



NGTL System and Foothills PipeLines Ltd.

Customer Operations Meeting

April 8, 2021



Welcome and Thank You for Joining Us

Participating via WebEx:

- Please sign-in through WebEx application including your full name and company
- To reduce background noise and improve audio quality, all WebEx participants will be placed on mute
- Please submit your questions via the chat function and we will answer them at the best possible opportunity

Forward Looking Information

This presentation includes certain forward-looking information. Statements that are forward-looking are based on certain assumptions and on what we know and expect today and generally include words like anticipate, expect, believe, may, will, should, estimate or other similar words.

The information provided is for informational purposes only and is not to be relied upon for any other purpose whatsoever. The information is based upon certain assumptions that may or may not be accurate, and therefore is subject to various risks and uncertainties. TC Energy shall not be liable for damages sustained as a result of any use or reliance on such information.

The outages listed in this presentation are not an exhaustive list. Outage date, duration, and impact may be subject to change. Refer to the Daily Operating Plan (DOP) for all planned outages with potential service impact.

**No
impact to FT**

Refers to outage periods where FT impact is not expected

**Potential
impact to FT**

Refers to outage periods where there is potential of FT impact

**Partial
impact to FT**

Refers to outage periods where FT impact is expected

Important Notes



Outage information in this presentation is NOT applicable beyond the April 8, NGTL/Foothills Customer Operations (WebEx only) meeting



For current outage information, please refer to the most recent Daily Operating Plan (DOP) on my.TC Customer Express



This meeting will only cover operational topics related to the NGTL and Foothills systems. For information on Commercial and Regulatory topics, please contact your Marketing Representative

Our Focus During COVID-19



Protect our teams, partners and communities



Ensure no interruption to our customers



Secure supply of critical equipment and services with our partners

Notice something is off?

Please reach out: [Marketing Reps](#) or 403.920.PIPE

Mental Health moment - Take a Vacation or Staycation!



Recharge

- Taking a break, increases productivity & creativity
- Lowers stress levels and helps prevent burnout



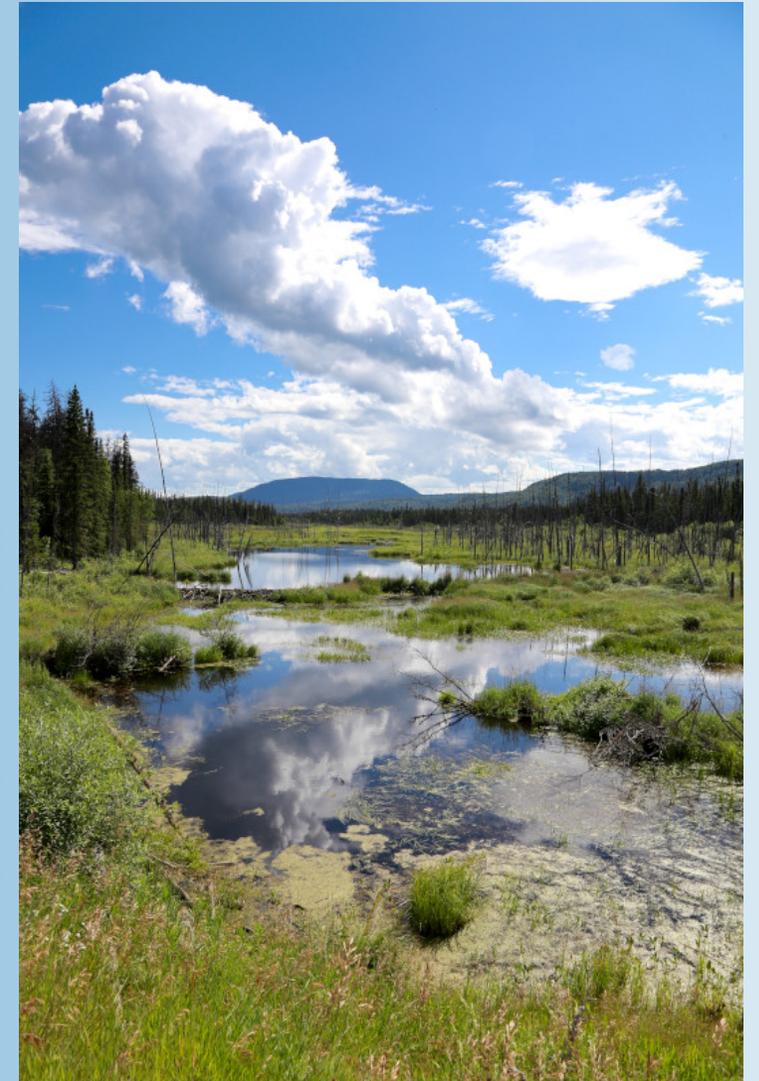
Disconnect

- Provide a contact for emergencies
- Do your best to avoid checking your email and doing work



