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# Safety Management System Framework







Enbridge is one of the world's leading energy transportation, distribution and generation companies. We are responsible for delivering the energy that powers society and drives nearly every aspect of our modern life.

We operate the world's largest and most sophisticated pipeline system, safely transporting nearly 2 billion barrels of crude oil and liquids annually.

Our gas transportation system extends across North America and moves billions of cubic feet of natural gas every day and, as the largest natural gas utility in Canada, we extend into the homes and businesses of more than 2 million customers.

Our wind, solar and geothermal power generation facilities create enough energy to power the equivalent of more than 600,000 homes.

The work we do is vitally important to the many millions of people across the continent who rely on us for the energy that fuels their quality of life. At the same time, our



Al Monaco,  
President & CEO of Enbridge Inc.

work is also hazardous, and our primary duty is to safety and operational reliability, vigilantly managing risks to protect the safety of the public, the Enbridge team and the environment.

The Enbridge Safety & Operational Reliability Framework is a rigorous, evolving and shared standard, common across all of our operations and businesses, to effectively manage and mitigate the hazards associated with transporting, distributing and generating the energy society counts on.

Al Monaco, President & CEO of Enbridge Inc.





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# OUR PURPOSE

We exist to fuel people's quality of life.

# OUR VISION

Our vision is to be the leading energy delivery company in North America. We deliver energy and we deliver value to shareholders.

# OUR VALUES

Enbridge builds on our foundation of operating excellence by adhering to a strong set of core values that reflect what is truly important to us as a company. Our values guide our decisions, actions and behaviours.

Enbridge employees demonstrate our values of **Integrity**, **Safety** and **Respect** in support of:

- » Our Communities
- » The Environment and
- » Each other

## MORE ABOUT SAFETY

**Safety and operational reliability** is our Number 1 priority as an organization. Everything else that we do is built on this foundation.

This means that we:

- Relentlessly ensure the safety of our communities, customers, employees, contractors, and partners
- Take a proactive approach to identifying and preventing safety issues
- Take immediate action when a safety issue is identified
- Continually seek ways to improve safety performance

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Our commitment to

# HEALTH & SAFETY

Enbridge is committed to ensuring everyone returns home safely at the end of each and every day, and that our assets are operated in a safe manner. This commitment to safety is based on caring for employees, our contractors, the communities in which we operate and the environment.

The Enbridge Values of 'Integrity, Safety and Respect' establish how we conduct our affairs individually and collectively at a moral and ethical level. The Health & Safety Principles complement these Values by guiding our actions, policies, procedures and culture.

The Principles are fundamental expectations as we drive towards 100% safety. They help create a culture in which safety is everyone's responsibility, leadership is accountable for safety performance, continuous improvement is required, hazards are controlled, and our commitment to caring extends beyond the workday.

Safety isn't just a priority. It's our way of life. It's a core value that makes us Enbridge.

## Health & Safety Principles

1. All injuries, incidents, and occupational illnesses can be prevented.
2. All operating exposures can be controlled.
3. Management is accountable for safety performance.
4. All employees/contractors are responsible for safety.
5. Assessment and improvement are a must.
6. We promote off-the-job health and safety for our employees 24/7.



# MANAGING AND REWARDING EXCELLENT SAFETY PERFORMANCE

For Enbridge, strong safety performance requires a multi-layered management approach to promote and support excellent individual and team contribution. This approach also ensures sustained and strategic leadership focus, so that our collective efforts at the business unit and enterprise levels are aligned, integrated and effective.

At an individual level, every Enbridge employee is required to set safety objectives worth at least 10 per cent of his or her total annual individual performance evaluation. These objectives are reviewed and approved by the employee's leader and achievement of the objectives is tracked in our performance management system.

In addition, senior management annually sets detailed safety performance metrics at the business unit level. These metrics help to focus the organization on key performance factors related to safety and operational reliability. These metrics are incorporated into our business unit scorecards and account for a minimum of 35 per cent of the business unit performance bonus available to employees. The weighting of these business unit safety objectives increases for leaders, senior leaders and executive, reinforcing safety as our Number 1 objective and rewarding strong safety performance.





