

2018

# Sustainability Report

Pembina Pipeline Corporation





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# About this Report

Pembina is pleased to present our inaugural Sustainability Report, which allows us the opportunity to share key performance metrics with our customers, investors, communities and employees. By publishing this report, we are establishing a strong foundation and taking an important step towards reporting sustainability issues moving forward.

The terms "Pembina", "our", "we", "us", "our Company" and "the Company" refer to Pembina Pipeline Corporation, combined with its subsidiaries.

At Pembina, we publish a full-length sustainability report on a biennial basis and, in interim years, we provide an update of our performance for key sustainability metrics on our website. This report covers performance metrics for the 2015 to 2017 calendar years. Unless otherwise noted, the data reflects all Pembina majority-owned and operated assets. Assets which are jointly-owned and which Pembina does not operate are excluded. The assets assumed by way of the acquisition of Veresen Inc., which closed on October 1, 2017, are also excluded in the reporting data.

The structure and contents of this report were informed by sustainability issues considered reasonably likely to have material impacts on the financial condition or operating performance of Pembina, as identified by the Sustainability Accounting Standards Board (SASB), as well as other internationally recognized frameworks, including: Institutional Shareholder Services (ISS) Assessment Components; the Global Reporting Initiative's (GRI) Sustainability Reporting Standards; and, the Task Force on Climate-related Financial Disclosures (TCFD). Materiality issues are discussed in four priority focus areas for this report:



## Safety and Asset Integrity

- Health and Safety
- Asset Integrity



## Environmental Stewardship

- GHG Emissions
- Land use and Biodiversity



## Social Well-being

- Aboriginal and Tribal Relations
- Community Investment
- Workforce



## Economic Contributions

- Our Economic Contributions and Financial Performance

The information included in this report has been subjected to an internal review process. All data has been reviewed by the relevant executives responsible for each priority focus area. Except for financial information sourced from Pembina's audited financial statements, the information in this report has not been subject to a third-party audit process. The methodologies used to collect and quantify environmental information herein align with our peers, industry best practices and applicable regulatory and environmental standards.

Pembina fosters a culture of continuous improvement. In this regard, we invite stakeholders and interested parties to provide feedback on this report or any facet of our performance. Please email us at [sustainability@pembina.com](mailto:sustainability@pembina.com) or visit the [Contacts](#) page of our website for other ways to reach us.

The Safety and Environment (SE) Committee and the Human Resources, Health and Compensation (HRHC) Committee of Pembina's Board of Directors monitors compliance with the Company's Health, Safety and Environment (HSE) Policy through regular reporting. Pembina's integrated Operating Management System and its Programs are modeled after several regulatory requirements and industry best practices, such as the National Energy Board Onshore Pipeline Regulations and the Occupational Health and Safety Assessment Series (OHSAS 18001) for occupational health and safety.

All financial figures are expressed in Canadian dollars unless otherwise noted.

This report contains forward-looking statements which are based on certain assumptions and expectations and subject to certain risks which could cause actual performance and results to differ materially. For more information on forward-looking statements and information, please refer to "Forward-Looking Statements and Information" in this report.

This report refers to the terms net revenue and adjusted earnings before interest, taxes, depreciation and amortization (Adjusted EBITDA), which do not have any standardized meaning under IFRS ("Non-GAAP Measures"). Please refer to "Non-GAAP Measures" in this report.

This report also refers to certain other terms commonly used to satisfy sustainability reporting requirements. These terms are not necessarily used by Pembina in the management of the business.

# Message from our President and CEO

We are proud to release Pembina's inaugural Sustainability Report. This report marks the beginning of our efforts to consolidate and share our work in the areas associated with corporate sustainability, but we've been having these conversations with stakeholders at the grass-roots level for decades and, likewise, have been working towards continuous improvement in many key areas within our Company for years.

Over the reporting periods within this document, we have significantly expanded our asset base, increased our workforce and broadened our geographic reach. Through this transformative time in the history of our Company, we have gathered meaningful comparative information with respect to sustainability issues to understand how Pembina is situated within our peer group and within the broader corporate social responsibility landscape. We are excited to be

taking this first step to share our progress and communicate our vision for sustainability at Pembina.

At Pembina, we're in business for all our stakeholders — our customers, our investors, our employees and our communities. Our commitment to delivering benefits to each of these groups is the 'Purpose' of our Company, and is the foundation of everything we do. Fulfilling our purpose means: **customers** choose us first for reliable and value-added services; **investors** receive sustainable, industry-leading total returns; **employees** say we are the 'employer of choice' and value our safe, respectful, collaborative and fair work culture; and **communities** welcome us and recognize the net positive impact of our social and environmental commitment.

When it comes to our employees, I'm constantly impressed by their talent, dedication and generosity. Our employees worked tirelessly to help deliver our record operational and financial results, and yet still found time to volunteer over 4,000 hours of their time in our communities last year. In recognition of the significant contribution made by our people, Pembina provided every active employee with an additional five days of paid vacation in 2018.

As our workforce has grown, so has our commitment to diversity. We have established an official Diversity and Inclusion Advisory Group, as well as a Board Diversity Policy, all in service of promoting diversity across the organization. Since that time, we have added another female director to our board



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for a total of three women (25% of our Board is now female), while increasing the board's geographic, educational, experience, and age diversity. The result of our efforts to be the 'employer of choice' continues to be recognized, with Pembina named one of Canada's Top 100 Employers, and, for the fourth consecutive year, one of Alberta's Top 70 Employers.

We strive to build lasting relationships with the communities where we operate, as these communities allow us to conduct our business where they live, work and play. We believe these relationships are vital to the success of our Company and each begins with the trust communities place in Pembina as a safe operator and extends to the positive contributions we make as fellow citizens of the community. Pembina has always been committed to ensuring our infrastructure is designed, constructed and operated in a safe and environmentally-responsible manner and I am proud to report that we met our goal of zero pipeline or facility incidents in 2017. On top of our daily commitment to safe, reliable operations, we contribute to communities through employment and business development opportunities, as well as community investments, both financial and in-kind. Part of our Purpose is to have a net positive impact in communities, and I'm very proud of Pembina's commitment to giving back and continuously looking for ways to improve upon our new and established relationships. As the Company continues to grow, we're in the unique position of being able to increase the funds that we invest in communities. Between 2017 and 2018, we

have nearly doubled our impact, moving from \$4.1 million to \$7.5 million, and we've committed to another increase in 2019, all the way to \$10 million. Looking forward, we are re-working our employment and training program and developing a three-year Aboriginal and Tribal and Community Relations Strategy. Within our Community Investment Program, we are aiming to expand the scope of some of our investments and better quantify the outcomes from our program, particularly with respect to Aboriginal and Tribal investments.

We recognize that our projects and operations can have an impact on the environment, and we look for ways to minimize and manage these impacts. This includes thoughtful land use planning processes, cleaning up historical contaminated sites to today's standards, and investing in our infrastructure to ensure product is not released from our pipelines. As you will see in the report, Pembina's greenhouse gas (GHG) emissions have mostly been reduced on a per-facility basis, but our overall direct emissions have increased over the past three years due in large part to the Company's growth and asset changes. We will continue to measure, assess and review means to minimize our operational emissions.

Preparing this report has given us the opportunity to reflect on our strengths, as well as uncover opportunities for improvement, as we continue to strive to be the leader in delivering integrated energy infrastructure solutions connecting global markets. We are very proud of who we are at Pembina and what we have accomplished during our over 60-year operating history. This

reporting process serves as a tool for greater accountability in all areas of our business, and is a means to share our continuous improvement journey and our efforts to deliver a net positive impact to all our stakeholders. We expect to issue these reports biennially and provide updated performance metrics and data in summary form on our website on an annual basis.

Thank you for taking the time to read our inaugural report, and I invite you to engage with us by asking questions, providing feedback and telling us how we're doing.

Sincerely,



**Michael (Mick) H. Dilger**  
President and Chief Executive Officer

# Performance at a Glance

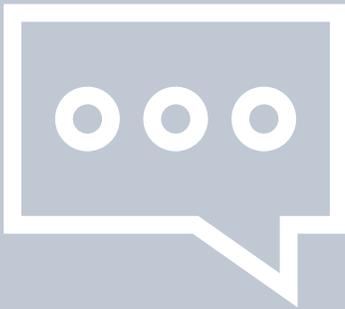
		2015	2016	2017	Page
<b>Safety and Asset Integrity</b>					
<b>Health and Safety</b>	Employee fatalities (#)	0	0	0	15
	Employee total recordable injury frequency (TRIF)	0.29	0.14	0.19	15
	Employee motor vehicle incident frequency (MVI)	0.76	0.83	1.36	15
	Third-party contractor fatalities (#)	0	1 <sup>1</sup>	0	15
	Third-party contractor total recordable injury frequency (TRIF)	1.05	1.02	1.14	15
	Third-party contractor motor vehicle incident frequency (MVI)	1.62	1.41	1.82	15
<b>Asset Integrity</b>	Pipeline integrity, geotechnical and facility integrity investment (\$ million)	132	96	82	17
	Reportable spills (#)	4	11	0	18
	Released substances (m <sup>3</sup> )	32	84	0	18
<b>Environmental Stewardship</b>					
<b>GHG Emissions</b>	Direct GHG emissions (tCO <sub>2</sub> e)	680,457	795,137	1,011,717	20
	Total direct emissions intensity (tCO <sub>2</sub> e/BOE)	0.0047	0.0054	0.0063	20
	Indirect GHG emissions (tCO <sub>2</sub> e)	790,211	900,277	955,565	21
<b>Land Use and Biodiversity</b>	High-risk assessments completed as part of historic liability program (%)	48%	94%	100%	22
	High-risk wellsites receiving reclamation certificate as part of wellsite reclamation program (%)	0% <sup>2</sup>	29%	34%	22
<b>Social Well-being</b>					
<b>Aboriginal and Tribal Relations</b>	Aboriginal Environmental Program trainees (#)	7	59	20	25
	Aboriginal Environmental Program trainees subsequently employed by band-owned businesses or Pembina (#)	2	18	41	25
	Aboriginal communities engaged for services (#)	<i>Formal tracking began in 2016.</i>	28	37	26
	Aboriginal suppliers utilized (#)		68	112	26
<b>Community Investment</b>	Value to communities (\$ millions)	5.0	6.6	6.9	27
	Hours volunteered (#)	559	3,286	4,049	27
	Hours per employee (#)	0.4	2.4	2.5	27
<b>Workforce</b>	Permanent, full-time employees (#)	1,245	1,329	1,528	31
	Invoicing contractors, full-time (#)	426	417	539	31
	Fixed-term employees (#)	78	58	75	31
	New hire permanent employees (#)	231	157	287	31
	Women (permanent employee #/%)	349 / 28.0%	364 / 27.4%	427 / 27.9%	31
	Aboriginal peoples (permanent employee #/%)	53 / 4.3%	57 / 4.3%	65 / 4.3%	31
	Persons with disabilities (permanent employee #/%)	14 / 1.1%	15 / 1.1%	14 / 0.9%	31
Visible minorities (permanent employee #/%)	130 / 10.4%	126 / 9.5%	145 / 9.5%	31	
<b>Economic Contribution</b>					
<b>Our Financial Performance</b>	Total economic value generated (\$ millions)	1,507	1,764	2,246	35
	Employee wages and benefits (\$ millions)	254	299	350	35
	Payments to governments (\$ millions)	80	100	94	35

<sup>1</sup> On April 27, 2016, a prime contractor was fatally injured while working at the Williams' Redwater Olefinic facility located in Redwater, Alberta.

Press release: <http://www.pembina.com/media-centre/news-releases/news-details/?nid=135327>.

<sup>2</sup> Reclamation certificate reviews delayed by regulator until 2016.

# About Pembina



**Pembina is a leading transportation and midstream service provider that has been serving North America's energy industry for over 60 years.**

Pembina owns an integrated system of pipelines that transport various hydrocarbon liquids and natural gas products produced primarily in western Canada. The Company also owns gas gathering and processing facilities and an oil and natural gas liquids infrastructure and logistics business. Pembina's integrated assets and commercial operations along the majority of the hydrocarbon value chain allow it to offer a full spectrum of midstream and marketing services to the energy sector. Pembina is committed to identifying additional opportunities to connect hydrocarbon production to new demand locations through the development of infrastructure that would extend Pembina's service offering even further along the hydrocarbon value chain. These new developments will contribute to ensuring that hydrocarbons produced in the Western Canadian Sedimentary Basin, and the other basins where Pembina operates, can reach the highest value markets throughout the world.

Pembina's strategy is to:

- **Preserve Value** by providing safe, environmentally-conscious, cost-effective and reliable services;
- **Diversify** by providing integrated solutions which enhance profitability and customer service;
- **Implement Growth** by pursuing projects or assets that are expected to generate cash flow per share accretion and capture long-life, economic hydrocarbon reserves; and
- **Secure Global Markets** by understanding what the world needs, where they need it and delivering it.

