



CARDINAL
ENERGY LTD.

2019

ENVIRONMENTAL, SOCIAL & GOVERNANCE REPORT

FOCUSING ON A SUSTAINABLE FUTURE

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ABOUT THIS REPORT

This report is Cardinal Energy Ltd.'s first 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 first report we do not reference any select standards but comment generally on these topics. This report contains information compiled and assessed through January 2020. We plan to expand and update this report in 2020 and beyond.

This report was approved by our executive team and Board of Directors. References to Cardinal, our, we 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 annual report; 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 or through SEDAR at www.sedar.com.

Should there be questions regarding this report, please direct them to info@cardinalenergy.ca.





OUR PHILOSOPHY

Cardinal’s environmental, social and governance (ESG) philosophy is rooted in the fact that both the Company’s assets and the demand for oil will be around for decades to come.

Physical limitations with current wind, solar and battery technology constrain their ability to become viable replacements for energy produced from hydrocarbons. We believe, and science confirms, that unless there is a material decrease in global energy demand, the world will continue to need, and be reliant upon, oil and natural gas as the primary source of its energy supply.

So, how does Cardinal fit into this equation? Our long-life, ultra low-decline asset base puts us in an advantageous position in our industry and will ensure a long-term stable platform from which to create a better, more sustainable oil and gas production company.

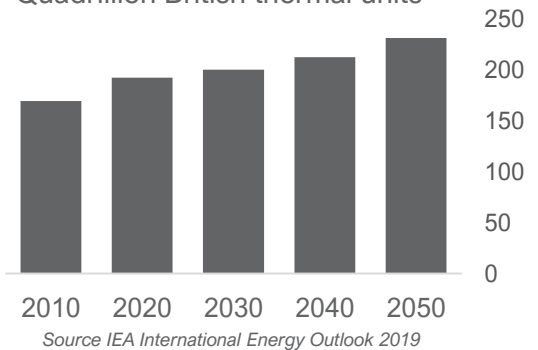
Since Cardinal’s inception in 2013, we have remained committed to managing and operating our business in a safe, efficient and environmentally responsible manner and we are pleased to illustrate this progress in our inaugural ESG report.

This ESG report reflects Cardinal’s success in balancing efficient and leading-edge operational execution with an unwavering commitment to protecting the health, safety and security of our employees, contractors and the communities in which we operate.

M. Scott Ratushny
Chief Executive Officer

PROJECTED WORLD PETROLEUM & LIQUIDS CONSUMPTION

Quadrillion British thermal units





TOTAL EMPLOYEES
64 Office / 116 Field



TOTAL PRODUCTION
20,000+ BOE/D

CARDINAL ENERGY

Since 2013, we have grown production from 1,400 barrels of oil equivalent per day (boe/d) to average more than 20,000 boe/d in 2019. Our production base is made up of approximately 83% crude oil, 13% natural gas and 4% natural gas liquids. During that same time, our team has grown from 15 to 180 total employees and we have built a significant portfolio of long-life, sustainable assets.

Our experienced and skilled team of more than 64 office and 116 field employees is fully committed to continually improving our environmental, health, safety and social performance as a fundamental pillar of maintaining sustainable growth.

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

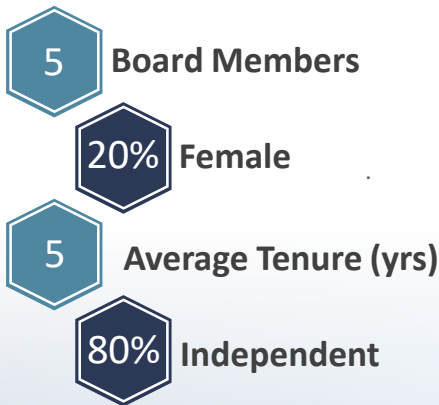


Cardinal believes that good governance stems from our culture of a commitment to conduct our business responsibly and with integrity

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.

More information about the mandates of each committee can be found on our website at www.cardinalenergy.ca.