# ENTERPRISE SAFETY & RELIABILITY GOVERNANCE

We know that a strong safety culture and a disciplined, deliberate and unrelenting approach to risk mitigation are key to our continued business success and the foundation of our future growth.

Achieving success requires strong, effective and integrated governance, incorporating the oversight, leadership and contribution of leaders representing multiple stakeholder groups across the enterprise.

This governance structure helps to ensure that we have the leadership focus, expertise, strategic alignment and allocation of resources

to effectively and consistently reduce our operating risks, enhance the safety of our operations and provide evermore reliable service to our customers. We focus our ongoing investment of time, talent and resources to enhance our safety and reliability in a wide number of areas, including but not limited to: environment, health, safety, pipeline and facility integrity management, security (physical, data and cyber), emergency response preparedness and other operational risks.



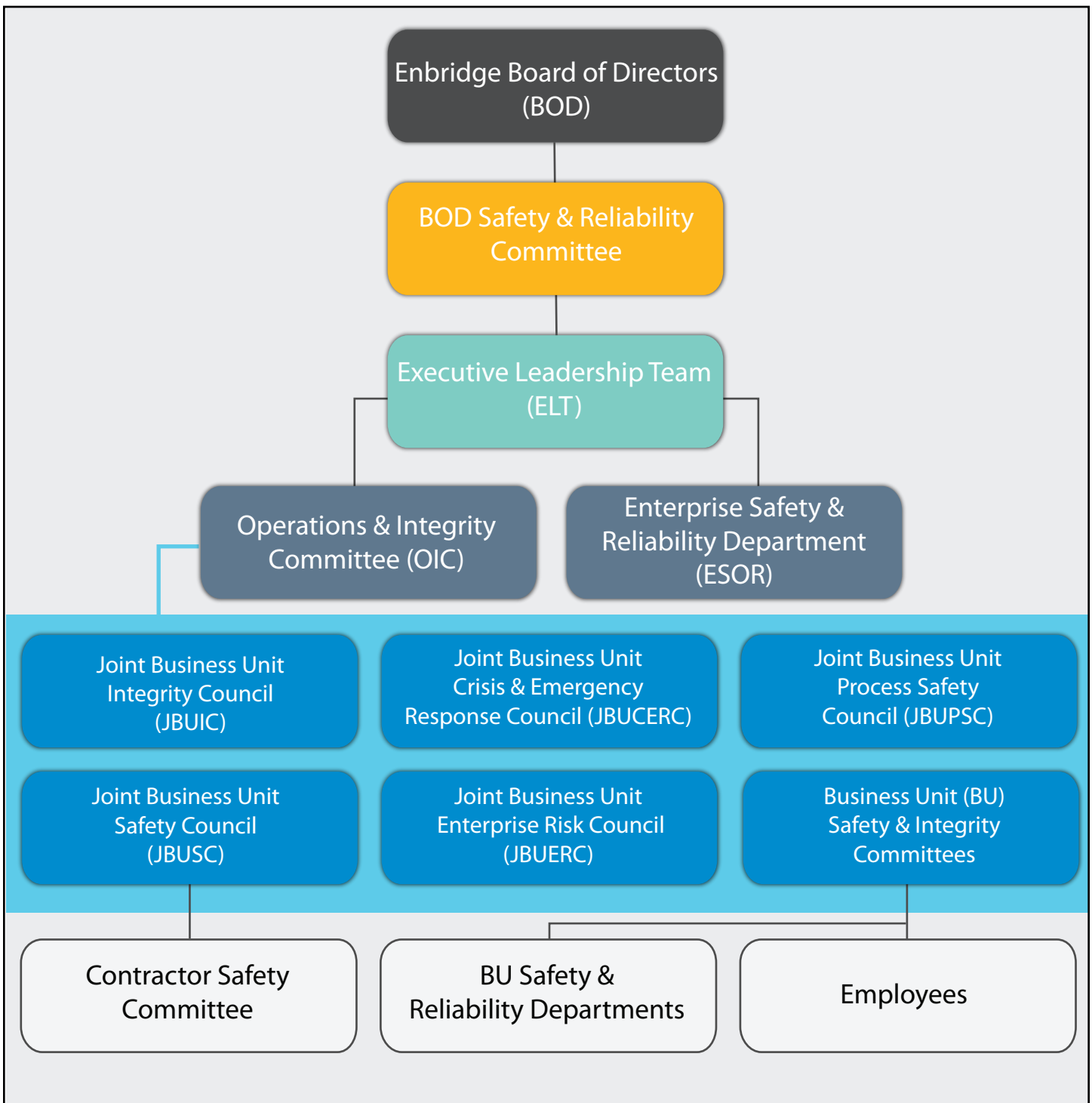
Because Safety and Operational Reliability is our Number 1 priority, our governance is designed to support our leaders in their relentless drive to build a stronger safety culture founded on our belief that all incidents can be prevented and to achieve our shared goal of 100% safe operations. At Enbridge, this means achieving industry leadership in safety (process, public and personal), the reliability and integrity of our pipelines and facilities, and protection of the environment.

