

# TC Energy Natural Gas Pipelines

As at May, 2019

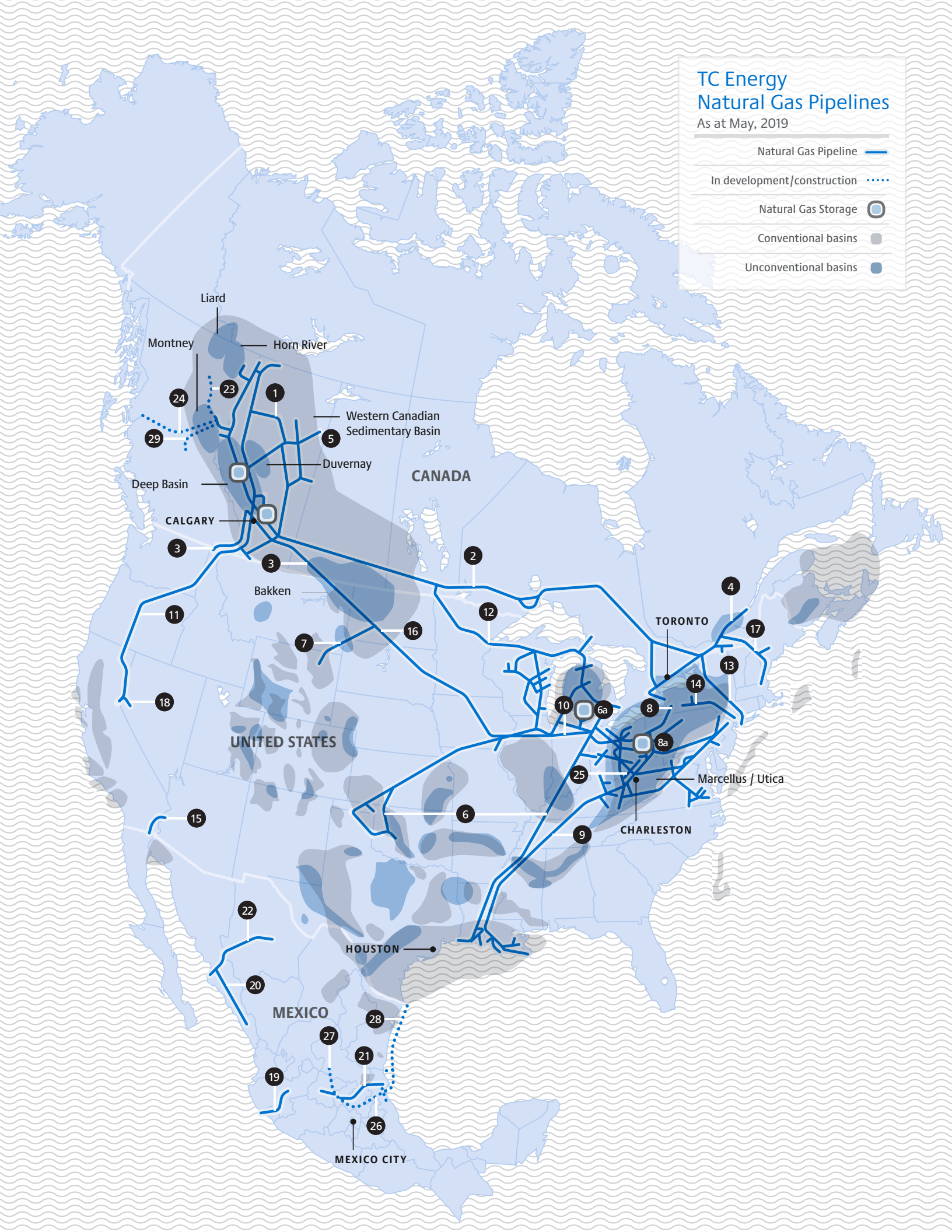
Natural Gas Pipeline —

In development/construction - - -

Natural Gas Storage □

Conventional basins ●

Unconventional basins ■
















# TC Energy – Natural Gas Pipelines


As at May, 2019

## Natural Gas Pipelines


We are the operator of all of the following natural gas pipelines and regulated natural gas storage assets except for Iroquois.