Plan ahead

- Plan ahead with your family to reduce stress
- Coordinate with co-workers to ensure coverage



Agenda

- 1 Review outages in Daily Operating Plan (DOP)
- 2 Outage Management 101

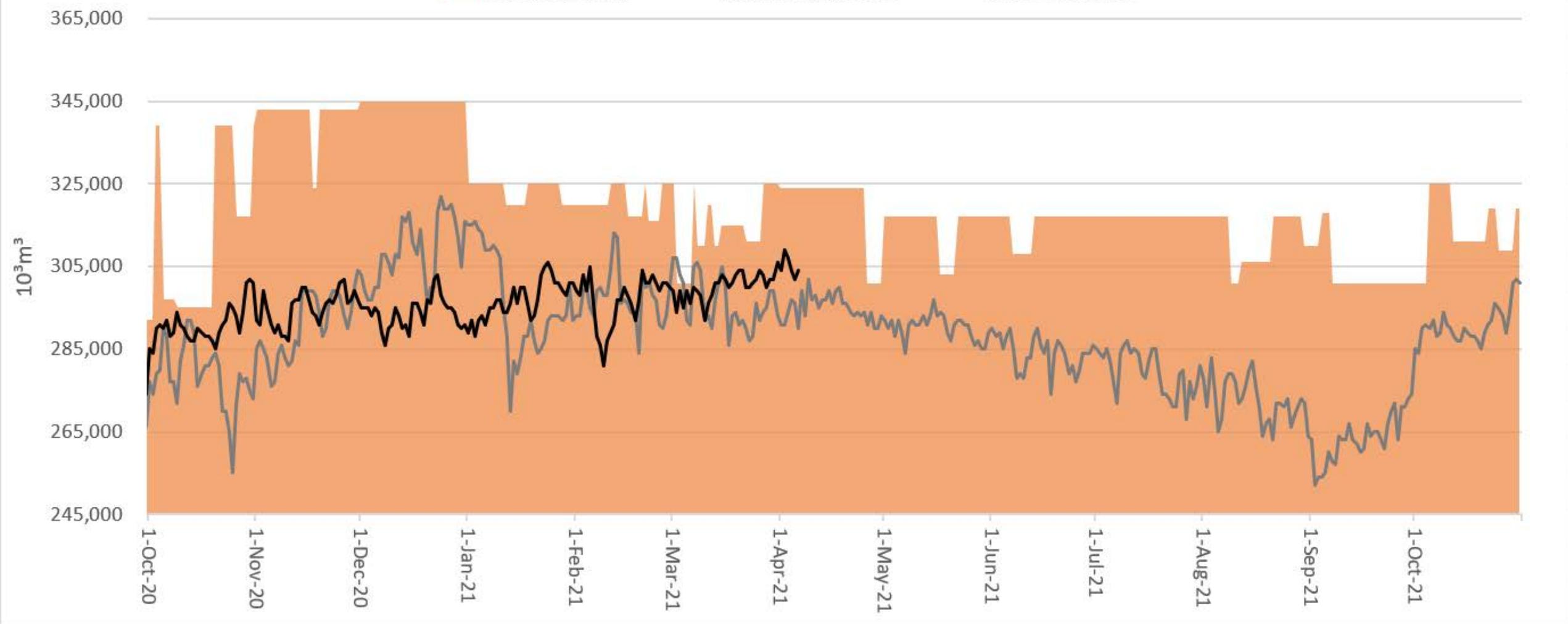


2021 Outage Review

From DOP as of Wednesday, April 7

Upstream James River

USJR Capability USJR Historical Flow USJR Actual Flow



This slide is NOT applicable beyond the Apr 8, NGTL/Foothills Customer Operations meeting on WebEx.
Please refer to the DOP on TC Customer Express for current outage information



Upstream James River Receipt Area (USJR)

No
impact to FT

Potential
impact to FT

Partial
impact to FT

Outage Description	Start	End	USJR Outage Capability (10 ⁶ m ³ /d)	USJR Impact (10 ⁶ m ³ /d)	Area Outage Capability (10 ⁶ m ³ /d)	Typical Outage Area Flows (10 ⁶ m ³ /d)	Location/Area
Meikle River C – Compressor Station Maintenance	26-Apr-21	30-Apr-21	301	23	N/A	260-310	Potential impact to FT-R USJR
Meikle River D5 - Compressor Station Maintenance	17-May-21	21-May-21	303	14	N/A	260-310	Potential impact to FT-R USJR
Wolf Lake A2 - Compressor Station Maintenance	7-Jun-21	12-Jun-21	308	9	N/A	260-310	Potential impact to FT-R USJR
Berland River - Compressor Station Maintenance	9-Aug-21	11-Aug-21	301	16	N/A	260-310	Potential impact to FT-R USJR
Berland River A1 – Compressor Station Maintenance	9-Aug-21	13-Aug-21	306	11	N/A	260-310	Potential impact to FT-R USJR
NPS 36 Edson Mainline Extension - Pipeline Maintenance	14-Aug-21	20-Aug-21	306	11	N/A	260-310	Potential impact to FT-R USJR
Otter Lake - Compressor Station Maintenance	30-Aug-21	3-Sep-21	310	8	191	145-180	Potential impact to FT-R Segments 2, 3, 4, and partial 7