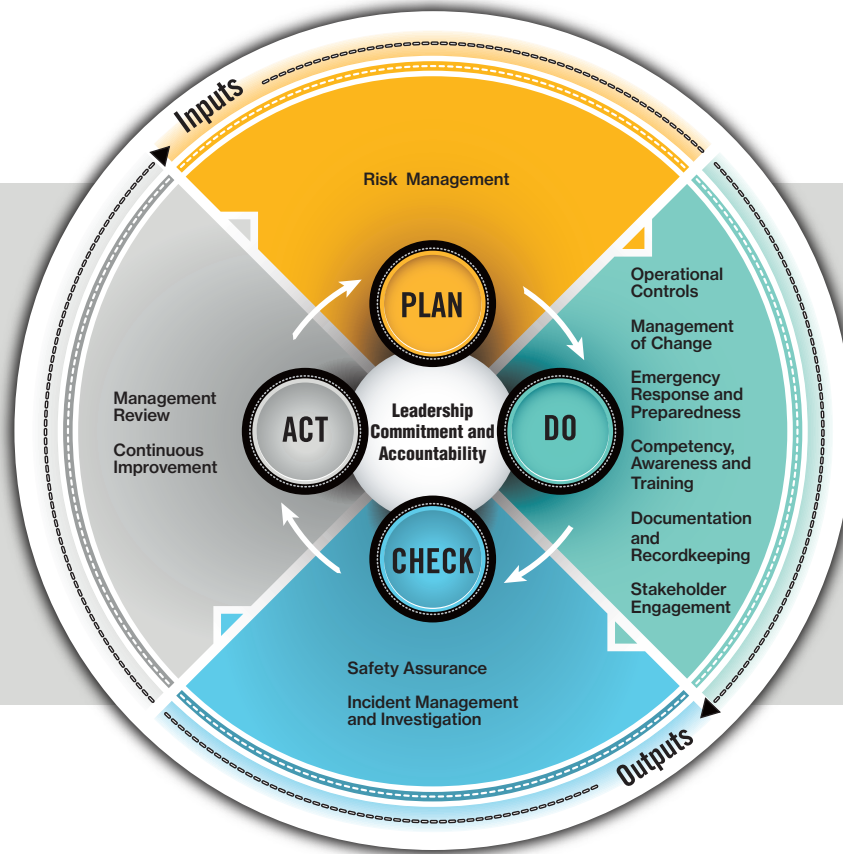
### Safety and Operational Reliability Governance structure:

Role	Description	Key Activities
<b>Board of Directors</b>	The Enbridge Inc. Board of Directors is responsible for the overall stewardship of the company.	Governing the organization by establishing broad policies and objectives including those related to safety and reliability and ensuring the availability of adequate resources to achieve these objectives.
<b>Board Safety and Reliability Committee</b>	The Board Safety and Reliability Committee is responsible for oversight of safety and reliability and recommendations regarding safety and reliability to the Board or to the Boards of the Corporation's subsidiaries and affiliates.	<p>Oversight of enterprise-wide safety and reliability</p> <ul style="list-style-type: none"> <li>receiving and responding to reports regarding safety culture and risk management guidelines</li> <li>reviewing and establishing policies directed at preventing injury and adverse environmental impacts</li> <li>reviewing, approving and making recommendations to the Board regarding risk guidelines, policies, procedures and practices</li> <li>reviewing significant safety incidents</li> </ul>
<b>Executive Leadership</b>	The Executive Leadership Team is responsible for control, oversight and decision-making related to the direction of the business and for setting a positive and active tone at the top regarding safety and reliability.	<p>Development and implementation of effective enterprise-wide safety and reliability strategies</p> <ul style="list-style-type: none"> <li>verification and endorsement of policies, processes, guidelines and standards</li> <li>demonstrating accountability for meeting critical safety and reliability performance metrics</li> </ul>
<b>Operations &amp; Integrity Committee (OIC)</b>	The OIC, Enbridge's most senior level committee, is responsible for providing enterprise wide direction and oversight related to the organization's operations, integrity, environment and health & safety activities.	<p>Ensuring management systems related to safety and reliability are in place and effectively implemented within each BU so operations are being evaluated against risks.</p> <ul style="list-style-type: none"> <li>leading the oversight and assessment of the risk management programs in each business unit to identify gaps, and review plans and associated resources necessary to effectively mitigate safety and reliability risks in a timely manner</li> <li>driving a strong safety culture within the Enbridge team and enabling and promoting this as a key priority among Enbridge people leaders</li> <li>overseeing and supporting effective cross-BU communication regarding major incidents, regulatory requirements, near misses and emerging best practices</li> </ul>
<b>Enterprise Safety and Operational Reliability Department</b>	The Enterprise Safety and Operational Reliability team is charged with supporting the organization's objective of being the industry leader in process, public and personal safety, operational reliability and environmental protection.	<p>Executing enterprise-wide vision, culture and integrated strategies and policies based on direction from the OIC.</p> <ul style="list-style-type: none"> <li>driving Enbridge's industry leadership in safety (process, public and personal), the reliability and integrity of our pipelines and facilities, and protection of the environment</li> <li>coordinating cross-BU activities as the action arm of OIC</li> <li>providing control and risk assessment implementation in BUs</li> <li>chairing councils struck at the direction of the OIC</li> </ul>

Role	Description	Key Activities
<b>Enterprise HSE and Integrity Steering Councils and Committees</b>	These Joint Business Unit Councils are struck to provide enterprise wide collaboration, alignment and strategic direction on safety and reliability matters.	<p>The Joint Business Unit Safety Council, Joint Business Unit Integrity Council, Joint Business Unit Crisis and Emergency Response Council, and Joint Business Unit Process Safety Council support consistency and collaboration across the business units by:</p> <ul style="list-style-type: none"> <li>• promoting best practices</li> <li>• assessing and prioritizing actions based on known risks</li> <li>• evaluating potential future risks, recommending policy, processes, guidelines, plans and actions</li> <li>• sponsoring corrective actions as required.</li> </ul>
<b>Business Unit Committee Structure</b>	The Business Units are accountable for safety and reliability within their areas of operation. Each BU has within its organization a committee structure that closely mirrors that of the enterprise.	<p>The Business Unit Committees support the execution of Enbridge's safety and reliability strategy, with a primary responsibility for driving safety culture within their respective business units. The BU committees:</p> <ul style="list-style-type: none"> <li>• support implementation of direction from the Joint Business Unit Councils</li> <li>• manage safety and reliability processes, systems and programs within the business unit</li> <li>• measure, monitor and report on safety and reliability activities within their areas of operation</li> <li>• share safety and reliability lessons learned with enterprise leadership</li> <li>• identify emerging risks to support improved safety and reliability performance for Enbridge and the industry</li> </ul>
<b>Safety &amp; Reliability Departments</b>	Business Unit-level safety and reliability departments staffed with technical experts are charged with the oversight for implementation of the management systems, process and systems within their operating areas related to safety and reliability.	<p>The safety and reliability departments oversee the technical administration and implementation of systems, processes and policies related to safety and reliability within their business units/operational areas. This includes:</p> <ul style="list-style-type: none"> <li>• Developing standards and procedures to ensure that employees have the resources available to work safely</li> <li>• Investigating incidents and the timely monitoring and reporting on the close-out of action items related to incident investigations</li> <li>• Identifying emerging risks or safety performance trends that may require mitigation</li> <li>• Supporting leaders and employees/contractors in understanding and implementing processes related to safety and reliability</li> </ul>
<b>Employees and Contractors</b>	People are the most important element of Enbridge's performance related to safety and reliability. Employees and contractors are equipped, empowered and encouraged to take personal accountability for their safety, that of their co-workers, and the safe operations of our assets.	<p>Safety is the Number 1 priority for all members of the Enbridge team, including both employees and contractors. Every member of the Enbridge team has the responsibility to:</p> <ul style="list-style-type: none"> <li>• Immediately stop any unsafe work activity</li> <li>• Strictly and consistently adhere to policies, procedures, regulations, codes and standards</li> <li>• Be on the lookout for, mitigate (where safe to do so) and report any unsafe conditions</li> <li>• Actively participate in Enbridge's safety culture, acting in a way consistent with our belief that all incidents can be prevented.</li> </ul>