		Length	Description	Effective Ownership
<b>Canadian pipelines</b>				
1	NGTL System	 24,568 km (15,266 miles)	Receives, transports and delivers natural gas within Alberta and B.C., and connects with the Canadian Mainline, Foothills system and third-party pipelines.	100%
2	Canadian Mainline	 14,082 km (8,750 miles)	Transports natural gas from the Alberta/Saskatchewan border and the Ontario/U.S. border to serve eastern Canada and interconnects to the U.S.	100%
3	Foothills	 1,241 km (771 miles)	Transports natural gas from central Alberta to the U.S. border for export to the U.S. Midwest, Pacific Northwest, California and Nevada.	100%
4	Trans Québec & Maritimes (TQM)	 574 km (357 miles)	Connects with the Canadian Mainline near the Ontario/ Québec border to transport natural gas to the Montréal to Québec City corridor, and interconnects with the Portland pipeline system.	50%
5	Ventures LP	 161 km (100 miles)	Transports natural gas to the oil sands region near Fort McMurray, Alberta. It also includes a 27 km (17 miles) pipeline supplying natural gas to a petrochemical complex at Joffre, Alberta.	100%
*	Great Lakes Canada	 60 km (37 miles)	Transports natural gas from the Great Lakes system in the U.S. to a point near Dawn, Ontario through a connection at the U.S. border underneath the St. Clair River.	100%
<b>U.S. pipelines</b>				
6	ANR	 15,075 km (9,367 miles)	Transports natural gas from various supply basins to markets throughout the U.S. Midwest and Gulf Coast.	100%
6a	ANR Storage	 250 Bcf	Provides regulated underground natural gas storage service from several facilities (not all shown) to customers in key mid-western markets.	
7	Bison	 488 km (303 miles)	Transports natural gas from the Powder River Basin in Wyoming to Northern Border in North Dakota. We effectively own 25.5 per cent of the system through our interest in TC Pipelines, LP.	25.5%
8	Columbia Gas	 18,525 km (11,511 miles)	Transports natural gas from supply primarily in the Appalachian Basin to markets and pipeline interconnects throughout the U.S. Northeast.	100%
8a	Columbia Storage	 285 Bcf	Provides regulated underground natural gas storage service from several facilities (not all shown) to customers in key eastern markets. We also own a 50 per cent interest in the 12 Bcf Hardy Storage facility.	100%
*	Midstream	 295 km (185 miles)	Provides infrastructure between the producer upstream well-head and the downstream (interstate pipeline and distribution) sector and includes a 47.5 per cent interest in Pennant Midstream.	100%
9	Columbia Gulf	 5,419 km (3,367 miles)	Transports natural gas to various markets and pipeline interconnects in the southern U.S. and Gulf Coast.	100%
10	Crossroads	 325 km (202 miles)	Interstate natural gas pipeline operating in Indiana and Ohio with multiple interconnects to other pipelines.	100%
11	Gas Transmission Northwest (GTN)	 2,216 km (1,377 miles)	Transports WCSB and Rockies natural gas to Washington, Oregon and California. Connects with Tuscarora and Foothills. We effectively own 25.5 per cent of the system through our interest in TC Pipelines, LP.	25.5%