Safety is a core element throughout the organization and is kept top-of-mind in everything we do

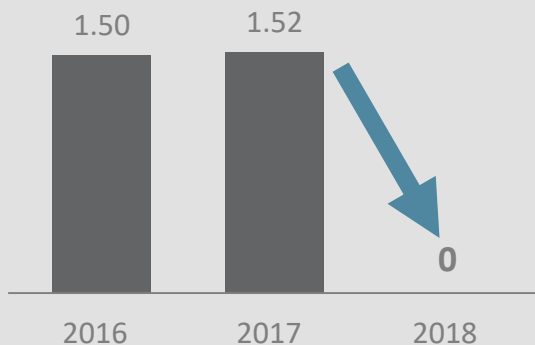
HEALTH & SAFETY

Cardinal strives for an injury-free workplace for our employees and contractors and we promote a safety culture through systems, processes and continued learning to mitigate risks. Safety is a core element across the organization and is kept 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. We continuously plan and practice effective responses to unlikely incidents, always prioritizing worker and community safety as well as environmental protection.

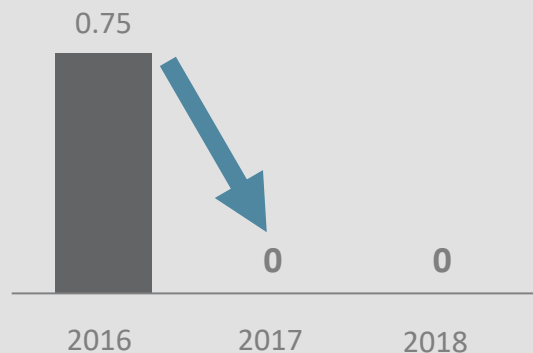
RECORDABLE INJURY FREQUENCY

Per 200,000 man-hours



LOST-TIME INJURY FREQUENCY

Per 200,000 man-hours



Cardinal achieved zero lost-time injuries in 2017 and 2018, and zero recordable injuries in 2018.

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

THE ENVIRONMENT IS A STAKEHOLDER

We consider the environment as a stakeholder and an integral part our business and strong 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
- Watersheds
- Asset Retirement
- Risk Mitigation



1.54 tonnes
*of CO₂ equivalent sequestered
 for every tonne of CO₂ equivalent
 emitted*

EXCEEDING NET ZERO EMISSIONS

The cornerstone from which Cardinal will continue to grow and evolve our ESG mandate is our current and future net zero emissions. Our direct operations sequester more CO₂ than our operations emit (1.54 tonnes of CO₂ equivalent sequestered for every tonne of CO₂ equivalent emissions in 2018) making Cardinal unique among oil and gas producers.

In mid-2017, Cardinal acquired the majority interest and operatorship of the Midale Unit in southeast Saskatchewan. The Midale Unit is a world-class CO₂ injection-enhanced oil recovery project in which CO₂ from industrial sources is injected into the oil bearing formation and works to swell and mix with the oil, allowing it to better move through the reservoir where it is recovered and reinjected as a part of production operations.

In 2018, Cardinal injected and stored more than 293,000 tonnes of CO₂ in our Midale operation. This is the equivalent of permanently removing more than 11,000 cars from the road and resulted in Cardinal's first year with a net negative greenhouse gas intensity for every barrel of oil we produced.

CARDINAL NET DIRECT GHG EMISSIONS
 10³ tonnes CO₂e

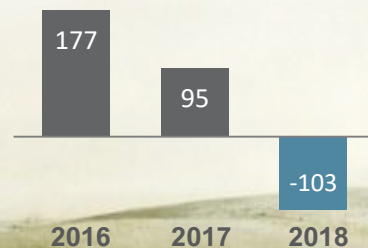




Photo courtesy of Lesser Slave Watershed Council

WATERSHEDS

Cardinal's long life assets that create our sustainable model are predominantly operated as Enhanced Recovery (ER) schemes. These ER schemes require the injection of fluids or gases back into the reservoir to maintain voidage, resulting in high percentages of the original hydrocarbon in place being recovered. Produced water is re-injected and fresh water sources are utilized to maintain voidage. Cardinal is committed to ensuring the continued health of the source watersheds in which we operate.