At the beginning of 2018, the Company was reorganized into three operating divisions: Pipelines, Facilities and Marketing & New Ventures. This structure places similar assets together, creating centers of excellence, which will increase both reliability and cost-efficiency, and will provide better insight into our operations moving forward. Our focus is on conducting business in each of these areas reliably and with the goal of consistent improvements in safety, environmental and social performance, while delivering benefit to all stakeholders.

For a fulsome description of each division, financial performance, and visual representations of geographical footprint and our value chain, please refer to our [website](#), [investor presentations](#) and [financial documents](#).

Pembina is traded on the TSX (PPL) and NYSE (PBA).

# Our Approach to Sustainability

## Governance and Management Structure

### Our Board and Executive Leadership

We believe that positive corporate social responsibility starts at the top. Pembina's governance is structured around Pembina's Purpose, implemented by the Board and four Board committees, and Pembina's executive leadership through their charters, mandates and policies. The Board and executive are committed to maintaining a high standard of corporate governance. In addition to the charters and policies, the Board conducts itself in accordance with self-imposed Governance Guidelines, Board Diversity Guidelines and Director Independence Guidelines, all of which ensure the Board is operating independently, efficiently and in the best interests of Pembina's stakeholders.

### Board Oversight of Corporate Social Responsibility

In 2018, oversight of corporate social responsibility and overall sustainability was added to the charter of the [Governance, Nominating and Corporate Social Responsibility \(CSR\) Committee of the Board](#). The Governance, Nominating and CSR Committee is responsible for reviewing and making recommendations to the Board on all sustainability matters, including sustainable development, public awareness and consultation, issues management, environmental stewardship, external communications, government relations, Aboriginal and Tribal relations, community investment and human rights. The Governance, Nominating and CSR Committee also monitors Pembina's conduct of business, ensuring the Company operates in a

socially-responsible, ethical and transparent manner. The Governance, Nominating and CSR Committee oversees the development of this sustainability report and engages external advisors to provide education and information on sustainability matters and to bring an independent perspective to their work. Management reports periodically to the Governance, Nominating and CSR Committee on sustainability matters of relevance.

### Our Policies

To ensure that the Purpose of Pembina and our standards of business operations are upheld, Pembina maintains many policies, including a Code of Ethics Policy, Health, Safety and Environment Policy, and Whistleblower Policy. All policies apply to directors, executives, employees and consultants. Our employees are representatives of Pembina and their behaviour impacts our reputation. Each year, employees are required to re-familiarize themselves with our corporate policies and sign-off on their compliance. Through our onboarding process, we also ensure that our suppliers and contractors maintain an equivalent ethical and social standard and treat their employees as we treat our own.

We encourage all stakeholders to review our policies, Board charters and guidelines on our website at [www.pembina.com](http://www.pembina.com).

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Each year **100%**

of our staff recommit themselves to upholding our Pembina policies by reviewing and signing-off on each policy.

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# Management Systems

Pembina has an Operating Management System (OMS) in place which is comprised of our policies, as well as programs, standards and tools used to manage our operational risks and to define the 'Pembina Way of Operating'.

At Pembina, we define operational excellence as the provision of safe, environmentally-conscious, reliable, efficient and cost-effective customer-focused services. Our OMS is a key system that allows us to deliver operational excellence.

Operating Management Systems are designed to help companies define and achieve performance goals and stakeholder benefits, while managing the broad and significant range of risks inherent in the oil and gas midstream industry. "Operating" applies to every type of company activity, from construction to decommissioning, throughout the entire value chain and lifecycle of the business and its products. OMS offers an integrated approach and the flexibility to address some or all of a wide range of risks, impacts or threats related to occupational health and safety; environmental and social responsibility; and process safety, quality and security.



Figure 1 - Pembina's Operating Management System Programs

The OMS has eleven core programs (Figure 1), which you will find referenced in relevant discussions throughout this report.

Pembina has an Enterprise Risk Management (ERM) process that is designed to identify and assess potential risks that may affect our business, operations or results. The Board has oversight responsibility for risk management at Pembina. The executive Enterprise Risk

Committee oversees the risk review process, appropriateness, performance and the current business environment surrounding our risk management activities, and reports to the Board. Please see Pembina's [Management Information Circular](#) and [Annual Information Form](#) for additional details, including a description of key risks identified through this process.

# Stakeholder Engagement

At Pembina, building long-term relationships with stakeholders based on mutual trust is a top priority. Over the years, we have developed a reputation for honesty, transparency and treating stakeholders with respect. Pembina's purpose is centered on our relationship with our key stakeholders: customers, investors, employees and communities.

The main areas of interest for our **customers** include commercial, operational, financial, and logistical matters, as well as materials stewardship and supply chain sustainability. Pembina engages businesses through a range of methods, including our HSE pre-qualification screening and auditing, meetings (e.g. safety meetings, which include participants from Pembina staff, contractors, and our partners), and through our daily operations (e.g. inspections and field audits).

Pembina demonstrates a commitment to our **investors** by keeping them apprised of our financial performance and state. Specific areas of interest to this group include capital allocation, growth by acquisition and brownfield investments, and dividend sustainability. Our engagement with investors includes, but is not limited to, various informal and formal meetings (e.g. Annual General Meeting, analyst and investor briefings), financial statements, news releases, site visits, and information request responses.

Pembina strives to create a positive and healthy work environment for our **employees**. The primary issues of interest for our employees include training and development opportunities, the environment, health, safety, and well-being, as well as inclusion and diversity. Pembina engages with our employees through a multitude of avenues, including employee engagement surveys, regular meetings, annual reviews, town halls, and our monthly employee newsletter.

Pembina understands that engaging **communities** requires a wide range of methods to address the diverse interests of local landowners, and Aboriginal and Tribal

groups. These groups share concerns for the environment, as well as the health, safety, and well-being of community members.

We engage with communities, locally and globally, at all stages of projects, and periodically throughout every year. Part of building trust is ensuring we understand regional issues, so we can anticipate and manage the social impacts of our operations on local communities. Before a project begins, Pembina is in the field consulting with Aboriginal, Tribal and local communities, landowners and others affected by the proposed development. Our aim: to build relationships through learning about their needs and expectations, and to address potential concerns.

We know that effective engagement requires open, two-way communication and we employ many tools – including open houses, one-on-one discussions, site visits and community meetings – to identify and resolve issues and find solutions. In 2017, we hosted 153 community engagement events with the aim of better understanding community concerns as well as building on our already positive relationships with community members where we operate.

With respect to our relationship with landowners, Pembina proactively communicates with landowners in numerous ways, including one-to-one direct dialogue, town halls, open houses, and surveys to incorporate their feedback and address their concerns. Agreements are also negotiated with landowners to ensure that the terms and conditions of our operations are implemented in line with their expectations. Further,

Pembina issues post-construction follow up surveys for landowners to complete and send feedback. We incorporate this feedback into future project planning and use it to mitigate concerns along our rights-of-way. More broadly, Pembina's Damage Prevention and Public Awareness Program uses a variety of methods to communicate with community members and others about staying safe when living and working around our pipelines.

These communications are opportunities for feedback to be provided to Pembina that we can use to continuously improve.

Community members also express interests in local investment, infrastructure development, hiring, and procurement practices. Pembina encourages these conversations through discussions with key social agencies, hosting and participating in local events, and volunteering within local organizations.

Pembina also engages with Aboriginal and Tribal groups to consider their rights, desires, and concerns related to our operations. Our engagement with Aboriginal and Tribal communities is further described in the Aboriginal and Tribal Relations section of this report on page 24.

The feedback and input we receive from communities influences:

- Where we install our assets;
- What steps we take to minimize disruptions to the environment;
- What local labour and businesses we may use; and
- How we can make a positive impact through our community investment program.

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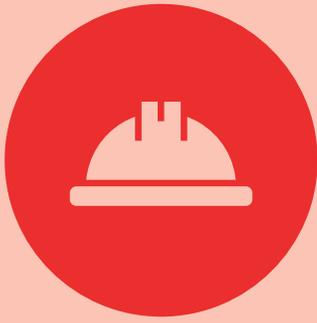
## Commitment to Landowners

Our asset base connects us directly to urban and rural communities and the environment. Because of this connection, we manage our business in a way that maintains respect for all three through our commitment to responsible development and safe practices in all stages of our development and operations. This includes how we engage with landowners.

Every effort is made to ensure that the land we use during construction is returned to the condition in which it was found. We recognize that some of the areas we cross are agricultural lands and we work with landowners to assess value, monitor and compensate for loss of use along the right-of-way, address cattle management issues, sample for existing clubroot and other weeds, respect shelterbelts, and remove rocks that could damage agricultural machinery. In addition, we perform soil surveys to manage topsoil during the construction phase of our projects and ensure that it maintains its agricultural capability.

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# Safety and Asset Integrity

Pembina's deep-rooted 'Safety Starts with Me' culture and 'Zero by Choice' excellence standard is a foundation for excellent performance.



## Health and Safety

### Our Approach

Working safely is a way of life at Pembina; we believe all injuries and incidents are preventable. Our 'Safety Starts with Me' culture empowers all employees and contractors to take an active role in improving our safety performance, with the goal of achieving the 'Zero by Choice' excellence standard.

best practices. Compliance with all policies, procedures and regulations is a requirement and employees are expected and authorized to cease work if they see a hazardous situation or unsafe practice that may cause harm.

We reinforce our commitment to excellence in Safety and Emergency Management (SEM) in our daily operations through our various management programs, which include stringent standards, principles and procedures, regular safety meetings, extensive contractor screening, rigorous project inspection, review of potential hazards, and a review of industry

### Related Pembina OMS Programs:

- Safety Program
- Emergency Management Program
- Security Management Program
- Damage Prevention Program
- Public Awareness Program



Pembina's Sherwood Park control centre

The nine Life Saving Rules (Figure 2) are the basic rules that everyone must know and live by and have been selected based on high-risk or high-frequency occurrences. These rules reinforce what employees and contractors must know and do to prevent serious injury or fatality to themselves or others at Pembina.



**DRIVING**

Drive defensively for the conditions on and off road, while obeying all applicable laws.



**HAZARD ASSESSMENT**

Complete hazard assessments to identify and mitigate risk. Hazards may be overhead, below ground or in the atmosphere.



**WORK PERMITS**

Obtain and work under a valid permit where required.



**FOLLOW THE PLAN**

No deviations from procedures, defined work plans or bypassing safety devices without documented authorization.



**ENERGY ISOLATION**

Verify isolation of energy sources before work begins.



**CONFINED SPACE**

Obtain a permit before entering confined space. Assess the atmosphere conditions and activity before entry.



**WORKING AT HEIGHT**

Protect yourself against a fall when working at height through guardrails, equipment or a fall protection system.



**GROUND DISTURBANCE**

Obtain a permit before starting ground disturbance activities.



**LIFTING OPERATIONS**

Follow safe lifting operations and the lifting plan.

Figure 2 - Life Saving Rules

## CONTRACTOR COMPLIANCE

Pembina uses ComplyWorks to manage contractor pre-qualifications, orientations and compliance. The Construction Supervisor Onboarding Program and Contract Safety Representative Onboarding Process were created to ensure contractors in these roles are provided with a consistent and standardized approach to Pembina's policies, safety culture and gain a clear understanding of their specific role.

Pembina's SEM team is engaged early in project planning who complete assessments and develop plans with our contractors to identify and control risks for the work to be completed.

Our measurement plans are modified as the work changes and are audited to ensure compliance. All employees and contractors are accountable for their safety and the safety of others. Employees who engage contractors to work for Pembina are required to complete the Safety Culture Expectations Training online and the training is reviewed by all contractors as part of general orientation.

## Our Performance

In 2017, approximately \$4.8 billion of projects were placed into service while maintaining a strong safety record. Pembina employees worked 3.2 million hours in 2017 and 2.9 million in 2016, in addition to contractors having worked 6.5 million hours in 2017, and 7 million in 2016.

From the beginning of 2014 through the second quarter of 2017, our employees worked 14 consecutive quarters without a lost-time incident. Unfortunately, in the third quarter of 2017, Pembina experienced one employee lost-time incident, resulting in two days away from work. Moving forward, our staff remain committed to our stand that no project or job is important enough to compromise or jeopardize safety.

Pembina's Positive Safety Recognition (PSR) program, which was introduced in 2013, works to encourage employees and contractors to promote a positive and safe work environment at Pembina by focusing on reinforcing positive behaviour. These recognitions have increased from 4,610 in 2016 to 5,486 in 2017

Given the geographical reach of our assets, many employees at Pembina are required to drive long distances as part of their job. Combined, employees and contractors drove over 50.5 million kilometers in 2017 versus 43.7 million kilometers in 2016. In 2017, we saw an increase in employee and contractor preventable motor vehicle incidents (MVI) due, in part, to working in tight right-of-way and construction conditions. The vast majority were classified as having low potential severity and with no serious outcomes. A number of driving improvement initiatives are underway in the areas of field/ site preventative actions, Fleet Technology and Fleet Policy/Governance.



WE ARE ALL  
**ACCOUNTABLE**

Safety Culture Expectations

Safety Starts with Me and Zero Incidents by Choice are the foundation of Pembina's Safety Culture. We are all accountable for creating a Safe Culture and adhering to the **Key Principles**.

