

TC Energy

As at May, 2019

Natural Gas Pipeline

Liquids Pipeline

In development/construction

Regulated Natural Gas Storage

Liquids Tank Terminal

CANADA

UNITED STATES

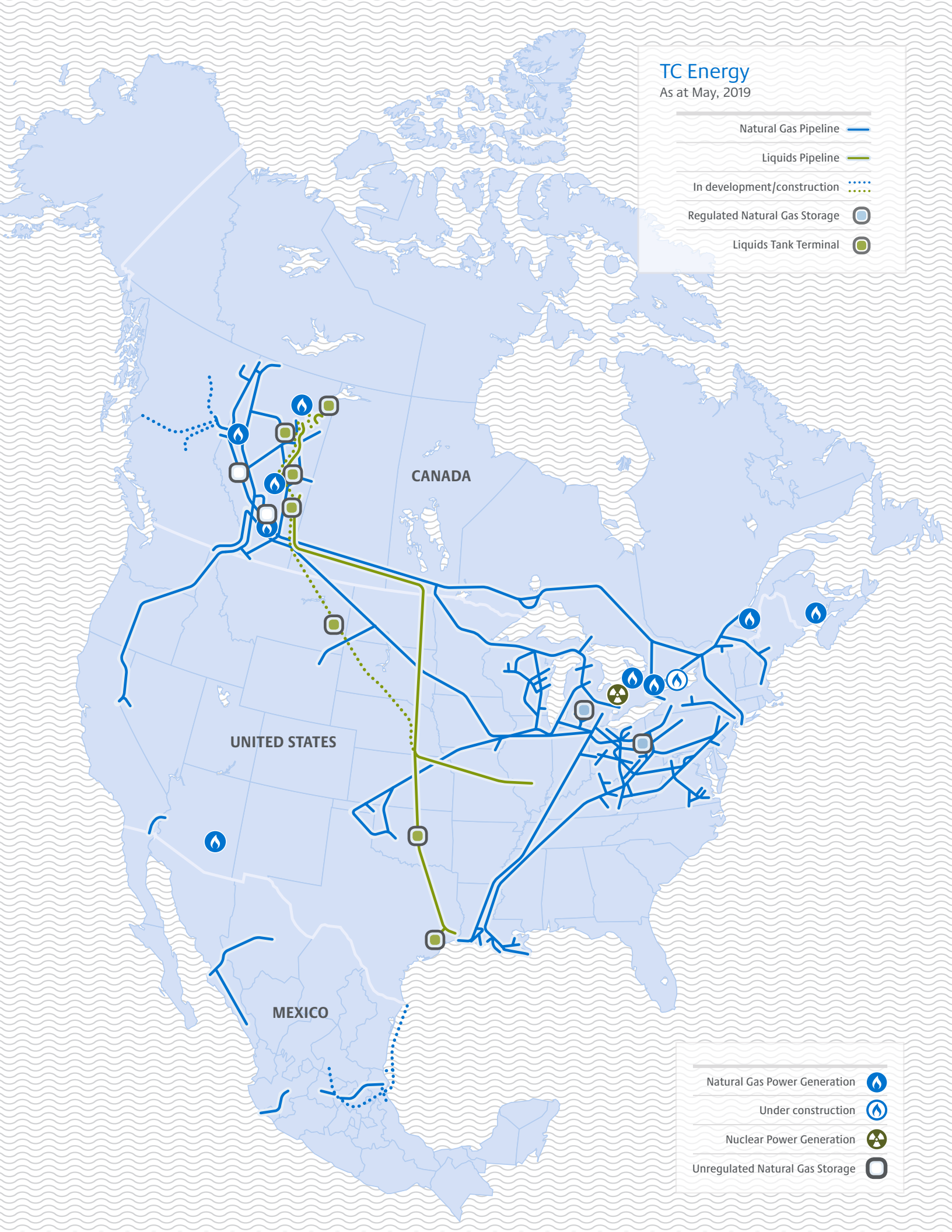
MEXICO

Natural Gas Power Generation

Under construction
















Nuclear Power Generation







Unregulated Natural Gas Storage







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
Canadian pipelines				
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%
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%
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%
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%
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%
U.S. pipelines				
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%
ANR Storage		250 Bcf	Provides regulated underground natural gas storage service from several facilities (not all shown) to customers in key mid-western markets.	
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%
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%
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%
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%
Crossroads		325 km (202 miles)	Interstate natural gas pipeline operating in Indiana and Ohio with multiple interconnects to other pipelines.	100%
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
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%
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%
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%
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%
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%
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%
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%


Mexican pipelines

Guadalajara		310 km (193 miles)	Transports natural gas from Manzanillo, Colima to Guadalajara, Jalisco.	100%
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%
Tamazunchale		370 km (230 miles)	Transports natural gas from Naranjos, Veracruz to Tamazunchale and on to El Sauz, Querétaro in central Mexico.	100%
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%


Under construction

Canadian pipelines




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
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




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


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%
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%
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












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.