In 2018, Cardinal joined the Foothills Stream Crossing Partnership (FSCP), a multi-industry partnership, focused on ensuring fish passage is not obstructed by road networks. Within its northern operations, Cardinal maintains an extensive private road network and, as such, has committed to working with forestry companies, other oil and gas operators, municipalities and the provincial government to ensure that potential aquatic habitat fragmentation is minimized.

In collaboration with the FSCP, Cardinal has developed an extensive inventory of locations where its private roads intersect fish-bearing waterbodies and has been working towards eliminating any barriers to fish passage. Since 2017, Cardinal has conducted remedial road work that has re-connected more than 19 kilometers of streams previously fragmented by culverts that were found to be impacting fish migration. This work has extended potential spawning habitat for native fish, particularly Arctic Grayling, which are a Species of Special Concern in Alberta.

Cardinal is a member of the Lesser Slave Watershed Council (LSWC), a non-profit organization dedicated to the promotion of the long term economics, social and environmental sustainability of the watershed.



**Foothills Stream
Crossing Partnership**

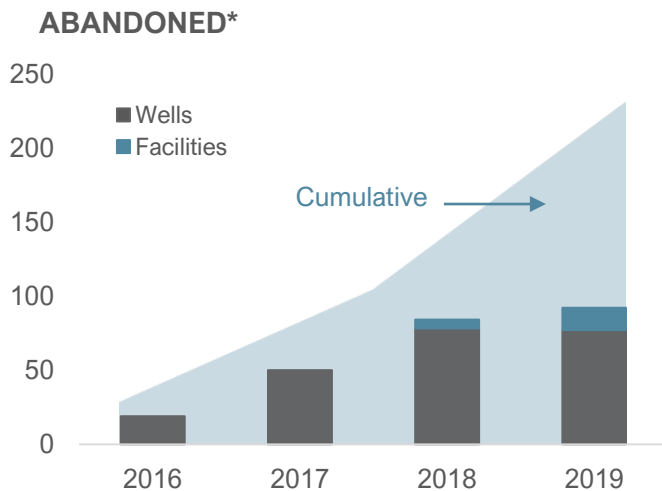




ASSET RETIREMENT

Cardinal continues to be an active operator and participant in the management of future liabilities and Asset Retirement (AR). We recognize the importance of timely AR 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.

In 2019 and continuing into 2020, we are a participant in the Alberta Energy Regulator’s (AER) voluntary Area Based Closure (ABC) program. The ABC program is a committed spend requirement which then allows companies to focus abandonment and reclamation efforts in geographical areas, thus increasing efficiency and resulting in cost savings while promoting full closure to inactive areas. We have exceeded our spend requirement for 2019.



We abandoned 245 wells between 2016 to 2019 and focused on decommissioning facilities

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

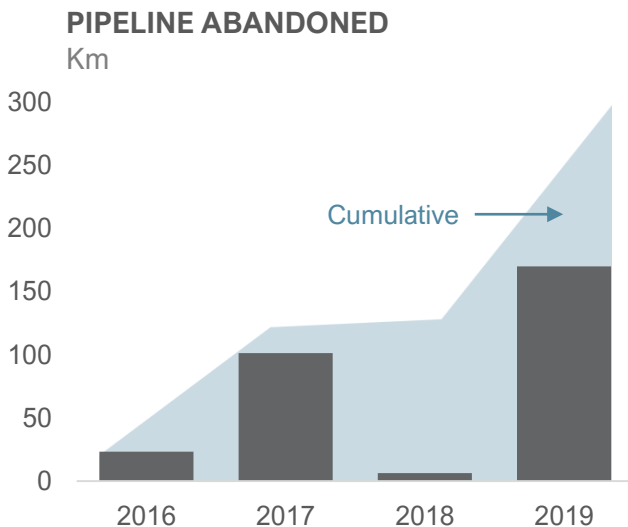


RISK MITIGATION

We are managing our assets in such a way as to mitigate the potential for spills. Spills result in costly cleanups and often an interruption of operations. There are also the potential for impacts to air, land and water, thus impacting our stakeholders. Prevention is the best way to reduce spill risk. We have an extensive asset integrity program that ranks assets for spill risk as well as implement systems for early spill detection.