➔ Safety Accountability

It takes each of us to create a Safe Culture at Pembina. Hold yourself and others accountable to the **Key Principles** and **Life Saving Rules**.

➔ Fit for Duty

Be "Fit for Duty". Protect your own safety, and the safety of those around.

➔ Positive Safety Recognition

Recognize others and be recognized for working safely. Play your part in creating a safe culture.

➔ Stop Work Process

You have a duty and the support to stop unsafe work at any time – let's keep the worksite safe for all.

➔ Hazard Identification & Risk Tolerance

**Stop and Think.** Understand the hazards and actions to mitigate them. Follow the Plan and re-evaluate if it changes.

➔ Competence

You are accountable for ensuring you have the skills and competencies to complete each task.

All employees and contractors are accountable for their safety and the safety of others.




# 2017 Safety by The Numbers

	2015	2016	2017
<b>Employee</b>			
Fatalities	0	0	0
Total recordable injury frequency (TRIF) <sup>3</sup>	0.29	0.14	0.19
Motor vehicle incident frequency (MVI) <sup>4</sup>	0.76	0.83	1.36
<b>Third-Party Contractor</b>			
Fatalities	0	1 <sup>5</sup>	0
Total recordable injury frequency (TRIF)	1.05	1.02	1.14
Motor vehicle incident frequency (MVI)	1.62	1.41	1.82
<b>Industry Average<sup>6</sup></b>			
Fatalities	0	0	0
Total recordable injury frequency (TRIF)	0.43	0.37	0.43
Motor vehicle incident frequency (MVI)	1.62	1.26	1.37

Table 1 - Health and Safety Performance

Pembina is committed to being ready to safely and effectively respond to emergency situations related to or impacting our operations. As part of Pembina's emergency preparedness, we conduct regular staff emergency awareness sessions and ensure that local emergency responders (Police, Fire/EMS, Disaster Services, and others) are provided with key information to facilitate their response to potential emergency situations.

At Pembina, we are also learning from the best practices of others, which includes actively participating in CEPA Working Groups such as: Health and Safety; Pipeline Integrity; Security; Environment; Regulatory; among others, and the Canadian Association of Petroleum Producers Emergency Management Committee.



SEM Advisors made over **903 operational site visits** and were engaged in over **302 safety meetings** to collaboratively support operations and construction execution.



Safety Leadership in Action (SLA) Course – **135 online and 104 classroom participants.**



On major projects, over **6,500 safety meetings** were completed and over **771 pre-job meetings** were attended, contributing to a safe workplace.



**30 Environmental Emergency (E2) and seven High Vapor Pressure (HVP) emergency response exercises** (tabletop, functional or full scale) were completed throughout Pembina field offices and facilities.

## Looking Ahead .....

We are focusing on continuously improving our preparedness and prevention processes and programs. This includes work to further advance our safety culture amongst employees and contractors, improve our hazard assessment process and refine our emergency planning and preparedness

activities and plans. Specifically, in 2018, our newly established Fleet Task Force is focused on a review and enhancement of the Fleet Vehicles Policy. We will also be implementing new telematics technology which will provide real-time data to further improve our driver and vehicle program.

<sup>3</sup>Total recordable injury frequency rate is defined as the number of recordable injuries per 200,000 hours of work.

<sup>4</sup>Motor vehicle incident frequency rate is the number of preventable incidents per 1,000,000 kms driven.

<sup>5</sup>On April 27, 2016, a prime contractor was fatally injured while working at the Williams' Redwater Olefinic facility located in Redwater, Alberta. Press release: <http://www.pembina.com/media-centre/news-releases/news-details/?nid=135327>.

<sup>6</sup>Industry Average based on employee data from member companies reported by the Canadian Energy Pipeline Association (CEPA).

# Asset Integrity

## Our Approach

Maintaining the integrity of our energy infrastructure – pipelines, storage tanks, gas processing plants, NGL processing facilities and other associated facilities – is integral to the health and safety of the communities and environment in which we operate. We design, build, and maintain our long-life assets by applying strict standards and ensuring we identify and manage risks to support their ongoing integrity. Not only does a focus on safe and reliable operations lessen the likelihood of incidents, it also reduces the cost of our operations over the long term and helps sustain our license to operate. That's why we have developed, and are continuously improving, our asset integrity management program (IMP).

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## Related Pembina OMS Programs:

- [Asset Integrity Management Program](#)
- [Pipeline Control Management Program](#)
- [Operations and Maintenance Program](#)
- [Maintenance Management Program](#)
- [Security Management Program](#)
- [Emergency Management Program](#)
- [Damage Prevention Program](#)
- [Public Awareness Program](#)

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Our IMP incorporates industry best practices and is designed to meet or exceed regulatory requirements with the goal of achieving enhanced safety, reliability and longevity through the entire lifecycle of our pipelines and facilities, and ultimately zero failures.

The SE Committee of the Board provides oversight to Pembina's approach to asset integrity. Our integrity team reports to the Senior Vice President (SVP) & Corporate Services Officer.

Given the nature of our asset base, our IMP is focused on two core areas: pipeline integrity and facility integrity, described below.

## Our Performance

Integrity management begins at the engineering and design phase. At the early stages of designing a new pipeline or facility, we ensure that pipeline routes or facility locations are chosen to avoid geotechnically unstable or high consequence areas and to minimize environmental impact. To further mitigate the risk and impact of an incident, we design our pipelines and facilities so that they can be safely shut down. Specific for pipelines, segments can be isolated by installing block valves at strategic intervals along the system and, where appropriate, increase pipe wall thickness or soil depth-of-cover. In addition, when it comes to materials for new construction, Pembina only uses steel pipe and other products that have been manufactured to meet the highest quality standards and specifications.

Our pipelines and facilities are monitored 24 hours a day, 7 days a week from control centres, using some of the most advanced technology available to detect irregularities, leaks, and damage. We dedicate a significant portion of our operating budget to our comprehensive integrity management activities.

The following chart illustrates Pembina's annual investment on pipeline, geotechnical, and facility integrity activities, amounting to a total of \$310 million over the past three years (Figure 3). In 2017, we spent \$82 million on integrity activities.

Pembina experienced its highest historical pipeline and geotechnical integrity investment between 2013 and 2015, following a series of significant investments in the reliability of our infrastructure, and we are now seeing IMP-related investment level off. There are three main factors that drove the integrity

investment increase within those years: system expansions; introduction of new inspection technology; and advancement in geohazard threat management.

In preparation for expansions on the Horizon system and the Phase I, II and III expansions of the Peace and Northern Systems, Pembina completed an increased number of integrity digs from 2013-2015 to ensure our pipelines remained safe and reliable to meet the demands of higher product flow rates. In 2010, Pembina introduced the use of geometry in-line inspection technology across all its pipeline assets to inspect and repair deformation features, mainly resulting from construction. In 2014, Pembina began assessing its pipelines for circumferential cracking – which includes in-line inspections – prioritized by annual risk assessments and subsequent integrity digs. Further, Pembina's geohazard management program matured in 2011, resulting in an increase of slope and water crossing mitigations between 2012-2015 for a total of 36 and 98, respectively.

The facility integrity program shows annual increased investment to align with Pembina's recent expansion projects. In 2017, we spent \$8 million on facility integrity activities, completing inspections on 603 pressure vessels, 15 storage tanks, six storage tubes and 69 pipeline facilities. For each inspection, repairs are conducted as required to ensure the equipment is in safe operating condition and compliant to applicable codes, standards and regulations. Pembina had four internal audits completed at the end of the fourth quarter.<sup>7</sup> In addition, we successfully renewed our Pressure Equipment Integrity Management Program with Alberta Boilers Safety Association (ABSA), receiving an audit score of 90.5% which is above industry average.<sup>8</sup>

The cornerstone of Pembina's pipeline IMP is the use of in-line inspection (ILI) technology to measure and record both the distribution

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<sup>7</sup> 2017 December Technical Services Unit Scorecard Report, 2018 SE Board Committee Update.

<sup>8</sup> ABSA Audit Report dated Oct. 11, 2017.

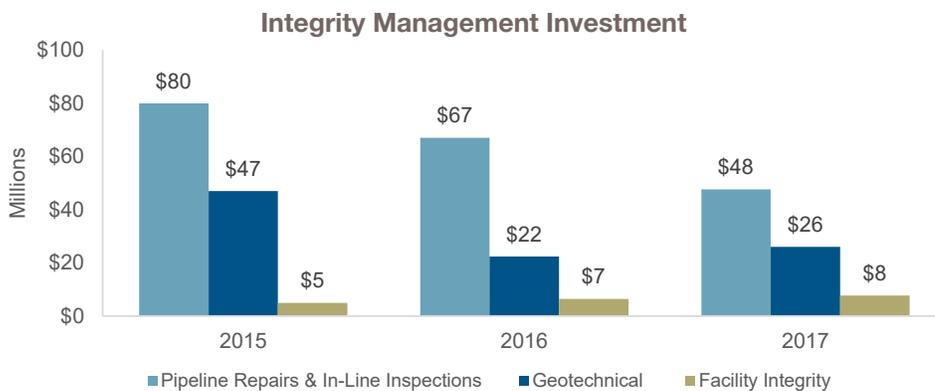


Figure 3 - Integrity Management Plan Investment

and severity of specific features in the pipe such as corrosion, deformation, cracking, and stresses from external loads. Results from Pembina's annual risk assessment process assist in defining integrity programs and prioritizing resources to ensure the continued safe operations of our pipelines and regulatory compliance. Data from these inspections is analyzed by Pembina integrity specialists and third-party technical experts using industry leading engineering methods to design appropriate mitigation, repair, and re-assessment programs.

In 2017, Pembina completed 91 in-line inspections totalling 3,440 km of pipe (Table 2).

Integrity digs are a proactive part of the inspection process that examines the pipeline in a non-destructive manner and are generally based on the results of an in-line inspection. During integrity excavations, features are assessed against criteria defined in Canadian Standards Association (CSA) standards and are repaired before they pose an integrity impact to the pipeline.

Based on in-line inspection findings, Pembina completed 296 integrity digs in 2017 (Table 2).

	2015	2016	2017
Integrity digs completed (#)	687	543	296
In-line inspections completed (#)	108	76	91
In-Line inspection coverage length (km)	5,040	1,570	3,440

Table 2 - Integrity Digs and In-Line Inspections

The decrease in the number of integrity digs completed is indicative of a maturing IMP; we are finding that there are fewer digs required following subsequent inspections of the same pipeline. Furthermore, as mentioned above, Pembina made significant investments in the integrity of its pipeline infrastructure from 2013-2015 to ensure continued safety and reliability into the future.

We track and report all significant failure incidents along our pipelines. Our goal is zero

To protect people and the environment, federal and provincial/state laws require anyone planning to excavate near a pipeline right-of-way to call their local toll-free one-call number in either Canada or the United States in advance of any excavation. One-call programs provide information to the digging community about the location of buried facilities before a ground disturbance takes place and are primarily concerned with safety – preventing personal injury – and the prevention of damage to underground utilities.

	2015	2016	2017
One-Calls per km (average #) <sup>9</sup>	9.4	7.9	6.7

Table 3 - Preventing Third-party Damage

spills, which we returned to in 2017 (Table 4). This data is inclusive of all spills and releases that were reported to the regulatory agency according to the jurisdictional thresholds for reporting.

The Facility Integrity Group manages the IMP and supporting procedures and guidelines to

	2015	2016	2017
Reported significant failures (#) <sup>10</sup>	0	0	0
Reportable spills (#)	4	11 <sup>11</sup>	0
Released substances from reportable spills (m <sup>3</sup> )	32	84 <sup>12</sup>	0
Reportable spill intensity (m <sup>3</sup> spilled/MMBoe delivered)	0.0798	0.0779	0.00

Table 4 - Incidents (Spills, Releases and Significant Failures)

<sup>9</sup> One-calls per km are within a 500m buffer from our pipelines.

<sup>10</sup> Pembina uses CEPA's definition of a significant failure incident – a failure incident that includes one or more of the following: caused a serious injury or fatality, caused a liquid release of greater than 8 m<sup>3</sup> (50 US barrels), produced an unintentional ignition or fire, or occurred as a rupture.

<sup>11</sup> Including two pipeline spills totaling 6 m<sup>3</sup> in volume.

<sup>12</sup> Ibid.

ensure Pembina's approximately 500 facilities (including major facilities, such as gas plants and above-ground structures) and associated pressure equipment, piping, tanks and storage tubes are operated and maintained in a safe, reliable, efficient and compliant manner.

The IMP for our facilities provides a formal approach to lifecycle integrity management, while defining the processes and procedures to manage the integrity of facilities for their useful life.

Pembina continues to engage in an industry-wide improvement through its active participation in the CEPA Integrity First program. The program is a continuous improvement process designed to help pipeline companies share and implement leading practices, keeping pipelines safe and communities protected. It aligns with Pembina's corporate goals to improve pipeline safety – leading to zero incidents – regulatory compliance, and improve transparency and sustainability with the Company's stakeholders.

