First Quarter 2017 Conference Call

May 5, 2017

TransCanada
In business to deliver

Forward Looking Information and Non-GAAP Measures

This presentation includes certain forward looking information, including future oriented financial information or financial outlook, which is intended to help current and potential investors understand management's assessment of our future plans and financial outlook, and our future prospects overall. 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.

Forward-looking statements do not guarantee future performance. Actual events and results could be significantly different because of assumptions, risks or uncertainties related to our business or events that happen after the date of this presentation. Our forward-looking information in this presentation includes statements related to: future dividend growth, the completion of the transactions contemplated by our agreements to sell our U.S. Northeast power assets, the future growth of our Mexico natural gas pipeline business and our successful integration of Columbia.

Our forward looking information is based on certain key assumptions and is subject to risks and uncertainties, including but not limited to: our ability to successfully implement our strategic initiatives and whether they will yield the expected benefits including the expected benefits of the acquisition of Columbia and the expected growth of our Mexico natural gas pipeline business, timing and completion of our planned asset sales, the operating performance of our pipeline and energy assets, economic and competitive conditions in North America and globally, the availability and price of energy commodities and changes in market commodity prices, the amount of capacity sold and rates achieved in our pipeline businesses, the amount of capacity payments and revenues we receive from our energy business, regulatory decisions and outcomes, outcomes of legal proceedings, including arbitration and insurance claims, performance of our counterparties, changes in the political environment, changes in environmental and other laws and regulations, construction and completion of capital projects, labour, equipment and material costs, access to capital markets, interest, inflation and foreign exchange rates, weather, cyber security and technological developments. You can read more about these risks and others in our First Quarter 2017 Report to Shareholders and 2016 Annual Report filed with Canadian securities regulators and the SEC and available at www.transcanada.com.

As actual results could vary significantly from the forward-looking information, you should not put undue reliance on forward-looking information and should not use future-oriented information or financial outlooks for anything other than their intended purpose. We do not update our forward-looking statements due to new information or future events, unless we are required to by law.

This presentation contains reference to certain financial measures (non-GAAP measures) that do not have any standardized meaning as prescribed by U.S. generally accepted accounting principles (GAAP) and therefore may not be comparable to similar measures presented by other entities. These non-GAAP measures may include Comparable Earnings, Comparable Earnings per Share, Comparable Earnings Before Interest, Taxes, Depreciation and Amortization (Comparable EBITDA), Funds Generated from Operations, Comparable Funds Generated from Operations, Comparable Distributable Cash Flow (DCF) and Comparable DCF per share. Reconciliations to the most closely related GAAP measures are included in this presentation and in our First Quarter 2017 Report to Shareholders filed with Canadian securities regulators and the SEC and available at www.transcanada.com.

Russ Girling

President & CEO

First Quarter 2017 Highlights

Generated strong financial results

- Comparable earnings were $0.81 per share, a 16 per cent increase over last year

Declared quarterly dividend of $0.625 per common share

- Equivalent to an annualized $2.50 per share, a 10 per cent increase over 2016

Advanced $23 billion near-term capital program

- Also acquired Columbia Pipeline Partners LP outstanding common units for US$921 million

Raised $2.6 billion to help fund capital program

- Included US$1.5 billion of junior subordinated notes

Progressed various other initiatives

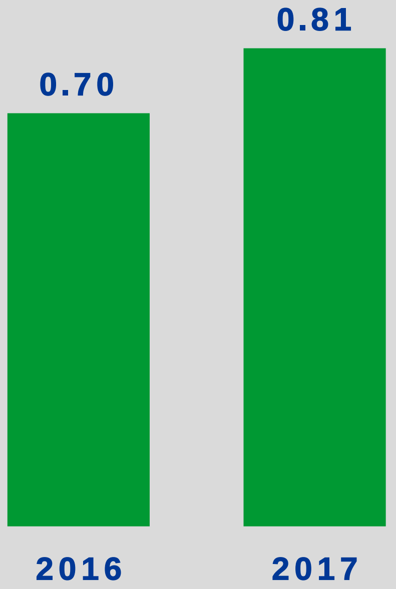
- Canadian Mainline long-term, fixed-price open season successfully concluded
- Keystone XL U.S. Presidential Permit received