- Higher risk infrastructure is identified by internal pipeline inspections such as smart pigging.
- Pipeline right of way surveillance is done. Drones and aircraft surveillance are used in more remote areas.
- We utilize leak detection technologies to identify slow releases and spills at early stages to minimize impact and to enable timely response.
- High risk pipelines are discontinued, abandoned or replaced.

Since 2016 Cardinal has abandoned some 300 kilometers of pipeline infrastructure.



We abandoned 250+ km of pipeline between 2016 to 2019

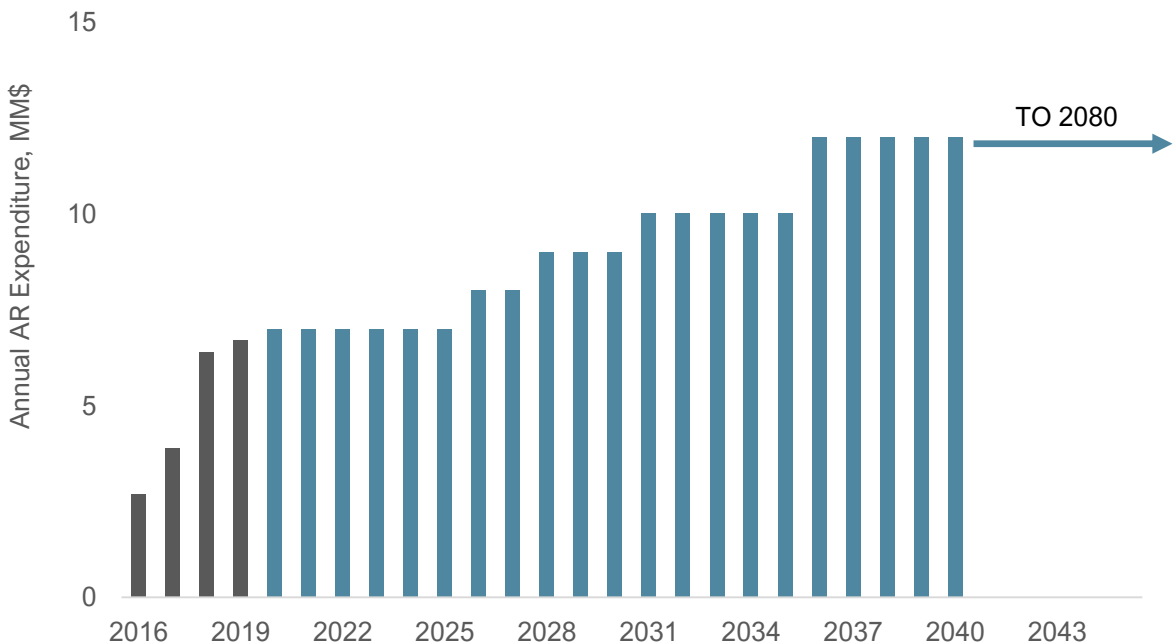
*In the next 20 years,
Cardinal is estimated to
spend approximately \$200
million on AR*

Photo by Ron Davis – courtesy of Lesser Slave Watershed Council

COMMITMENT TO SPEND

Cardinal has committed to meet and exceed any regulatory requirements for Asset Retirement (AR) spending. Our low decline long life assets can be expected to provide predictable future cash flow in excess of 50 years, resulting in a manageable spending commitment every year.

ACTUAL AR SPEND TO 2019 & FORECAST EXPENDITURES



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

COMMUNITY

Cardinal believes we can contribute to the well-being of the communities where we operate by supporting programs in education, health and wellness, arts and culture and other local initiatives.

Cardinal's community giving program includes a corporate program and a field-based program for each business unit.

Cardinal also has a corporate matching program which allows employees to make an annual donation to the organization of their choice at a specified amount and have it matched by Cardinal.