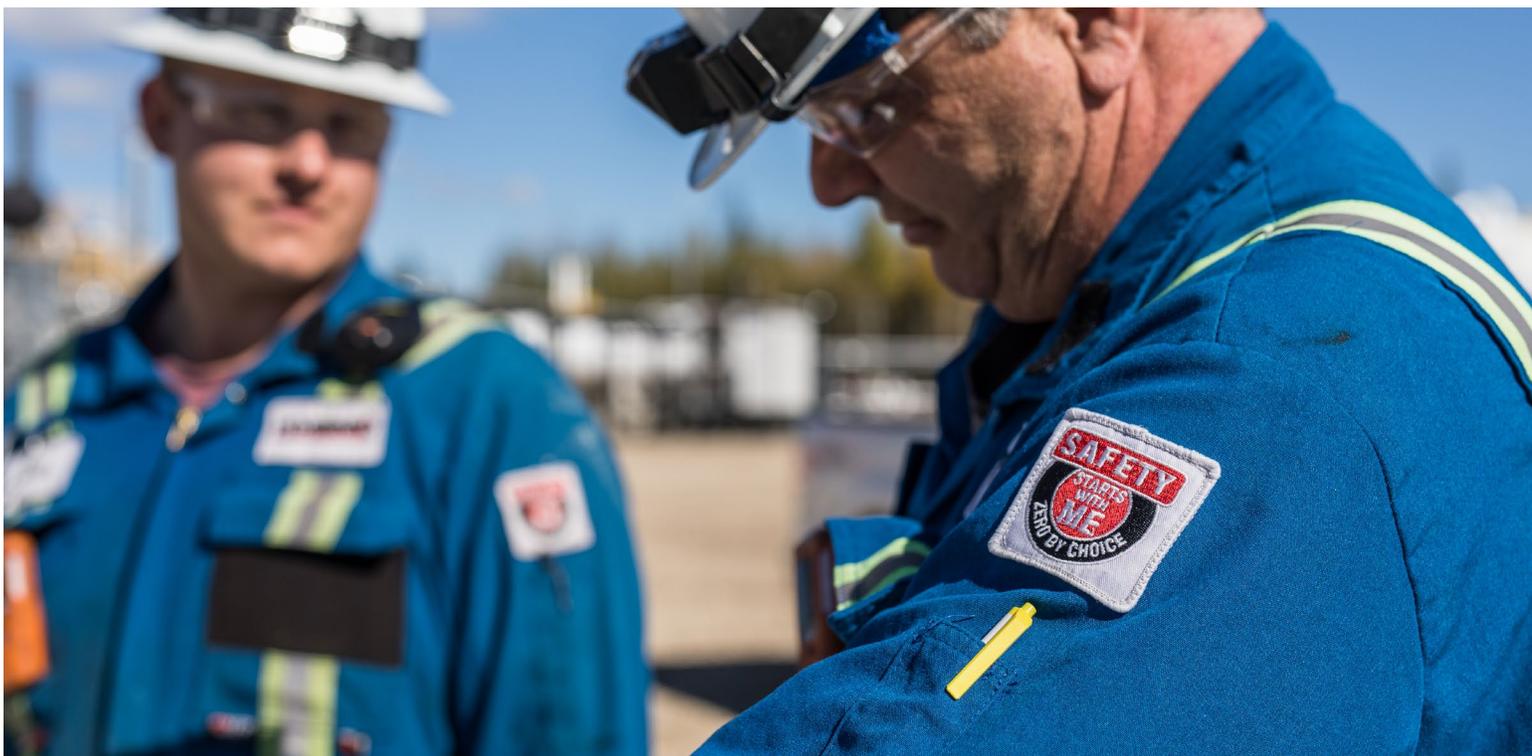
### Looking Ahead .....

Our priority is to maintain our goal of zero incidents. We will continue to support the continuous improvement of technologies to proactively identify new potential threats to our pipeline systems, and actively participate with industry initiatives such as CEPA Integrity First to continue improving the industry's approach to effective integrity management.

## COMMISSIONING DONE RIGHT

After the construction of a project is complete, but before a pipeline or facility goes into full operations, commissioning is done. Commissioning is the testing step to verify that everything is functioning properly and according to specifications. Significant facilities that were commissioned in 2017 include:

- RFS III (NGL processing facility)
- Kakwa River Expansion (gas plant)
- Phase III Expansion (pipeline)
- Edmonton North Terminal (ENT) Expansion (storage tank facility)
- Canadian Diluent Hub (storage tank facility)
- North West Redwater Terminal
- NEBC Expansion (pipeline)
- Duvernay Complex (gas plant)





# Environmental Stewardship

Pembina endeavours to minimize our impact on the environment as a result of our daily operations and growth project execution.

Environmental Management Programs refer to the management of an organization's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for environmental protection.

## GHG Emissions

### Our Approach

As part of our commitment to be a responsible operator, Pembina employs an Environmental Management Program (EMP), which allows us to minimize and manage the impact our growth projects and operations have on the natural environment.

The SE and HRHC Committees of the Board provides oversight, and the EMP and our [HSE Policy](#) guide our approach to the management of greenhouse gas (GHG) emissions.

We meet or exceed all GHG regulations<sup>13</sup> affecting our business and continually work to decrease our energy consumption and intensity, to effectively decrease our GHG emissions. In the compilation of our GHG inventories, we use industry standards and methodologies<sup>14</sup> in accordance with regulatory requirements.

### Related Pembina OMS Programs:

- Environmental Management Program
- Asset Integrity Management Program
- Operations and Maintenance Program

Pembina will evaluate and work to expand its GHG emissions disclosure in subsequent reports (e.g. expand on the direct emission data to include fleet vehicle emissions and expand the scope of indirect emissions and integrate emissions data from the newly-acquired Veresen assets).

#### Direct

(e.g. Scope 1) sources in our reported data include emissions from operational stationary combustion equipment, fugitive component leaks, as well as flaring and venting activities at our gas processing facilities, and vented emissions from storage tanks.

#### Indirect

(e.g. Scope 2 and 3) sources in our reported data include the electrical consumption used to power our natural gas and NGL processing plants and pipeline systems. Sources of indirect emissions, such as those from office buildings, fleet use and employee travel (e.g. in vehicles other than fleet vehicles or air travel) are currently not included in this report.

<sup>13</sup> Pembina participates in the following applicable regulated emission reporting programs: Canadian Greenhouse Gas Emissions Reporting Program; Alberta Carbon Competitiveness Incentive Regulations; Ontario Cap and Trade Reporting Regulations; and the Canadian National Pollutant Release Inventory Reporting Program

<sup>14</sup> The emissions we report are based on direct emission sources primarily using metered fuel volumes or invoiced volumes; however, in instances where metering data is not available, calculated emissions from sources were determined with industry and regulatory accepted methods.

## Our Performance

Over the past three years, Pembina has seen significant growth in its operations resulting from the acquisition of new assets, construction of additional pipelines and facilities and expansions to existing facilities and pipelines. The growth in the processing facilities business between 2015 and the end of 2017 resulted in increased gas processing capacity of 24%, and a 116% increase in NGL processing capacity. The added capacity in the past three years has resulted in an increase of our total direct GHG emissions to 1,011,717 tonnes of CO<sub>2</sub> equivalent in 2017, a 49% increase over 2015 (Table 5).

From 2015 to 2016 and 2016 to 2017, the average direct emissions intensity across our facility operations increased 17% and 15%, respectively. The increase in carbon emission intensity is largely attributed to a moderate delay in the utilization of the new processing capacity upon start-up, as well as the differences in emission intensity based on the types of facility processing that was added to the asset base. As the new gas processing facilities were brought into full operations and throughput volumes improved between 2016 to 2017, the average emission intensity for gas processing decreased by 5%. The lower emission intensity in gas processing was offset by the emissions associated with new NGL processing facilities that came onstream in 2016 and 2017, which have a comparatively higher emission intensity than our gas processing facilities. Pembina is currently developing a cogeneration power plant to support our new NGL processing complex in the Edmonton area. Once operational in 2019, the cogeneration plant will result in lower overall emissions due to the increased efficiency in the production of heat and electricity.

Since 2015, our indirect GHG emissions have increased 21% to 995,565 tonnes of CO<sub>2</sub> equivalent in 2017 (Table 6). This increase can be attributed to the expansion of our pipeline systems and facilities that were added to the business. In addition to the previously mentioned increase to facility

	2015	2016	2017
Total direct GHG emissions (tCO <sub>2</sub> e)	680,457	795,137	1,011,717
Total direct GHG emissions intensity (tCO <sub>2</sub> e/BOE)	0.0047	0.0054	0.0063

Table 5 - Direct GHG Emissions

processing capacity, between 2015 and 2017, approximately 625,000 bpd of added pipeline capacity came onstream, representing a 40% increase to the pre-2015 pipeline transportation capacity, along with a 38% increase in hydrocarbon storage capacity. From 2016 to 2017, the indirect emission intensity for pipeline assets decreased 9% while the indirect emission intensity at gas and NGL processing facilities decreased by 1%.

Pembina's 2017 enterprise risk management process identified emissions and environmental risk as one of the top three emerging risks to our Company and the industry. Our Governance, Nominating and CSR Committee of the Board is reviewing the potential impact of climate change on our industry, and the material risks and opportunities for Pembina. The risk factors listed in our [Annual Information Form](#) include references to how we currently think climate change could impact us.

	2015	2016	2017
<b>Indirect GHG Emissions (tCO<sub>2</sub>e)</b>			
Pipelines	270,679	311,644	311,848
Facilities	519,532	588,633	643,717
Total	790,211	900,277	955,565
<b>Indirect GHG Emissions Intensity (tCO<sub>2</sub>e/BOE)</b>			
Pipelines	0.0007	0.0008	0.0007
Facilities	0.0036	0.0040	0.0040
Total	0.0014	0.0016	0.0016

Table 6 - Indirect GHG Emissions

### Looking Ahead .....

In the short-term, we will be further refining our approach to GHG emissions management.

Following regulatory approval in late 2017, the development and construction of the previously mentioned cogeneration facility at our Redwater facility – Pembina’s largest complex – will be operational in 2019, at which time, it will help reduce emissions intensity at that site.

We will also continue work to assess our fleet of equipment and facilities to better understand the sensitivity of emission sources and identify opportunities for additional optimization or upgrades.

## SUPPORTING OUR COMMUNITIES’ GREEN INITIATIVES

When the Aseniwuche Winewak Nation (AWN) in Grand Cache, Alberta requested our support to help them purchase solar panels for three community buildings, Pembina was eager to help.

Pembina’s investment helped AWN unlock a provincial grant from the Alberta Indigenous Solar Program and the money bought more than hardware. It also provided training for eight community members who learned first aid/CPR and fall prevention, as well as how to install and maintain the panels.

The solar panels will save AWN more than \$90,000 annually in electricity costs and help reduce greenhouse gas emissions.

"Aseniwuche Winewak Nation is grateful to Pembina for supporting our application to the Alberta Indigenous Solar Program," said Rachelle McDonald, Vice President of AWN. "Traditionally, Indigenous people left a light footprint on the land by practicing our traditional values. This project allows us to take a contemporary approach to practicing traditional values by using energy resources efficiently and minimizing our impact on the environment."

# Land Use and Biodiversity

## Our Approach

We work to reduce the potential environmental impact through the construction and operation of our assets by evaluating the baseline conditions prior to construction and applying measures to reduce the potential for impact throughout the full project lifecycle. The diverse environmental conditions in which Pembina operates result in the need to ensure the appropriate mitigation is in place prior to commencing activities. Pembina construction and operations personnel recognize that changes in schedule and environmental protection plans may require additional field studies, such as migratory bird sweeps and amphibian surveys, to reduce the potential for impact of our activities.

The SE Committee of the Board provides oversight to Pembina's approach to biodiversity management. Our Environmental team, reporting to the Vice President, External Affairs, is informed by our [HSE Policy](#), and leads the corporate EMP, as previously discussed. Our EMP outlines our approach to reducing environmental impacts throughout the project lifecycle, such as outlining practices related to topsoil conservation, watercourse setbacks and crossings, erosion mitigation, vegetation management, environmental monitoring and species of concern identification, amongst others.

## Our Performance

Before beginning a new project, Pembina conducts environmental studies, assessments and hazard and risk rankings to understand the potential effects it may have on the soil, land, air, plants, aquatic and terrestrial wildlife and watershed. We then develop detailed plans in consultation with local regulatory authorities, Aboriginal and Tribal communities, landowners and other community members to reduce our environmental footprint. Pembina has several monitoring systems and associated equipment to help understand and mitigate potential environmental risks.

For example, we have installed groundwater monitoring wells at many of our operating facilities and use monitoring results from these sites to map trends, gain early indications of potential soil/groundwater impact and identify appropriate or necessary remedial actions. We also have conducted wildlife monitoring activities, working in partnership with Aboriginal and Tribal communities.

Pembina has undertaken an aggressive program to assess, risk-rank, remediate and reclaim, and reduce historical liabilities. These historical liabilities were risk-ranked in 2015 and a schedule of activities in support of remediation and reclamation was developed. We are also actively managing our inventory of abandoned wellsites through to reclamation certification and are focused on reclaiming liabilities well before being required to by any regulator.