			Length	Description	Effective Ownership
12	Great Lakes		3,404 km (2,115 miles)	Connects with the Canadian Mainline near Emerson, Manitoba and to Great Lakes Canada near St Clair, Ontario, plus interconnects with ANR at Crystal Falls and Farwell in Michigan, to transport natural gas to eastern Canada and the U.S. Upper Midwest. We effectively own 65.4 per cent of the system through the combination of our 53.6 per cent direct ownership interest and our 25.5 per cent interest in TC PipeLines, LP.	65.4%
13	Iroquois		669 km (416 miles)	Connects with the Canadian Mainline and serves markets in New York. We effectively own 13.2 per cent of the system through a 0.7 per cent direct ownership and our 25.5 per cent interest in TC PipeLines, LP.	13.2%
14	Millennium		407 km (253 miles)	Transports natural gas primarily sourced from the Marcellus shale play to markets across southern New York and the lower Hudson Valley, as well as to New York City through its pipeline interconnections.	47.5%
15	North Baja		138 km (86 miles)	Transports natural gas between Arizona and California, and connects with a third-party pipeline on the California/Mexico border. We effectively own 25.5 per cent of the system through our interest in TC PipeLines, LP.	25.5%
16	Northern Border		2,272 km (1,412 miles)	Transports WCSB, Bakken and Rockies natural gas from connections with Foothills and Bison to U.S. Midwest markets. We effectively own 12.7 per cent of the system through our 25.5 per cent interest in TC PipeLines, LP.	12.7%
17	Portland		475 km (295 miles)	Connects with TQM near East Hereford, Québec to deliver natural gas to customers in the U.S. Northeast and Canadian Maritimes. We effectively own 15.7 per cent of the system through our 25.5 per cent interest in TC PipeLines, LP.	15.7%
18	Tuscarora		491 km (305 miles)	Transports natural gas from GTN at Malin, Oregon to markets in northeastern California and northwestern Nevada. We effectively own 25.5 per cent of the system through our interest in TC PipeLines, LP.	25.5%
<b>Mexican pipelines</b>					
19	Guadalajara		310 km (193 miles)	Transports natural gas from Manzanillo, Colima to Guadalajara, Jalisco.	100%
20	Mazatlán		430 km (267 miles)	Transports natural gas from El Oro to Mazatlán, in the State of Sinaloa. Connects to the Topolobampo Pipeline at El Oro.	100%
21	Tamazunchale		370 km (230 miles)	Transports natural gas from Naranjos, Veracruz to Tamazunchale and on to El Sauz, Querétaro in central Mexico.	100%
22	Topolobampo		560 km (348 miles)	Transports natural gas to El Oro and Topolobampo, Sinaloa, from interconnects with third-party pipelines in El Encino, Chihuahua, and El Oro, Sinaloa.	100%
<b>Under construction</b>					
<b>Canadian pipelines</b>					
23	North Montney		206 km** (128 miles)	An extension of the NGTL System to receive natural gas from the North Montney gas producing region and connect to NGTL's existing Groundbirch Mainline.	100%
*	NGTL 2019 Facilities		160 km** (99 miles)	An expansion program on the NGTL System including multiple pipeline projects and compression additions with expected in-service dates by November 2019.	100%

			Length	Description	Effective Ownership
24	Coastal GasLink		670 km** (416 miles)	A greenfield project to deliver natural gas from the Montney gas producing region to LNG Canada's liquefaction facility under construction near Kitimat, B.C.	100%

### U.S. pipelines




25	Mountaineer XPress 45 per cent in-service in January 2019 (192 km or 119 miles)		275 km** (171 miles)	A Columbia Gas project designed to transport supply from the Marcellus and Utica shale plays to points along the system and to the Leach interconnect with Columbia Gulf.	100%
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### Mexican pipelines


26	Tula		324 km** (201 miles)	The pipeline will originate in Tuxpan in the state of Veracruz, where it will receive natural gas from Sur de Texas and interconnect with Villa de Reyes at Tula to supply natural gas to CFE combined-cycle power generating facilities in central Mexico.	100%
27	Villa de Reyes		420 km** (261 miles)	This bi-directional pipeline will transport natural gas from Tula, Hidalgo to Villa de Reyes, San Luis Potosi, connecting to the Tamazunchale and Tula pipelines including a lateral to the Salamanca industrial complex in Guanajuato.	100%
28	Sur de Texas		775 km** (482 miles)	The pipeline will begin offshore in the Gulf of Mexico at the border near Brownsville, Texas with landfalls at Altamira, Tamaulipas and Tuxpan, Veracruz, connecting with the Tamazunchale and Tula pipelines and other third-party facilities.	60%

### Permitting and pre-construction phase

#### Canadian pipelines


*	NGTL 2020 Facilities		120 km** (75 miles)	An expansion program on the NGTL System including multiple pipeline projects and compression additions with expected in-service dates by November 2020.	100%
*	NGTL 2021 Facilities		375 km** (233 miles)	An expansion program on the NGTL System including multiple pipeline projects and compression additions with expected in-service dates by November 2021.	100%
*	NGTL 2022 Facilities		197 km** (122 miles)	An expansion program on the NGTL System including multiple pipeline projects and compression additions with expected in-service dates by April 2022.	100%

#### U.S. pipelines

*	Buckeye XPress		103 km** (64 miles)	A Columbia Gas project designed to upgrade and replace existing pipeline and compression facilities in Ohio to transport incremental supply from the Marcellus and Utica shale plays to points along the system.	100%
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### In development

#### Canadian pipelines

29	Merrick Mainline		260 km** (161 miles)	To deliver natural gas from NGTL's existing Groundbirch Mainline near Dawson Creek, B.C. to its end point near the community of Summit Lake, B.C.	100%
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\* Facilities and some pipelines are not shown on the map.

\*\* Final pipe lengths are subject to change during construction and/or final design considerations.