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March 25, 2024 Filed Electronically

Canada Energy Regulator
Suite 210, 517 Tenth Avenue SW
Calgary, Alberta T2R 0A8

Attention: Ramona Sladic, Secretary of the Commission

Dear Ramona Sladic:

Re: NOVA Gas Transmission Ltd. (NGTL)
NGTL System Rate Design and Services Application (Application)
File OF-Tolls-Group1-N081-2019-01 01
Hearing Order RH-001-2019
NGTL Compliance Filing to Order TG-001-2020
2023 NGTL Annual Plan

In Order TG-001-2020, NGTL was directed by the Canada Energy Regulator (CER) to provide additional information in Appendix 4 of the NGTL Annual Plan, beginning with the year 2020.[1] This information has been included in the 2023 NGTL Annual Plan, which is attached to this letter.

Should the Commission require additional information regarding this filing, please contact me by phone at (403) 920-6256 or by email at alan_matheson@tcenergy.com.

Yours truly,
NOVA Gas Transmission Ltd.

Original signed by

Alan Matheson
Senior Regulatory Project Manager, Tolls and Tariffs
Canadian Natural Gas Pipelines

Enclosure

cc: Tolls, Tariff, Facilities and Procedures Committee

[1] Order TG-001-2020, paragraph 8 and 9 (C05448-3).

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EXECUTIVE SUMMARY

The 2023 Annual Plan provides NOVA Gas Transmission Ltd.'s (NGTL's) customers and other interested parties an overview of potential NGTL System facilities. The 2023 Annual Plan describes NGTL's outlook to the end of the decade for receipts, deliveries, peak expected flows, proposed facilities, and Design Flow requirements supporting future proposed facilities. This 2023 Annual Plan is based on NGTL's 2023 Design Forecast of receipts and deliveries.

New to this Annual Plan is a longer-term view of potential facilities that could serve aggregate system requirements with a range of targeted in-service dates out to 2030. These facilities address the forecasted changes in system flow requirements but still require their commercial underpinning to be finalized. They are presented to advance an understanding of the potential scope and scale, but need and schedule for facilities is in some cases subject to additional commercial underpinning and in all cases dependant on NGTL final investment decision and ATCO final investment decision, where applicable.

Since the release of the 2022 Annual Plan, NGTL has identified new facility projects. NGTL's Tolls, Tariff, Facilities and Procedures (TTFP) Committee has been notified of these facilities, and they are summarized in the March release of the 2024 *Facility Status Update (NGTL 2024 Update)*.

In accordance with the Integration Agreement between NGTL and ATCO Pipelines (AP), NGTL provides commercial services under the NGTL Tariff across facilities of the NGTL System and the AP System. NGTL follows facility planning processes to identify facilities required for the integrated system in the NGTL and AP footprints. For an overview of these processes, see the *Facilities Design Methodology* document and the *Guidelines for New Facilities* document. NGTL files facility applications with the Canada Energy Regulator (CER) for facility additions on the NGTL System. AP files facility applications with the Alberta Utilities Commission (AUC) for facility additions on the AP System.

The facilities identified in this Annual Plan were presented to the TTFP Committee on February 22, 2024. Subsequent updates to these facilities and notifications prior to filing for their applications will be presented to the TTFP as required. These updates, as well as any new facilities proposed after issuance of this Annual Plan, will be shown in the *2024 Facility Status Update (NGTL 2024 Update)*, which can be accessed at http://www.tccustomerexpress.com/871.html.

Table E-1 lists the 14 facilities identified in this 2023 Annual Plan.

Table E-1: Proposed and Potential Facility Additions

Project Area	Proposed Facilities	Annual Plan Reference	Description	Target In-Service Date	Regulator	Capital Cost ($ Millions)
Potential Aggregate System Facilities						
Peace River	GPML Loop (Karr Section 1)	Section 2	15 km NPS 48	2028-2030	CER	205
Peace River	GPML Loop (Karr Section 2)	Section 2	16 km NPS 48	2028-2030	CER	238
Peace River	GPML Loop (Karr Section 3)	Section 2	25 km NPS 48	2028-2030	CER	332
Peace River	GPML Loop (Deep Valley North)	Section 2	14 km NPS 48	2028-2030	CER	254
Peace River	GPML Loop (Deep Valley South)	Section 2	23 km NPS 48	2028-2030	CER	379
Peace River	GPML Loop (Colt Section)	Section 2	20 km NPS 48	2028-2030	CER	404
Peace River	GPML Loop (Hornbeck Section)	Section 2	13 km NPS 48	2028-2030	CER	238
Peace River	GPML Loop (Mcleod North)	Section 2	13 km NPS 48	2028-2030	CER	211
Peace River	GPML Loop (Mcleod Section)	Section 2	21 km NPS 48	2028-2030	CER	321
Peace River	Wolf Lake Unit and Cooler Additions	Section 2	30 MW	2028-2030	CER	362
Peace River	Vetchland Unit and Cooler Additions	Section 2	30 MW	2028-2030	CER	352
Proposed ATCO Facilities for Greater Edmonton Area Demands						
Peace River	Yellowhead Mainline (ATCO)	Section 2	215 km NPS 36	Nov 2027	AUC	1,815
Peace River	Peers Unit Addition (ATCO)	Section 2	Up to 15 MW	Nov 2027	AUC	138
Proposed Facility for Kirby Area Demands						
North & East	Leming Loop (Sand River Section)	Section 2	22 km NPS 20	2027	CER	149
					Total	**5,398**

The need and timing for any of the potential aggregate system facilities are contingent on further technical analysis, in some cases subject to additional commercial underpinning and in all cases dependant on NGTL final investment decision.

These facilities would be required to transport aggregate system supply in the Peace River area to meet aggregate system demands.

The proposed facilities for the Greater Edmonton and Kirby areas are required to meet growing delivery requirements in their respective regions and are underpinned by incremental contracts.

This 2023 Annual Plan includes the following sections:

- Executive Summary
- Chapter 1: Design Forecast
- Chapter 2: Design Flow and Mainline Facilities
- Chapter 3: Extensions, Lateral Loops and Meter Stations
- Appendix 1: Glossary of Terms
- Appendix 2: Facility Status Update
- Appendix 3: System Map (expected in March 2024)
- Appendix 4: Unit Transportation Costs

Electronic versions of the Annual Plan, the *Facilities Design Methodology* document, and the *Guidelines for New Facilities* document can be accessed at http://www.tccustomerexpress.com/871.html.

Customers and other interested parties are encouraged to communicate their suggestions, comments, and questions to NGTL regarding the 2023 Annual Plan to:

- Joanne Unger, Director, Capacity Management (403) 920-5281
- Cory Costanzo, Director, Forecasting & Fundamentals (403) 920-7158

1.0 DESIGN FORECAST

1.1 INTRODUCTION

This Annual Plan is based on the 2023 Design Forecast of receipts and deliveries for the NGTL System. An overview of the 2023 Design Forecast was presented at the February 22, 2024 TTFP meeting.

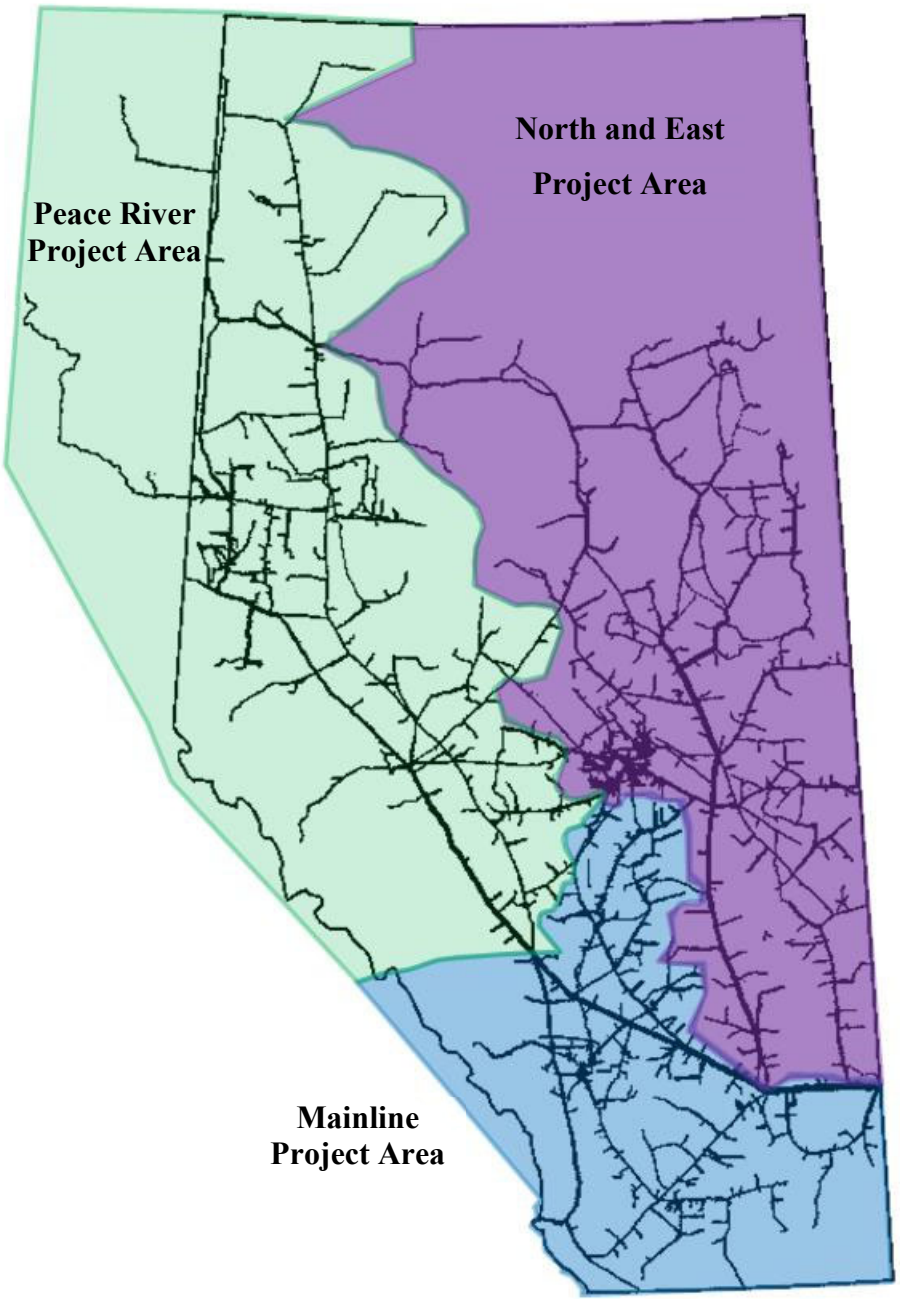
This section describes:

- economic assumptions used in developing the 2023 Design Forecast
- receipt and delivery forecasts for the NGTL System
- supply contribution, including winter withdrawal from storage facilities, used in the design process

For further information on forecasting methodology, see Facilities Design Methodology, Section 4.4: Design Forecast Methodology, which can be accessed at http://www.tccustomerexpress.com/871.html

In order to highlight the regional forecast differences on the NGTL System, this section references the three Project Areas as per the NGTL tariff. Figure 1-1 depicts the three Project Areas.