This slide is NOT applicable beyond the Apr 8, NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information



Upstream James River Receipt Area (USJR)

No
impact to FT

Potential
impact to FT

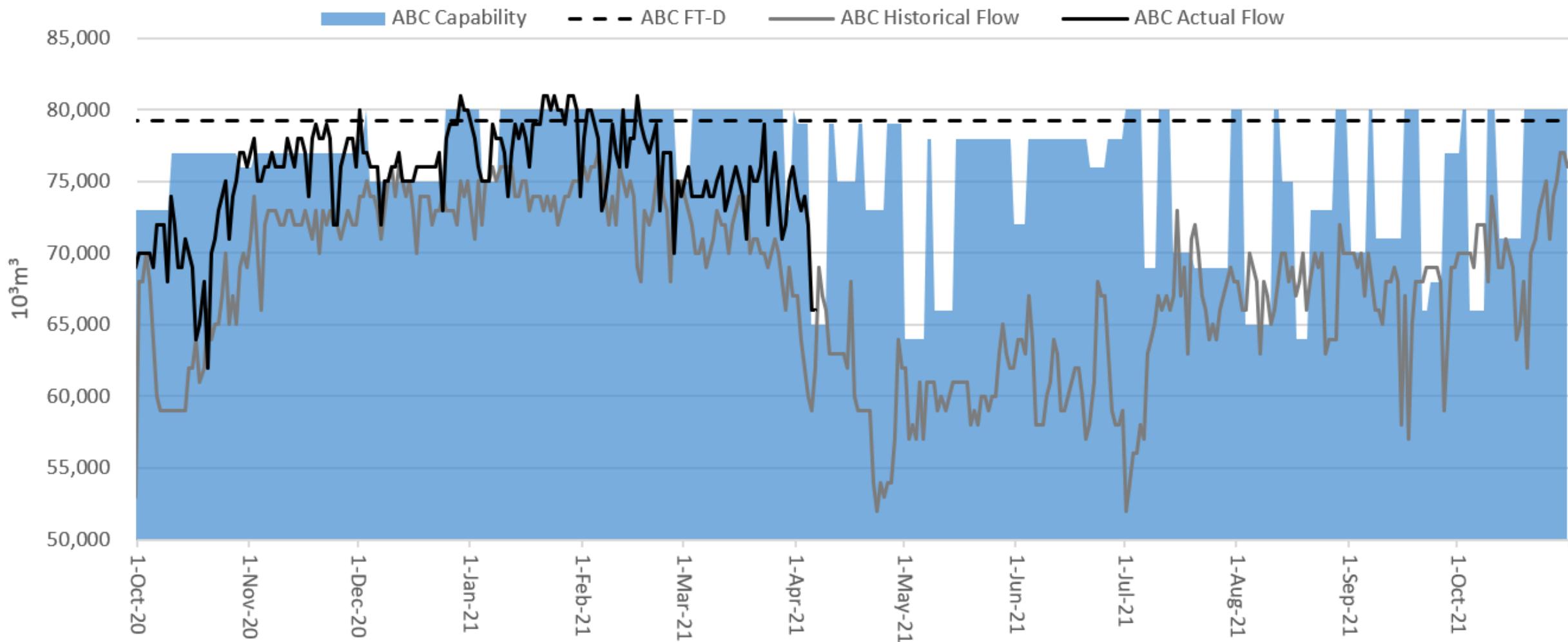
Partial
impact to FT

Outage Description	Start	End	USJR Outage Capability (10 ⁶ m ³ /d)	USJR Impact (10 ⁶ m ³ /d)	Area Outage Capability (10 ⁶ m ³ /d)	Typical Outage Area Flows (10 ⁶ m ³ /d)	Location/Area
Gold Creek - Compressor Station Modifications	7-Sep-21	4-Oct-21	301	17	175	145-180	Potential impact to FT-R Segments 2, 3, 4, and partial 7
Clearwater - Compressor Station Maintenance	27-Sep-21	1-Oct-21	310	8	N/A	260-310	Potential impact to FT-R USJR
Latornell - Compressor Station Maintenance	12-Oct-21	16-Oct-21	311	14	N/A	260-310	Potential impact to FT-R USJR
Latornell A2 - Compressor Station Maintenance	12-Oct-21	21-Oct-21	311	14	222	170-210	Potential impact to FT-R Segments 2, 3, 4, partial 5, partial 7
Hidden Lake – Compressor Station Maintenance	18-Oct-21	7-Nov-21	319	6	194	145-180	Potential impact to FT-R Segments 2, 3, 4, and partial 7
Alces River - Compressor Station Maintenance	25-Oct-21	29-Oct-21	309	16	N/A	260-310	Potential impact to FT-R USJR