Building Upon a Transformational 2016

Financial Highlights – Three Months Ended March 31 (Non-GAAP)

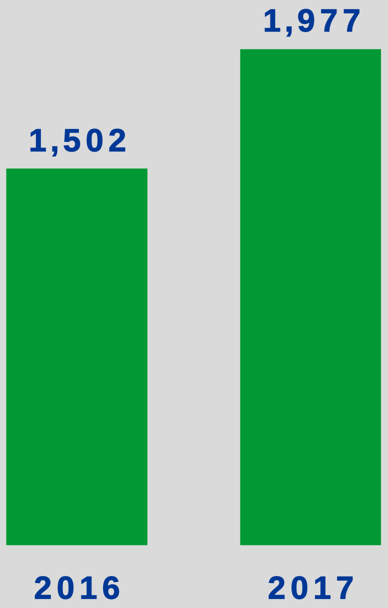
Comparable Earnings per Share*
(Dollars)

16% Increase



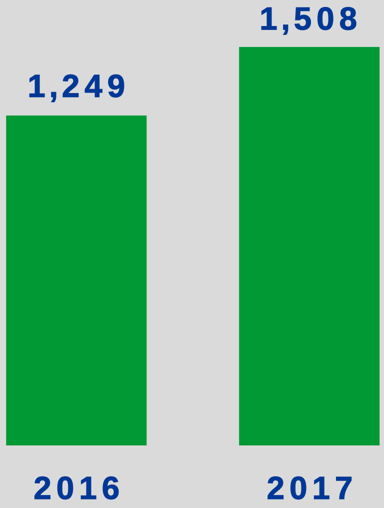
Comparable EBITDA*
($Millions)