Liquids Pipelines

We are the operator and developer of the following pipelines and properties.

	Length	Description	Ownership
Liquids Pipelines			
Keystone Pipeline System	 4,324 km (2,687 miles)	Transports crude oil from Hardisty, Alberta, to U.S. markets at Wood River and Patoka, Illinois; Cushing, Oklahoma; and the U.S. Gulf Coast.	100%
Marketlink		Transports crude oil from Cushing, Oklahoma to the U.S. Gulf Coast on facilities that form part of the Keystone Pipeline System.	100%
Grand Rapids	 460 km (287 miles)	Transports crude oil from the producing area northwest of Fort McMurray, Alberta to the Edmonton/Heartland, Alberta market region.	50%
Northern Courier	 90 km (56 miles)	Transports bitumen and diluent between the Fort Hills mine site and Suncor Energy's terminal located north of Fort McMurray, Alberta.	100%
Under construction			
White Spruce	 72 km (45 miles)	To transport crude oil from the Canadian Natural Resources Limited's Horizon facility in northeast Alberta into the Grand Rapids pipeline.	100%
In development			
Keystone XL	 1,947 km (1,210 miles)	To transport crude oil from Hardisty, Alberta to Steele City, Nebraska to expand capacity of the Keystone Pipeline System.	100%
Keystone Hardisty Terminal		Crude oil terminal located at Hardisty, Alberta.	100%
Bakken Marketlink		To transport crude oil from the Williston Basin producing region in North Dakota and Montana to Cushing, Oklahoma and the U.S. Gulf Coast on facilities that form part of the Keystone Pipeline System.	100%
Heartland Pipeline and TC Terminals	 	Terminal and pipeline facilities to transport crude oil from the Edmonton/Heartland, Alberta region to Hardisty, Alberta.	100%
Grand Rapids Phase II	 460 km (286 miles)	Expansion of Grand Rapids to transport additional crude oil from the producing area northwest of Fort McMurray, Alberta to the Edmonton/Heartland, Alberta market region.	50%





Power and Storage

We are the operator of all our Energy assets, except for Bruce Power and Portlands Energy.





	Generating capacity (MW)	Type of fuel	Description	Ownership
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Power 6,615 MW of power generation capacity (including facilities under construction and held for sale)


Western Power 1,023 MW of power generation capacity in Alberta and Arizona (including asset held for sale)

Bear Creek		100	Natural gas	Cogeneration plant in Grande Prairie, Alberta.	100%
Carseland		95	Natural gas	Cogeneration plant in Carseland, Alberta.	100%
Mackay River		207	Natural gas	Cogeneration plant in Fort McMurray, Alberta.	100%
Redwater		46	Natural gas	Cogeneration plant in Redwater, Alberta.	100%



Eastern Power 2,498 MW of power generation capacity (including facility under construction)

Bécancour		550	Natural gas	Cogeneration plant in Trois-Rivières, Québec. Power sold under a 20-year PPA with Hydro-Québec which expires in 2026. Steam sold to an industrial customer. Power generation has been suspended since 2008. We continue to receive capacity payments while generation is suspended.	100%
Grandview		90	Natural gas	Cogeneration plant in Saint John, New Brunswick. Power sold under a 20-year tolling agreement for 100 per cent of heat and electricity output with Irving Oil which expires in 2024.	100%
Halton Hills		683	Natural gas	Combined-cycle plant in Halton Hills, Ontario. Power sold under a 20-year Clean Energy Supply contract with the IESO which expires in 2030.	100%
Portlands Energy		275 ¹	Natural gas	Combined-cycle plant in Toronto, Ontario. Power sold under a 20-year Clean Energy Supply contract with the IESO which expires in 2029.	50%


Bruce Power 3,094 MW of power generation capacity

Bruce Power		3,094 ¹	Nuclear	Eight operating reactors in Tiverton, Ontario. Bruce Power leases the eight nuclear facilities from OPG.	48.3%
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Unregulated natural gas storage 118 Bcf of non-regulated natural gas storage capacity

Crossfield		68 Bcf		Underground facility connected to the NGTL System near Crossfield, Alberta.	100%
Edson		50 Bcf		Underground facility connected to the NGTL System near Edson, Alberta.	100%

Under construction

Napanee		900	Natural gas	Combined-cycle plant in Greater Napanee, Ontario. Power sold under a 20-year Clean Energy Supply contract with the IESO which expires 20 years from in-service date. Expected in-service date is second quarter 2019.	100%
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Asset held for sale

Coolidge		575	Natural gas	Simple-cycle peaking facility in Coolidge, Arizona. Power sold under a 20-year PPA with the Salt River Project Agricultural Improvements & Power District which expires in 2031.	100%
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¹ Our share of power generation capacity.