This slide is NOT applicable beyond the Apr 8, NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information

Alberta-B.C. Border

(includes both NGTL and Foothills BC outages)



This slide is NOT applicable beyond the Apr 8, NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information



West Gate Delivery Area (WGAT) Foothills Zone 8 (FHBC)

No
impact to FT

Potential
impact to FT

Partial
impact to FT

Outage Description	Start	End	Capability/ Allowable (10 ⁶ m ³ /day)	Impact (10 ⁶ m ³ /d)	System	Service Allowable Location/Area
Burton Creek - Compressor Station Maintenance	5-Apr-21	9-Apr-21	65	14	NGTL	Partial impact to FT-D: Alberta/BC and Alberta/Montana Borders
NPS 36 Western Alberta System Mainline - Pipeline Maintenance	12-Apr-21	17-Apr-21	75	4	NGTL	Potential impact to FT-D: Alberta/BC and Alberta/Montana Borders
NPS 36 Foothills Pipeline Zone 7 Leg 1C - Pipeline Maintenance	20-Apr-21	25-Apr-21	73	6	NGTL	Potential impact to FT-D: Alberta/BC and Alberta/Montana Borders
NPS 42 Western Alberta System Mainline Loop - Pipeline Maintenance	1-May-21	6-May-21	64	14	NGTL	Potential Impact to FT-D: Alberta/BC and Alberta/Montana Borders
NPS 36 Western Alberta System Mainline - Pipeline Maintenance	9-May-21	14-May-21	66	12	NGTL	Potential impact to FT-D: Alberta/BC and Alberta/Montana Borders
Burton Creek A3 - Compressor Station Maintenance	31-May-21	3-Jun-21	72	6	NGTL	Potential impact to FT-D: Alberta/BC and Alberta/Montana Borders
Turner Valley A3 - Compressor Station Maintenance	21-Jun-21	25-Jun-21	76	2	NGTL	Potential impact to FT-D: Segment 22 and partial 21
NPS 36 Western Alberta System Mainline Loop - Pipeline Maintenance	6-Jul-21	9-Jul-21	69	11	NGTL	Potential impact to FT-D: Alberta/BC Border
NPS 36 Foothills Pipeline Zone 8 Seg 2 - Pipeline Maintenance	14-Jul-21	19-Jul-21	70	10	FH BC	Potential impact to FT: Alberta/BC Border
NPS 42 Western Alberta System Mainline Loop - Pipeline Modification	20-Jul-21	29-Jul-21	69	11	NGTL	Potential Impact to FT-D: Alberta/BC Border
Winchell Lake - Compressor Station Maintenance	3-Aug-21	7-Aug-21	65	15	NGTL	Potential Impact to FT-D: Segment 22 and partial 21

This slide is NOT applicable beyond the Apr 8, NGTL/Foothills Customer Operations meeting on WebEx.
Please refer to the DOP on TC Customer Express for current outage information



West Gate Delivery Area (WGAT) Foothills Zone 8 (FHBC)

