South Cariboo Joint Committee

April 8, 2019

ENBRIDGE

Rikki Beaudet

Agenda

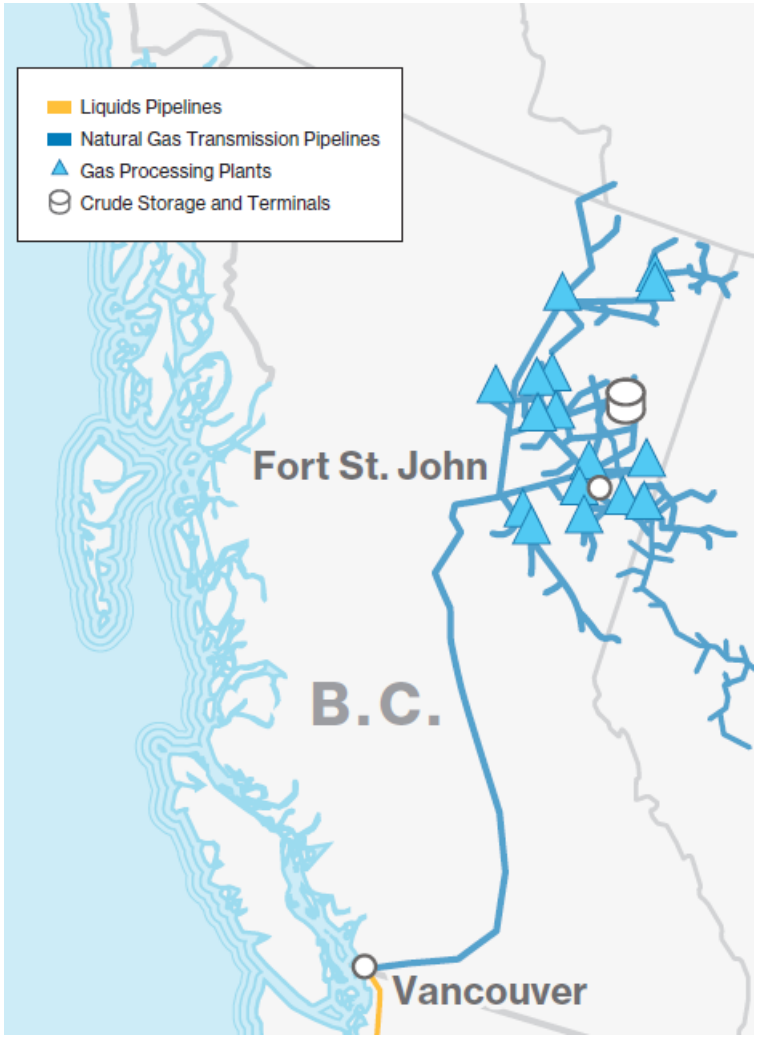
- Introductions & Commitment to Safety
- T-South Reliability and Expansion Program
- Regulatory & Permitting
- Supply Chain Management
- October 9th Pipeline Incident

Operations in British Columbia

Six decades of safe and reliable operations

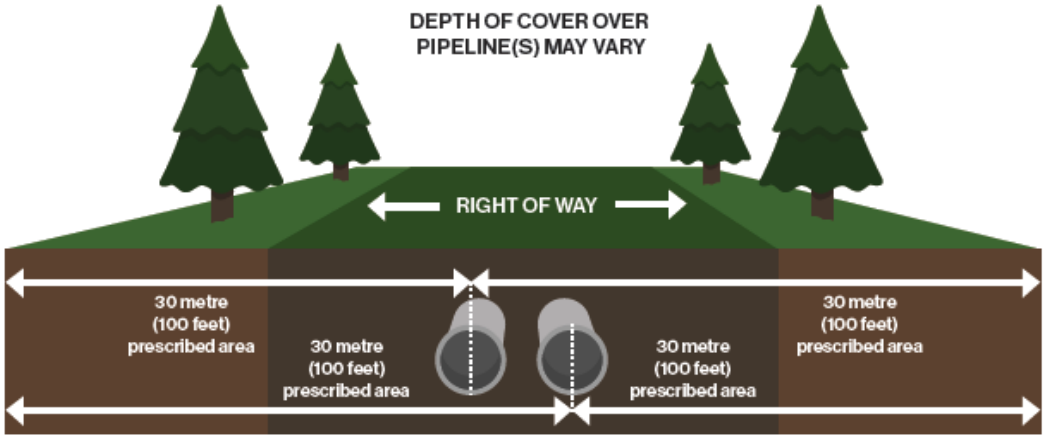
- Our facilities have been the backbone of the natural gas sector in British Columbia (B.C.) for more than 60 years
- Today nearly 80% of the natural gas produced in B.C. touches our system
- That gas is used to:
  - Heat homes, hospitals, businesses and schools
  - Electric power generation
  - Industrial and manufacturing processes that produce hundreds of products that improve our daily lives