Figure 1-1: NGTL Project Areas



1.2 ECONOMIC ASSUMPTIONS

1.2.1 General Assumptions

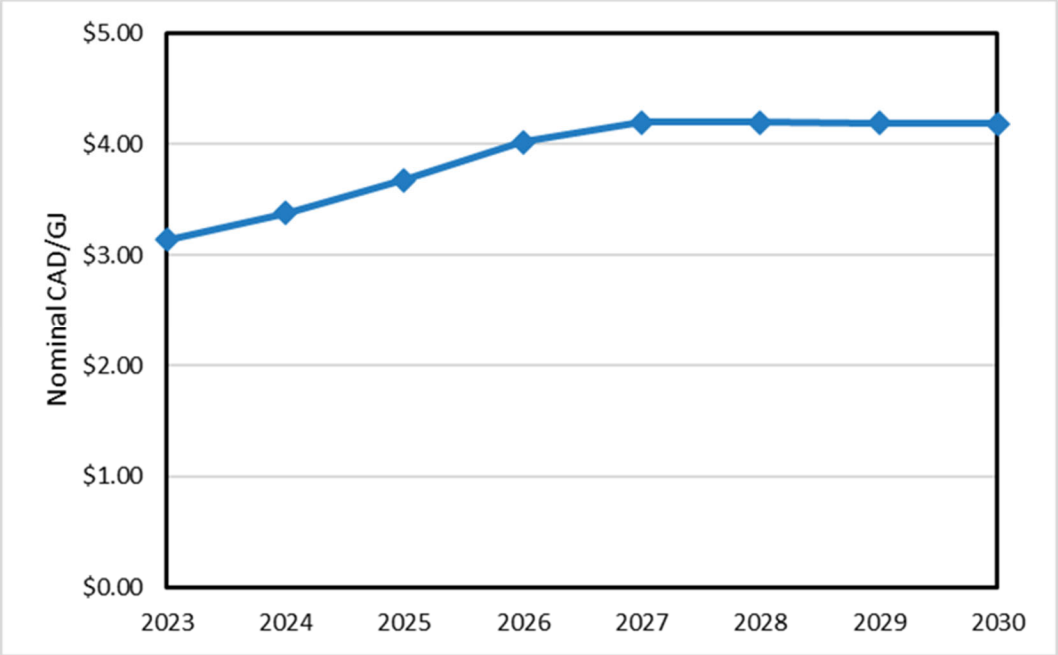
The following assumptions, developed in early 2023, reflect broader trends in the North American economy and energy markets, and underlie the forecast of receipts and deliveries:

- Owing to the abundance of natural gas resource, supply growth will be constrained by domestic demand, LNG exports, adoption of alternate technologies, and factors such as policy and ability to attain regulatory approvals.
- In the US, industrial growth is concentrated in the Gulf Coast and electric generation growth is more broadly based, while oil sands and petrochemical projects will lead the growth in Western Canada.
- In Alberta, new natural gas fired generation capacity of over 2000 megawatts will be added in 2024.
- LNG export projects are being developed in both the U.S. and Canada. North American LNG exports are expected to reach 20 Bcf/d by 2025, a growth of 13.5 Bcf/d from 2020 levels.
- Associated gas supplies from oil plays and liquids rich gas plays will continue to be strong, supported by high oil prices, exerting downward influence on North American natural gas prices.
- New natural gas supply must continually be developed to maintain and/or grow the supply in the basin due to the natural declines of existing supply.
- NIT/AECO prices are expected to average $4.00 Cdn/GJ over the forecast period, ending in 2030.
- The average annual outlooks of receipts, deliveries, and NGTL System throughput volumes reported in this section are understood to be within a range of outcomes due to factors such as changing market conditions and the pace of WCSB supply and infrastructure development.

1.2.2 Average Natural Gas Price Forecast

TC Energy considers commodity pricing when determining the economic viability of future natural gas production. The 2023 natural gas price forecast developed by TC Energy is shown in Figure 1-2.

Figure 1-2: Average Nominal NIT Price

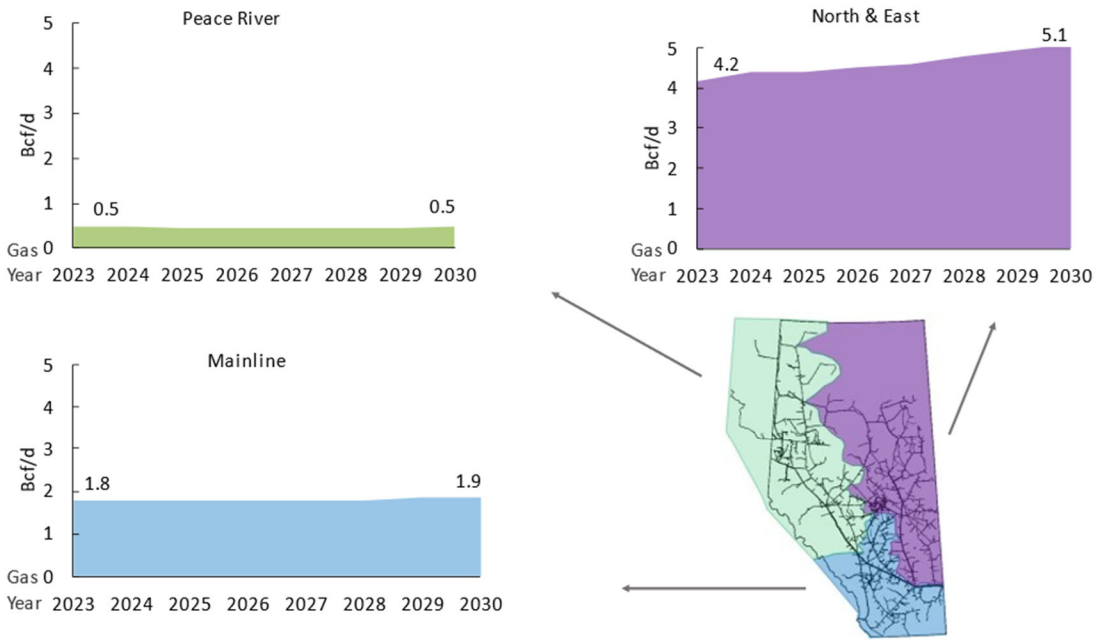


1.3 GAS DELIVERY FORECAST

Several sources of information were considered in developing the gas delivery forecast. First, operators of downstream facilities such as connecting pipelines, local distribution companies (LDCs), and industrial plants were requested to provide a forecast of their maximum, average, and minimum requirements for deliveries from the NGTL System over the next 10 years. The forecasts were analyzed and compared with historical flow patterns at NGTL Delivery Points. In cases where NGTL's analysis differed substantially from the operator's forecast, NGTL contacted the operator and either the operator's forecast was revised or NGTL adjusted its analysis. In cases where the operator did not provide a forecast, NGTL based its forecast on historical flows and growth rates for specific demand sectors.

Deliveries to intra markets on the NGTL System are forecast to rise due to increased demand in the oil sands sector and growing petrochemical investments.

Figure 1-3: System Intra Deliveries by Project Area



1.3.1 Average Annual Delivery Forecast

Forecast deliveries are expressed as an average daily flow. The Average Annual Delivery Forecast is the aggregate forecast of deliveries for the NGTL System. The Average Annual Delivery Forecast, for Gas Years 2024 through 2030 are listed by Delivery Type in Table 1-1 and further detailed by Project Area in Table 1-2.

Table 1-1: System Average Annual Delivery Forecast by Delivery Type

Delivery Type	2023 Design Forecast ($10^6m^3/d$)						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Export	203.2	209.0	206.5	211.1	217.7	220.0	220.5
Intra System	189.3	187.8	190.1	192.5	199.0	204.5	210.1
Total System	392.6	396.8	396.6	403.6	416.8	424.5	430.5
Delivery Type	**2023 Design Forecast (Bcf/d)**						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Export	7.2	7.4	7.3	7.5	7.7	7.8	7.8
Intra System	6.7	6.6	6.7	6.8	7.0	7.2	7.4
Total System	13.9	14.0	14.0	14.2	14.7	15.0	15.2

* Fuel is included

Note**:** Totals for Receipt & Delivery may not align due to rounding.

Volumes expressed as an average daily flow for each gas year, at 101.325 kPa and 15°C.

Table 1-2: Intra System Deliveries – Average Annual Delivery Forecast by Project Area

Project Area	2023 Design Forecast ($10^6m^3/d$)						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Peace River	14.1	12.6	12.5	12.5	12.7	12.5	13.2
North and East	124.4	124.9	127.6	129.7	135.5	139.8	144.0
Mainline	50.8	50.3	50.0	50.4	50.9	52.2	52.9
Total	189.3	187.8	190.1	192.5	199.0	204.5	210.1
Project Area	**2023 Design Forecast (Bcf/d)**						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Peace River	0.5	0.4	0.4	0.4	0.4	0.4	0.5
North and East	4.4	4.4	4.5	4.6	4.8	4.9	5.1
Mainline	1.8	1.8	1.8	1.8	1.8	1.8	1.9
Total*	6.7	6.6	6.7	6.8	7.0	7.2	7.4

* Fuel is included

1.3.2 Maximum Day Delivery Forecast

Peak deliveries (Maximum Day Delivery) are also forecast for the NGTL Delivery Points and are based on historical flows.

A summary of the 2023 Design Forecast winter and summer Maximum Day Delivery by Project Area for Intra System Deliveries is provided in Table 1-3 for winter and Table 1-4 for summer.

Table 1-3: Winter Maximum Day Intra System Delivery Forecast

Project Area	2023 Design Forecast ($10^6m^3/d$)						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Peace River	34.4	34.7	34.7	34.7	34.9	34.9	35.0
North and East	177.8	188.2	192.9	196.3	204.5	206.2	206.5
Mainline	102.0	102.6	102.9	103.9	105.1	104.7	103.9
Total	314.2	325.5	330.4	334.9	344.5	345.7	345.3
Project Area	**2023 Design Forecast (Bcf/d)**						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Peace River	1.2	1.2	1.2	1.2	1.2	1.2	1.2
North and East	6.3	6.6	6.8	6.9	7.2	7.3	7.3
Mainline	3.6	3.6	3.6	3.7	3.7	3.7	3.7
Total*	11.1	11.5	11.7	11.8	12.2	12.2	12.2
* Fuel is included							

Table 1-4: Summer Maximum Day Intra System Delivery Forecast

Project Area	2023 Design Forecast ($10^6m^3/d$)						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Peace River	32.3	32.6	32.5	32.5	32.7	32.7	32.8
North and East	168.0	169.0	173.9	176.3	183.1	185.0	187.1
Mainline	79.2	78.7	78.4	79.0	79.7	80.1	79.9
Total	279.5	280.3	284.8	287.8	295.5	297.7	299.8
Project Area	**2023 Design Forecast (Bcf/d)**						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Peace River	1.1	1.1	1.1	1.1	1.2	1.2	1.2
North and East	5.9	6.0	6.1	6.2	6.5	6.5	6.6
Mainline	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Total*	9.9	9.9	10.1	10.2	10.4	10.5	10.6
* Fuel is included							

1.4 RECEIPT FORECAST

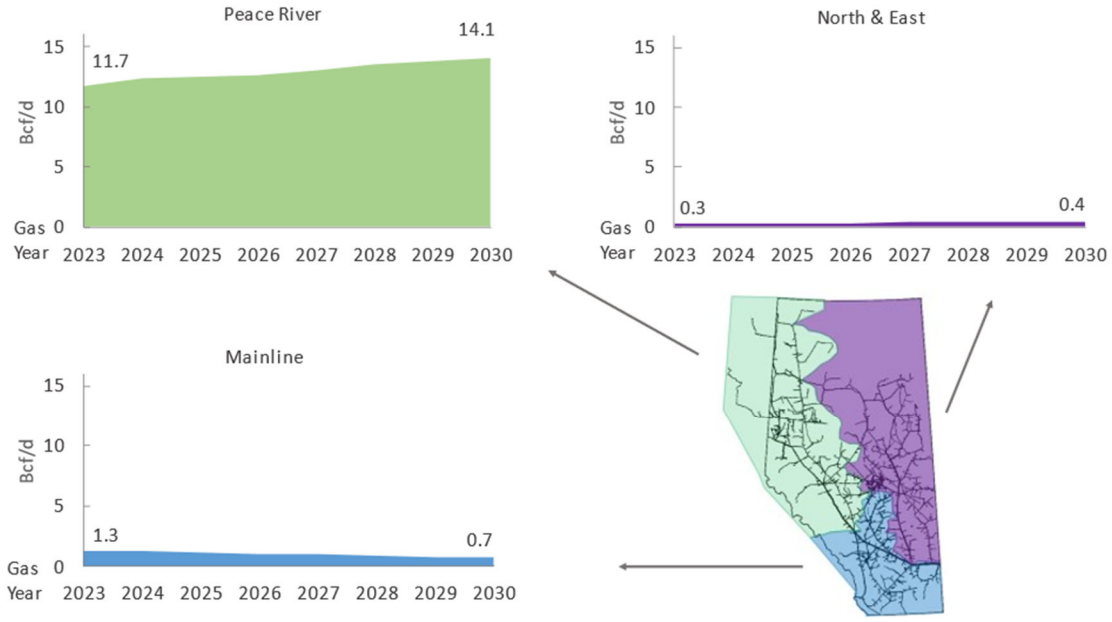
NGTL develops a Receipt Forecast on an average annual basis using information collected from several sources, including upstream information from customers, historical flows, industry publications and government agencies.

