

# SITE SAFETY IN THE NATURAL GAS DELIVERY INDUSTRY

Provided by the **CGA Operations Suppliers Executive Committee** (OSEC) from Emerson Process Management materials for the Supplier, Manufacturer & Contractor Segment of Canadian Gas Association Membership

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Natural gas serves more than two-thirds of Canadians

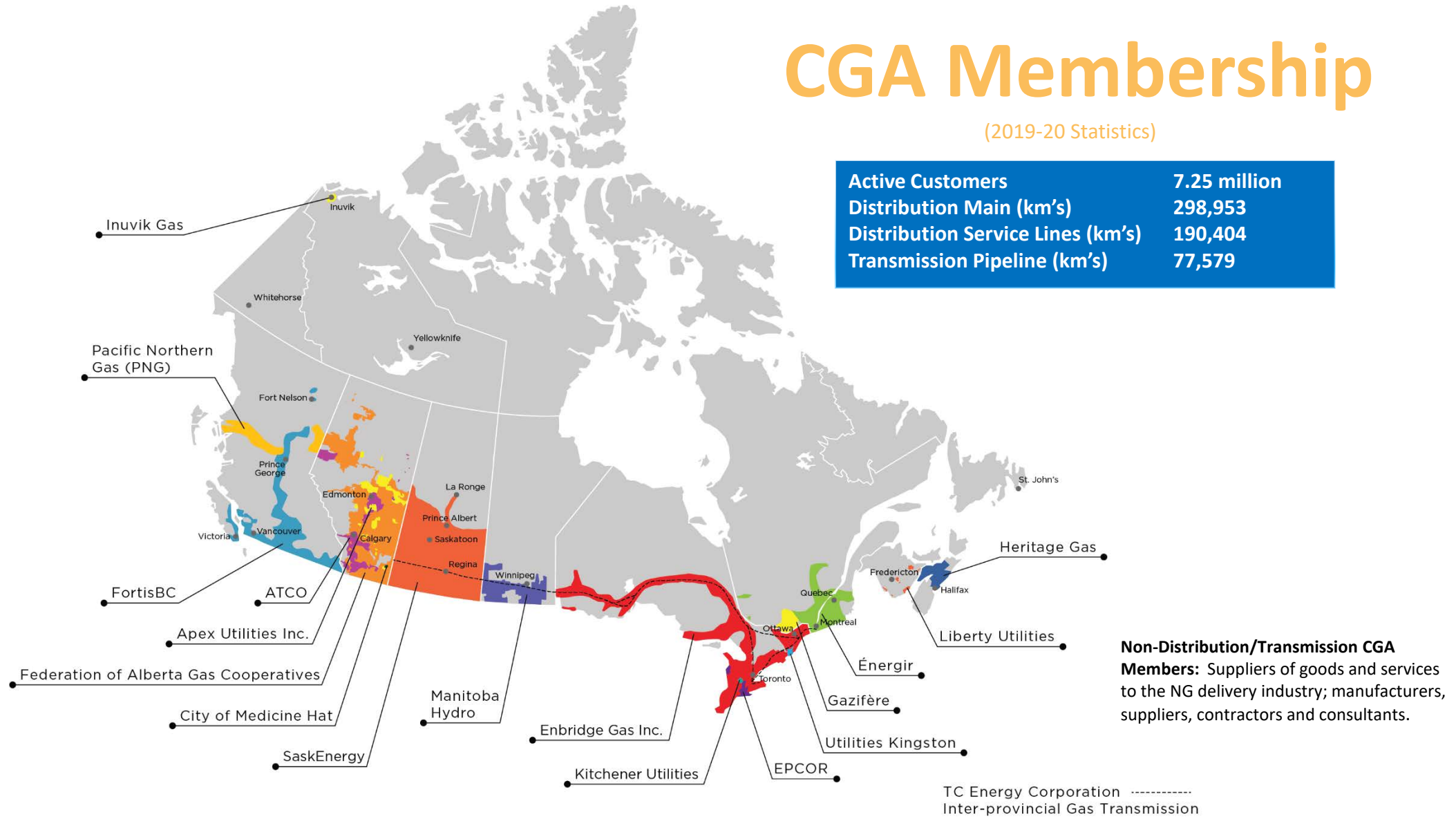
Natural gas meets 35% of Canadian energy needs