32% Increase

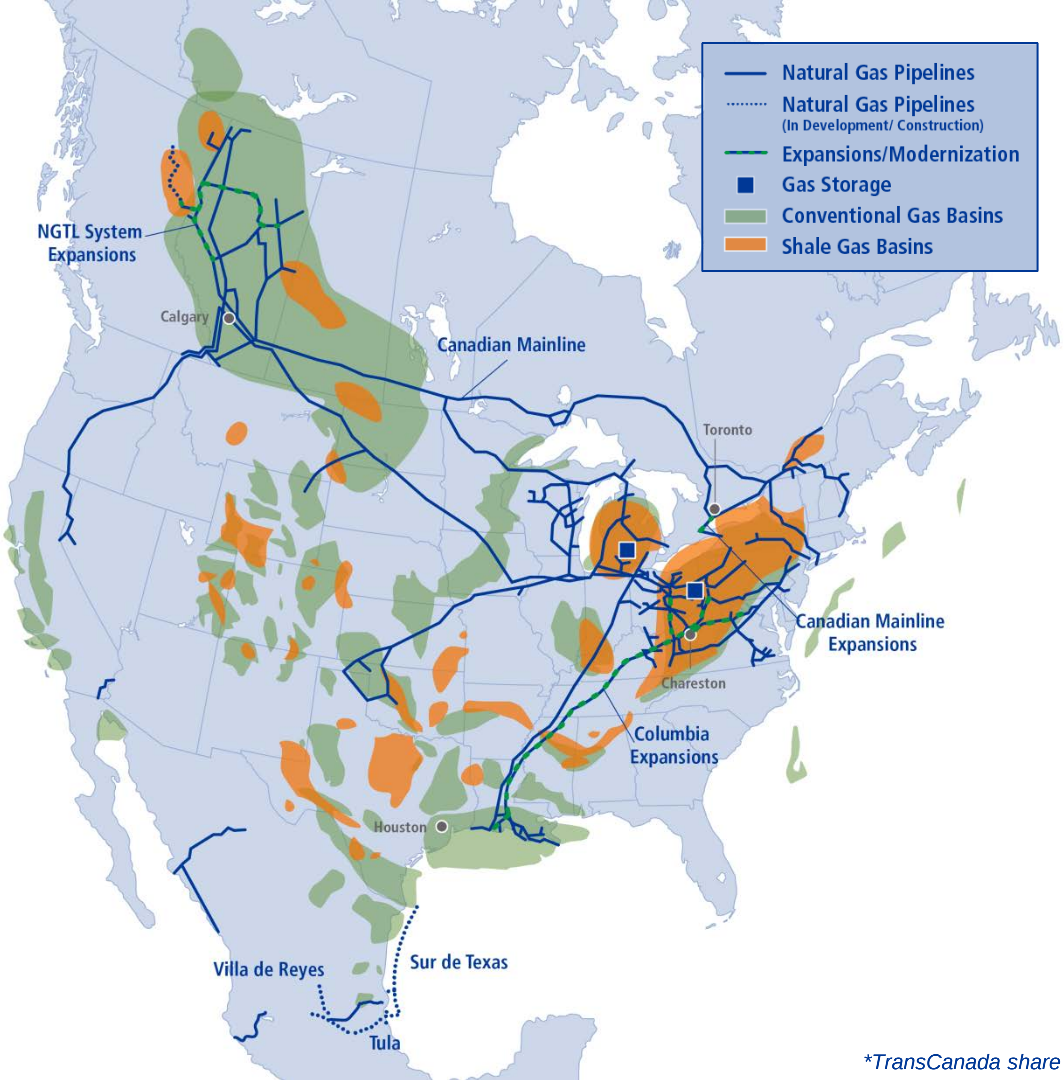


Comparable Funds Generated from Operations*
($Millions)

21% Increase



**Comparable Earnings per Share, Comparable EBITDA and Comparable Funds Generated from Operations are non-GAAP measures. See the forward looking information and non-GAAP measures slide at the front of this presentation for more information.*



*TransCanada share

Natural Gas Pipelines Recent Developments

U.S. Natural Gas Pipelines

- Commenced construction on Columbia's Leach XPress (US$1.4 billion) and Rayne XPress (US$400 million) projects