In 2016, \$3 million was spent on the assessment and cleanup of legacy sites and abandoned wellsites, with more than \$2 million spent in 2017. To date, all high-risk historical liabilities have been assessed and remediation is underway, as determined necessary. Since the inception of the wellsite reclamation program, 34% of the wellsites have received reclamation certification from applicable regulators.

In 2017, as part of the [CEPA Integrity First Program](#), Pembina underwent a detailed audit and review of our approach to water management. Pembina's goals and objectives with respect to water management throughout the organization were determined to be proactive relative to our peers as part of the assessment. We look for ways to continuously improve on a foundation that exists throughout the organization that water management is important throughout the lifecycle of our projects.

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## Related Pembina OMS Programs:

- Environmental Management Program
  - Asset Integrity Management Program
  - Operations and Maintenance Program
  - Maintenance Management Program
- 

## Looking Ahead .....

We are continuing to expand our environmental monitoring and management programs. This will include expanding the scope of our Environmental Trainee Program. Trainees will be integrated into many of our projects during pre-application biodiversity surveys, particularly associated with wildlife and vegetation and post-construction project phases where the effects of construction are evaluated and follow-up mitigation is undertaken.



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## **MONITORING PROGRAM TO SUPPORT BIODIVERSITY MANAGEMENT**

A mineral lick (an essential source of nutrients to local mammals) and traditional plants was discovered along the right-of-way of our Pouce Coupé Lateral Project, a 27 km pipeline that connects to existing infrastructure at the Dawson Creek Meter Station.

To better understand wildlife trends in the area and to assess the biodiversity impact mitigation strategy, we implemented a field monitoring system as part of our wildlife monitoring initiative, which allowed us to identify local wildlife and track their use of the identified mineral lick.

Pembina worked with Kelly Lake Cree Nation and Horse Lake First Nation communities to recruit members to assist with monitoring by observing the wildlife locations and collecting data from cameras. The monitoring detected 11 different wildlife species in the project area, including tracks for two species at risk – the Canadian lynx and fisher-marten.

Pembina was successful in gathering information of animal activity in the area, which resulted in a modification to the right-of-way to help minimize habitat disturbance.

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# Social Well-being

Pembina has a long track record of working towards the well-being of communities and employees.

## Aboriginal and Tribal Relations

### Our Approach

We recognize that in order to achieve our business goals, we need to work closely with communities across our operations, including Aboriginal and Tribal peoples. Pembina strives to enter into lasting and mutually-beneficial relationships with Aboriginal and Tribal peoples affected by our operations.

The [Governance, Nominating and Corporate Social Responsibility Committee](#) of the Board provides oversight to Pembina's approach to Aboriginal and Tribal relations. Our Aboriginal and Community Affairs team, reporting to the Vice President, Community Affairs, is informed by the guiding principles of our [Aboriginal and Tribal Relations Policy](#), and focuses on four key areas of work:

#### Consultation

Support Pembina's operations and growth platform through open and honest consultation.

#### Workforce Development

Continue efforts to increase Aboriginal and Tribal employment at Pembina and within industry at large.

#### Community Relations and Investment

Support our Aboriginal and Tribal communities and respond to issues

#### Awareness

Provide Aboriginal and Tribal Awareness training to Pembina's employees and contractors and in our communities.

We encourage you to visit our [website](#) to read more about our approach to Aboriginal and Tribal Relations.

### Related Pembina OMS Programs:

- [Damage Prevention Program](#)
- [Environmental Management Program](#)
- [Public Awareness Program](#)
- [Emergency Management Program](#)

### Our Performance

Many of Pembina's projects take place on lands in which Aboriginal and Tribal communities may have rights and interests. We strive to engage in meaningful consultation to understand potential impacts, seek mitigations, and discuss possible benefits associated with our proposed developments and to ensure a better planned, executed and remediated project. Our engagement and consultation often exceed regulatory requirements and can take a variety of forms, such as personal meetings, desktop reviews and site visits.

Aboriginal and Tribal communities also have a unique understanding of the environment. We work with these communities to understand their perspectives, and, where possible, incorporate these perspectives into our day-to-day business. Pembina is actively working to create awareness amongst Aboriginal and Tribal communities regarding environmental requirements and programs associated with

## BUILDING STRONG RELATIONSHIPS

*Out of the 50 – 60 producers, midstream, mining and forestry companies in our traditional territory, we hold Pembina at the top of companies that are willing and, most importantly, wanting to engage with our Nation.*

**Eugene Horseman**  
Past Chief of Horse Lake First Nation

our projects. For these reasons, we developed the Aboriginal Environmental Trainee Program (AETP) (see inset next page).

The number of AETP participants will fluctuate from year to year and is related to the types of activities and number of projects underway at Pembina. Since 2015, the program has seen 86 trainees from 15 communities participate in support of nine Pembina projects. As of 2018, the AETP has been extended to

	2015	2016	2017
Program trainees	7	59	20
Program trainees subsequently employed by Band-owned businesses or Pembina	2	18	41
Communities represented in program	2	13	15
Pembina projects with trainees	1	3	5

Table 7 - Environmental Trainee Program

include participation in biophysical surveys in support of project permitting and our Post-Construction Monitoring Program.

It is important to Pembina that the Aboriginal and Tribal communities we work with participate in economic opportunities – both contracting and employment – associated with our developments. Opportunities are varied and broad in scope. In addition to the AETP, Pembina has three other Aboriginal-focused employment programs:

- The Operator Program, which provides practical work experience opportunities to prepare participants for careers as field operators;
- The Power Engineering Practicums, which is offered in partnership with educational institutions; and
- The General Work Experience Program which focuses on individuals with an interest in gaining general work experience in the oil and gas industry.

Pembina is committed to creating and maintaining mutually-beneficial relationships with Aboriginal and Tribal local suppliers which deliver tangible benefits to the communities we work in. We actively seek to develop sustainable business relationships with Aboriginal and Tribal communities and, in so doing, aim to engage with Aboriginal and Tribal suppliers on potential opportunities which grow and sustain their business capacity and capabilities. We are striving to work with Aboriginal and Tribal suppliers to support their business capacity needs through quarterly performance reviews, Business 101 and Request for Proposals (RFP) preparation training with a view to helping them achieve increased success through a contract's lifecycle.

A key component in the evaluation and selection of suppliers who work with us is that they are aligned to supporting Aboriginal and Tribal communities. A supplier's ability to purposefully demonstrate how they will provide benefit to the communities in which we work is a specific criterion embedded in our evaluation process.

To that end, suppliers are required to provide an Aboriginal and Tribal Involvement Plan, which is evaluated and is part of the contract at award. We also pay close attention to the types of services we can engage Aboriginal and Tribal suppliers to provide.

	2015	2016	2017
Aboriginal and Tribal communities engaged for services	Formal tracking of Aboriginal and Tribal contracts began in 2016.	28	37
Aboriginal and Tribal suppliers utilized		68	112

Table 8 - Aboriginal and Tribal Contracting and Procurement Performance

## ABORIGINAL ENVIRONMENTAL TRAINEE PROGRAM

*Supporting training for the future while strengthening relationships for today.*

The AETP was launched in 2009 and developed with the goal of helping Aboriginal and Tribal communities build internal capacity to understand the process of pipeline construction and participate in the environmental work that takes place when companies such as Pembina propose a new project. Program participants work with Environmental Planners and Inspectors to learn about the procedures and construction

methods used to install pipelines, while working to protect the environment. For Pembina employees and contractors, they learn from the Aboriginal and Tribal community representatives about the area's traditional land use interests.

The program also helps inform Aboriginal and Tribal communities, through the experiences of the participants, on the environmental work that goes into preparing and mitigating a pipeline project, while cultivating a positive relationship between the community and the Company for the project and activities in the area.



## Looking Ahead .....

Our areas of focus include cultural awareness, employment and training programs, and policies and strategy.

Pembina acknowledges that cultural understanding between the Company and Aboriginal and Tribal communities is foundational. We will continue to build upon past Aboriginal and Tribal cultural awareness initiatives in a more systematic and sustainable manner. We plan to offer Aboriginal and Tribal cultural awareness training through numerous interfaces including facilitated presentations, online training and onboarding and cultural experiences. At the same time, Pembina will continue to seek opportunities to help Aboriginal and Tribal communities further understand the culture of our business and the nature of our operations.

We are also re-working our employment and training programs to enable long-term sustainability and plan to make additional internal investments to provide increased program delivery capacity.

More broadly, we will be reviewing our Aboriginal and Tribal Relations Policy and developing a three-year Aboriginal and Tribal and Community Relations Strategy.

# Community Investment

## Our Approach

Pembina strives to build lasting relationships through partnerships and volunteerism with the communities where we operate. We aim to improve the quality of life and sustainability of these communities, now and for years to come. Our approach is guided by our Community Investment Strategy, which focuses on four key areas:

### Safety & Environment

Safety and the environment are our top priorities, not only as an operator but as a member of the community. We invest in initiatives aimed at **enhancing community safety preparedness and fostering environmental conservation.**

### Education

We believe everyone should have the opportunity to reach their full potential. This is why we support programs that improve **access to education and industry-based training, and provide capacity-building opportunities.**

### Community Building

We invest in events and community spaces that reflect the particular needs of the communities where we operate. We support initiatives aimed at **bringing people together, creating or renovating community spaces that are accessible for all, and enriching cultural experiences.**

### Health & Recreation

We understand that communities thrive when they have access to exceptional health care and recreation opportunities. We invest to **help promote healthy living, active lifestyles, wellness and the enhancement of medical services.**

The Governance, Nominating and CSR Committee of the Board provides oversight of Pembina's Community Investment Strategy and Program<sup>15</sup>. The Community Engagement Steering Committee, comprising Pembina executives and subject matter experts, oversees key investments and approves an annual community investment budget based on a percentage of the previous fiscal year's Adjusted EBITDA<sup>16</sup> (annual targets vary). Local investments are managed and approved by Community Action Teams in each of our field offices. Pembina has been a member of [LBG Canada](#) (London Benchmarking Group) since 2015, to continually improve our community investment management, measurement and reporting through the sharing of leading practices, auditing and benchmarking.

## Our Performance

Communities throughout our operations put their trust in Pembina and allow us to operate near where they live, work and play. We believe that when these communities succeed, we succeed. In 2017, we honoured this relationship by investing \$4.1 million back into these communities. Through our Pembina Actions That Help (PATH) employee giving program and United Way campaigns, employees invested an additional \$2.4 million in charitable organizations. Combined with \$0.2 million equivalent of employee volunteer time during working hours and \$0.2 million in program management costs paid by Pembina, this represents \$6.9 million of total value contributed to communities where we operate (Figure 4).

Giving back is not just a perk of working for Pembina – it's a core part of our culture, and we are very proud to support our employees' outstanding dedication to their communities. According to LBG Canada, Pembina employees surpassed other pipeline/peer companies in terms of employee giving: for every dollar invested, Pembina employees contributed an additional \$0.52 towards



Figure 4 - Total Value to Communities

community investment priorities. Additionally, in 2017, Pembina staff spent over 4,000 hours (or 2.5 hrs per employee) of Company time volunteering with our charitable partners.

<sup>15</sup> Pembina's Community Investment Strategy and Program includes Aboriginal and Tribal community investments.  
<sup>16</sup> Adjusted EBITDA means adjusted earnings before interest, taxes, depreciation and amortization.

## BUILDING STRONG RELATIONSHIPS

*For the past 30 years, Pembina has been an instrumental force in helping United Way improve lives in Calgary and the surrounding area. Pembina's campaign is a wonderful reminder of what we can achieve when we work together – the great leadership, amazing employee engagement, the countless volunteer hours, and visionary community investments are a true testament of their undeniable generosity of spirit. Year-after-year, I am humbled by their unwavering commitment to our community.*

**Karen Young**  
CEO of the United Way of Calgary

Figure 5 summarizes our 2017 community investment across our four key focus areas, our signature program, Fuel 4 Thought, and our corporate matching program.

### 2017 Pembina Community Investments (\$ Million)

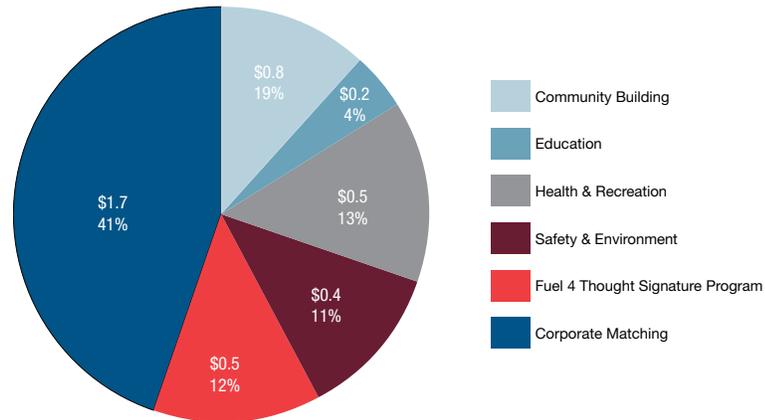


Figure 5 - 2017 Community Investment

Please go online to read Pembina's full [2017 Community Investment Summary](#), which details the different programs we supported in 2017. Community members who are looking to request funding for an initiative can go online to access our [grant application](#).