No
impact to FT

Potential
impact to FT

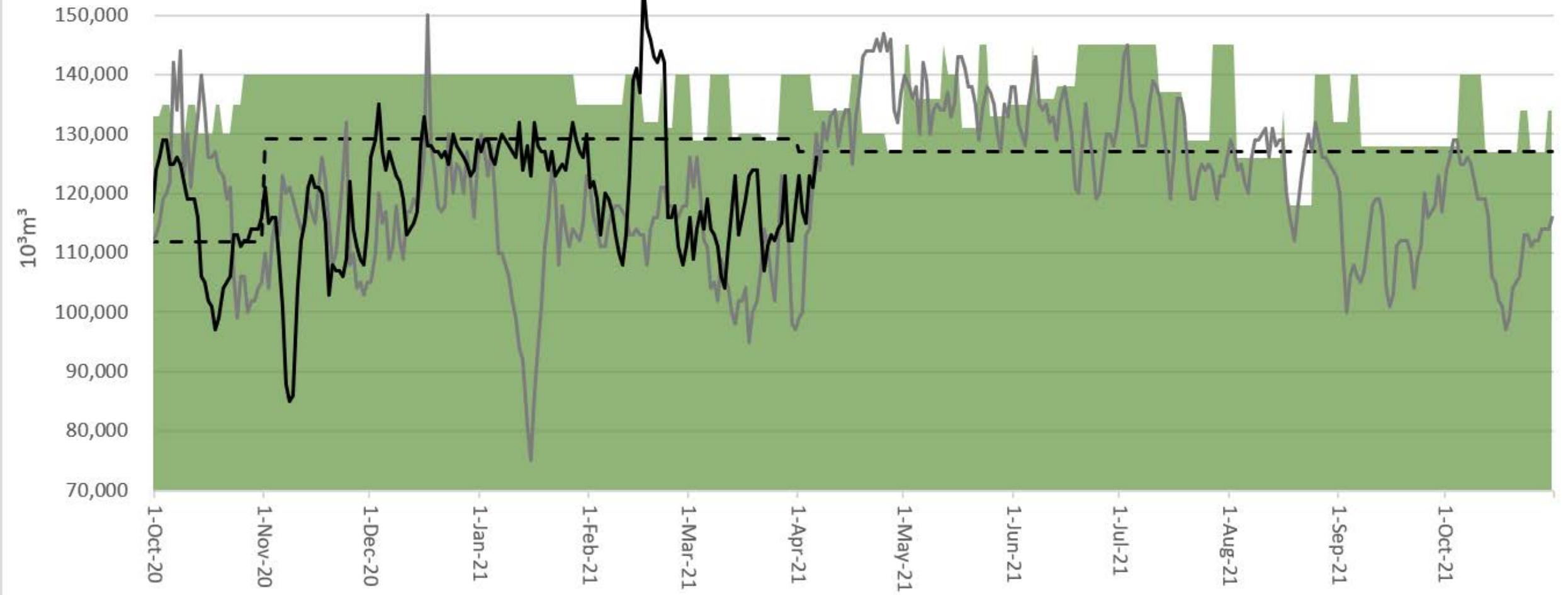
Partial
impact to FT

Outage Description	Start	End	Capability/ Allowable (10 ⁶ m ³ /day)	Impact (10 ⁶ m ³ /d)	System	Service Allowable Location/Area
NPS 36 BC Mainline - Pipeline Maintenance	4-Aug-21	10-Aug-21	65	15	FH BC	Potential impact to FT: Alberta/BC Border
NPS 36 Foothills Zone 8 Seg 3 - Pipeline Maintenance	13-Aug-21	17-Aug-21	75	5	FH BC	Potential impact to FT: Alberta/BC Border
Crowsnest A – Compressor Station Maintenance	17-Aug-21	20-Aug-21	64	16	FH BC	Potential Impact to FT: Alberta/BC Border
NPS 36 Foothills Zone 8 Seg 4 - Pipeline Maintenance	19-Aug-21	23-Aug-21	73	7	FH BC	Potential impact to FT: Alberta/BC Border
Turner Valley A1 and A2 - Compressor Station Maintenance	23-Aug-21	27-Aug-21	73	7	NGTL	Potential impact to FT-D: Alberta/BC and Alberta/Montana Borders
NPS 36 Foothills Zone 7 Leg 1A – Pipeline Maintenance	1-Sep-21	5-Sep-21	70	10	NGTL	Potential Impact to FT-D: Segment 22 and partial 21
NPS 42 Western Alberta System Mainline Loop - Pipeline Maintenance	8-Sep-21	15-Sep-21	71	9	NGTL	Potential impact to FT-D: Alberta/BC and Alberta/Montana Borders
NPS 36 Western Alberta System Mainline - Pipeline Modification	21-Sep-21	26-Sep-21	68	12	NGTL	Potential Impact to FT-D: Alberta/BC and Alberta/Montana Borders
Clearwater – Compressor Station Maintenance	27-Sep-21	1-Oct-21	77	3	NGTL	Potential impact to FT: Segment 22 and partial 21
Elko - Compressor Station Maintenance	21-Sep-21	22-Sep-21	66	14	FH BC	Potential Impact to FT: Alberta/BC Border
Moyie – Compressor Station Maintenance	4-Oct-21	8-Oct-21	66	14	FH BC	Potential impact to FT: Alberta/BC Border
NPS 36 BC Mainline – Pipeline Maintenance	12-Oct-21	18-Oct-21	71	9	FH BC	Potential impact to FT: Alberta/BC Border

This slide is NOT applicable beyond the Apr 8, NGTL/Foothills Customer Operations meeting on WebEx.
Please refer to the DOP on TC Customer Express for current outage information

East Gate

EGAT Capability EGAT FT-D EGAT Historical Flow EGAT Actual Flow





East Gate Delivery Area (EGAT) Foothills Zone 9 (FHSK)