- NGTL uses activity-based forecasting methods and models to generate forecasts of future production. Factors such as gas price, liquids content in the gas, economics, total number of drilling locations available, well production profiles, pace of development, material and equipment availability, potential capital requirements, land access constraints, and gas gathering capacities are considered when developing a forecast of supply.

    - For conventional production, there has been little to no development in the last few years. NGTL anticipates that conventional supply will continue to decline. This production decline will be noticed mostly in the northeast and east parts of the basin, which are areas outside of the Peace River Project Area.
    - The decline rate of legacy gas and the more recent supply from shale and tight sandstone reservoirs varies across the basin and from year to year. In 2023, the basin declined by ~24%.

Exploration activity focused on shale and tight sandstone reservoirs has resulted in increasing Montney and Deep Basin gas volumes entering the NGTL System, primarily from the Peace River Project Area. The incremental shale gas and tight sandstone gas supply is expected to more than offset existing basin production declines and will gradually increase system supply to over 15 Bcf/d by 2030.

Figure 1-5: System Receipts by Project Area



Gas supplied from storage facilities was not included in the data presented in this section. For information pertaining to gas supply from Commercial Storage Facilities, see Section 1.6.

1.4.1 Average Receipt Forecast

The Average Receipt Forecast is the aggregate receipts forecast for the NGTL System for the 2024 through 2030 gas years. A summary of System Average Receipts by Project Area is expressed as an average daily flow and shown in Table 1-5.

Table 1-5: System Average Receipts

Project Area	2023 Design Forecast ($10^6m^3/d$)						
	2023/24	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**
Peace River	348.7	355.5	357.8	367.0	382.1	391.8	399.5
North and East	9.7	9.9	10.1	10.4	10.8	11.1	11.3
Mainline	34.1	31.4	28.7	26.2	23.9	21.7	19.7
Total	392.5	396.8	396.6	403.6	416.8	424.5	430.5

Project Area	2023 Design Forecast (Bcf/d)						
	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Peace River	12.3	12.5	12.6	13.0	13.5	13.8	14.1
North and East	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Mainline	1.2	1.1	1.0	0.9	0.8	0.8	0.7
Total	13.9	14.0	14.0	14.2	14.7	15.0	15.2

1.5 SUPPLY DEMAND BALANCE

Supply received on to the NGTL System is balanced with System deliveries (net of gas in storage). System deliveries by destination are shown in Figure 1-6, while System receipts by Project Area are shown in Figure 1-7.

Figure 1-6: System Deliveries by Destination

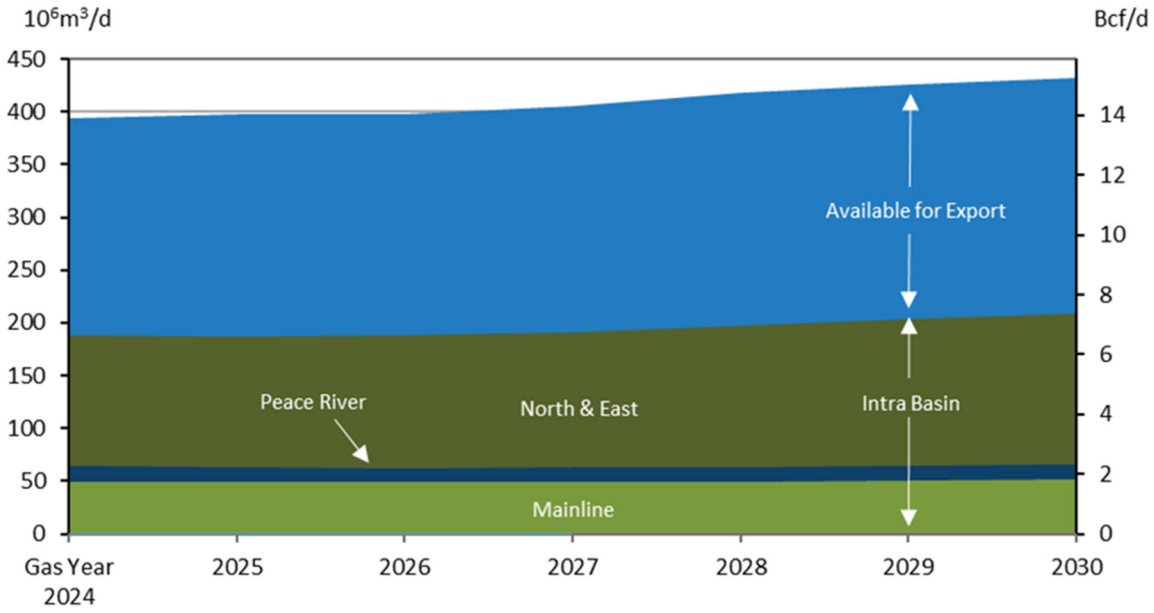
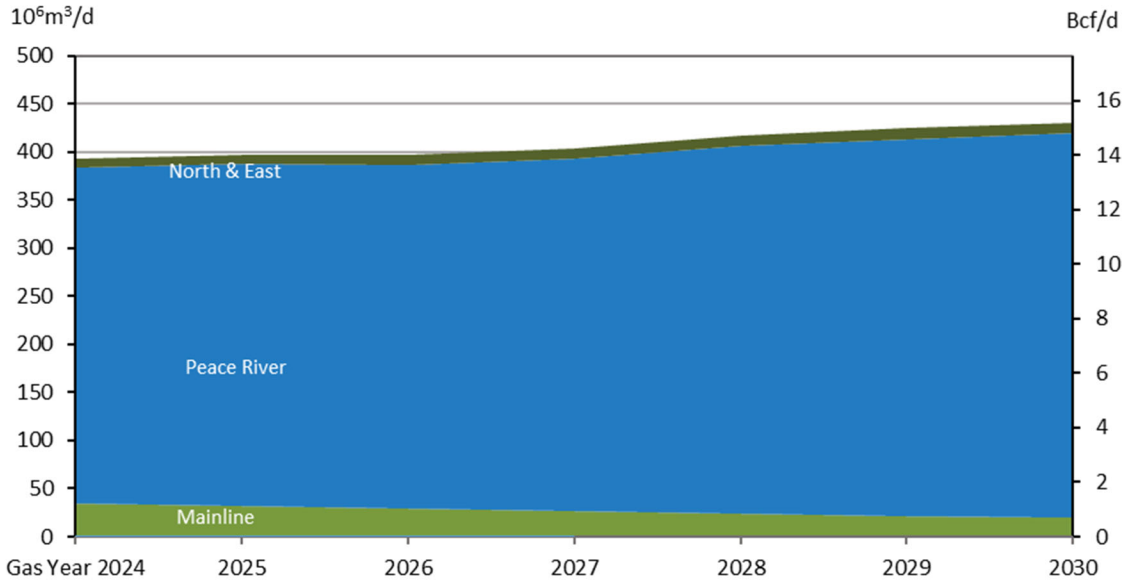


Figure 1-7: System Receipts by Project Area



The average annual outlooks of receipts, deliveries, and NGTL System throughput volumes reported in this section are understood to be within a range of outcomes due to factors such as changing market conditions and the pace of WCSB supply and infrastructure development.

1.6 STORAGE FACILITIES

1.6.1 Commercial Storage

There are nine commercial storage facilities connected to the NGTL System (AECO 'C', Big Eddy, Carbon, Chancellor, Crossfield East #2, January Creek, Severn Creek, Warwick Southeast and Aitken Creek Meter Stations). The total deliverability from storage facilities is significant, but actual maximum day receipts from storage are dependent on a number of factors, including market conditions, level of working gas, compression power at each storage facility, and NGTL System operations.

For design purposes, a supply contribution from storage facilities is used to meet peak day winter delivery requirements and provide for a better correlation between forecast

Design Flow requirements and historical actual flows for the winter period. Historical withdrawals during recent winter periods for each storage facility were used to determine a reasonable expected rate of withdrawal for future winter seasons.

For the receipt meter capacity for each of the connected commercial storage facilities, see Table 1-6.

Table 1-6: Receipt Meter Capacity from Commercial Storage Facilities

Storage Facility	Receipt Meter Capacity from Commercial Storage Facilities	
	$10^6 m^3/d$	Bcf/d
AECO C	40.8	1.4
Big Eddy	43.0	1.5
Aitken Creek (B.C.)	37.6	1.3
Carbon	13.6	0.5
Chancellor	28.7	1.0
Crossfield East 2	14.7	0.5
January Creek	20.2	0.7
Severn Creek	8.4	0.3
Warwick Southeast	7.6	0.3
Total	**214.8**	**7.6**

Note:
Storage is considered an interruptible supply source.
Totals have been rounded.

1.6.2 Peak Shaving Storage

The Fort Saskatchewan Salt Caverns are a peak shaving storage facility in the greater Edmonton area within the ATCO Pipeline footprint, in the North of Bens Lake Design Area of the NGTL System. Similar to commercial storage facilities, the total deliverability from the peak shaving storage facility is significant, and the actual maximum day receipt from this storage also depends on a number of factors, including market conditions, level of working gas, compression power at the storage facility and NGTL System operations.

For design purposes, a supply contribution from the peak shaving storage facility is used to meet peak day winter delivery requirements and provide for a better correlation between forecast Design Flow requirements and historical actual flows for the winter period. The maximum withdrawal rate and the maximum working inventory of the storage facility are used as the upper limits for the supply contribution provided.

2.0 DESIGN FLOWS AND MAINLINE FACILITIES

2.1 INTRODUCTION

This section contains the proposed natural gas transportation mainline facilities that may be necessary to meet the Design Flow requirements. Included is information regarding facility size, routes, locations, and cost estimates.

The Design Flows are presented for Design Areas where new mainline facilities are required. Design flows are based on the 2023 Design Forecast presented in Section 1, and were determined using the methodology described in *Facilities Design Methodology*, Section 3.5: Mainline Facilities Flow Determination. This document can be accessed at http://www.tccustomerexpress.com/871.html. Design charts for key areas are presented to provide an understanding of how the NGTL system is evolving.