Canadian Natural Gas Pipelines

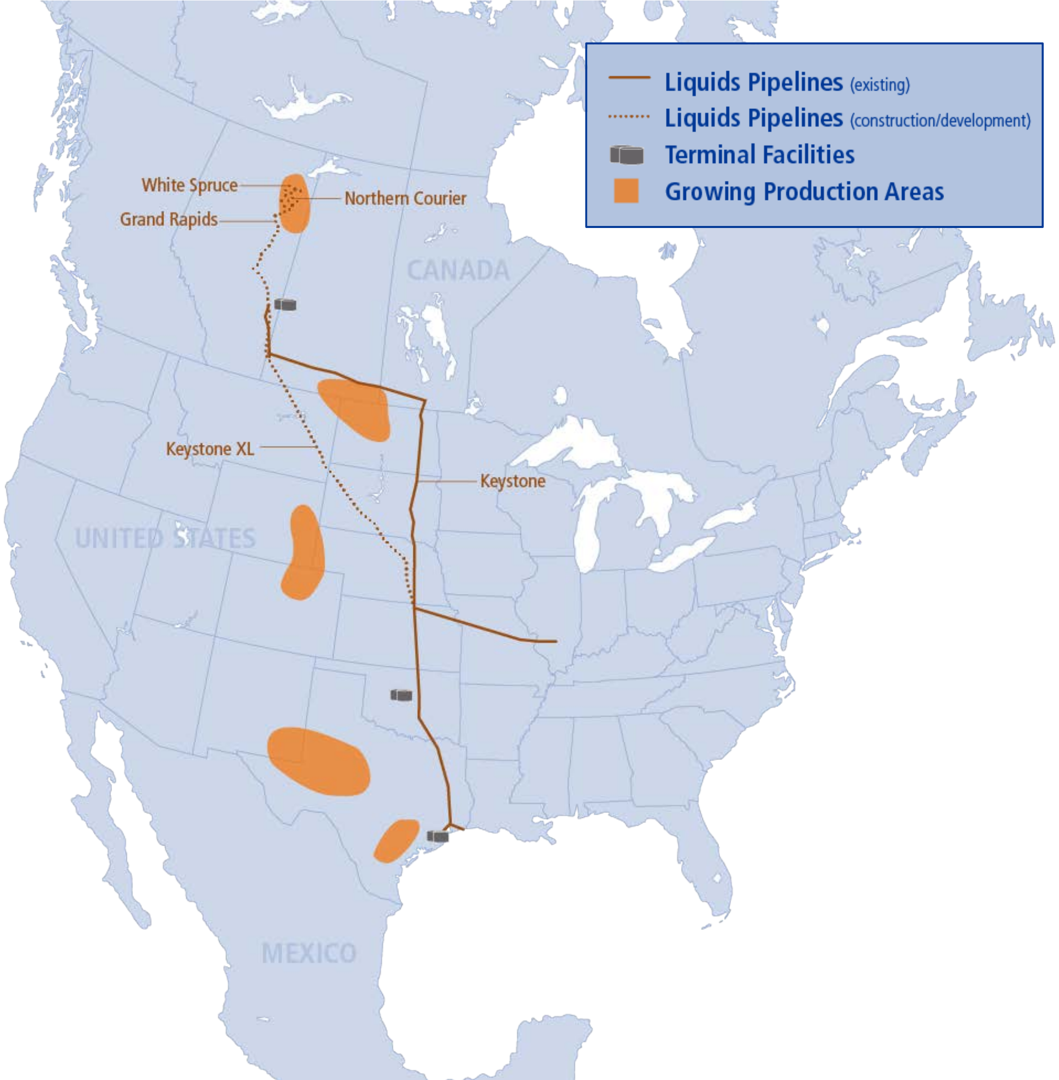
- Filed application to proceed with North Montney ($1.4 billion)
- Concluded successful Canadian Mainline open season to move 1.5 PJ/d from Empress to Dawn under 10-year contracts

Mexico Natural Gas Pipelines

- US$2.5 billion* of projects progressing

Limited Partnership Strategy

- Acquired Columbia Pipeline Partners LP outstanding common units for US$921 million
- Reached agreement to sell interests in Iroquois and PNGTS to TC PipeLines, LP for US$765 million in May