# SAFETY AND OPERATIONAL RELIABILITY GOVERNANCE





# SAFETY MANAGEMENT SYSTEM FRAMEWORK

Key to outstanding safety and reliability performance is a clear, effective and action-based management system to ensure that, as an organization, we are prepared and equipped to identify, understand and effectively manage all risks associated with our operations so that we can move towards our goal of 100 per cent safety. This management system provides the framework and structure to ensure that our efforts to create industry-leading safety and reliability performance across the company are thoughtfully, thoroughly and expertly planned, executed and monitored, and subject to continual improvement.

While each business unit has unique operations, Enbridge's Safety Management System Framework establishes and outlines the minimum standards and components to which each business unit must adhere. This management system establishes the broad

responsibilities and accountabilities required to support sustained and continually improving safety and reliability performance. Because business units may have existing safety management systems in place, they are not required to match the exact structure of the Enbridge Safety Management System Framework, however, each business unit is expected to align, define and document its specific programs, processes and policies with this company-wide framework so that all components of each of the nine elements is captured and effectively and actively managed.

Our Safety Management System Framework incorporates a number of key actions and accountabilities that fall into nine elements. These actions and accountabilities flow into a Plan-Do-Check-Act cycle, which is at the core of the Enbridge Safety Management System

Framework and encourages the creation and execution of effective and aligned strategies and plans with a built-in program of continual improvement.

### **Element 1: Leadership Commitment and Accountability Responsibilities**

The first element of the Safety Management System Framework is strong formal leadership. Leaders are responsible for developing and supporting improved safety performance and a positive safety culture at Enbridge. This includes establishing, resourcing and executing on strong safety policy to meet ambitious and meaningful safety and reliability objectives. Leaders must also continually assess the implementation and maturity of each of the elements in the management system.

As well, leaders must demonstrate their focus and support for safety and reliability through effective and active performance management of their teams, including incentives for strong safety and reliability performance that improves over time.

While people leaders have specific and defined accountabilities related to safety and reliability, all members of the Enbridge team, including contractors, are encouraged to demonstrate and exercise safety leadership.



## Leadership/Management

Management shall lead and demonstrate its commitment to the development, implementation, evaluation and continuous improvement of the safety management system by:

- establishing and maintaining policy, goals, and objectives consistent with our overall strategy;
  - promoting a positive safety culture, based on mutual trust, interdependence and being a learning organization;
  - ensuring clear accountability for implementation of safety management system elements, with a clear line of sight from objectives to day-to-day activities;
  - ensuring that risk management processes reveal and mitigate risk, making compliance and risk reduction a standard part of doing business;
  - ensuring that dependent and interrelated functions within the organization are collaborating, sharing information and working to achieve the policies and objectives;
- establishing a performance management policy, including recognition and discipline, that promotes strong safety performance;
  - promoting safety engagement and leadership at all levels of the organization, and;
  - leading the allocation of resources to support strong safety performance.

## Employees

Employees supported by management shall:

- follow the procedures set forth by the organization;
- identify and promote improvements to processes and procedures;
- identify and communicate risks;
- treat the safety of the public, fellow employees and the environment as the primary consideration when addressing an abnormal condition or changes to policy, process or procedure, and;
- stop work they consider unsafe and to never leave a question about safety unresolved.