We help to fuel people's quality of life by connecting them with the energy they need to live their lives.



About Natural Gas and Transmission Pipelines

- Enbridge's natural gas transmission system only transports sweet gas
  - Lighter than air
  - Colourless and non-toxic
  - Has a slight petroleum or hydrocarbon smell
- The tract of land above a pipeline is known as a right-of-way
  - Typically cleared of trees, most vegetation, buildings, and other structures
  - Can be identified by the above-ground pipeline markers



Enbridge Safety Operations

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Safety is a Core Value

Above all else, we are always working to ensure the safety of our people, neighbours and the environment

Our employees and contractors at every level demonstrate a personal commitment to continuous safety improvement. The goal is to keep ourselves, our teams and our communities safe.

Safety Principles

- Safety begins at the top
- Injuries and work-related illnesses are preventable
- Identifying and minimizing safety and health risks are priorities
- Personal ownership for safety and looking out for others is essential
- Openness, feedback and trust are keys to success
- Safety is good business, and a critical aspect of a high-performance organization

Monitoring and Maintaining our System

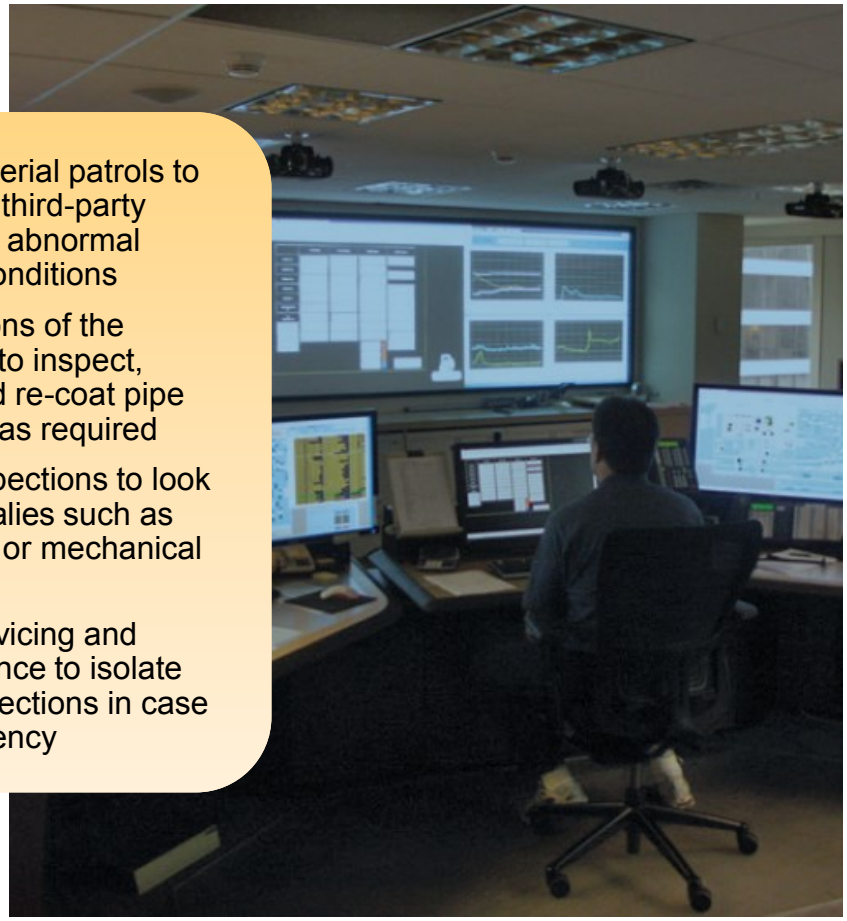
We Focus on…

- Meeting or exceeding all regulatory and industry safety standards during construction, operation and maintenance.
- Responding 24/7 to any incident.