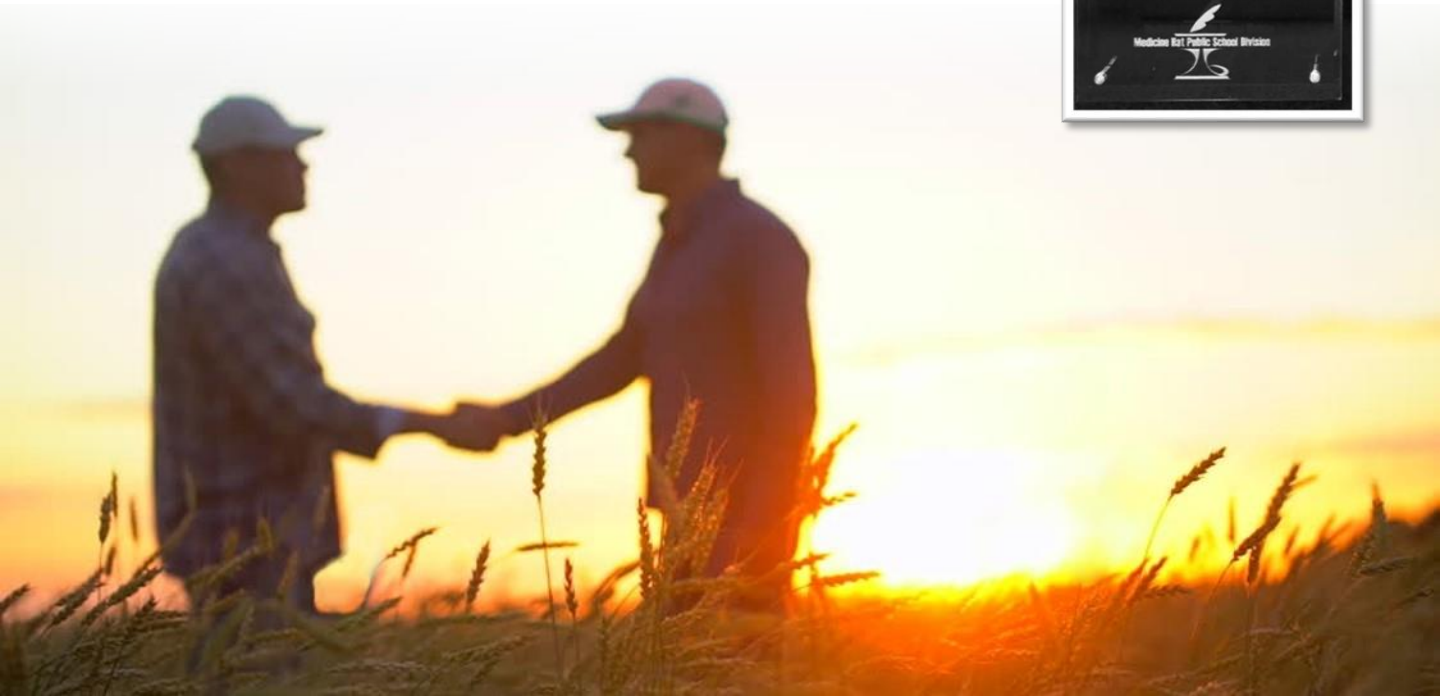
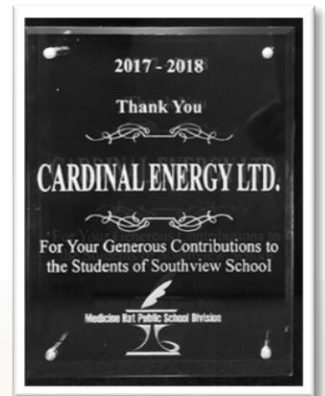


Dear Cardinal Energy Staff,

The Staff and Students at Southview Community School want to thank you for your kindness and generosity that was shown to us in December by bringing Santa and Christmas to our school.

The day was amazing as was evident by the smiles on all the faces of our students. There was so much joy and excitement!

Southview Community School
Medicine Hat, AB



Our charitable giving is focused on **four distinct programs**, including major 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.

MAJOR SPONSORSHIPS

STARS[®]

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.



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

Giving back to the community has been a core part of Cardinal's philosophy since inception

CHRISTMAS PROGRAM

Since its inception, Cardinal has chosen to forego staff Christmas parties and earmarked those funds to help the less fortunate during the holiday season. Cardinal has supported two schools, one in Calgary (since 2013) and one in Medicine Hat (since 2015). At each of the schools, our staff arrives with a Christmas lunch, entertainment and a gift for each child.