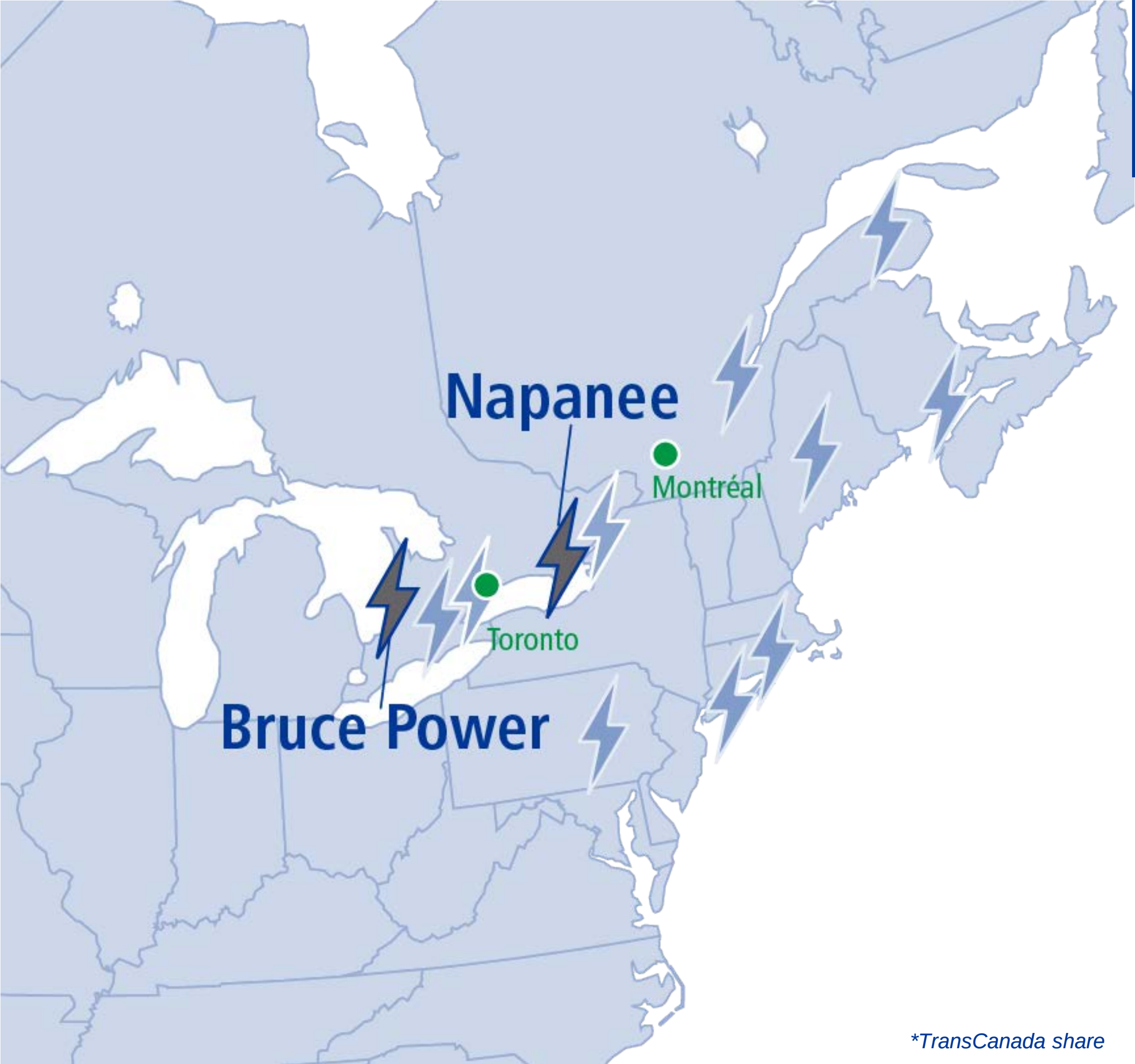
Liquids Pipelines Recent Developments

Creating a Regional Pipeline System

- Advancing construction of Grand Rapids ($900 million*) and Northern Courier ($1.0 billion)
- Progressing White Spruce ($200 million)

Advancing Keystone XL

- Received U.S. Presidential Permit
- Filed application for route approval through Nebraska
- Progressing commercial discussions with shippers



*TransCanada share

Energy
Recent Developments

Canadian Energy

- Advancing construction of Napanee ($1.1 billion) and Bruce Power refurbishment ($6.4 billion*)

U.S. Northeast Power Monetization

- Completed sale of TC Hydro for US$1.065 billion in April
- Expect to complete sale of remaining generating assets in second quarter 2017
- Proceeds to be used to repay Columbia acquisition bridge facilities