Monitoring our System

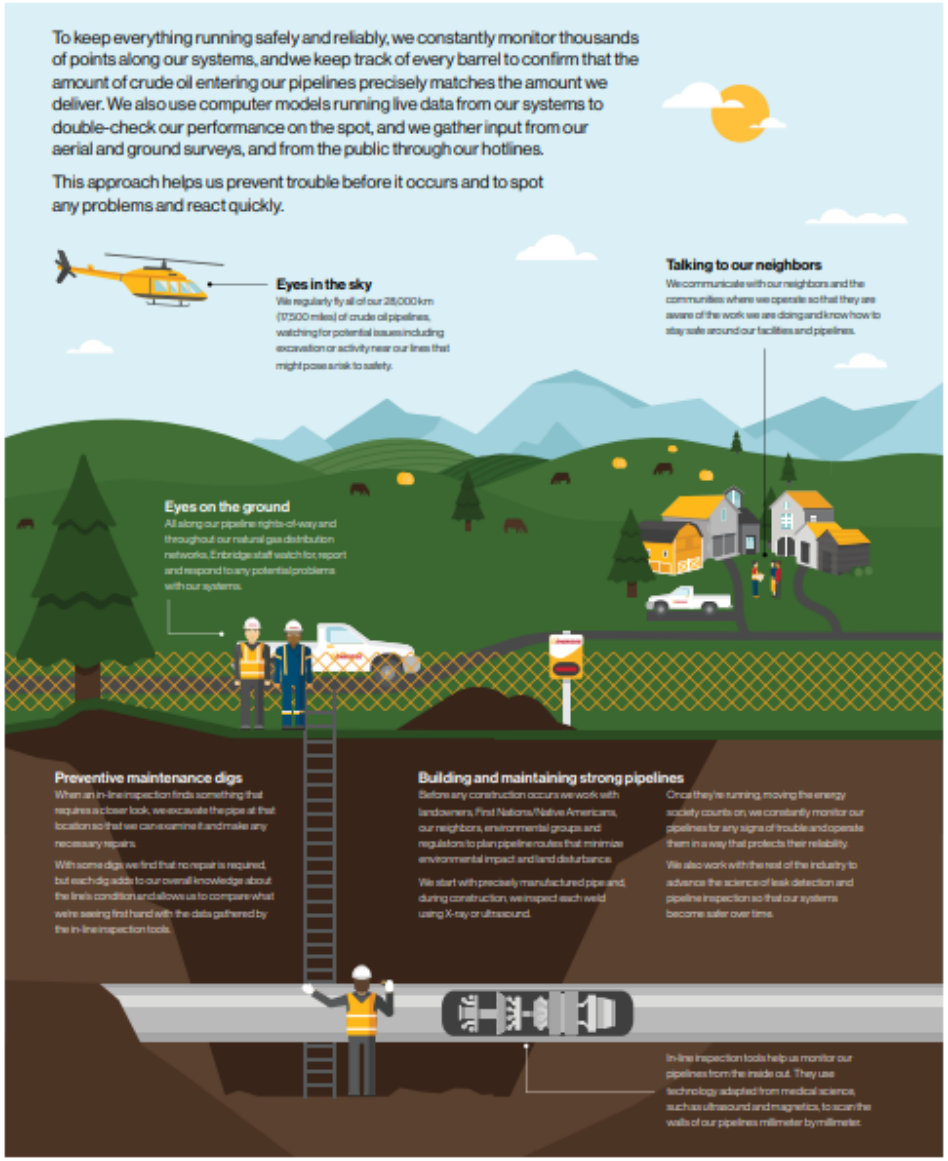
- Two 24/7 gas control centres where operators monitor and control gas flows using a sophisticated computer system.
- Equipped with automated leak detection alarms and shut down systems.