No
impact to FT

Potential
impact to FT

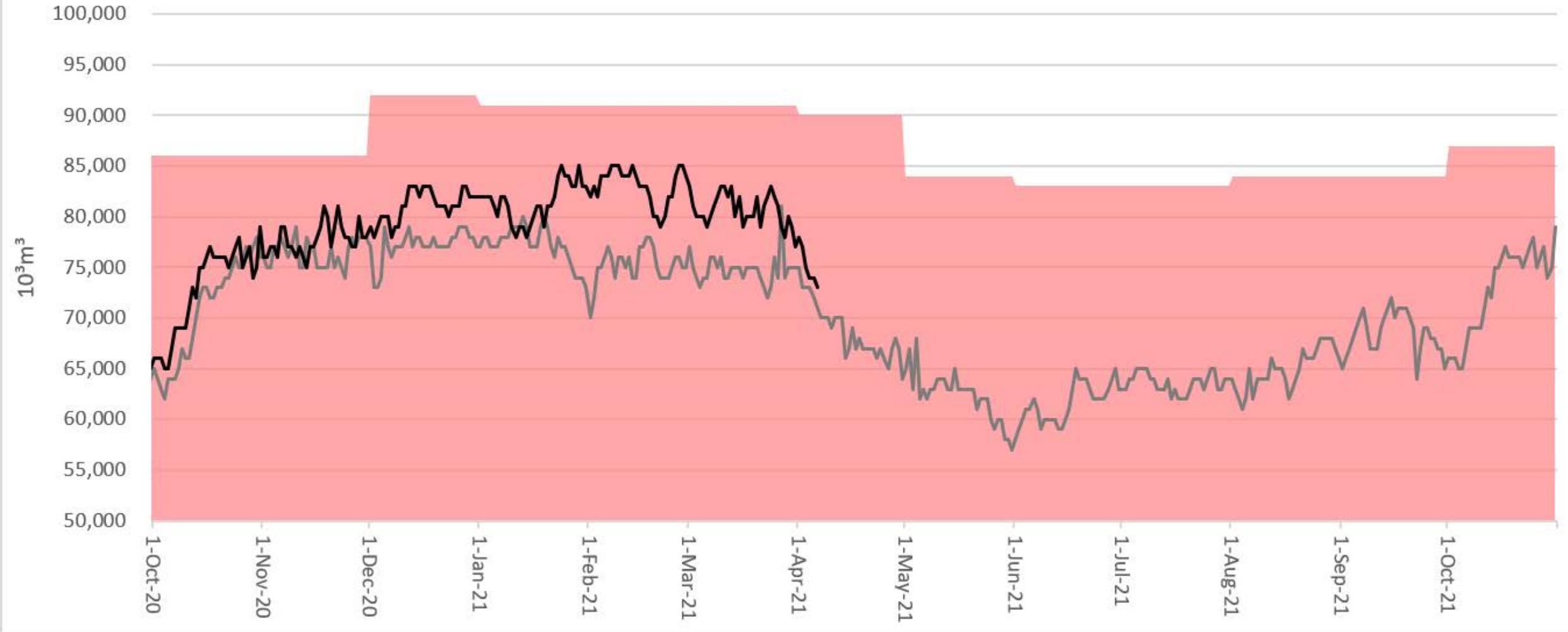
Partial
impact to FT

Outage Description	Start	End	Capability (10 ⁶ m ³ /day)	Impact (10 ⁶ m ³ /d)	System	Service Allowable Location/Area
Beiseker – Compressor Station Maintenance	5-Apr-21	15-Apr-21	134	6	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 48 Central Alberta System Mainline Loop 2 Pipeline Modification	19-Apr-21	30-Apr-21	130	10	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 48 Central Alberta System Mainline Loop 2 Pipeline Modification	3-May-21	11-May-21	136	9	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 48 Central Alberta System Mainline Loop 2 Pipeline Modification	13-May-21	16-May-21	140	5	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 48 Central Alberta System Mainline Loop 2 Pipeline Modification	17-May-21	21-May-21	132	13	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
Princess – Compressor Station Maintenance	25-May-21	30-May-21	133	12	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 42 Central Alberta System M/L Lp – Pipeline Modification	26-May-21	5-Jun-21	135	10	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 30 Central Alberta System M/L – Pipeline Modification	8-Jun-21	18-Jun-21	138	7	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
Acme – Compressor Station Maintenance	12-Jul-21	25-Jul-21	137	8	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 42 Foothills Pipeline Zone 6 – Pipeline Maintenance	19-Jul-21	26-Jul-21	129	16	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 42 Edson and Central Alberta System Mainline Loop* Pipeline Maintenance	3-Aug-21	15-Aug-21	126	19	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
Crawling Valley – Compressor Station Maintenance	16-Aug-21	30-Aug-21	140	5	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
NPS 42 Foothills Pipeline Zone 6 – Pipeline Maintenance*	17-Aug-21	24-Aug-21	118	27	NGTL	No impact to FT-D anticipated: Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
Monchy 1 – Compressor Station Maintenance	7-Sep-21	29-Oct-21	69	-	FH SK	Potential impact to FT: McNeill Border