Advancing $23 Billion Near-Term Capital Program

Illustrates the configuration of TransCanada's near-term projects

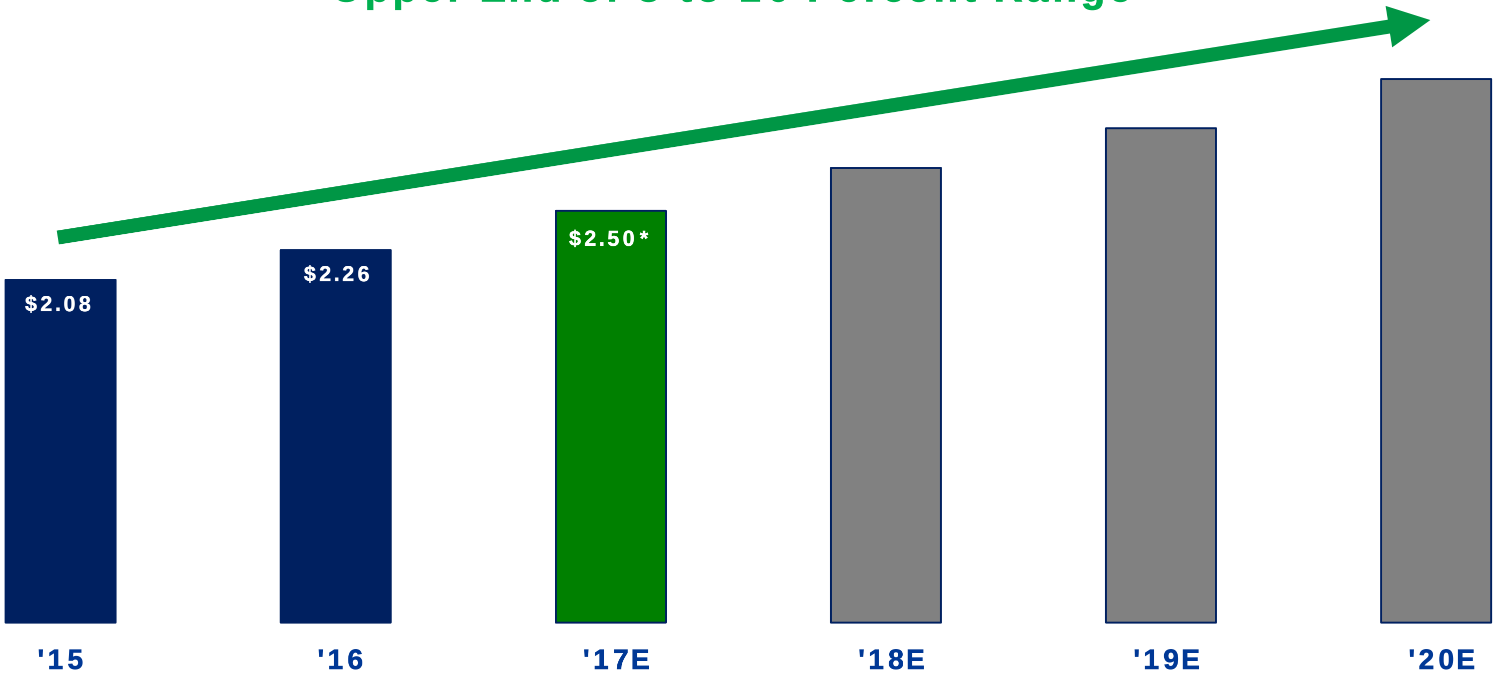
Project	Estimated Capital Cost*	Invested to Date	Expected In-Service Date*
Columbia	US7.1	US1.9	2017-2020
NGTL System	5.1	1.2	2017-2020
Canadian Mainline	0.3	0.1	2017-2018
Tula	US0.6	US0.4	2018
Villa de Reyes	US0.6	US0.3	2018
Sur de Texas	US1.3	US0.2	2018
Grand Rapids	0.9	0.8	2017
Northern Courier	1.0	0.9	2017
White Spruce	0.2	-	2018
Napanee	1.1	0.7	2018
Bruce Power Life Extension	1.1	0.1	Up to 2020+
Foreign Exchange Impact (1.33 exchange rate)	3.2	0.9	-
Total Canadian Equivalent	22.5	7.5	

* *TransCanada share in billions of dollars. Certain projects are subject to various conditions including corporate and regulatory approvals.*

Underpinned by Long-Term Contracts or Cost-of-Service Regulation

Dividend Growth Outlook Through 2020

Expect Annual Dividend Growth at the Upper End of 8 to 10 Percent Range



Supported by Expected Growth in Earnings and Cash Flow and Strong Coverage Ratios