- ❑ Routine aerial patrols to check for third-party activity or abnormal system conditions
- ❑ Excavations of the pipelines to inspect, repair and re-coat pipe sections, as required
- ❑ Inline inspections to look for anomalies such as corrosion or mechanical damage
- ❑ Valve servicing and maintenance to isolate pipeline sections in case of emergency



Monitoring and Maintaining our System

- Specialized monitoring systems continually analyze pressure, temperature, and other important information from thousands of points along our pipelines.
- Enbridge uses GPS and advanced imaging technology to confirm the depth and exact locations of our pipelines and to detect ground movement.
- Enbridge is testing promising new external leak detection systems to add to our toolkit. These include sophisticated devices that use sensitive acoustic sensing to “listen” for leaks. We’ve led industry partnerships to test innovative leak detection methods, including vapor-sensing tubes, fiber optic cables, and hydrocarbon-sensing cables.



Prince George Pipeline Incident

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Pipeline Incident

October 9, 2018

What Happened:

- Enbridge's natural gas pipeline system in B.C. consists of two pipelines:
    - 30-inch diameter pipeline
    - 36-inch diameter pipeline
- At approx. 5:45pm PST a rupture occurred on a 36-inch natural gas transmission pipeline owned and operated by Enbridge, 13.5 km north of Prince George, B.C.
- On November 30, 2018, the NEB granted permission to operate one of the 12 sections of the T-South system's 36-inch pipeline at full operating pressure. This portion begins near Chilliwack, B.C. and continues south to the Canadian border with the United States at Huntingdon/Sumas.
- On December 24, 2018, the NEB issued an amending order, increasing the maximum allowable operating pressure on the remaining 11 sections of T-South system's 36-inch pipeline to 88 per cent of normal operating pressure at the time of the incident.

Safety is Enbridge's number one priority

These lines will continue operating at a reduced pressure until such time that Enbridge and the authorities having jurisdiction have deemed that pressure can be returned to full capacity.

Pipeline Incident Response

Our Response:

- Both pipelines were shut down following the rupture of the 36-inch line.
- Emergency crews responded, isolated and depressurized the two natural gas transmission lines in the vicinity to contain the incident. The incident area was cordoned off.
- Evacuation of residences within 2km as a precaution
- Met with Lheidli T'enneh First Nation and the NEB the next morning.
- Enbridge is continuing a comprehensive integrity program on our T-South system. Enbridge is advancing this work prior to restoring the entire system to 100% of normal operating pressure. These integrity assessments, which may include integrity digs and inline pipeline inspections, are being done on a segment-by-segment basis.

No incident is acceptable to Enbridge. We recognize this incident has had a significant impact on the communities where we operate and we are working with those communities to address their concerns.

Integrity Dig Program

- Prevention is a key element of our multi-pronged approach to pipeline and facility safety – and preventative integrity digs are a critical component of our prevention program.
- A maintenance dig involves physically examining the integrity of the pipe segment and determine if a repair or other action is needed. Anomalies that have been known to require repair in the past include damage from third-party excavation, corrosion, cracking or denting.
- During an integrity dig, communities may experience construction activities and additional traffic on local roads as we stage equipment and resources to support the dig. Traffic plans and appropriate signage will be in place if needed.
- In certain areas, temporary workspace next to the permanent easement may be required for equipment or soil storage. If so, Enbridge will discuss arrangements with the local community and/or any landowners in advance of work activities. Our goal is to return all lands back to their original state once work is completed.

1,081

In 2018, we conducted 1,081 preventative maintenance digs across our natural gas pipeline infrastructure.

This ongoing preventative maintenance program is the most extensive in the history of the North American pipeline industry.

In the three-year period from 2016 through 2018, we spent C$3.7 billion on programs that help us to maintain the fitness of our pipeline infrastructure across North America.

T-South Reliability & Expansion Program

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Upgrade Work is Necessary

Pipeline Segment Replacements:

- As population densities increase within proximity to existing pipelines, some pipe segments require replacement in order to meet more stringent design criteria associated with more populous locations.