CGA Members have over 566,000 km of natural gas delivery lines

# CGA Membership

(2019-20 Statistics)

Active Customers	7.25 million
Distribution Main (km's)	298,953
Distribution Service Lines (km's)	190,404
Transmission Pipeline (km's)	77,579



**Non-Distribution/Transmission CGA Members:** Suppliers of goods and services to the NG delivery industry; manufacturers, suppliers, contractors and consultants.

# Before You Enter the Gate.....

- **Align with LDC safety expectations.**
- **Know muster area.**
- **Look at exit points.**
- **What class area is it?**



# Natural Gas DOs & DON'Ts

## **DO:**

- Control ignition sources (e.g., turn off cell phones).
- Position vehicles upwind if possible.
- Wear all required PPE.
- Perform site specific hazard assessment.
- Be alert for NG odour.
- Report significant safety related incidents.

## **DON'T:**

- Operate electrical devices if risk of gas envelope (e.g., cell phone, radio).
- Enter a gas envelope.
- Operate equipment if not authorized to do so.

# Natural Gas Awareness

## **Natural Gas Properties:**

- Odourless.
- Lighter than air.
- Not easily ignited.
- Can produce CO if incomplete combustion occurs.

# Natural Gas Awareness

## Migration

- Escaping natural gas rises upwards and is influenced by wind.
- Follows the path of least resistance (e.g. utility conduits, stairwells, vents, open windows).
- Can travel a considerable distance underground: spread influenced by surface cover (e.g. concrete, porous soils, frost).
- Can fill a building from a leak located inside or outside.
- Can collect in ceiling areas, top of stairwells, top floors, attics, etc.



# Explosion Proof Classifications

- **Class I - Locations:** Are those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.
- **Div 1** - Locations in which hazardous concentrations in the air exist continuously, intermittently, or periodically under normal operating conditions.
- **Div 2** - Locations in which hazardous concentrations are handled, processed, or used but are normally within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown.
- **Group D** - Atmospheres containing gasoline, hexane, naptha, benzine, butane, alcohol, acetone, benzol, lacquer solvent vapors, or natural gas.

# Intrinsically Safe

## Intrinsic Safety (IS):

A protection technique for safe operation of [electrical equipment in hazardous areas](#) by limiting the energy available for ignition. In signal and control circuits that can operate with low currents and voltages, the intrinsic safety approach simplifies circuits and reduces installation cost over other protection methods. Areas with dangerous concentrations of flammable gases or dust are found in applications such as petrochemical refineries and mines. As a discipline, it is an application of [inherent safety](#) in instrumentation. High-power circuits such as [electric motors](#) or lighting cannot use intrinsic safety methods for protection.

[http://en.wikipedia.org/wiki/Intrinsic\\_safety](http://en.wikipedia.org/wiki/Intrinsic_safety)



# Explosion Proof Classifications

## Class I Div 1 and Div 2 Areas

- No cell phones, cameras, laptops, etc.
- Ask customer what is ok before going into the area and do not force customer to correct you in the field.

