have been disclosed previously in other Cardinal public disclosure, and such disclosure is not intended in any way to be qualified, amended, modified or supplemented by information herein.

Material may be used within this report to describe issues for voluntary sustainability reporting that are considered to have the potential to significantly affect sustainability performance in our view and may be important in the eyes of internal or external stakeholders. However, material for the purposes of this report should not be read as equating to any use of the word in other Cardinal public reporting or filings. With this report, we hope to increase your knowledge of Cardinal and our operations. However, this report does not provide investment advice, and readers are responsible for making their own financial and investment decisions.

There is no single standard system that applies across companies for compiling and calculating the quantity of GHG, nitrogen oxide, sulphur dioxide emissions and other sustainability metrics attributable to our operations. Accordingly, such information may not be comparable with similar information reported by other companies. Our emission statistics are derived from various internal reporting systems that are generally different from those applicable to the financial information presented in our consolidated financial statements and are, in particular, subject to less sophisticated internal documentation as well as preparation and review requirements, including the general internal control environment. We may change our policies for calculating these emissions and other sustainability metrics in the future without prior notice.

In this report, Cardinal has used a number of oil and gas metrics which do not have standardized meanings and therefore may be calculated differently from the metrics presented by other oil and gas companies. Boe means barrels of oil equivalent. The term Boe may be misleading, particularly if used in isolation. The conversion ratio of six thousand cubic feet per barrel (6 Mcf: 1 Bbl) of natural gas to barrels of oil equivalent is based on an energy equivalency conversion method primarily applicable at the burner tip and does not represent a value equivalency at the wellhead. Given that the value ratio based on the current price of crude oil as compared to natural gas is significantly different from the energy equivalency of 6:1, utilizing a conversion on a 6:1 basis may be misleading as an indication of value.

This report contains forward looking statements and forward-looking information (collectively, "forward-looking statements") related to future, not past events and circumstances – including those which may relate to our strategies, focus, goals, ambitions, aims, targets, plans, objectives, operations, results and financial performance. The use of any of the words "will", "may", "anticipate", "expect", "objective", "believe", "plans", "intends", "potential", "continue", "guidance", and similar expressions are intended to identify those forward-looking statements.

Forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will or may occur in the future including, without limitation, those risks considered under "Risk Factors" in Cardinal's Annual Information Form and which may be outside of our control. Readers are cautioned that the assumptions used in the preparation of such information, although considered reasonable at the time of preparation, may prove to be imprecise and, as such, undue reliance should not be placed on forward-looking statements. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievement since such expectations are inherently subject to significant business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause our actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on our behalf, in this report.

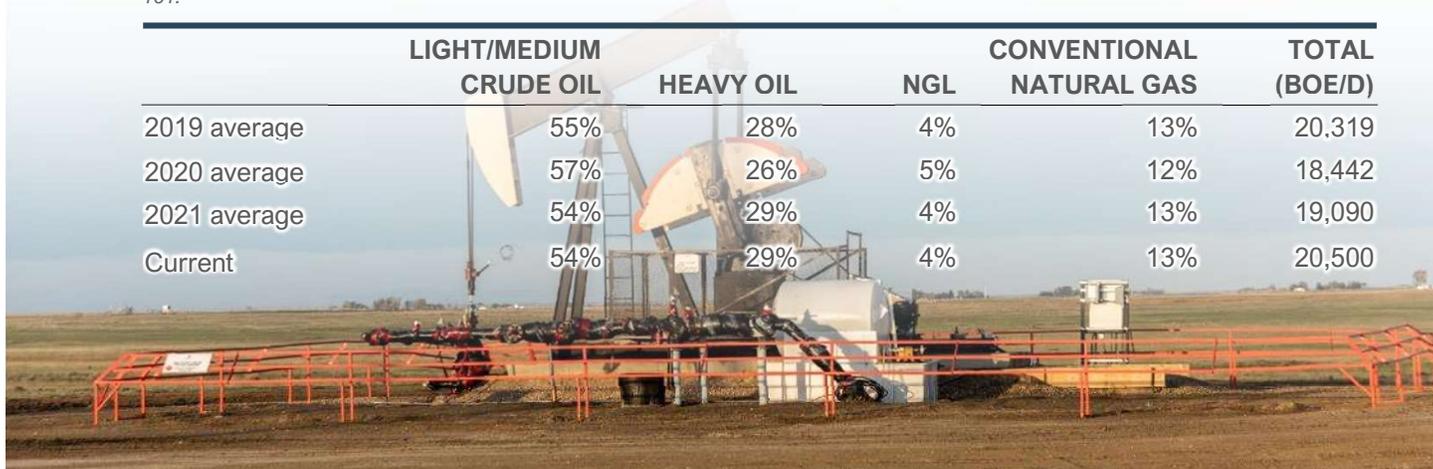
We have included the forward-looking statements in this report in order to provide readers with a more complete perspective on our future operations and such information may not be appropriate for other purposes. Cardinal disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

This report contains information from publicly available third party sources. Although management believes it to be reliable, Cardinal has not independently verified any of the data from third-party sources referred to in this document or analyzed or verified the underlying studies or surveys relied upon or referred to by such sources, or ascertained the underlying economic assumptions relied upon or referred to by such sources.

### Supplemental Information Regarding Product Types

This report includes references to production. The following table is intended to provide the product type composition as defined by NI 51-101.

	LIGHT/MEDIUM CRUDE OIL	HEAVY OIL	NGL	CONVENTIONAL NATURAL GAS	TOTAL (BOE/D)
2019 average	55%	28%	4%	13%	20,319
2020 average	57%	26%	5%	12%	18,442
2021 average	54%	29%	4%	13%	19,090
Current	54%	29%	4%	13%	20,500



## CONTACT US

600, 400 – 3 Ave SW

Calgary, AB

T2P 4H2

T: 403-234-8681

[info@cardinalenergy.ca](mailto:info@cardinalenergy.ca)

**FOCUSING ON A SUSTAINABLE FUTURE**



**CARDINAL**  
ENERGY LTD.