## Element 2:

### Management Review, Safety Assurance, Stakeholder Engagement & Continuous Improvement

The management system shall establish the monitoring, measurement, analysis, and improvement processes required to enhance effectiveness of risk management and enable continual improvement of safety and reliability performance. Element 2 comprises the following areas:

#### Management Review

In addition to driving continuous improvement, this area highlights leadership commitment to safety and reliability and reflects the importance of accountability for safety. Periodic and effective management review establishes that safety is a priority across the organization. The management review process includes:

- review of the management system itself
- review of performance and KPI's and metrics;
- results of risk management system/ review;

- effectiveness and status of corrective actions from previous management reviews;
- results of internal and external audits and assessments;
- stakeholder feedback, and;
- recommendations to improve the system.

#### Safety Assurance

Safety assurance is necessary to ensure Enbridge services, activities and projects meet regulatory requirements and internal and external standards along with conformance with the management system. The safety assurance process includes:

- a periodic assessment/audit process;
- establishment of audit criteria to include all elements of the safety management system;
- corrective and preventive action tracking, and;
- establishment of a transparent and confidential method for reporting of non-compliance, without fear of retaliation.





# Stakeholder Engagement

Communication and engagement with internal and external stakeholders about the scope and purpose of the safety management system as well as related communications about safety performance helps to reinforce safety and reliability as Enbridge's top priority with key audiences.

This element demonstrates the extent and depth of Enbridge's commitment to safety by engaging stakeholders and interested audiences. Strong stakeholder engagement both promotes and demonstrates transparency, builds trust and greater understanding of our approach to safety and the critical role Enbridge plays in reliably delivering the energy society counts on, and is consistent with our values of integrity and respect.

Stakeholder engagement also has a direct impact on safety and reliability performance through public awareness programs, which help members of the public and first responders near our operations better understand how to identify and report potential incidents and also how to avoid causing third-party damage to our facilities.





Stakeholder Engagement includes:

- Creation and execution of periodic communications and engagement plans related to safety and reliability. Such plans would include:
  - Identification of key audiences and stakeholders
  - Identification of desired communications and engagement outcomes
  - Key messages
  - Success measures
  - Tactics and timing

## Continuous Improvement

Enbridge shall ensure continuous improvement of risk management effectiveness in safety performance. Management shall continually improve the effectiveness of the management system through the use of the safety policy and objectives, audit and assessment results, analysis of data, and management review to identify and act upon opportunities for improvement as well as corrective and preventive actions.

The Plan-Do-Check-Act cycle presents a model for continuous improvement that can be applied to the management system as a whole, to ensure its continued relevance and positive impact on Enbridge's safety performance. This model can also be applied to individual safety processes.

A visual representation of the Plan-Do-Check-Act cycle incorporating key actions in our Safety Management System Framework can be found on Page 11.

An aerial view of an offshore oil rig at sunset. The sun is low on the horizon, casting a golden glow over the ocean. The rig's complex steel structure, including multiple decks, stairs, and a helipad, is silhouetted against the bright sky. A yellow helicopter is visible on the helipad. The water is dark with some whitecaps. A semi-transparent grey box containing text is overlaid on the right side of the image.

### Element 3: Risk Management

Risk management involves identifying, analyzing and prioritizing risks associated with our assets and operations that could affect people, property or the environment. A formal risk management process helps promote a culture focused on risk identification and mitigation. A Risk Management system shall be implemented to manage assets and projects and will include the following elements:

- A structured process for identifying risks, assessing the consequences and likelihood of those risks being realized, and evaluating corrective and preventive actions;
- A system that embeds risk identification, assessment and control into the workplace processes that is used for decision making and achievement of business objectives;
- The workforce shall be trained to identify, assess and manage risks appropriately, aligned with the direction of senior management;
- The system shall call for both initial and periodic risk analyses that are built into the business planning cycle, and;
- Risk analysis results shall be presented to senior leadership for inclusion into the business planning process.

## Element 4: Operational Controls

Operating assets within clearly established parameters according to design standards is critical to safe operations. This requires effective systems, including design and construction standards, processes, operating procedures and safe work practices.