This section includes a comparison of historical flows to the Design Flows. Additionally, the expected design capability is shown for the Gas Year when facilities are required in each applicable Design Area. Where there is a shortfall between Design Flow and the design capability, a facility solution is identified. A facility application to the regulator for construction and operation is triggered by Firm Transportation (FT) contracts in excess of design capability and submitted to ensure the facility is in place in time to meet the FT requirements. Aggregated FT contract levels are also presented to indicate commercial underpinning of the proposed facilities.

This section of the Annual Plan presents potential facilities that serve aggregate system requirements, followed by proposed facilities that serve the requirements for specific areas. Presentation of the proposed facilities in this manner is intended to improve the clarity of their requirement and commercial underpinning. Contractual underpinning for the potential aggregate system facilities is still pending finalization. As such, these facilities scope and in service timing are subject to change.

An overview of the Design Flows and proposed facilities resulting from the 2023 Design Forecast, as well as the potential facilities for incremental flow, were presented to the TTFP on February 22, 2023. Subsequent updates to these facilities and notifications

prior to filing for their applications will be presented to the TTFP as they occur. These updates, as well as any new facilities proposed after issuance of this Annual Plan, will be shown in the *2024 Facility Status Update (NGTL 2024 Update)*, which can be accessed at http://www.tccustomerexpress.com/871.html.

For a summary of the status of mainline facilities that have been proposed, applied for, under construction or placed in-service since the December 2022 Annual Plan, see *Appendix 2: Facility Status Update*.

2.2 AGGREGATE SYSTEM REQUIREMENTS

As described in Section 1, average aggregate system demand continues to grow. From the figures provided in Table 1-1, system demand is forecast to grow from 13.9 Bcf/d to 15.2 Bcf/d from Gas Years 2024 to 2030. Also described in Section 1 is the continued aggregate supply growth and shift towards the Peace River Project Area. Increasing supply in the Peace River area will serve to offset supply declines in other areas of the system and increase the total system supply, matching the increasing aggregate system demand. From the figures provided in Table 1-5, supply in the Peace River Area grows from 88% of the total system supply to 93% of the total system supply from Gas Years 2024 to 2030, commensurate with an 9% increase in total system supply over the same period.

The forecasted annual average daily flowrates described in Section 1 are translated into peak day Design Flows which are used for system facility design. The Design Flows for the system therefore reflect the forecasted increases in average annual total system supply and demand. Figure 2-1 shows how the system Design Flows at the beginning of each Gas Year grow from 17.5 Bcf/d to 19.9 Bcf/d from 2024 to 2030. Figure 2-1 also shows the aggregate system FT-R and FT-D levels as of November 1 annually. As can be seen, the increasing Design Flows are supported by increasing system FT-R and FT-D contract levels. In addition to the secured contracts depicted on Figure 2-1, there is expressed customer interest for ~500 mmcf/d of additional firm contracting pending commercial arrangements.

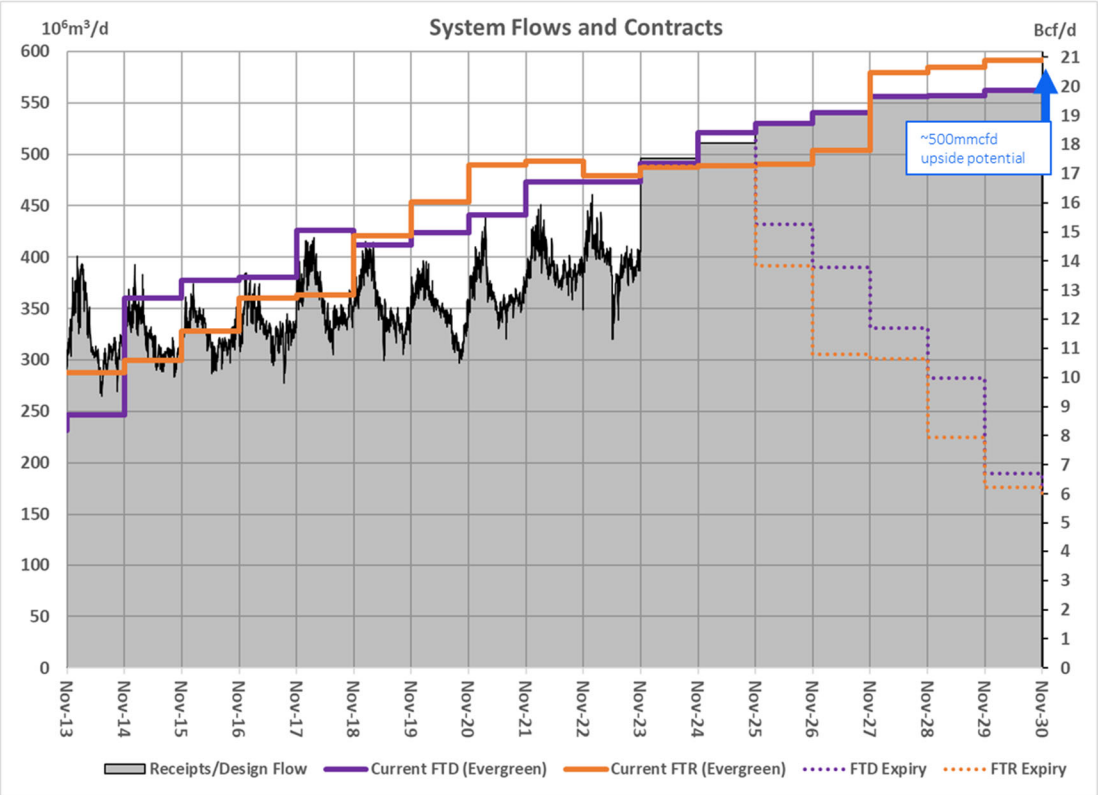
The system receipts that meet these growing system deliveries come from three sources:

1. Storage withdrawals, which have no associated FT-R contracting and are not driving additional facilities
2. Declining receipts from unconstrained areas outside the Peace River Project Area, which have minimal associated FT-R contracting and are not driving additional facilities
3. Growing receipts from the Peace River Project Area, where additional FT-R contracting is required to commercially underpin the additional facilities they are driving

Although Figure 2-1 depicts aggregate system FT-R, the additional facilities that meet the growing aggregate system requirements are required only for the growing receipts in the Peace River Project Area. As such, it is only the FT-R in the Peace River Project Area that represents the commercial underpinning for receipts at the aggregate system level. As depicted later in Figure 2-2 in Section 2.4.1, FT-R contracting in the Peace River Project Area continues to exceed the increasing receipt Design Flows in that particular area, thereby commercially underpinning proposed facilities.

Figure 2-1 also depicts the hypothetical FT expiry profiles if all contracts non-renewed. Although all previously proposed facilities continue to be required and contractually underpinned, contract renewals are closely monitored to ensure this remains true. Should underpinning change, NGTL will appropriately adjust facility plans and/or repurpose capacity.

Figure 2-1: Aggregate System Flows, Design Flows, and Contracts



2.3 FACILITIES FOR AGGREGATE SYSTEM REQUIREMENTS

As described in Section 2.2, supply in the Peace River area is expected to represent an increasing share of aggregate System supply, upward of 90%. Since this area represents such a large portion of total system supply, ensuring that flows out of the Peace River Area and into the various demand markets attached to the NGTL System is critical to the overall balancing of NGTL aggregate System requirements.

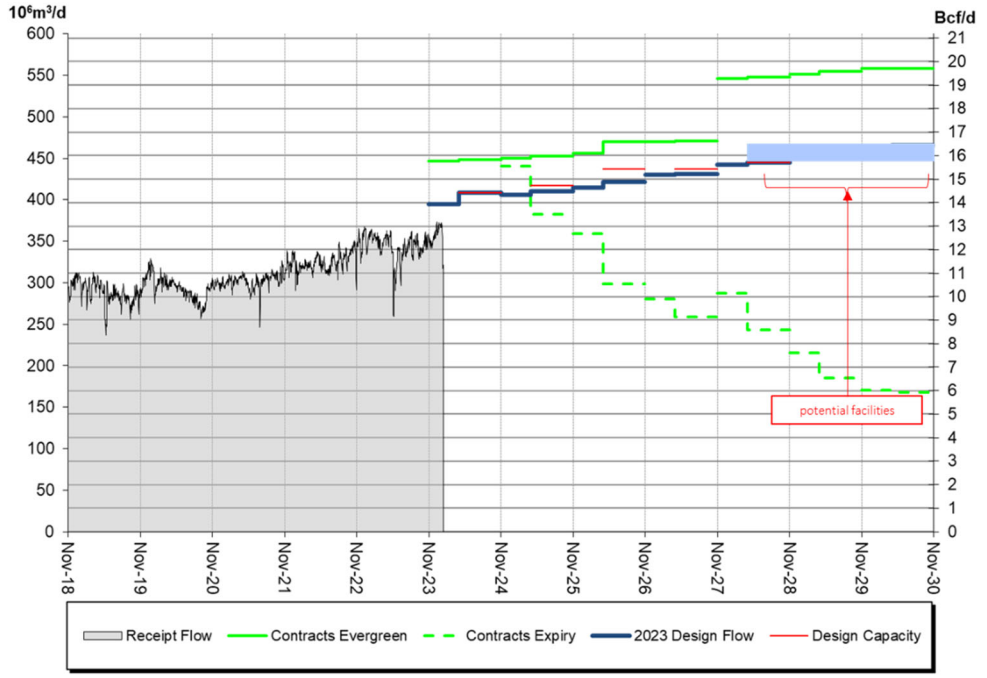
The design condition for the Peace River Area is very interdependent with total system conditions. The prevailing design condition for the Peace River Area is therefore best represented by a Total System Flow-Within condition: When total system deliveries are at their maximum and total system receipts, a vast majority of which are from the Peace River Area, also peak. System facilities must be capable of transporting enough gas out of the Peace River Project Area to meet expected peak deliveries throughout the rest of the system.

2.3.1 Design Flows – Peace River Project Area

The Design Flows for the Total System Flow-Within design condition in the Peace River Project Area are the maximum expected local receipts in the area. The forecast continued receipt growth in the area can be accommodated by 11 potential facilities.

Figure 2-2 shows historical receipts, receipt Design Flow, contract levels and design capability for the Peace River Project Area. Receipt Design Flow rises throughout this forecast period, attributable to increasing supply in the Peace River Project Area. Although the Design Flow is forecasted to rise from 15.6 Bcf/d to 16.4 Bcf/d from Gas Year 2028 to 2030, the pace at which it will grow and any potential facilities required will be defined by customer needs and commercial arrangements. The refinement of customer needs and potential facilities over this period is represented by the light blue band in Figure 2-2. The potential facilities are required to keep the design capability above the rising Design Flow as highlighted in red in Figure 2-2. Further details on the potential facilities are provided in Section 2.3.2.