** Annual rate based on second quarter dividend of $0.625 per share*

Don Marchand

Executive Vice President & CFO

Consolidated Results of Operations
(unaudited) (millions of dollars, except per share amounts)

	Three months ended March 31	
	2017	2016
Net Income Attributable to Common Shares	643	252
Specific items (net of tax):		
Acquisition related costs - Columbia	24	26
U.S. Northeast Power monetization	10	-
Keystone XL asset costs	7	6
Keystone XL income tax recoveries	(7)	-
Alberta PPA terminations	-	176
TC Offshore loss on sale	-	3
Risk management activities	21	31
Comparable Earnings(1)	698	494
Net Income Per Common Share	$0.74	$0.36
Specific items (net of tax):		
Acquisition related costs - Columbia	0.03	0.04
U.S. Northeast Power monetization	0.01	-
Keystone XL asset costs	0.01	0.01
Keystone XL income tax recoveries	(0.01)	-
Alberta PPA terminations	-	0.25
Risk management activities	0.03	0.04
Comparable Earnings Per Common Share(1)	$0.81	$0.70
Average Common Shares Outstanding (millions)	866	702

(1) Non-GAAP measure. For additional information on these items see the First Quarter 2017 Report to Shareholders

Business Segment Results[1]

(unaudited) (millions of dollars)

	Three months ended March 31	
	2017	**2016**
Comparable EBITDA[2]		
Canadian Natural Gas Pipelines	504	488
U.S. Natural Gas Pipelines	720	338
Mexico Natural Gas Pipelines	140	53
Liquids Pipelines	312	296
Energy	305	328
Corporate	(4)	(1)
Total	**1,977**	**1,502**

First quarter 2017 comparable EBITDA increased $475 million compares to same period in 2016. Principal variances included:

- **U.S. Natural Gas Pipelines**
  - Higher due to the Columbia acquisition and additional ANR revenues from increased rates
- **Mexico Natural Gas Pipelines**
  - Positively impacted by contributions from Topolobampo and Mazatlán
- **Energy**
  - Lower gains from contracting activities at Bruce Power and lower realized capacity prices in New York, partially offset by higher contributions from Western Power due to the termination of Alberta PPAs in 2016

(1) For additional details on these specific items, see the First Quarter 2017 Report to Shareholders; (2) Non-GAAP measure. For additional information on these items see the First Quarter 2017 Report to Shareholders

Other Income Statement Items[1]

(unaudited) (millions of dollars)

	Three months ended March 31	
	2017	2016
Comparable EBITDA[2]	1,977	1,502
Depreciation and amortization	(510)	(454)
Comparable EBIT[2]	1,467	1,048
Interest expense	(500)	(420)
Allowance for funds used during construction	101	101
Interest income and other[3]	5	47
Income tax expense[3]	(244)	(180)
Net income attributable to non-controlling interests	(90)	(80)
Preferred share dividends	(41)	(22)
Comparable Earnings[2]	698	494

Principal variances between first quarter 2017 and the same period in 2016 included:

- **Depreciation and amortization**
  - Higher due to the acquisition of Columbia and new assets placed into service, partially offset by no longer depreciating U.S. Northeast Power assets upon classification as assets held for sale
- **Interest expense**
  - Higher primarily due to assumed Columbia debt and new debt issuances
- **Income tax expense[3]**
  - Higher primarily due to increased pre-tax earnings and changes in the proportion of income earned between Canadian and foreign jurisdictions

(1) For more information, see the First Quarter 2017 Report to Shareholders; (2) Non-GAAP measures. For additional information on these items see the First Quarter 2017 Report to Shareholders; (3) Represents amounts included in comparable earnings

Comparable Distributable Cash Flow

(unaudited) (millions of dollars, except per share amounts)