In addition to school sponsorships, employees in our Central and North Business Units also fill Christmas hampers and donate them to families in need throughout their local communities.

“

You guys are so amazing, this is so much fun for the kids, and for most of them this is their only Christmas.

-

I'm going into grade 7 next year and I am really going to miss you, I've been here every year for this party, and it is so much fun.

-

This is the best present I have ever had. Thank you thank you!!

”



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 2019 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

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

Employees are encouraged to put forward funding requests that are specific to each of our operating areas

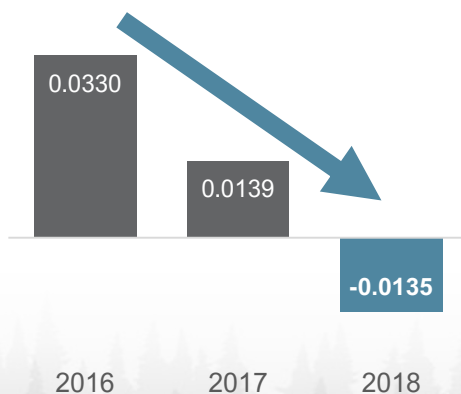


PERFORMANCE MEASURES

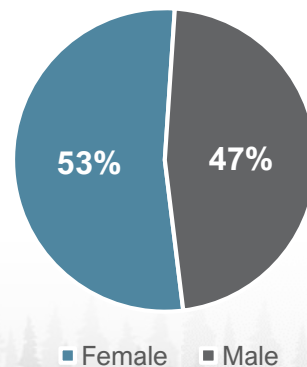
| | 2018 | 2017 | 2016 |
|--|---------|--------|--------|
| PRODUCTION | | | |
| Total Production (Boe/d) | 20,858 | 18,707 | 14,611 |
| AIR EMISSIONS | | | |
| Direct GHG emissions (10 ³ tonnes CO ₂ e) ¹ | 191 | 195 | 177 |
| GHG Sequestered (10 ³ tonnes CO ₂ e) | 294 | 100 | - |
| Net Direct GHG emissions (10 ³ tonnes CO ₂ e) | -103 | 95 | 177 |
| Net GHG Intensity (tonnes CO ₂ e per boe) | -0.0135 | 0.0139 | 0.0330 |
| Flared gas (10 ³ m ³ /yr) | 6,590 | 5,338 | 6,095 |
| Vented gas (10 ³ m ³ /yr) | 5,813 | 6,513 | 6,184 |
| Nitrogen oxides emissions (tonnes) ² | 473 | 546 | 1,051 |
| Sulphur dioxide emissions (tonnes) ² | 64 | 76 | 236 |
| SPILLS | | | |
| Reportable spills ³ | 17 | 18 | 17 |
| PERSONAL SAFETY | | | |
| Recordable injuries ⁴ | - | 3 | 2 |
| Recordable injury frequency (per 200,000 man-hours) | - | 1.52 | 1.50 |
| Lost time injuries | - | - | 1 |
| Lost time injury frequency (per 200,000 man-hours) | - | - | 0.75 |
| Fatalities | - | - | - |
| PEOPLE | | | |
| Total staff (employees & contractors) | 227 | 236 | 172 |
| Gender diversity (% female) | 19% | 16% | 18% |

- 1) Emissions are calculated using locally regulated methodology or locally recognized industry standard.
- 2) Sourced from public data – National Pollutant Release Inventory (NPRI).
- 3) Spills reported to a regulatory agency, as required in the jurisdiction where a spill occurs, excluding fresh water spills.
- 4) Recordable injuries include fatalities, permanent total disabilities, lost work cases, restricted work cases and medical treatment cases.

NET GHG INTENSITY Tonnes CO₂e per boe



2018 EMPLOYEE MIX Office



ASSUMPTIONS & TERMS

CO₂e – 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

Net direct GHG emissions – Cardinal's direct emissions minus GHG emissions sequestered

Average car emissions – an average car emits 4.6 tonnes of CO₂e per year (U.S. Environmental Protection Agency estimate)



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 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.



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FOCUSING ON A SUSTAINABLE FUTURE