*Potential to impact Tranche 3 EGAT Firm contracts

Oil Sands Delivery Area

OSDA Capability OSDA Historical Flow OSDA Actual Flow



This slide is NOT applicable beyond the Apr 8, NGTL/Foothills Customer Operations meeting on WebEx.
Please refer to the DOP on TC Customer Express for current outage information



Northeast Delivery Area (NEDA) Oil Sands Delivery Area (OSDA)

No
impact to FT

Potential
impact to FT

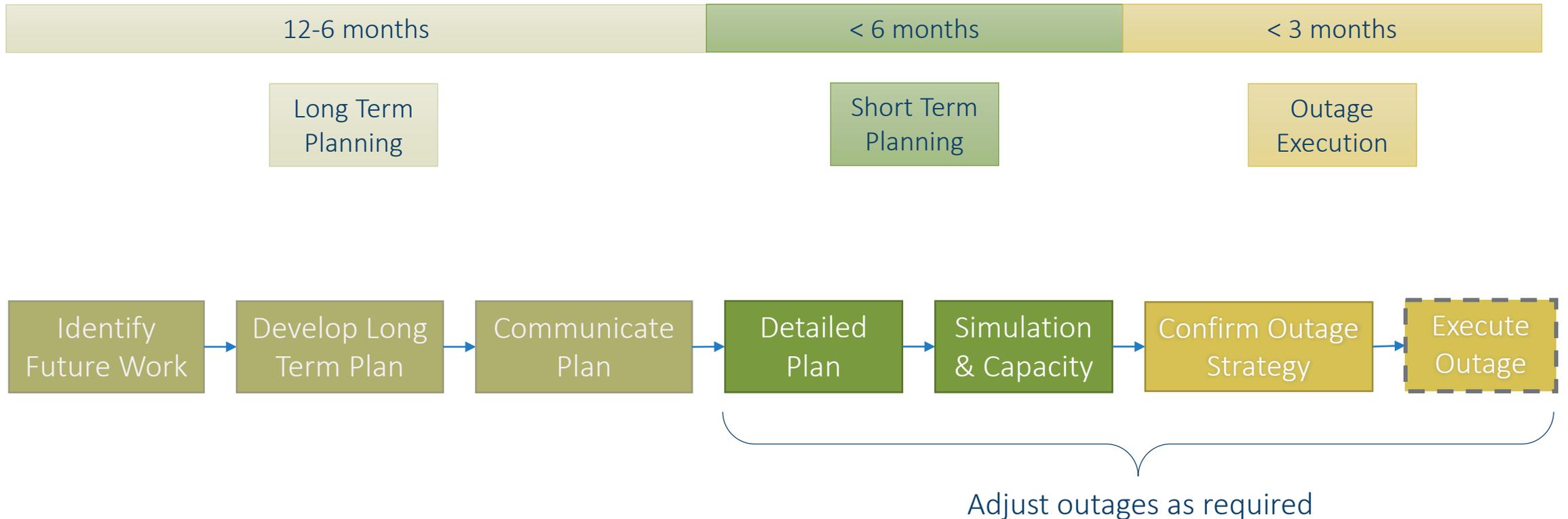
Partial
impact to FT

There are currently no outages planned that
are specific to OSDA or NEDA



Outage Management 101

Outage Management Process



Customer-provided Plant Turnaround information is leveraged through the outage planning process.

The Plant Turnaround Form can be found on my.tccustomerexpress.com under 'Other Links' or [by clicking this link](#)

Long Term Planning (12 – 6 months)



Identify Future Work

- Pipe Integrity
- Compression
- Measurement
- Capital Expansion



Develop Long Term Plan

- Determine outage windows
- Bundle/overlap outages
 - Account for interconnect outages and plant turnarounds
- Model outages to determine operational setup and outage capability



Communicate Plan

- November Customer Operations Meeting
- Add to Daily Operating Plan (impacts have been determined to potentially drive change to service availability)

Short Term Planning (< 6 months)



Detailed Plan

- Confirm bundled and overlapping outages
- Identify new bundling opportunities
- Verify outage window
- Account for any new constraints



Simulation and Capacity

- Hydraulic modelling
- Determine capacity and impact
- Optimize operating strategy and setup
 - Linepack requirements
 - Flow requirements
 - Pressure requirements
 - Resource requirements
 - Tool speeds (for inline inspections)
- Adjust outage as required
- Communicate changes to stakeholders (including updates to the Daily Operating Plan)