In 2016, Pembina launched our signature community investment program, 'Fuel 4 Thought', in partnership with the Breakfast Club of Canada. We want to support the development of tomorrow's leaders, so we committed to making sure that kids in 12 high-needs schools within our operating areas can reach their full potential by starting the day with a good breakfast. Pembina's \$1.5 million investment and over 380 hours of employee volunteer time helps provide nutritious breakfast programs to connect these kids to their potential.

#### Program Impacts:

- In the first full school year of this program, over 1,200 students were fed daily for

a total of 200,000 breakfasts served, with marked improvement in student performance.

- There was a 67% decrease in the number of daily classroom interventions, which include visits to the school nurse and instances of lateness, due to health-related issues. This indicates that nutritious breakfasts are improving health outcomes and reducing class disruption.
- Concentration increased in participating schools, which allowed for an average of 1,485 minutes per school of additional teaching time.

## Looking Ahead .....

In 2018 and beyond, we will be working to better quantify and understand the outcomes from our Community Investment Program and expand the scope of our investments to support new projects and operating areas. In 2018, Pembina has committed to investing \$7.5 million into communities, and in 2019 that figure will jump to \$10 million.

We are also continuing to assess how our world-scale growth opportunities will impact our community investment plans going forward. For example, with respect to our [Jordan Cove opportunity](#), in conjunction with project sanctioning, Pembina plans to create the Jordan Cove Community Enhancement Plan. From the start of construction and for the first 15 years of operations, the Jordan Cove Community Enhancement Plan would commit more than \$500 million to local community investments in projects such as schools, infrastructure, public safety and the rehabilitation of the Coos Bay, Oregon, waterfront.



# Workforce

## Our Approach

At Pembina, we embrace diversity and inclusion in our workforce and recognize the value that different perspectives bring to our business. We have experienced significant growth over the past few years and we have stayed true to our commitment to making Pembina a great place to work.

The HRHC Committee of the Board provides oversight to Pembina's approach to workforce and employee diversity and inclusion. Our Human Resources team, reporting to the Senior Vice President and Corporate Services Officer, reports annually on our employment equity statistics, and actions we've taken to improve the recruitment, retention and promotion of the four designated groups (women, Aboriginal people, people with disabilities and visible minorities).

## Related Pembina OMS Programs:

- [Operator Qualification Program \(for US Operations\)](#)
- [Security Management Program](#)
- [Safety Program](#)

Pembina is committed to workplace diversity and inclusion, which is why we have established an official Diversity and Inclusion Advisory Group. This group meets quarterly and includes members from varying levels and areas across the organization, providing input to the Human Resources team. We also have a [Board Diversity Policy](#) which serves as a framework for promoting diversity, including gender diversity, on the Board. Since its implementation in February 2015, we have added an additional female director to our Board, for a total of three women (representing 25% of the Board), while increasing the Board's geographic, educational, experience,

and age diversity. Pembina also has a [Respectful Workplace Policy](#) in place to outline employee responsibilities and expectations of appropriate behaviour.

## Our Performance

This past year was transformational for Pembina and our workforce, with the acquisition of Veresen Inc. in October 2017 and an internal organizational redesign.

Pembina's approach to the Veresen acquisition demonstrated our commitment to employees. We conducted individual interviews with all Veresen employees, allowing us to fill existing and anticipated vacancies across the organization with qualified candidates. As a result, we welcomed almost 200 Veresen employees to Pembina. The integration of these employees into Pembina's culture was supported by a robust change management strategy that helped to ensure new employees had the support they needed to transition and become fully-integrated into the Pembina family. This strategy included an in-depth orientation, an onboarding and training plan, as well as several events including a Town Hall, team building activities and a Company meet and greet event.

At the end of 2017, Pembina directly employed 1,528 individuals across our operations and 75 fixed-term employees. Our third-party contract workers are held to the same workforce and safety standards as our employees.

Our workforce grew by 15% in 2017, with 287 permanent employees coming on board. Among those hired were 87 women, 13 Aboriginal peoples, one person with a disability and 24 members of visible minorities.

## WOMEN IN LEADERSHIP

*Pembina has always had a desire to develop potential, both in business and with its people.*

*There is a profound recognition that diversity contributes to the success of the organization, both in their area of responsibility and because of the different perspectives, varying background, and broad knowledge base they offer.*

*Personally, my professional progression is due to a mix of merit, opportunity and several champions along the way. Pembina recognizes the value of diversity and we have a leadership team that will champion this stand to see it through.*

### Pembina Manager

(42, female, with Pembina for 6 years)

<sup>17</sup> This number includes the almost 200 Veresen employees that joined our company in October 2017.

## SAYING THANK YOU WITH A GIFT OF TIME

*Recognizing employee contributions to outstanding corporate performance.*

In early July 2017, Pembina announced that it had successfully placed approximately \$2.8 billion of integrated capital projects into service, representing the largest capital program in our history.

"Looking back to only a few years ago when our extensive growth plans were in their infancy, to the transformation of where our Company is today, I commend all of the hard work and dedication of our teams who worked tirelessly to achieve such extraordinary results in bringing our growth plans successfully into fruition – all while maintaining our outstanding safety record," said Mick Dilger, President & Chief Executive Officer.

In recognition of this extraordinary accomplishment, a 'Gift of Time' was provided to everyone who was an active Pembina employee as of July 1, 2017 – namely five additional days (40 hours) of paid vacation in 2018. That is 56,000 extra hours for Pembina employees to connect with their family and friends and acknowledges the hard work of all Pembina staff and time spent away from loved ones.

	2015	2016	2017
Permanent employees	1,245	1,329	1,528
Invoicing contractors <sup>18</sup>	426	417	539
Fixed-term employees	78	58	75
New hire permanent employees	231	157	287

Table 9 - Workforce Overview<sup>19</sup>

Our 'Employment Equity Narrative' provides an objective way for us to quantify the effectiveness of our policies and programs, giving us a baseline to continuously improve upon. Table 10 shows a breakdown of our workforce across four designated groups, for the past three years. All values are self-identified.

In 2017, women accounted for 30% of our new hires. 25% of our independent directors were women at the end of 2017. The Board considers the benefits of diversity in its annual review of the Board composition and mix of skills and continues to work proactively to take all diversity into consideration.

More broadly, succession planning will continue to be a key focus for Pembina with

consideration given to gender diversity in management. By creating and actioning specific development plans focused on experiential opportunities, Pembina is targeting greater representation through all levels of leadership.

The Aboriginal Initiative was introduced, approved and resourced in 2014 to build long-term, sustainable relationships with Aboriginal communities in the areas that Pembina operates. To read more about our approach and programs to Aboriginal and Tribal Relations, please see page 24.

From the success of our Aboriginal Initiative, we now have a proven template for internal and external communications and certain initiatives surrounding inclusion and diversity, which we can adapt and customize for each of the other designated groups. Pembina will continue to promote our Aboriginal Initiatives and we are excited to implement similar initiatives to help recruit, attract, and retain women, persons with disabilities, and members of visible minorities.

Pembina has several programs to support employee mental health. In 2017, we developed a structured wellness strategy to help support employees with their physical and mental health, as well as removing some

	2015	2016	2017	2017 % of Workforce	Market Availability
Men	896	965	1,101	72.1%	71.7%
Women	349	364	427	27.9%	28.3%
Aboriginal peoples	53	57	65	4.3%	3.6%
Persons with disabilities	14	15	14	0.9%	4.4%
Visible minorities	130	126	145	9.5%	14.9%

Table 10 - Workforce Composition

<sup>18</sup> Represents invoicing contracts as of the date listed. These numbers fluctuate throughout the year based on business requirements.

<sup>19</sup> At December 31 of each year.

of the stigma associated with mental health. We provide support in this area and have identified key executive champions to sponsor the strategy's implementation. Additionally, our employee benefit plan has an integrated Employee and Family Assistance Program which is available to all employees at no-cost and provides support across a range of issues including for stress, mental health or challenging circumstances.

In recognition of our efforts to make Pembina a great place to work, in 2017, we were named one of Canada's Top 100 Employers for the first time and one of Alberta's Top 70 Employers for the fourth consecutive year.



**Looking Ahead .....**

In the short-term, we are evaluating the creation of a women's business resource group at Pembina to provide a more structured community of practice amongst peers and improve Pembina as a place to work. We are also excited to refresh the Aboriginal and Tribal Employment and Training Program to position ourselves for sustainability. Additionally, Pembina is investigating options to partner with Aboriginal and Tribal communities to further remove barriers to successful employment with Pembina.

Pembina is fostering relationships with organizations that represent and work with persons with disabilities and investigating options on how to more broadly communicate our support of hiring persons with disabilities. We are also looking to partner with third-party organizations that support newcomers to Canada to increase our recruitment and outreach.





Pembina has a long history of providing sustainable returns for our shareholders while creating economic benefits through the creation of direct and indirect jobs, tax revenues and boosts for local businesses.

#### PEMBINA'S FINANCIAL GUARD RAILS

1. Maintain a target of 80% fee-for-service contribution to Adjusted EBITDA
2. Target < 100% payout for fee-for-service distributable cash flow by 2018
3. Target 75% credit exposure from investment grade and secured counterparties
4. Maintain 'strong' BBB credit rating

# Economic Contribution

## Our Financial Performance and Economic Contribution

### Our Approach

For Pembina, economic responsibility means striving to ensure that we are profitable and hence able to create long-term sustainable value for our stakeholders and contribute to a global and sustainable economy. Maintaining a financially sustainable company is the cornerstone of our business and allows us to make economic contributions to the areas where we operate, where we have both a direct and indirect impact.

### Related Pembina OMS Programs:

- [Regulatory Financial Program](#)

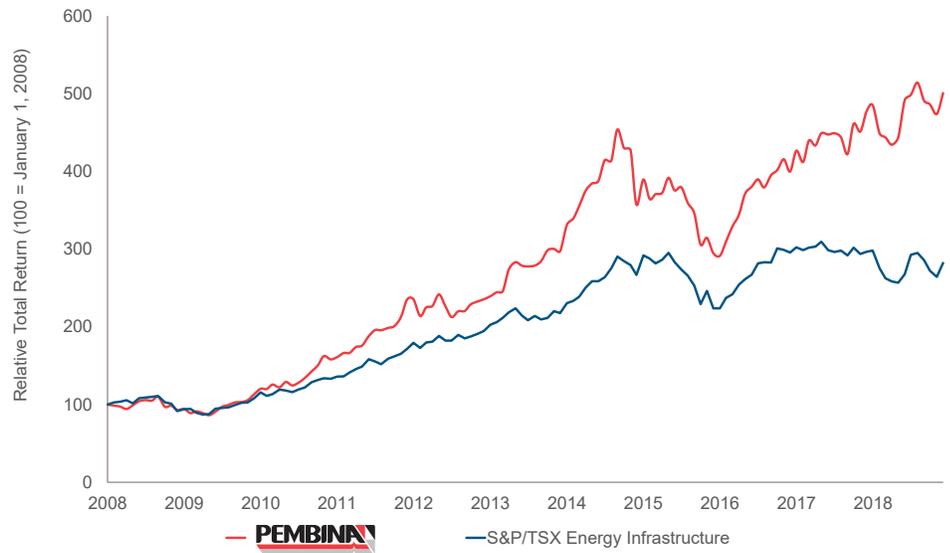
Like most public companies, we provide returns to shareholders, pay taxes, create employment, and purchase goods and services from suppliers of all sizes. The energy infrastructure industry in North America, of which we are a part, plays a key role in job creation, poverty alleviation and the improvement of health and education outcomes. We believe that growth and prosperity should be inclusive and benefit a wide range of stakeholders.

### Our Performance

Many people and organizations are Pembina shareholders, either directly or indirectly. Our shareholders include individual investors worldwide, as well as pension funds, insurance, trust, and investment companies and our employees. We are committed to providing superior returns to our shareholders.

We measure our performance in this area using Total Shareholder Return (TSR), a metric that compares the performance of our common shares over a period, reflecting share price appreciation and dividends paid to common shareholders. We report our financial performance in our [financial reports](#).

Pembina has a proven long term track record of shareholder value creation. The Company has delivered 390% TSR over the last 10 years, or approximately 17% share price compound annual average return.



Below is a table that summarizes the Company's overall growth over the past three years and other relevant market information:

	2015	2016	2017
Closing TSX common share trading price (\$/Share)	30.15	41.96	45.51
TSX 52-week trading range (\$/Share)	43.66 - 27.75	42.73 - 32.32	46.17 - 39.04
Market capitalization <sup>20</sup> (\$ Millions)	12,286	18,260	21,688
Total enterprise value <sup>20</sup> (\$ Millions)	15,450	22,245	32,410
Dividend (\$/Share)	1.79	1.89	2.03
Yield	5.95%	4.50%	4.46%
Corporate credit rating <sup>21</sup>	BBB/BBB	BBB/BBB	BBB/BBB

Table 11 - Company Financial Snapshot

<sup>20</sup> Market capitalization includes common shares. Total enterprise value includes common shares, convertible debentures, preferred shares and senior debt less cash.