# Types of Station Sites

## Gate Station:

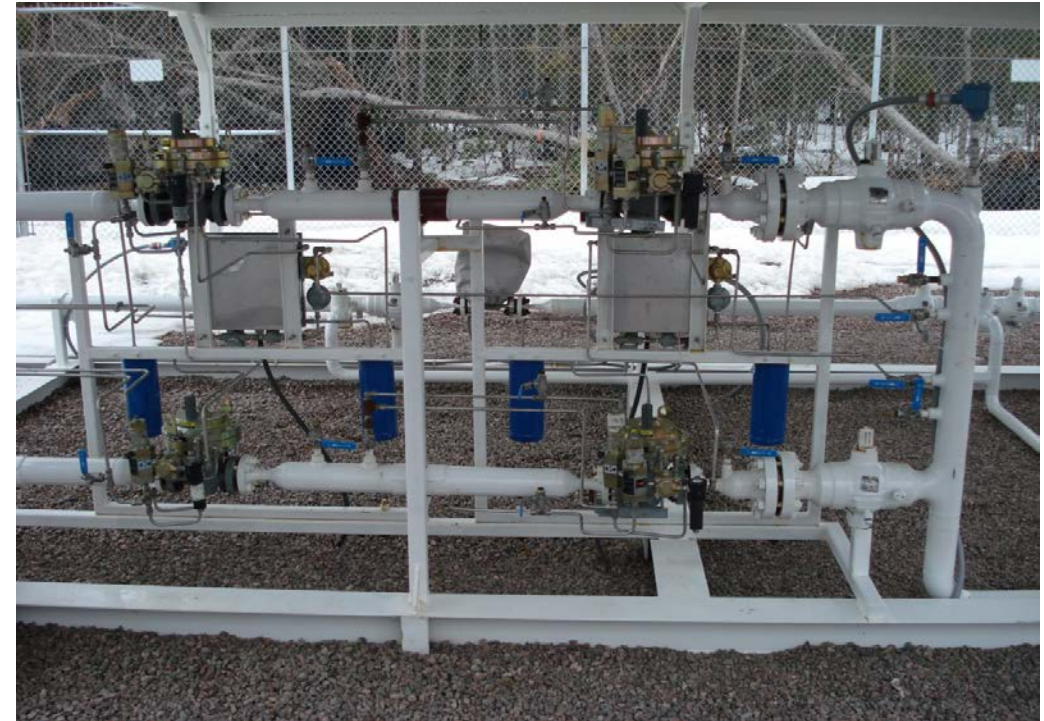
A custody transfer site from a transmission company to an LDC. Normally a high volume and high pressure station.



# Types of Station Sites

## Town Border Station:

A custody transfer site from a transmission company to an LDC. Normally a low volume and high pressure differential station. Usually just supplying gas to a small town taking the gas to distribution pressures in one cut.





# Types of Station Sites

## Farm Tap Station:

Usually, a station off a high pressure transmission line that cuts pressure to a distribution pressure in one cut.

Typically supplying gas to one or a few users.



# Types of Station Sites

## District Station:

Cutting intermediate pressures after the gate station pressure cut to a distribution pressure feeding an area or a grid.