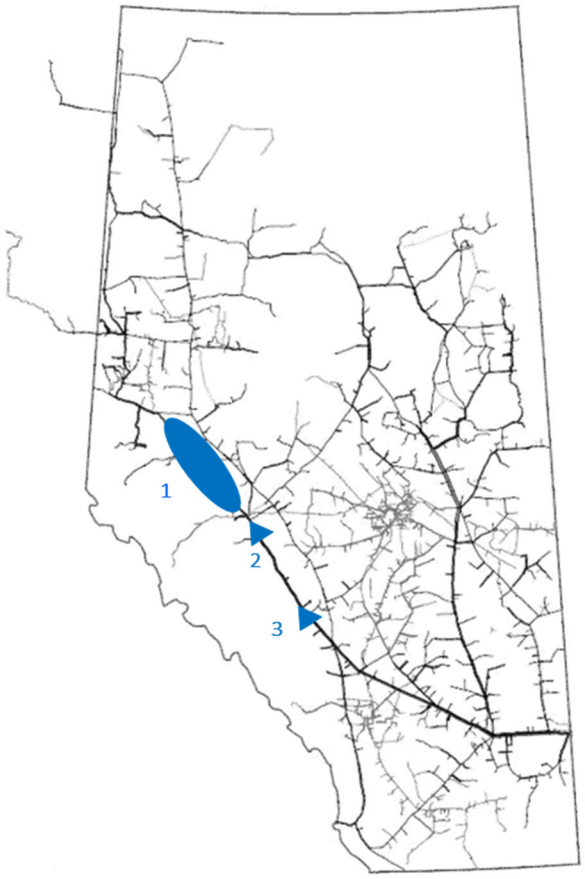
Figure 2-2: Peace River Project Area Design Chart



2.3.2 Potential Facilities for Aggregate System Requirements

Figure 2-3 shows the locations of the potential facilities required to meet the Total System Flow-Within design condition. These facilities increase the receipt capability for the Peace River Project Area, enabling aggregate system supply to meet aggregate system demand.

Figure 2-3: Potential Facilities for Aggregate System Requirements



The need and scheduling for these potential facilities are contingent on further technical analysis, in some cases subject to additional commercial underpinning and in all cases dependant on NGTL final investment decision.

Should they proceed, applications may need to be filed with the CER as early as Gas Year 2024 and targeted to be in-service between 2028-2030. For details on the potential facilities, see Table 2-1.

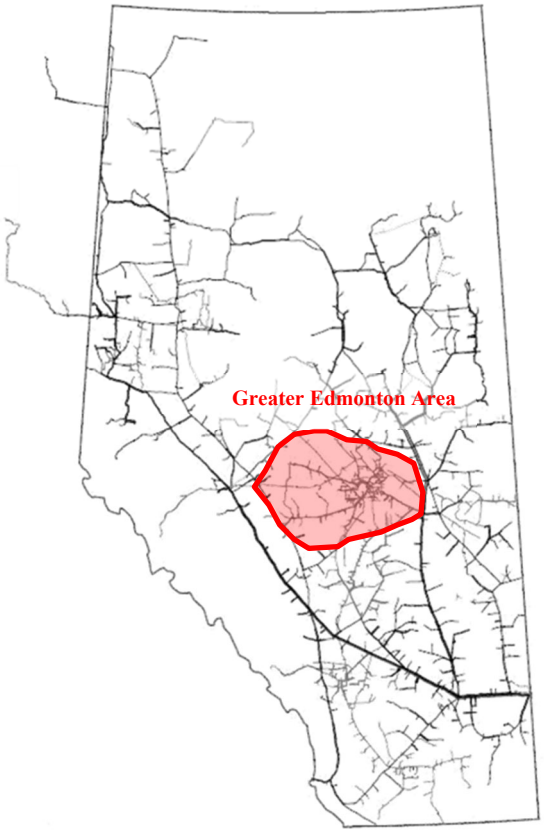
Table 2-1: Potential Facilities for Aggregate System Requirements

Map Location	Applied-For Facility	Description	Target In-Service Date	Forecast Cost ($Millions)
1	GPML Loop (Karr Section 1)	15 km NPS 48	2028-30	205
1	GPML Loop (Karr Section 2)	16 km NPS 48	2028-30	238
1	GPML Loop (Karr Section 3)	25 km NPS 48	2028-30	332
1	GPML Loop (Deep Valley North)	14 km NPS 48	2028-30	254
1	GPML Loop (Deep Valley South)	23 km NPS 48	2028-30	379
1	GPML Loop (Colt Section)	20 km NPS 48	2028-30	404
1	GPML Loop (Hornbeck Section)	13 km NPS 48	2028-30	238
1	GPML Loop (Mcleod North)	13 km NPS 48	2028-30	211
1	GPML Loop (Mcleod Section)	21 km NPS 48	2028-30	321
2	Wolf Lake Unit and Cooler Additions	30 MW	2028-30	362
3	Vetchland Unit and Cooler Additions	30 MW	2028-30	352
			Total	**3.296**

2.4 FACILITIES FOR GREATER EDMONTON AREA DEMANDS

Two proposed facilities are required to meet the aggregate delivery requirements in the Greater Edmonton area. Deliveries in this area, shown in Figure 2-4, are a mix of power generation, other industrial, and residential/commercial deliveries. The supply required to meet Greater Edmonton area demands is currently transported through several major corridors with the most significant ones on the eastern side of Edmonton. The proposed facilities will create an additional major corridor on the western side of Edmonton which is a shorter distance to Peace River system supply.

Figure 2-4: Greater Edmonton Area

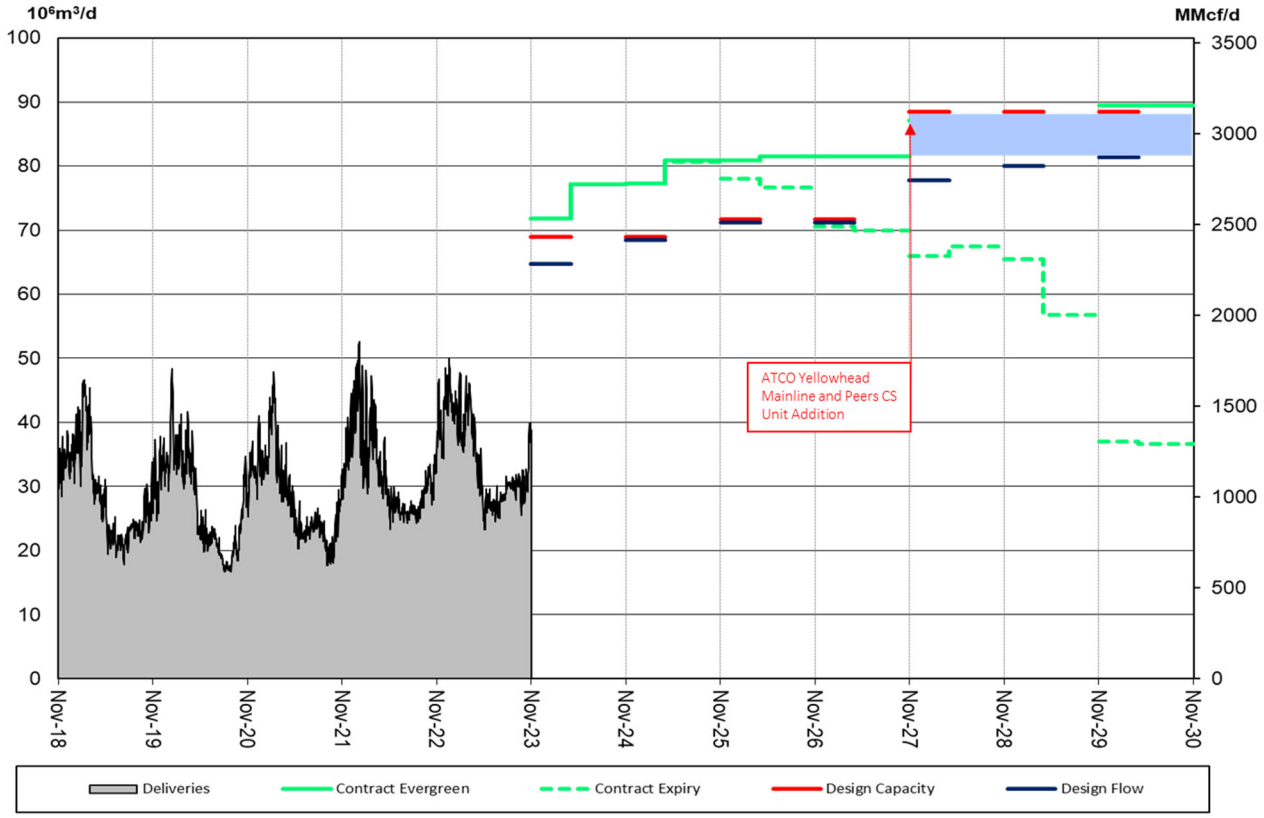


2.4.1 Design Flows – Greater Edmonton Area

The prevailing design condition for the Greater Edmonton area is the Flow-Within Condition: When local area deliveries are at their maximum and local area receipts are at their minimum. As local area receipts continue to decline and demands increase, facilities are required to transport in more receipts from outside the area to satisfy demand requirements. Figure 2-5 shows historical flows, Design Flows, contract levels and design capability for the Greater Edmonton area. As can be seen, delivery Design Flow rises throughout this forecast period, attributable primarily to significant industrial growth and supported by incremental FT-D contracting. The proposed facilities are highlighted red in Figure 2-5 to provide a correlation to the increase in design capability and indicate its requirement.

Since the proposed facilities create an additional major corridor into the Greater Edmonton Area, it will provide a significant step change in design capacity. Although this increased capability is necessary for the forecast Design Flows and underpinned by incremental contracts, it will also provide additional capability that could be utilized for additional future flow increases. There is expressed customer interest for ~250 mmcf/d of additional firm contracting pending commercial arrangements that could increase the current Design Flows further. This potential increase is represented by the light blue band in Figure 2-5.

Figure 2-5: Greater Edmonton Area Design Chart

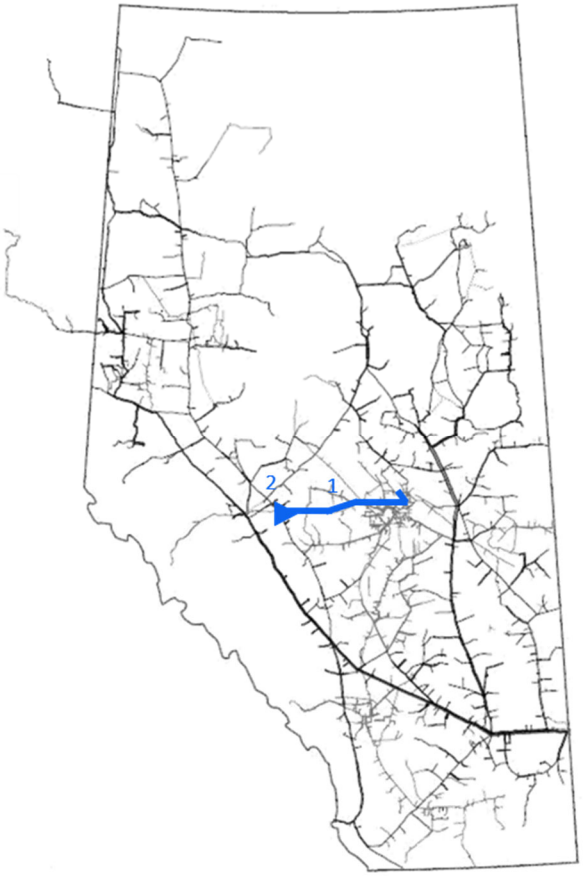


2.4.2 Proposed Facilities for Greater Edmonton Area Demands

Figure 2-6 shows the location of the proposed facilities required for Greater Edmonton area demands. These ATCO facilities will create a new major corridor capable of

operating at a higher pressure than the existing western corridors. This will provide an additional direct and efficient path for Peace River system supply to meet Greater Edmonton area demands.

Figure 2-6: Proposed Facilities for Greater Edmonton Area Demands



The application for the proposed facilities is expected to be filed with the AUC in Gas Year 2024 and targeted to be in-service for November 2027. For details on the proposed facilities, see Table 2-2.