<sup>21</sup> DBRS and S&P.

This growth has largely been the result of Pembina's extensive capital expenditure program and acquisitions, as indicated below. Through these expenditures and its ongoing operations, Pembina has injected millions of dollars into the Canadian economy, providing jobs, procuring services, paying income taxes, investing in communities and supporting local businesses.

	2015	2016	2017
Capital expenditures	1,811	1,745	1,839
Acquisitions	-	566	6,400
<b>Total</b>	<b>1,811</b>	<b>2,311</b>	<b>8,239</b>

Table 12 – Capital Expenditures and Acquisitions

In 2017, Pembina distributed \$1.8 billion in economic value (Table 13 - Economic Value Generated, Distributed and Retained). This included \$350 million in employee wages and benefits and \$94 million in payments to government.

ECONOMIC VALUE GENERATED (\$ Million)	2015	2016	2017
Net revenue <sup>22</sup>	1,507	1,764	2,246
<b>Total Economic Value Generated<sup>23</sup></b>	<b>1,507</b>	<b>1,764</b>	<b>2,246</b>
Operating and general and administrative expenses <sup>24</sup>	329	315	336
Employee wages and benefits <sup>25</sup>	254	299	350
Payments to governments <sup>26</sup>	80	100	94
Payments to providers of capital <sup>27</sup>	433	576	1,029
Community Investments	3	4	4
<b>Total Economic Value Distributed</b>	<b>1,099</b>	<b>1,294</b>	<b>1,813</b>
<b>Total Economic Value Retained</b>	<b>408</b>	<b>470</b>	<b>433</b>

Table 13 - Economic Value Generated, Distributed and Retained

<sup>22</sup> Net Revenue represents revenue less cost of sales.

<sup>23</sup> Economic Value Generated is equivalent to Net Revenue. See "Non-GAAP Measures".

<sup>24</sup> Operating expenses plus general and administrative expenses less employee wages.

<sup>25</sup> Personnel expenses include share-based compensation, short-term incentive plans, pension plan and other employee benefits.

<sup>26</sup> Current income taxes plus property taxes.

<sup>27</sup> Dividends paid plus net finance costs plus interest paid during construction.

Pembina recently commissioned a third-party to review and calculate the broader spin-off economic benefits of major projects. The study calculated contributions over a four-year period, from 2012 to 2016. During this period, capital expenditures within Canada created on average 2,745 person-years (PYs)<sup>28</sup> of direct employment and \$351 million in labour income per year, or approximately \$127,000 per PY of employment. Indirect<sup>29</sup> and induced<sup>30</sup> effects of Pembina's capital investment between 2012 and 2016 created an additional 4,475 PYs of employment in Canada.

Please refer to our [financial reports](#) for further details on economic value generated.

### Looking Ahead .....

As Pembina grows, so does the scale of the projects we can pursue, and with that, the scale of our ability to generate economic benefits in the communities where we operate.

While we have a large capital program underway, two world-scale opportunities are particularly worth noting: first, our Jordan Cove opportunity, which we

inherited through the acquisition of Veresen, is an LNG export opportunity located in Coos Bay, Oregon; second, our propane dehydrogenation facility and associated downstream polypropylene facility (the "PDH/PP Facility") in Alberta, Canada. Both projects remain subject to regulatory, environmental and Board of Director's approval, but they serve as examples of the types of impacts Pembina may make in the future.

Building a safe, clean natural gas pipeline – with a liquified natural gas export terminal in Coos Bay, Oregon – the Jordan Cove project is expected to create more than 6,000 well-paying construction jobs in addition to an estimated 8,500 jobs in sectors like hospitality, retail, tourism and healthcare, along with more than 200 permanent positions. Further, the Jordan Cove project is estimated to bring \$60 million in new tax revenue for Southern Oregon and the South Coast every year to revitalize the community, and invest in schools and services. At the State level, the project would contribute an additional \$50 million to Oregon in state taxes to support critical public services including local schools, libraries, roads, and public safety.

For our PDH/PP Facility, total employment in Alberta from the project is expected to amount to nearly 18,000 PYs during construction and 43,625 PYs over 25 years of operation. Pembina expects cumulative Alberta Gross Domestic Product effects for construction and 25 years of operation would total \$27.4 billion while cumulative tax revenues paid to governments in Alberta during construction and operation would total \$3.1 billion. Once in-service, the project will create approximately 170 full-time jobs in Fort Saskatchewan, Sherwood Park and Calgary.

Pembina continues to be focused on building the economic resilience of the communities where operate and ensuring that we leave a positive legacy, all while building sustainable shareholder value. Sourcing local goods and services and hiring local people helps build community support for our activities, enhances our local knowledge, increases capacity, and mitigates business and social risks. We focus on hiring and sourcing goods and services locally to support communities and strengthen relationships in the areas where we operate.

	Direct	Indirect	Induced	Total
Person-years (#)	2,745	2,660	1,815	7,220
Labour Income (\$ Million)	351	199	72	622
Cost/Person-year (\$)	127,000	74,000	39,000	86,000

Table 14 - Average Annual Labour Impact of Pembina Capital Investment in Canada, 2012-2016

<sup>28</sup> Person-years (PYs) is a unit of measurement used to describe the amount of work done by an individual throughout the entire year (based on an ideal amount of work per day). For this analysis, a PY is equal to 2,080 hours.

<sup>29</sup> "Indirect effects" measure the changes due to inter-industry purchases as they respond to the new demands of the directly affected industries. This includes all the chain reaction of output up the production stream since each of the products purchased will require, in turn, the production of various inputs" (Statistics Canada 2017).

<sup>30</sup> "Induced effects" measure the changes in the production of goods and services in response to consumer expenditures induced by households' incomes (e.g. wages) generated by the production of the direct and indirect requirements" (Statistics Canada 2017).

# GRI Alignment

The following table shows our current alignment to the Global Reporting Initiative (GRI) Standards.

Standard	Disclosure	Content applied	Report section	Page #
102: General Disclosures	102-1 Name of the organization	Name of the organization	Title page	Title page
	102-2 Activities, brands, products, and services	Description of the organization's activities	About Pembina	7
	102-3 Location of headquarters	Location of the organization's headquarters	Back page of report	7
	102-4 Location of operations	Regions in which the organization operates	About Pembina	7
	102-5 Ownership and legal form	Nature of ownership and legal form	About Pembina	7
	102-6 Markets served	Location where products and services are offered, sectors served, and types of customers and beneficiaries	About Pembina	7
	102-7 Scale of the organization	Scale of the organization, including employees, operations, sales, capitalization, and quantity of products/services	About Pembina	7
	102-8 Information on employees and other workers	Information on employees and contractors	Social Well-being - Workforce - Our Performance	30
	102-9 Supply chain	Description of the organization's supply chain	About Pembina	7
	102-10 Significant changes to the organization and its supply chain	Significant changes to the organization, such as the acquisition of Veresen	About Pembina, GHG Emissions, Workforce	5, 19, 30
	102-12 External initiatives	Description of disclosure-related initiatives and industry association initiatives	Throughout	-
	102-13 Membership of associations	List of memberships in industry and other associations	Health and Safety - Our Performance	12, 16, 22
			Asset Integrity - Our Performance	
			Land Use and Biodiversity - Our Performance	
	102-14 Statement from senior decision-maker	Statement from the President and CEO	Message from our President and CEO	4
	102-15 Key impacts, risks, and opportunities	Provided in the Annual Report	Annual Report	<a href="#">Report</a>
	102-16 Values, principles, standards, and norms of behavior	Description of the organization's values, principles, standards, and norms of behaviour	Message from our President and CEO	4
102-17 Mechanisms for advice and concerns about ethics	Information on mechanisms for advice and concerns about ethical behaviour	Our Approach to Sustainability - Governance and Management Structure	8	

102-18 Governance structure	Description of the governance structure and decision-making bodies	Our Approach to Sustainability - Governance and Management Structure	8
102-19 Delegating authority	Description of the process for delegating authority for economic, environmental and social topics	Throughout report in 'our approach' sections.	8, 12, 16, 19, 22, 24, 27, 30, 33
102-20 Executive-level responsibility for economic, environmental, and social topics	Description of executive-level positions responsible for economic, environmental, and social topics	Our Approach to Sustainability - Governance and Management Structure	8
102-21 Consulting stakeholders on economic, environmental, and social topics	Processes for consultation between stakeholders and the highest governance body on economic, environmental, and social topics	Stakeholder and Aboriginal/Tribal Engagement	10
102-22 Composition of the highest governance body and its committees	Description of the highest governance body and its committees	Our Approach to Sustainability - Governance and Management Structure	8
102-23 Chair of the highest governance body	Provided in the Annual Report.	Annual Report	<a href="#">Report</a>
102-24 Nominating and selecting the highest governance body	Provided in the Annual Report	Annual Report	<a href="#">Report</a>
102-25 Conflicts of interest	Provided in the Annual Report	Annual Report	<a href="#">Report</a>
102-26 Role of highest governance body in setting purpose, values, and strategy	Description of the role of the highest governance body/senior executives in the setting the purpose, values, and strategy related to environmental, economic, and social topics	Our Approach to Sustainability - Governance and Management Structure	8
102-30 Effectiveness of risk management processes	Description of the highest governance body's role in identifying and overseeing risks related to environmental, economic, and social topics	Our Approach to Sustainability	9
102-32 Highest governance body's role in sustainability reporting	Description of the highest committee that reviews the organization's sustainability report	Our Approach to Sustainability - Governance and Management Structure	8
102-33 Communicating critical concerns	Processes for communicating critical concerns to the highest governance body	Stakeholder Engagement	10
102-40 List of stakeholder groups	List of stakeholder groups	Stakeholder Engagement	10
102-42 Identifying and selecting stakeholders	Explanation of how stakeholder groups have been selected	Stakeholder Engagement	10
102-43 Approach to stakeholder engagement	Description of the methods used to engage with stakeholder groups	Stakeholder Engagement	10
102-44 Key topics and concerns raised	Description of some of the key topics and concerns of stakeholder and Aboriginal/Tribal groups	Stakeholder Engagement	10
102-46 Defining report content and topic Boundaries	Description of the report content	About this Report	3

	102-49 Changes in reporting	Explanation that this is the organization's first report	About this Report	3
	102-50 Reporting period	Description of the reporting period	About this Report	3
	102-52 Reporting cycle	Description of the reporting cycle	About this Report	3
201: Economic Performance	201-1 Direct economic value generated and distributed	Total economic value generated and distributed to communities	Economic Contribution	35
	203-2 Significant indirect economic impacts	Total payments to governments and community investments	Economic Contribution	35
304: Biodiversity	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Description of land use and biodiverse areas	Environmental Stewardship - Land Use and Biodiversity	22
	304-3 Habitats protected or restored	Description of reclaimed well sites	Environmental Stewardship - High risk wellsites receiving reclamation certificate as a part of wellsite reclamation program	6, 22
305: Emissions	305-1 Direct (Scope 1) GHG emissions	Table of direct (Scope 1) GHG emissions	Environmental Stewardship - Direct GHG emissions (tCO <sub>2</sub> e)	6, 20
	305-2 Energy indirect (Scope 2) GHG emissions	Table of indirect (Scope 2) GHG emissions	Environmental Stewardship GHG Emissions	6, 21
	305-4 GHG emissions intensity	Table depicting emissions intensity of direct (Scope 1) emissions	Environmental Stewardship - GHG Emissions	6, 20
306: Effluents and Waste	306-3 Significant spills	Total reportable spills	Safety and Asset Integrity	6, 18
403: Occupational Health and Safety	403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Information about injuries, motor vehicle incidents, and fatalities	Safety and Asset Integrity - Health and Safety	14, 15
404: Training and Education	404-2 Programs for upgrading employee skills and transition assistance programs	Information about existing employee skills development programs	Social Well-being - Aboriginal and Tribal Relations	6, 24-26
405: Diversity and Equal Opportunity	405-1 Diversity of governance bodies and employees	Description of diversity within the organization	Social Well-being - Workforce	30-31
413: Local Communities	413-1 Operations with local community engagement, impact assessments, and development programs	Description of community engagement and development programs	Stakeholder and Aboriginal/Tribal Engagement  Social Well-being - Community Investment	10, 27



# Glossary

Measurement	
bpd	barrels per day
mmbbls	thousands of barrels
mbpd	thousands of barrels per day
mmbpd	millions of barrels per day
mmbbls	millions of barrels
boe	barrels of oil equivalent
mboe/d	thousands of barrels of oil equivalent per day
MMcf/d	millions of cubic feet per day
bcf/d	billions of cubic feet per day

Other	
B.C.	British Columbia
IFRS	International Financial Reporting Standards
NGL	Natural gas liquids
U.S.	United States
WCSB	Western Canadian Sedimentary Basin

Terms and acronyms used in this Sustainability Report have the meaning described below:

"**ABSA**" means the Alberta Boilers Safety Association;

"**AETP**" means Aboriginal Environmental Trainee Program;

"**AIF**" means Annual Information Form;

"**AWN**" means Aseniwuche Winewak Nation;

"**brownfield investments**" means using a previously constructed facility for new operations and business activities;

"**BBB**" an investment grade credit rating, as defined by S&P and DBRS;

"**Board**" or "**Board of Directors**" means the board of directors of Pembina;

"**Canadian Diluent Hub**" or "**CDH**" means Pembina's condensate and diluent terminal at the Company's Heartland site near Fort Saskatchewan, Alberta;

"**CEPA**" means Canadian Energy Pipeline Association;

"**Common Shares**" means the common shares of Pembina;

"**Company**" or "**Pembina**" means Pembina Pipeline Corporation, an Alberta Business Corporations Act corporation and, unless the context otherwise requires, includes its subsidiaries;

"**CPR**" means cardiopulmonary resuscitation;

"**CSA**" means Canadian Standards Association;

"**CSR**" means Corporate Social Responsibility;

"**DBRS**" means DBRS Limited;

"**direct emissions**" means emissions from Pembina's operational stationary combustion equipment, fugitive component leaks, as well as flaring and venting activities at our gas processing facilities, and vented emissions from storage tanks;

"**E2**" means Environmental Emergency, which involves the planning and preparedness by a company that owns or controls hazardous substances to reduce the frequency and consequences of a release of hazardous substances to the environment under the Environment and Climate Change Canada *Environmental Emergency Regulations*;

"**Adjusted EBITDA**" means adjusted earnings before interest, taxes, depreciation and amortization. See "Non - GAAP Measures";

"**EDGAR**" means the Electronic Data Gathering, Analysis and Retrieval system;

"**EMP**" means Environmental Management Program;

"**ERM**" means Enterprise Risk Management;

"**Financial Statements**" means Pembina's audited, consolidated financial statements;

"**GAAP**" means the generally accepted accounting principles established by the CICA or any successor thereto which are in effect from time to time in Canada;

"**GHG**" means greenhouse gas. Global warming gases referred to as greenhouse gases such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and various fluorinated gases that trap radiant heat in the earth's atmosphere. Greenhouse gases have unique global warming potentials based on the retention time in atmosphere and how strong that gas absorbs energy. For measurement and reporting, greenhouse gases are normalized to a CO<sub>2</sub> equivalent and are reported as tonnes of CO<sub>2</sub>e;

"**GRI**" means Global Reporting Initiative (<https://www.globalreporting.org>);

"**high consequence area**" means an area along a pipeline rights-of-way that is vulnerable to pipeline related incidents or disturbances from a safety or environmental perspective. Examples would include the proximity to residential buildings, watercourses, sensitive habitat, etc.;

"**HSE**" means Health, Safety and Environment;

"**ILI**" means in-line inspection;

"**indirect emissions**" means emissions from sources that are not owned or directly controlled by the Pembina. Indirect emissions would include the use of electricity from the provincial power grid, the import of heat or steam generated by a third-party provider, employee travel and commuting aside from fleet vehicle use;

"**IMP**" means Integrity Management Program. Pembina's IMP includes the systems, processes, analysis and documentation designed to ensure proactive and transparent management of our pipeline systems and facilities. It incorporates industry best practices and is designed to meet or exceed regulatory requirements with the goal of achieving enhanced safety, reliability and longevity through the entire asset lifecycle;

"**ISS**" means Institutional Shareholder Services;

"**Jordan Cove**" means Jordan Cove Energy Project L.P.;

"**Kakwa Gas Plant**" means Pembina's 50 percent interest in the shallow cut sweet gas processing facility located at 01-35-060-05 W6M;

"**LBG Canada**" means London Benchmarking Group (<https://www.lbg-canada.ca>);

"**MD&A**" means Pembina's management's discussion and analysis, electronic copies of which are available on Pembina's profile on the SEDAR website at [www.sedar.com](http://www.sedar.com), and in Pembina's annual report on Form 40-F filed on the EDGAR website at [www.sec.gov](http://www.sec.gov), or at [www.pembina.com](http://www.pembina.com);

"**MVI**" means motor vehicle incident. Pembina defines a motor vehicle incident as one or more moving on-road vehicles (e.g. car, truck, van, bus, motorhome, motorcycle) involved in a collision event with vehicle, object, pedestrian/bystanders or driverless vehicle collisions or non-collision events (e.g. rollover, loss or shift of cargo, evasive/ defensive driving, pre-meditated incident);

"**NEB**" means the National Energy Board;

"**NEBC Expansion**" means Pembina's expansion to its pipeline infrastructure in northeast British Columbia increasing the capacity of the Northeastern British Columbia Pipeline by approximately 75 mbpd;

"NGL" means natural gas liquids;

"NYSE (PBA)" means the New York Stock Exchange (and the company's stock ticker);

"OHSAS 18001" means the Occupational Health and Safety Assessment Series 18001;

"OMS" means Operating Management System;

"PATH" means Pembina Actions That Help. The PATH program allows employees to engage more closely not only with the communities they live in, but also to create a culture whereby employees feel supported by the company in their philanthropic efforts through matching gifts, volunteer grants and team volunteering. To learn more about PATH, please visit this [link](#);

"Peace Pipeline" means the pipeline system and related facilities delivering light crude oil, condensate, propane mix (C<sub>3</sub>+) and ethane mix (C<sub>2</sub>+) from northwestern Alberta to Edmonton, Alberta and to Fort Saskatchewan, Alberta;

"Phase III Expansion" means pipeline expansions, underpinned by long-term, fee-for-service agreements in Pembina's operating areas, following and expanding on certain segments of Pembina's existing Northern and Peace Pipeline systems from Taylor, British Columbia southeast to Edmonton, Alberta increasing the capacity on the system by approximately 420 mbpd;

"Pouce Coupé Pipeline" means the pipeline system and related facilities delivering sweet crude oil and HVP hydrocarbon products from Dawson Creek, British Columbia to Pouce Coupé, Alberta;

"PSR" means Positive Safety Recognition. The Positive Safety Recognition (PSR) program is designed to promote a safe work environment by encouraging participation at all levels through reinforcing safe behaviour. PSR's recognize positive safety acts performed by Pembina employees and contractors;

"RFP" means request for proposals;

"RFS III" means Pembina's 55 mbpd propane-plus NGL processing facility at Redwater, Alberta;

"S&P" means Standard & Poor's Rating Services, a division of The McGraw-Hill Companies (<https://www.standardandpoors.com/>);

"SASB" means the Sustainability Accounting Standards Board (<https://www.sasb.org/>);

"SEM" means Safety and Emergency Management;

"Shareholders" means the holders of Common Shares;

"SLA" means Safety Leadership in Action. Safety Leadership in Action is an internal leadership development course providing safety tools and knowledge for effective supervision at all levels;

"SVP" means senior vice president;

"TCFD" means Task Force on Climate-related Financial Disclosures (<https://www.fsb-tcf.org/>);

"tCO<sub>2</sub>e" means tons of carbon dioxide equivalent;

"tCO<sub>2</sub>e/BOE" is a metric tonne (t) of carbon dioxide equivalent (CO<sub>2</sub>e) per barrel of oil equivalent (BOE);

"TRIF" means total recordable injury frequency. Total Recordable Injury Frequency (TRIF) is a measure of the rate of recordable workplace injuries, normalized per 100 workers per year. Recordable cases consist of occupational fatality, lost-time, modified work and medical aid injury incidents that meet injury classification guidelines;

"TSX (PPL)" means the Toronto Stock Exchange (and the company's stock ticker);

"Veresen" means Veresen Inc.;

"Zero by Choice" means a Pembina safety program reinforces the belief that all incidents are preventable and that employees and contractors are accountable for their safety and the safety of others.

# Forward-Looking Statements and Information and Non-GAAP Measures

## Forward-Looking Statements and Information

This report contains certain forward-looking statements and information that are based on Pembina's expectations, estimates, projections and assumptions considering its experience and its perception of historical trends as well as current market conditions and perceived business opportunities. In some cases, forward-looking information can be identified by terminology such as "expects", "will", "would", "anticipates", "plans", "estimates", "develop", "intends", "potential", "continue", "could", "forecast", "create", "keep", and similar expressions suggesting future events or future performance.

In particular, this report contains forward-looking statements pertaining to, without limitation: continued community investment and engagement efforts, emergency preparedness process improvement, participation in industry initiatives and integrity programs, GHG emissions goals and expectations, future environmental monitoring and management programs, anticipated in-service dates for growth projects, further expansion opportunities, Aboriginal and Tribal engagement and relations strategy development, maintenance of financial Guard Rails, future dividends which may be declared on Pembina's common shares and any future dividend payment date, integration of acquired businesses and assets, and anticipated community and economic benefits of growth projects.

Undue reliance should not be placed on these forward-looking statements and information as they are based on assumptions made by Pembina as of the date hereof regarding, among other things: that favourable growth parameters continue to exist in respect of current and future growth projects (including the ability to finance such projects on favorable terms); future levels of oil and natural gas development; potential revenue and cash flow enhancement; future cash flows; that Pembina is able to achieve anticipated synergies from acquired businesses and assets; with respect to Pembina's dividends: prevailing commodity prices, margins and exchange rates, that Pembina's businesses will continue to achieve sustainable financial results and that future results of operations will be consistent with past performance and management expectations in relation thereto, the availability and sources of capital, operating costs, ongoing utilization and future expansions, the ability to reach required commercial agreements, and the ability to obtain required regulatory approvals.

While Pembina believes the expectations and assumptions reflected in these forward-looking statements are reasonable as of the date hereof, there can be no assurance that they will prove to be correct. Forward-looking statements are subject to known and unknown risks and uncertainties which may cause actual performance and financial results to differ materially from the results expressed or implied, including but not limited to: customer demand for the company's services, commodity prices and interest and foreign exchange rates; planned synergies; capital efficiencies and cost-savings; applicable tax laws; future production rates; the sufficiency of budgeted capital expenditures in carrying out planned activities; the impact of competitive entities and pricing; reliance on key industry partners, alliances and agreements; the strength and operations of the oil and natural gas industry and related commodity prices; the regulatory environment and the ability to obtain regulatory approvals; fluctuations in operating results; the availability and cost of labour and other materials; the ability to finance projects on advantageous terms; and tax laws and tax treatment.

Additional information on these factors as well as other risks that could impact Pembina's operational and financial results are contained in Pembina's AIF and MD&A for the year ended December 31, 2017, and described in our public filings available in Canada at [www.sedar.com](http://www.sedar.com) and in the United States at [www.sec.gov](http://www.sec.gov). Readers are cautioned that this list of risk factors should not be construed as exhaustive.

The forward-looking statements contained in this document speak only as of the date of this document. Except as expressly required by applicable securities laws, Pembina and its subsidiaries assume no obligation to update forward-looking statements and information should circumstances or management's expectations, estimates, projections or assumptions change. The forward-looking statements contained in this document are expressly qualified by this cautionary statement.

## Non-GAAP Measures

In this document, Pembina has used the terms net revenue and adjusted earnings before interest, taxes, depreciation and amortization (Adjusted EBITDA), which do not have any standardized meaning under IFRS ("Non-GAAP Measures"). Since Non-GAAP Measures do not have a standardized meaning prescribed by GAAP and are therefore unlikely to be comparable to similar measures presented by other companies, securities regulations require that Non-GAAP Measures are clearly defined, qualified and reconciled to their nearest GAAP measure. These Non-GAAP Measures are calculated and disclosed on a consistent basis from period to period. The intent of Non-GAAP Measures is to provide additional useful information respecting Pembina's financial and operational performance to investors and analysts and the measures do not have any standardized meaning under IFRS. The measures should not, therefore, be considered in isolation or used in substitute for measures of performance prepared in accordance with IFRS.

### Non-GAAP Proportionate Consolidation of Investments in Equity Accounted Investees Results

In accordance with IFRS, Pembina's jointly controlled investments are accounted for using equity accounting. Under equity accounting, the assets and liabilities of the investment are net into a single line item in the Consolidated Statement of Financial Position, Investments in Equity Accounted Investees. Net earnings from Investments in Equity Accounted Investees are recognized in a single line item in the Consolidated Statement of Earnings and Comprehensive Earnings, share of profit from equity accounted investees. Cash contributions and distributions from Investments in Equity Accounted Investees represent Pembina's proportionate share paid and received in the period to and from the equity accounted investment.

Other issuers may calculate these Non-GAAP Measures differently. Investors should be cautioned that these measures should not be construed as alternatives to revenue, earnings, cash flow from operating activities, gross profit or other measures of financial results determined in accordance with GAAP as an indicator of Pembina's performance. For additional information regarding Non-GAAP Measures, including definitions and reconciliations to measures recognized by GAAP, please refer to Pembina's management's discussion and analysis for the applicable periods as referenced in this document which are available online at [www.sedar.com](http://www.sedar.com), [www.sec.gov](http://www.sec.gov) and through Pembina's website at [www.pembina.com](http://www.pembina.com).





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