# Types of LDC Customer Sites

## Industrial Station:

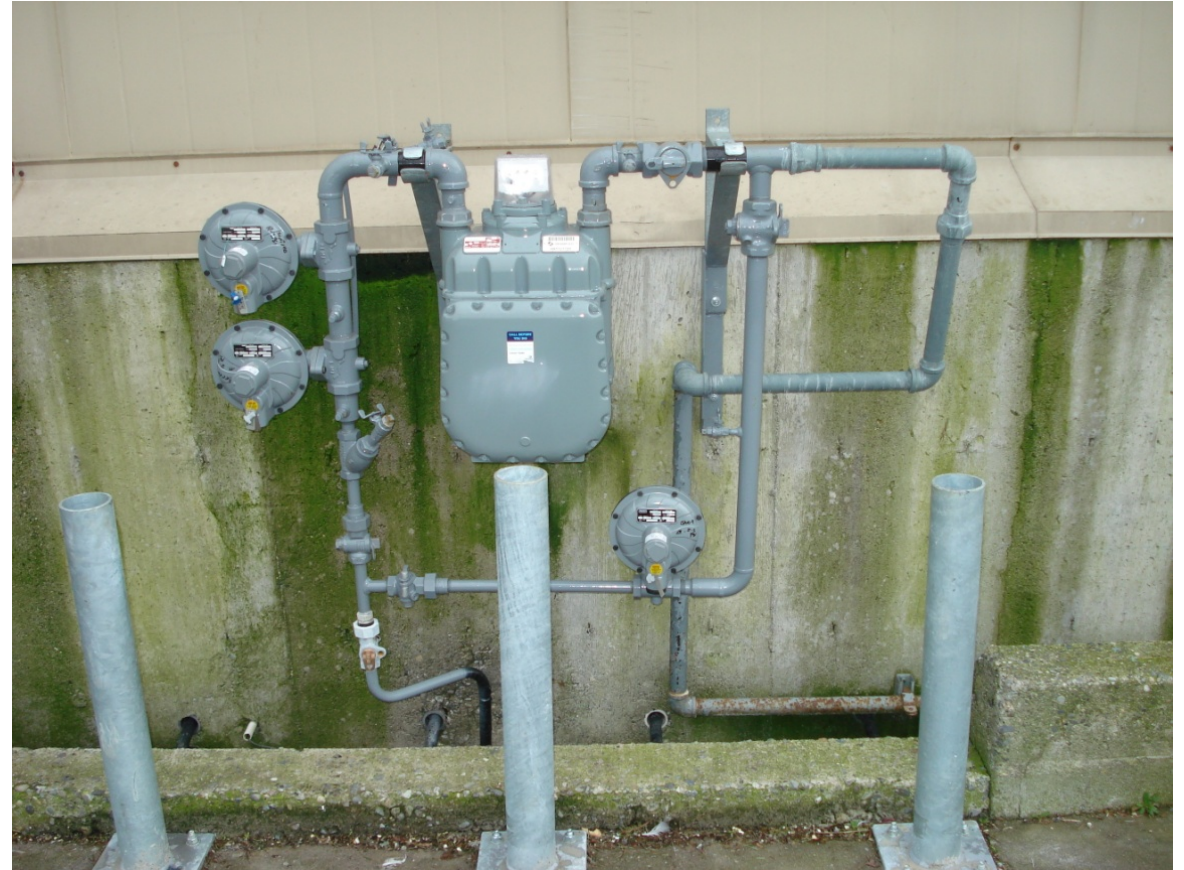
A custody transfer site either from a transmission or distribution system delivering low or high pressure gas directly to the end user.



# Types of LDC Customer Sites

## Commercial Station:

A custody transfer point usually cutting from distribution pressures to delivery pressures typically ranging from 7" wc to 5 psig.





# Types of Station Sites

## Odourant Station

A point in the pipeline where mercaptin (odourant) is injected to comply with DOT and CSA industry requirements for leak detection.



## Maintenance & Working at Site

- **The scope of work is on supplier provided equipment and if you are not a subject matter expert (SME), do not touch other equipment and do not consult.**
- **Guesses are not good enough!**

## LDC Site Visit

- **Ask the local distribution company (LDC) about safety requirements and orientation before entry.**
- **If not following minimum protection for supplier's employee safety, do not enter work site.**
- **If the job site appears to be unsafe, contact your immediate supervisor or site supervisor.**

# Suggested Supplier PPE Travel Kit

- **Steel-toe boots**
- **Hard-hat**
- **Safety glasses**
- **Full FR clothing**
- **Ear protection (low and high noise protection rating)**
- **Hand protection**
- **Breathing protection**

## Your Responsibilities Include:

- **Familiarizing yourself** with natural gas DOs and DON'Ts
- **Understanding** natural gas properties and behaviour
- **Wearing appropriate PPE** (personal protective equipment)
- **Identifying yourself** to the site supervisor
- **Reviewing hazards** specific to the site
- **Understanding** emergency procedures

## Your Rights:

### If uncertain or concerned about anything:

- **Stop and ask** for clarification.
- **Ensure resolution** of your concerns before proceeding.

### If concerns are not resolved:

- **Do not proceed** with work.
- **Notify** your supervisor and site owner/operator.



# **CGA**

# **Operations**

# **Suppliers**

# **Executive**

# **Committee**

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