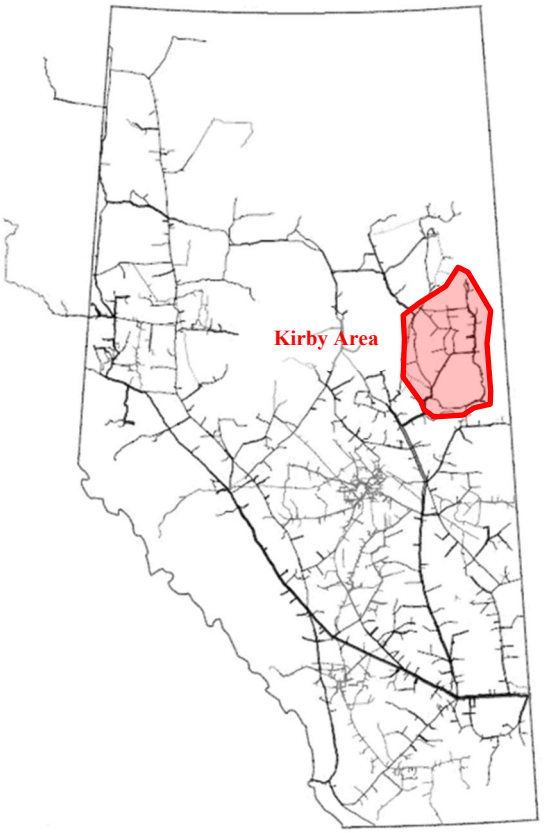
Table 2-2: Proposed Facilities for Greater Edmonton Area Demands

Map Location	Applied-For Facility	Description	Target In-Service Date	Forecast Cost ($Millions)
1	Yellowhead Mainline (ATCO)	215 km NPS 36	Nov 2027	1,815
2	Peers Unit Addition (ATCO)	Up to 15 MW	Nov 2027	138
			Total	**1,953**

2.5 FACILITY FOR KIRBY AREA DEMAND

The Kirby area, shown in Figure 2-7, is located within the North and East Project Area and is a subset of the Oilsands Delivery Area. A proposed facility is required to meet the aggregate delivery requirements in the Kirby area, which is primarily for oilsands production.

Figure 2-7: Kirby Area



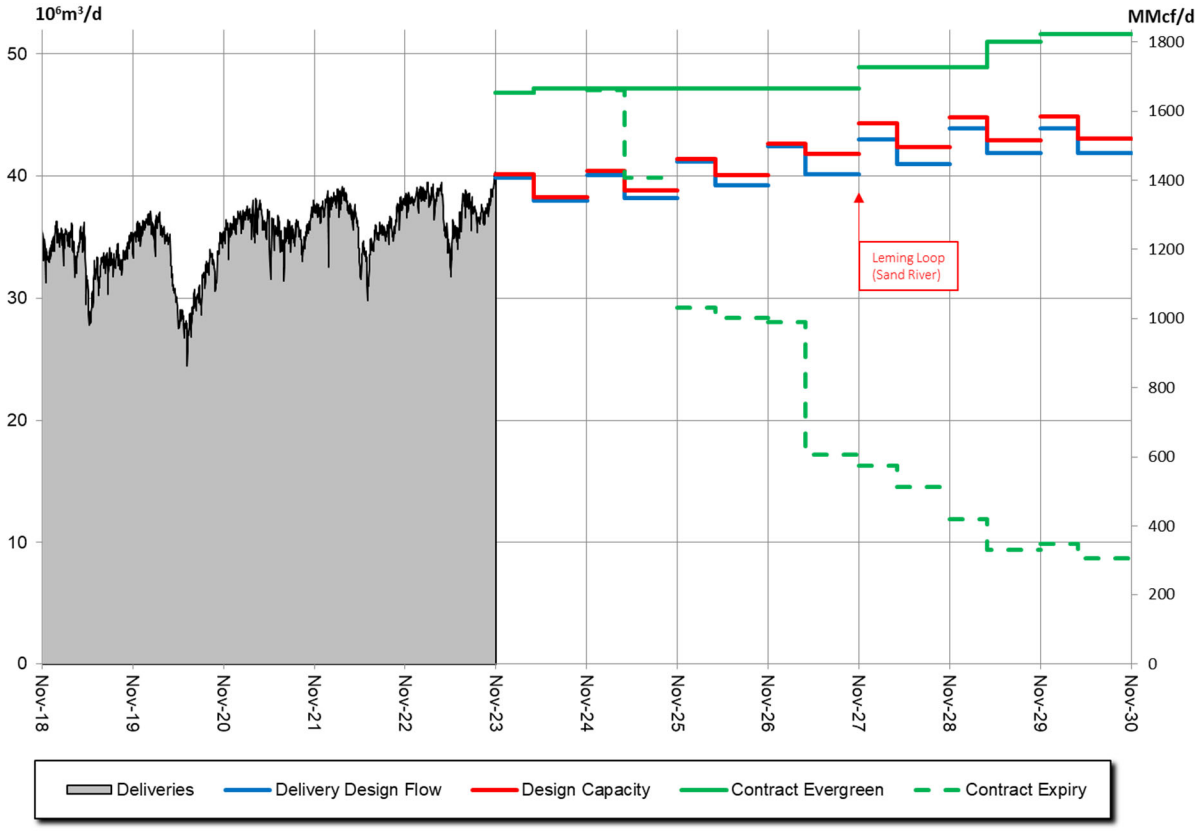
2.5.1 Design Flows - Kirby Area

The prevailing design condition for the Kirby area is the Flow-Within condition: When area deliveries are at their maximum. The continued demand growth and changing distribution of demand in the area will be accommodated by the proposed facility.

Figure 2-8 shows historical deliveries, delivery Design Flow, contract levels and design capability for the Kirby area. As can be seen, delivery Design Flow rises throughout this

forecast period, attributable to increasing demand driven by oilsands production and supported by incremental FT-D contracting. The proposed facility is highlighted red in Figure 2-8 to provide a correlation to the increase in design capability and indicate its requirement.

Figure 2-8: Kirby Area Design Chart



2.5.2 Proposed Facility for Kirby Area Demand

Figure 2-8 shows the location of the proposed facility required to meet Kirby area requirements resulting from the Flow-Within design condition.

Figure 2-9: Proposed Facilities for Kirby Area Demand

The application for the proposed facility is expected to be filed with the CER in Gas Year 2025 and targeted to be in-service for 2027. For details on the proposed facility see Table 2-3.

Table 2-3: Proposed Facility for Kirby Area Demand

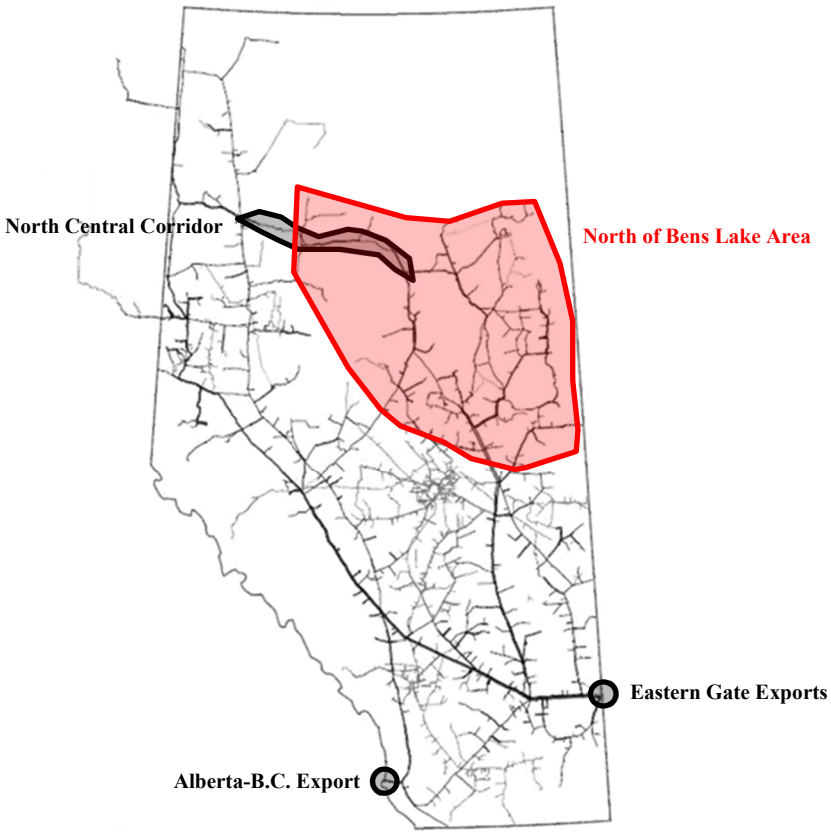
Map Location	Applied-For Facility	Description	Target In-Service Date	Forecast Cost ($Millions)
1	Leming Loop (Sand River Section)	22 km NPS 20	2027	149
			Total	**149**

2.6 OTHER KEY AREAS

Design charts for other areas are presented in this section. The intent is to provide an understanding of the impact of previously proposed facilities in these other areas, and

relay how the NGTL system is evolving in general. Figure 2-10 shows the locations of these key areas.

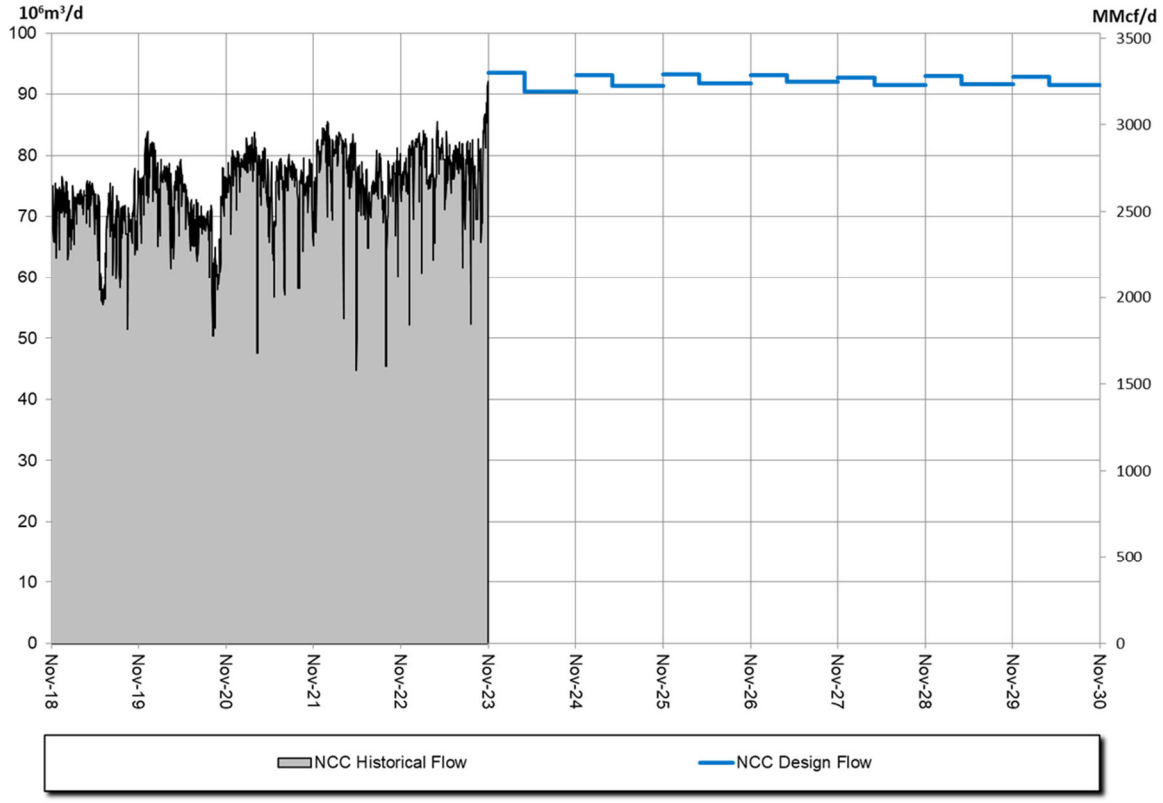
Figure 2-10: Key Areas



2.6.1 Design Flows – North Central Corridor (NCC)

The NCC is the primary corridor feeding demands in northeast Alberta, which includes major oilsands deliveries. NGTL's recent North Corridor Expansion Project increased NCC capability to help satisfy these growing deliveries, and this capability is expected to continue to be fully utilized going forwards.