The operational control systems element includes:

- The design and construction of new facilities or modification of existing facilities using approved design practices and standards that meet or exceed regulatory requirements and address other considerations such as environmental conditions and human factors;
- Operating, maintenance and inspection procedures which are developed, implemented and used consistently;
- Safe work permit processes, which are incorporated into work activities and include effective checks and authorizations, and;
- Established integrity programs which ensure regular and effective inspection and maintenance of equipment and assets.

## Element 5: Management of Change

Management of change is a systematic approach to ensuring proposed changes are assessed for risk, and that change is effectively implemented to achieve targeted results. Disciplined management of change identifies and mitigates risks associated with changes to operations, procedures, site standards, facilities and the organization to ensure that risks associated with change are well understood and addressed.

The management of change element includes:

- A process to manage both temporary and permanent changes, and;
- Identification and evaluation of:
  - change authority;
  - associated hazards;
  - operational and integrity implications;
  - compliance with regulatory and internal standards;
  - required communication, and;
  - required training required documentation updates.





## Element 6: Incident Management and Investigation

Safe operations require an effective incident investigation, reporting and management process. An organization must be able to learn from its incidents and use the information to not only correct but to also prevent recurrence. Enbridge maintains incident management and investigation processes that include the following:

- A process for reporting, investigating, analyzing and documenting safety incidents and significant near misses;
- An investigation process to identify the root causes and contributory factors, and;
- Communication of lessons learned.

## Element 7: Emergency Response and Preparedness

In the event of an incident, effective emergency response and preparedness is necessary for the protection of the public, the environment, employees and contractors, and company assets. Effective emergency response and preparedness plans at Enbridge incorporate the following elements:

- A comprehensive process for emergency planning that involves key internal and external stakeholders
- Identification and periodic review of:
  - potential types of incidents that would require emergency response preparedness;
  - Internal and external notification requirements;
  - Key internal and external response resources, and;
  - response measures to be used for protection of the public, employees and contractors the environment, and company assets.
- Implementation of an Incident Command system and structure, and;
- Implementation of effective training, drills and exercises, including the involvement of external stakeholders.

## Element 8: Competency, Awareness and Training

Competency management practices provide employees and contractors with the information, training and professional development they require to safely and reliably perform their duties. The competency, awareness and training element includes:

- A process to recruit, hire and orient employees and ensure they possess the required combination of skills, attributes, attitudes and knowledge to effectively and safely perform their roles;
- A process to select and validate contractors with the competencies required for specific job tasks or roles;
- Verification programs to maintain a workforce with the skills necessary to enable safe and reliable operations;
- Behavior-based processes to assist employees and contractors in recognizing hazards, proactively identifying risks and managing human factors in the workplace, and;
- Succession planning to ensure sustained and sustainable transfer of knowledge and technical expertise, and leadership continuity.

## Element 9: Documentation and Recordkeeping

Effective and accurate documentation is a critical component of safety management, operational reliability, regulatory compliance and risk management.

The documentation and recordkeeping element includes:

- A system to ensure that critical documents, records, drawings and data necessary for sound design and safe operation are identified, accessible and accurate, and;
- A change management and revision control process for critical documentation.



Enbridge will achieve Industry-leading safety performance through systematic and active management of:

**Process safety** – preventing, detecting, controlling and mitigating catastrophic incidents that have the potential to injure people and claim lives, or have far-reaching and long-lasting consequences. At Enbridge, process safety focuses on maintaining containment of the energized systems that we operate;

**Personal safety** – identifying and eliminating or mitigating workplace and job-specific hazards that can injure or kill members of our team or lead to occupational illness, and;

**Operational reliability** – preventing, detecting, controlling and mitigating events that have the potential to interrupt or impede the effective and smooth operation of our systems and assets.

Enbridge's Safety Management System Framework provides a standard approach for managing our performance in each of these key areas across all of our operations. The Safety Management System Framework describes the enterprise wide expectations to manage process safety, personal safety and operational reliability and in so doing it defines how we run our businesses. The framework creates a shared approach and a single company-wide resource to guide our actions, decisions and behaviours and ensure that we efficiently and effectively manage and continually improve upon all aspects of our safety performance.



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