Crossover Assembly Additions:

- New crossovers are installed at intervals along the system to allow for more efficient and safe execution of pipeline integrity investigations and maintenance operations.
- New crossovers may also be required to comply with more stringent isolation valve spacing regulations in areas of increased population density.

Compressor Station Upgrades:

- Replace aging, outdated equipment with new, more efficient units.

T-South Reliability and Expansion Program

Program Scope

- **New compressor units** and associated equipment to support their operation will be installed at five existing compressor stations. Modifications proposed to existing compressors at two other stations and one meter station. The **new compressor units** being installed include the addition of **a new gas cooler** to accompany the compressor unit.
- As natural gas is compressed, its pressure and temperature increases. A gas cooler decreases its temperature before the gas is returned to a pipeline to ensure it does not negatively affect the pipeline system.
- All work associated with the new units will take place on Enbridge property.

General Updates

- Four applications submitted to the National Energy Board (NEB) in summer 2018.
- Discovery work completed at CS6A near 150 Mile House. This included excavations, survey of tie-in locations and discovery testing of the tie-pipe.
- NEB to assess applications as one submission. Written evidence filed and oral hearing scheduled for April 24, 2019 in Williams Lake. Decision from NEB anticipated for July 2019.

Crossover Assemblies

Program Scope

- **Three new crossover assemblies** on the existing T-South natural gas pipeline:
  - 6B Bonaparte River, 12.5 km east of 70 Mile House
  - 6B Hihium Lake, 36.5 km north of Savona
  - 4B Cottonwood River, 6.5 km north of 10 Mile Lake (deferred until 2020)
- Crossover assemblies provide a connection between the 30” mainline and 36” loop at strategic intervals along the pipeline system.
- Crossover assemblies are generally positioned to comply with isolation valve spacing regulatory requirements, as well as **increase system reliability**, operability and provide another level of safety during scheduled pipeline integrity assessments, general maintenance and repairs. They are also used to isolate a pipeline segment quickly in case of an emergency.
- **Sending / receiving barrels** provide access for In-line inspection tools (smart pig) as part of regular preventative maintenance program.
- In-line inspection tools provide baseline data to support integrity analysis and subsequent efficient execution of maintenance and repair works if necessary.

Program Updates

- NEB submissions in December 2018.
- Clearing and construction activities Summer 2019.

Compressor Station 6A
150 Mile House

Project Scope

- Installation of new state-of-the-art compressor unit
- Horsepower enhancement to compressor and gas turbine
- Addition of a new gas cooler
- Installation of equipment, utilities and buildings required to support the new unit.
- Decommissioning of one of the existing units
- Building a new access road

Noise Mitigation and Low-Emission Technology

- Quieter and more efficient
- Adhere to BC OGC noise guidelines
- Overall net reduction in nitrogen oxide emissions
- Further studies this Spring

Project Update

- RFP for general contractor Summer 2019
- Clearing and Earthworks September 2019 – pending NEB approval

Project Work Force

- At peak workforce during the main phase of general construction at Compressor Station 6A approximately 120 persons will be on-site.
- Average workforce from beginning to end of schedule approximately 70-80 persons through direct and indirect contractors on the Project.
- All personnel not local to the Williams Lake area will be encouraged to support local businesses for their day to day living needs (Accommodations, fuel, groceries, entertainment, etc.) while working in the area.
- Union and non-Union contractors will be included in general contracting competition.
- Work potentially starting in September 2019 or March 2020.
- Program in-service: Q3 2021