Outage Execution (< 3 months)



Outage Strategy Confirmation

- Outage writeup
- Coordinate outage with region
- Optimize strategy as needed



Adjust Service Availability - if required

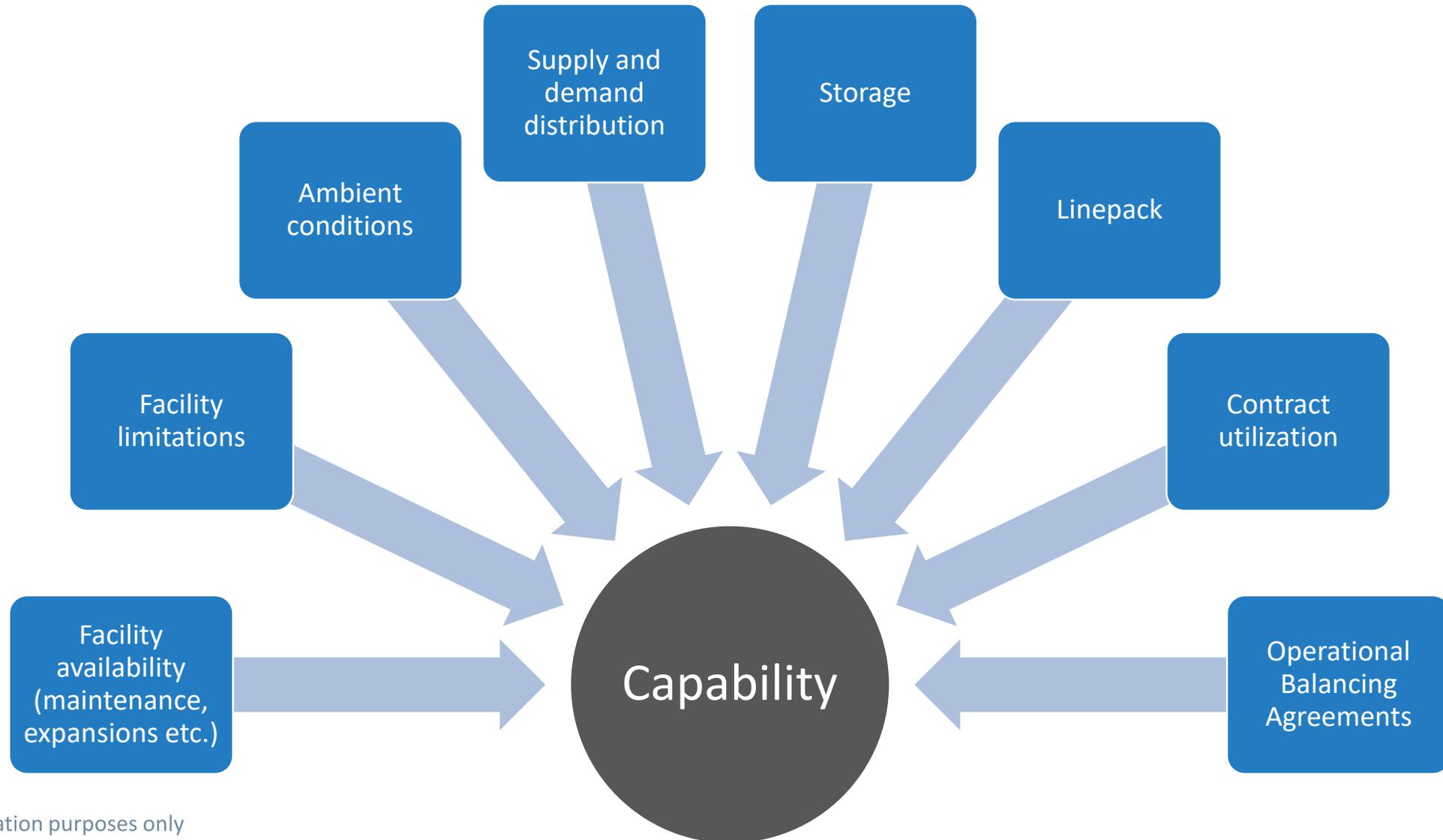
- Bulletin issued for Service Availability changes



Execute Outage

- Review and manage system health during the outage to reduce impact

Capability Determination | Primary Factors



Contact information

Chuong Ngo

Manager, Operations Planning

chuong_ngo@tcenergy.com

403-920-6726

Kevin D'Souza

Chair, NGTL/Foothills Customer Operations meetings

kevin_dsouza@tcenergy.com

403-920-7915

Matthew Ramsay

Supervisor, Operations Planning - West

matthew_ramsay@tcenergy.com

403-920-6814

Danvy Tran

Operations Planning - West

danvy_tran@tcenergy.com

403-920-4474