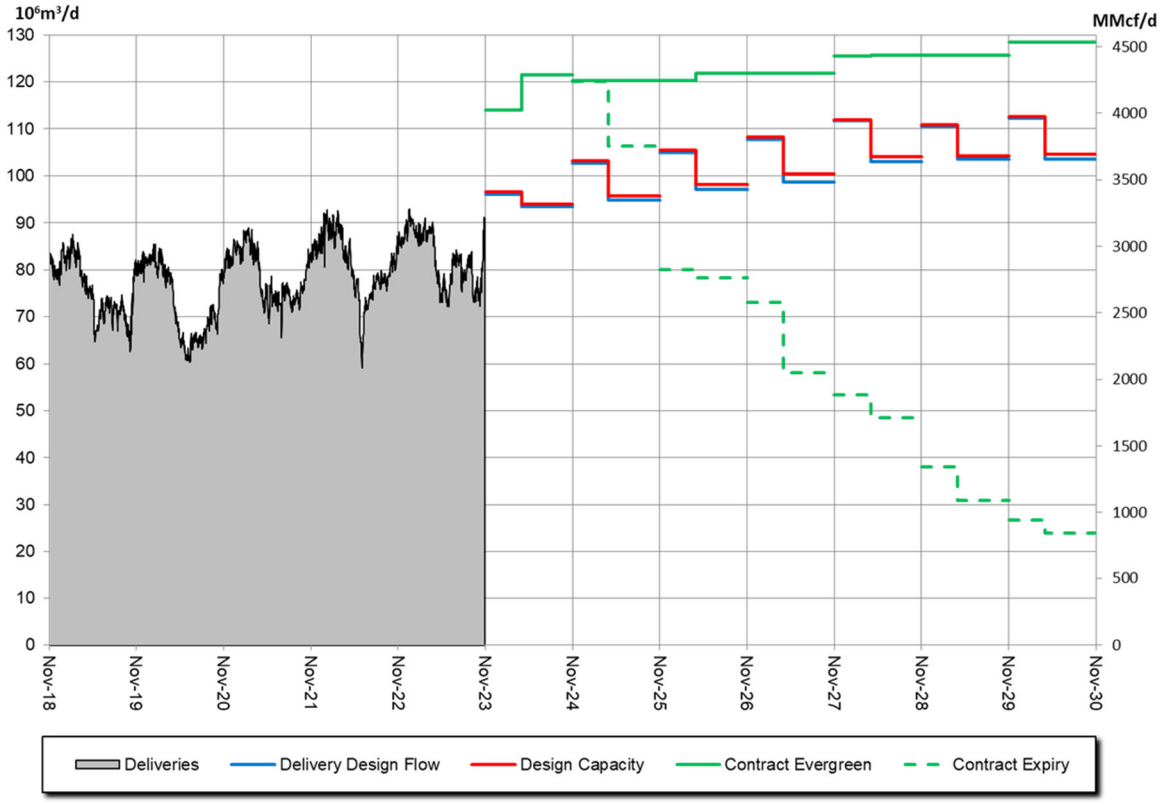
Figure 2-11: NCC Design Chart



2.6.2 Design Flows – North of Bens Lake Area

The North of Bens Lake area in northeast Alberta includes major oilsands deliveries. NGTL's recent North Corridor Expansion Project increased NCC capability to help satisfy growing deliveries in this area. Longer-term, growth in this area is projected to subside.

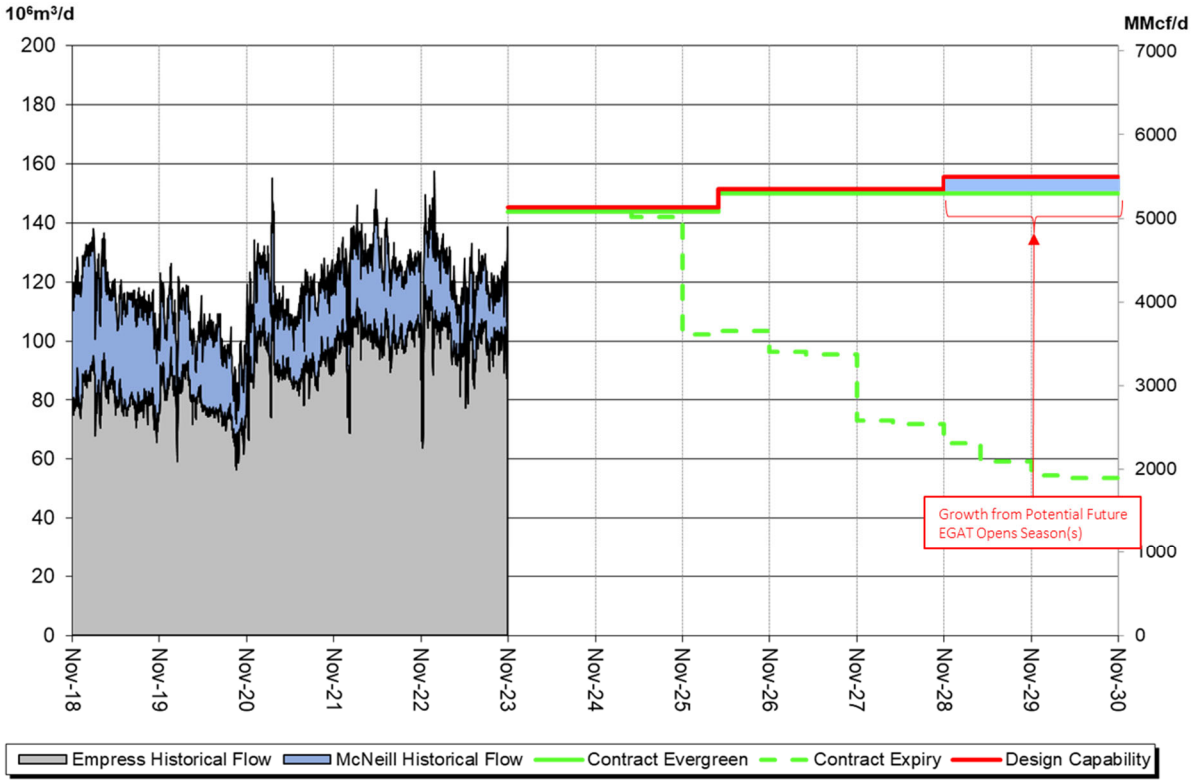
Figure 2-12: North of Bens Lake Design Chart



2.6.3 Design Capability – Eastern Gate Exports (EGAT)

EGAT exports comprises the deliveries to the Empress and McNeill export points. The additional contracting in 2026 shown in Figure 2-13 will be enabled by the approved Grande Prairie Mainline Loop No. 4 (Valhalla North Section) and Berland River Compressor Station C3 Unit Addition. The light blue band starting in November 2028 in Figure 2-13 represents potential additional contracting from potential future open season(s).

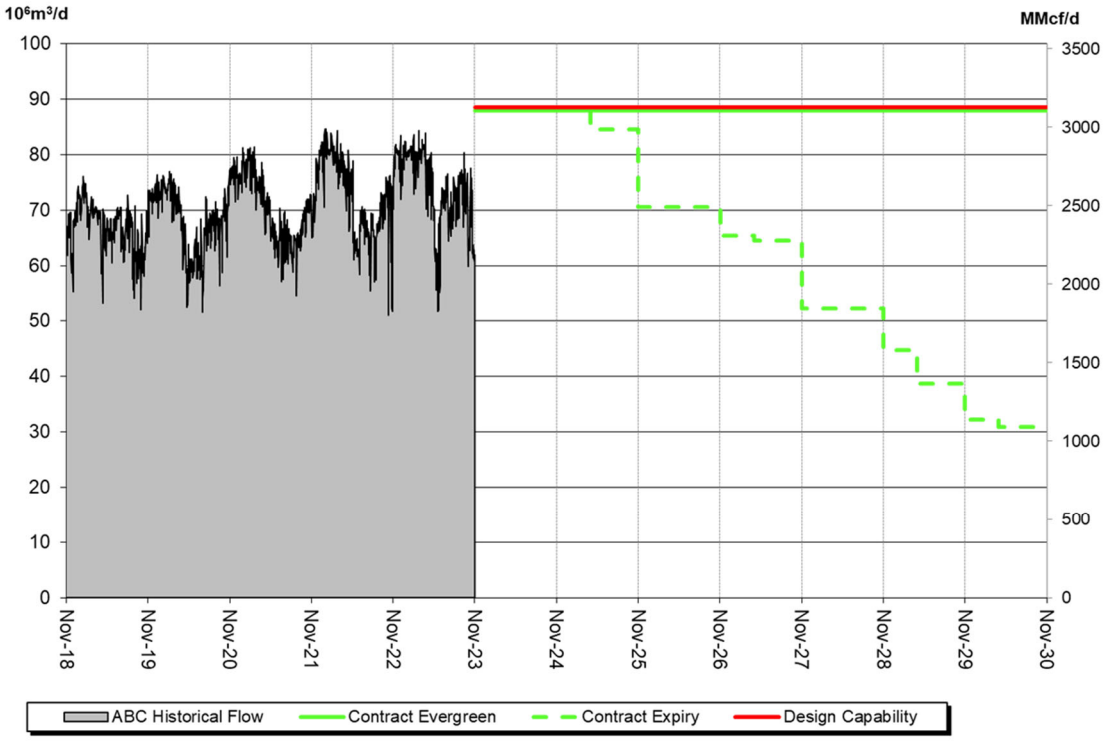
Figure 2-13: EGAT Design Chart



2.6.4 Design Capability – Alberta-British Columbia Export Point (ABC)

The ABC export point is where NGTL delivers to the Foothills B.C. system. The recent 2023 West Path Delivery project increased ABC export capability to meet the contracted export flowrates.

Figure 2-14: ABC Design Chart



3.0 EXTENSION FACILITIES, LATERAL LOOPS AND METER STATIONS

No additional extension facilities, lateral loops or receipt and delivery meter stations have been identified for this Annual Plan.

For a summary of the status of facilities that have been proposed, applied for, under construction or placed in-service since the 2022 Annual Plan, see *Appendix 2: Facility Status Update*.

Planned Meter Stations

Meter station projects are identified and planned to meet customer requests for service on an ongoing basis throughout the year. As new meter station projects are identified the TTFP will be informed and the new meter station projects will be included in the *2024 Facility Status Update (NGTL 2024 Update)*, which can be accessed at http://www.tccustomerexpress.com/871.html

Appendix 1: Glossary of Terms

The following definitions are provided to help the reader understand the Annual Plan. The definitions are not intended to be precise or exhaustive and have been simplified for ease of reference. These definitions should not be relied on to interpret NGTL's Gas Transportation Tariff or any Service Agreement. Capitalized terms not defined here are defined in NGTL's Gas Transportation Tariff.