Supply Chain

Supply Chain Management

Becoming a Supplier with Enbridge

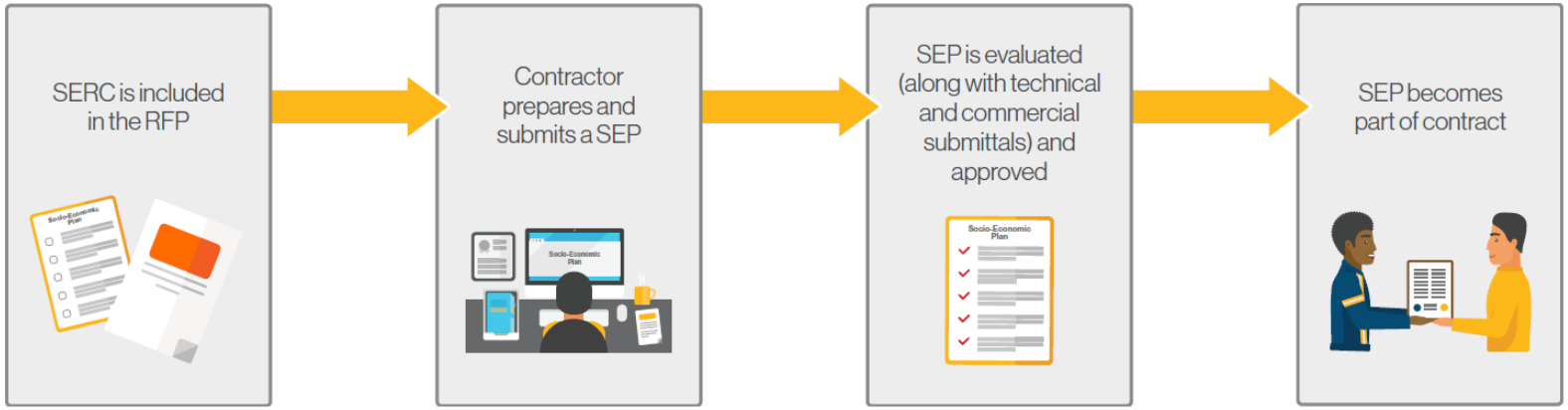
- Our vision is to be the leading energy delivery company in North America. Our suppliers are part of making that vision a reality, and we are committed to providing our suppliers with the appropriate tools and resources necessary to achieve that vision while demonstrating our values of integrity, safety and respect.
- Enbridge suppliers cover a wide range of disciplines, including manufacturing, construction, engineering, distribution and consulting, but the majority of our annual spend is in the areas of pipe manufacturing, constructing our pipelines and facilities, maintaining the fitness of our systems and monitoring to ensure the integrity of our systems.

Our suppliers are an important part of Enbridge's vision to be the leading energy delivery company in North America

To find out more information on Enbridge supply chain or to fill out our online Supplier Information Form please visit our website at www.enbridge.com

Supply Chain Management and Indigenous Inclusion

- Enbridge is implementing a new process for supply chain management and Indigenous inclusion that support existing relationships and mutually beneficial partnerships with Indigenous communities.
- The process sets out a series of socio-economic requirements that all contractors must follow (SERC).
- These activities are designed to ensure a consistent, thorough approach to consultation and engagement with Indigenous groups in all of Enbridge's Major Projects and Operations.
- When bidding on major project work with Enbridge, all potential contractors must develop a Socio-Economic Plan (SEP).



Procurement Process and Potential Opportunities

How a Socio-Economic Plan is Evaluated:

- Clear understanding of the company's socio-economic requirements and how these contribute to the success of the project;
- Quality and quantity of subcontracting opportunities provided to Indigenous owned businesses;
- Anticipated percentage of Indigenous hired workers;
- Education, training and other skill development initiatives directed at Indigenous workers, implemented or planned; and
- Creative and innovative approaches to supporting successful socio-economic outcomes.
- Please also visit our online Supplier https://www.enbridge.com/work-with-enbridge/supplier-information-form

Economic Impact to BC

Tax Revenue and Economic Spinoffs

- $74.9 million in property tax across British Columbia for our energy projects, pipelines and related facilities, such as compressor stations.
- $89.8 million in other taxes (including carbon tax, payroll tax, fuel tax, and excise tax) across B.C.
- $877.1 million on capital expenditures in B.C., on such items as pipe steel, equipment purchases and replacement, system integrity-related investments, and capital leases.
- $657.8 million on operating and administrative expenditures in B.C., such as maintenance costs, equipment leases, power consumption, and field personnel salaries and wages.
- 683 British Columbia-based permanent and temporary employees, and provisioned contractors in 2018.
- And more than $64 million in base salary to our B.C.-based permanent and temporary employees—much of that injected directly into the provincial economy.

Community Investment

Enbridge is committed to supporting and strengthening the communities near our pipelines and facilities.

Questions & Answers

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