	Three months ended March 31 2017	2016
Comparable Funds Generated From Operations(2)	1,508	1,249
Dividends on preferred shares	(39)	(23)
Distributions paid to non-controlling interests	(80)	(62)
Maintenance capital expenditures including equity investments(1)	(167)	(190)
Comparable Distributable Cash Flow(2)	1,222	974
Per Common Share(2)	$ 1.41	$ 1.39
Dividends per Common Share	$ 0.625	$ 0.565
Coverage Ratio	2.3	2.5

(1)

Maintenance capital expenditures including equity investments	2017	2016
Canadian Natural Gas Pipelines	49	55
U.S. Natural Gas Pipelines	70	71
Other	48	64
Total	167	190

(2) *Non-GAAP measure. For additional information on these items see the First Quarter 2017 Report to Shareholders*

Funding Program Continued to Advance in First Quarter

Strong, predictable and growing cash flow from operations

- Comparable funds generated from operations were $1.5 billion in the period
- $894 million of cash and cash equivalents on hand at March 31

Access to capital markets including senior debt, preferred shares and hybrid securities remains strong

- Issued US$1.5 billion of 60 year junior subordinated notes at an initial rate of 5.30 per cent
- Bruce Power completed long-term financing resulting in $362 million in distributions to TransCanada

Portfolio management including drop downs to TC PipeLines, LP

- Offered to sell interests in Iroquois and PNGTS to TC PipeLines, LP; in May agreed to sell for US$765 million

Dividend Reinvestment Plan

- Approximately 40 per cent of dividends being reinvested in common shares

At-The-Market (ATM) program

- TC PipeLines, LP raised US$69 million under its program
- TransCanada considering use of similar program, as appropriate

Completion of $23 Billion Near-Term Capital Program
Does Not Require Discrete Equity

Key Takeaways

Track Record of Delivering Long-Term Shareholder Value

14% average annual return since 2000

Visible Growth Portfolio

$23 billion to 2020
Additional opportunity set includes over $45 billion of medium to longer-term projects

Attractive, Growing Dividend

3.9% yield
8-10% expected CAGR through 2020

Strong Financial Position

'A' grade credit rating
Numerous levers available to fund future growth

Attractive Valuation Relative to North American Peers

Question & Answer Period

Russ Girling

Don Marchand

Karl Johannson

Paul Miller

Glenn Menuz

David Moneta

Appendix – Reconciliation of Non-GAAP Measures (millions of dollars)

	Three months ended March 31	
	2017	2016
Comparable EBITDA[1]	1,977	1,502
Depreciation and amortization	(510)	(454)
Comparable EBIT[1]	1,467	1,048
Specific items:		
Acquisition related costs - Columbia	(39)	(26)
U.S. Northeast Power monetization	(11)	-
Keystone XL asset costs	(8)	(10)
Alberta PPA terminations	-	(240)
TC Offshore loss on sale	-	(4)
Risk management activities	(56)	(125)
Segmented Earnings	1,353	643

(1) Comparable EBITDA and Comparable EBIT are non-GAAP measures. See the non-GAAP measures slide at the front of this presentation for more information.

Appendix – Reconciliation of Non-GAAP Measures continued (millions of dollars, except per share amounts)

	Three months ended March 31	
	2017	2016
Net Cash Provided by Operations	1,302	1,081
Increase in operating working capital	155	132
Funds Generated From Operations[1]	1,457	1,213
Specific items:		
Acquisition related costs - Columbia	32	26
Keystone XL asset costs	8	10
U.S. Northeast Power monetization	11	-
Comparable Funds Generated From Operations[1]	1,508	1,249
Dividends on preferred shares	(39)	(23)
Distributions paid to non-controlling interests	(80)	(62)
Maintenance capital expenditures including equity investments	(167)	(190)
Comparable Distributable Cash Flow[1]	1,222	974
Per Common Share[1]	$ 1.41	$ 1.39

(1) Funds Generated from Operations, Comparable Funds Generated from Operations, Comparable Distributable Cash Flow and Comparable Distributable Cash Flow per Common Share are non-GAAP measures. See the non-GAAP measures slide at the front of this presentation for more information.

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