Allowance for Funds Used During Construction (AFUDC)

The capitalization of financing costs incurred during construction of new facilities before the facilities are included in rate base.

Annual Plan

A document outlining NGTL's planned facility additions and major modifications.

Average Annual Delivery

The average day delivery determined for the period of one Gas Year. All forecast years are assumed to have 365 days.

Average Day Delivery

The average day delivery over a given period, determined by summing the total volumes delivered divided by the number of days in that period. It is determined for either a Delivery Point or an aggregation of Delivery Points.

Average Receipt Forecast

The forecast of average flows expected to be received onto the NGTL System at each receipt point.

Coincidental

Occurring at the same time.

Delivery Meter Station

A facility that measures gas volumes leaving the NGTL System.

Delivery Point

The point where gas might be delivered to customer by company under a Schedule of Service, which shall include but not be limited to Group 1 Delivery Point, Group 2 Delivery Point, Group 3 Delivery Point, Extraction Delivery Point and Storage Delivery Point.

Delivery Design Area

The NGTL System is divided into five delivery design areas used to facilitate delivery service within or between Delivery Design Areas:

- Northwest Alberta and Northeast BC Delivery Area
- Northeast Delivery Area
- Southwest Delivery Area
- Southeast Delivery Area
- Edmonton and Area Delivery Area

Demand Coincidence Factor

A factor applied to adjust the system maximum and minimum day deliveries in a design area to a value more indicative of the expected actual peak day deliveries.

Design Area

The NGTL System is divided into three project areas – Peace River Project Area, North and East Project Area and Mainline Project Area. These project areas are subdivided into design and sub design areas. This subdivision allows the system to be modelled in a way that best reflects the pattern of flows in each area of the system.

Design Capability

The maximum volume of gas that can be transported in a pipeline system considering design assumptions. Usually presented as a percentage of Design Flow requirements.

Design Flows

Forecast of Peak Expected Flow required to be transported in a pipeline system considering design assumptions.

Design Forecast

Forecast of the most current projection of receipts and deliveries over a five-year design horizon.

Expansion Facilities

Facilities that will expand the existing NGTL System to/from the point of customer connection, including any pipeline loop of the existing system, metering and associated connection piping and system compression.

Extension Facilities

Facilities that connect new or incremental supply or markets to the NGTL System.

Firm Transportation

Service offered to customers to receive gas onto the NGTL System at Receipt Points or deliver gas off the NGTL System at Delivery Points with a high degree of reliability.

Flow-Through Design Condition

For the purposes of facility design, a condition for a specified area when deliveries are at their minimum and receipts are at their maximum in that area.

Flow-Within Design Condition

For the purposes of facility design, a condition for a specified area when deliveries are at their maximum and receipts are at their minimum in that area.

Gas Year

A period beginning at 800 hours (08:00) Mountain Standard Time on the first day of November in any year and ending at 800 (08:00) Mountain Standard Time on the first day of November of the next year.

Interruptible Transportation

Service offered to customers to receive gas onto the NGTL System at Receipt Points or deliver gas off the NGTL System at Delivery Points, provided capacity exists in the facilities, that is not required to provide firm transportation.

Lateral

A section of pipe that connects one or more Receipt or Delivery Points to the mainline.

Liquified Natural Gas (LNG)

Natural gas that has been cooled down to liquid form for ease of transport.

Loop

The paralleling of an existing pipeline by another pipeline.

Mainline

A section of pipe, identified through application of the mainline system design assumptions, necessary to meet the aggregate requirements of all customers.

Maximum Day Delivery

The forecast maximum volume, included in the design, to be delivered to a Delivery Point.

Maximum Operating Pressure

The maximum operating pressure at which a pipeline is operated.

Minimum Day Delivery

The forecast minimum volume, included in the design, to be delivered to a Delivery Point.

NPS

Nominal pipe size, in inches.

Non-coincidental

Non-simultaneous occurrence.

Peak Expected Flow

The peak flow expected to occur at a point or points on the NGTL System. For a design area or sub design area, this is the coincidental peak of the aggregate flow. For a single receipt point, it is equivalent to field deliverability.

Project Area

For design purposes, the NGTL System is divided into three project areas – Peace River Project Area, North and East Project Area and Mainline Project Area.

Dividing the system this way allows the system to be modelled in a way that best reflects the pattern of flows in each area of the system.

Receipt Meter Station

A facility that measures gas volumes entering the NGTL System.

Receipt Point

The point on the NGTL System at which gas may be received from customer by company under a Schedule of Service.

Storage Facility

Any commercial facility where gas is stored, that is connected to the NGTL System, and that is available to all customers.

Summer Season

The period starting April 1 and ending on October 31 of any calendar year.

System Average Receipts

The forecast of aggregate average receipts at all Receipt Points.

Transportation Design Process

The process that includes qualifying a customer's applications for service, designing additions to the system, sourcing all required facilities and installing facilities to meet firm transportation requests.

Winter Season

The period starting November 1 of any year and ending on March 31 of the following year.

Appendix 2: Facility Status Update

The Facility Status Update (NGTL 2024 Update) is available as an Adobe Acrobat PDF or MS Excel version with sort and search functionality. It is maintained as a separate document(s) which can be accessed at http://www.tccustomerexpress.com/871.html

Appendix 3: System Map

The System Map, including the 2023 Annual Plan facilities, is expected to be available in the second quarter of 2024 and can be accessed at http://www.tccustomerexpress.com/ngtl-2022-annual-plan.html.

Appendix 4: Unit Transportation Cost Data

This expanded Appendix 4 is being provided pursuant to Order TG-001-2020 through which the Canada Energy Regulator (CER) directed NGTL to extend its narrative accompanying unit cost of transportation data that the National Energy Board initially directed NGTL to provide as part of its Annual Plan in Order TG-004-2018.

Specifically, the CER directed NGTL to extend the narrative to include the following:

a) A commentary on whether NGTL considers the trend in unit transportation costs to be a reasonable proxy for the general trend in transportation tolls for the same period. If not, NGTL must explain the reasons for the divergence. The Commission encourages NGTL, where appropriate to use scenarios to illustrate the influence of market forces on pipeline transportation costs; and
b) NGTL's views on the future competitiveness of its tolls and its perspective on emerging market factors that might affect the long-term viability of NGTL and the competitiveness of the WCSB.

This Appendix 4 provides unit transportation cost data for three historical years and the seven forecast years covered in the 2023 Annual Plan.

Unit Transportation Cost Data (2021 to 2030)

	2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
A: Revenue Requirement ($ million)	2,694[1]	2,960[1]	3,358[1]	3,728[2]	3,860[2]	4,075[2]	4,330[2]	4,691[2]	4,842[2]	4,909[2]
B: Throughput [3] (10^9m^3)	131	139	139	143[4]	145[4]	145[4]	147[4]	153[4]	155[4]	157[4]
C: A/B Unit Cost ($ million/10^9m^3)	20.6	21.3	24.2	26.1	26.6	28.1	29.5	30.7	31.2	31.3

Sources:
1. NGTL Quarterly Surveillance Reports for the period ending December 31.
2. Forecast Revenue Requirement based on 2020-24 Settlement economic parameters and forecast capital additions.
3. Based on the sum of all NGTL deliveries excluding storage injections.
4. Based on NGTL's 2023 Design Forecast.

NGTL views the forecast unit transportation costs to be a reasonable proxy for the general trend in system average transportation tolls for the 7-year period covered in this Annual Plan. There may, however, be some divergence over time due to uncertainty associated with a multitude of factors, market outcomes and capacity scenarios that can influence future transportation costs and/or tolls, including the following:

- WCSB supply/demand changes and the related change in system capacity requirements;
- Location of supply relative to system demand, which influences extent of facilities required;
- Capacity expansion cost (e.g., depending on system requirements at the time, expansion costs could be higher or lower for an equivalent volume of firm contracts);
- Firm contracting levels (e.g., can influence system capacity requirements, and billing determinants for tolls);
- Supply/Demand characteristics (e.g., base vs. peak loads, which influence pipeline transportation costs);
- Government policy (e.g., can impact costs, firm contract levels or both, and relatedly, pipeline transportation costs);
- Environmental/Social considerations (e.g., concerns over wildlife impacts or landowner considerations and associated cost impacts);
- Technology improvements (e.g., efficiency gains leading to cost reductions);
- Services development (e.g., new services that attract and retain volumes to the system providing a net benefit to the system);
- Repurposing facilities (e.g., change in utilization in response to changes in requirements).

The WCSB is one of the largest supply basins in North America and provides access to vast relatively low-cost reserves, with an estimated resource of 1105 Tcf[1] which represents 21% of the total North American gas resource. Production of this resource is particularly economic due to the liquids uplift that producers realize, especially for wells drilled in the Montney formation. Connecting to this supply allows NGTL and its customers to maintain access to

[1] Canada's Energy Future 2020, Reference Case [CER, December 2020]

diverse intra-basin and downstream markets in order to compete with other basins and to compete for market share within the basin.

NGTL regularly assesses the competitiveness of its tolls and the WCSB's competitive access to downstream markets, inclusive of transportation costs. In addition to pipeline transportation toll levels, competitive access to downstream markets is influenced by many other factors including NGTL's multiple service offerings, flexibility of supply and demand options, and the reliability of supply, among others. NGTL notes that customers have subscribed for the full export capacity currently available on the NGTL System as well as for expansion projects to serve both intra-system and downstream demand. This demand for transportation on the NGTL System demonstrates the near-term and longer-term competitiveness of the NGTL System and the WCSB.

The upward trend in unit transportation cost shown above reflects that new facilities need to be added over time in order to maintain the connectivity between the WCSB and the various markets served by NGTL, which is essential to maintaining the long-term viability of the NGTL System and the competitiveness of the WCSB. This includes facilities required to connect the supply which continues a westward migration resulting in increased distance between supply and markets. In addition, as new facilities typically cost more than older facilities, periods of larger-scale facility additions frequently coincide with periods of an increased trend in unit transportation cost. As part of its active management of costs, NGTL assesses the long-term needs of proposed facilities, which ensures facilities being added are required over the long term to continue meeting the needs of NGTL System customers in the most efficient manner.

Future tolls are also dependent on contracting decisions of customers, which may deviate from the forecast throughput data used in the unit cost data provided above. For example, actual contract levels in future years will depend on individual customer renewal decisions over the period, which may in turn be impacted by a range of factors. Overall, however, NGTL expects continued robust demand for natural gas and transportation services on the NGTL System for the time frame considered for the Unit Transportation Cost Data. Natural gas is an essential commodity in the integrated North American economy, used as a fuel for heating and generation

of electricity, as well as a feedstock for industrial processes. In addition, North American gas is increasingly exported to global markets via LNG with a large-scale project currently being developed in western Canada. Emerging factors that could impact long-term demand include climate policies – such as carbon pricing, clean fuel standards, and incentives for renewable energy. These factors may create both opportunities and challenges for gas demand, but their impact is expected to be gradual. Natural gas remains an efficient energy source with the lowest carbon intensity among fossil fuels and is expected to play a key role in implementing environmental policies in the various markets served by the NGTL System. Challenges, however, may result from policies that disproportionately impact domestic gas supply compared to competing gas supply. NGTL will continue to incorporate new information into its assessment of long-term supply and demand outlook, and proactively manage the NGTL System in order to support its long-term viability and the competitiveness of both the NGTL System and the WCSB.