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Pipeline Cost Recovery Report



Based on FERC Form No. 2 Data **Prepared by Peri Cankardes Ulrey** *Chief Economist*





Interstate Natural Gas Pipeline Cost Recovery Analysis

This report is the Natural Gas Supply Association's (NGSA) 19th annual evaluation of earnings by major interstate pipelines. Each year, NGSA analyzes approximately 30 major interstate natural gas pipelines' cost recovery over a five-year period to assess the actual return on equity (ROE). The 32 companies evaluated in this year's report represent 75 percent of the pipeline capacity in the interstate market. This study examines relevant interstate pipeline costs and revenues using a cost-of-service model based on *FERC Form No.* 2 (Form 2) reports. Below is a brief explanation of the results as well as the methodology used to calculate the ROE for each pipeline.

Study Results

Using the methodology described below, NGSA's analysis shows that, over a five-year period (2013 – 2017), 21 of the 32 pipelines earned revenues in excess of what they would realize based on an average allowed return of 12 percent. Nine pipelines had ROEs that averaged 15 percent or higher over the five-year period with eight of those pipelines outpacing their five-year average ROE in 2017. If an 11 percent ROE return is used as a benchmark, 24 out of the 32 pipelines reviewed would be categorized as over-earning over the five-year period.

The cost over-recovery for the 21 pipelines with ROE's at or exceeding 12 percent over the five-year period was \$4.6 billion (\$5.6 billion using an 11 percent benchmark). When totaling both over- and under-recovery of revenues for all 32 pipeline companies on a net basis, \$2.5 billion was collected in excess of what they would have collected over the five-year period using an average 12 percent allowed return on equity.

NGSA's analysis reflects an increase in the average ROE in 2017 of 13.6 percent as compared to 13.3 percent in 2016; making this the fourth year in a row of incremental increases (from 12.0 percent in 2013 to 13.6 percent in 2017). The total revenues over-recovered over a five-year period increased from \$2.2 billion to \$2.5 billion in this year's study as compared to last year's study.

NGSA supports healthy returns for interstate pipelines so they have the incentive to build infrastructure when needed to bring natural gas to market. However, NGSA, like other pipeline shipper groups, has an interest in ensuring that FERC takes action to review pipeline rates when there is evidence that a pipeline has substantially exceeded an acceptable level of return over a sustained period or when there are major changes that necessitate revised rates, such as the recent decrease in the federal corporate tax rate in the Tax Cuts and Jobs Act of 2017, which is not reflected in this study of revenues from 2013 – 2017 given that the new tax rates became effective in 2018.

Scope

NGSA's cost recovery analysis of 32 pipelines combines three elements to determine pipelines' return on equity: (1) rate base, (2) net revenues, and (3) total cost of service. NGSA reviewed the total population of major interstate pipelines and selected those pipelines that were large in terms of both revenue and physical assets, as well as the amount of time elapsed since their rates were last reviewed. For each pipeline examined, the analysis reviewed the most recent five years of financial data (2013 – 2017) available at the time the study was conducted.

Methodology

NGSA developed its cost recovery analysis using annual financial data as provided in Form 2 for a five-year period (2013 – 2017). Using annual balance sheets, as well as revenue and expense data from Form 2, NGSA built a cost-of-service model for each pipeline company. Using this information, we calculated each pipeline's annual actual return on equity; these calculations are included in the report under the respective pipeline's tab. Consistent with FERC policy, these calculations used only the jurisdictional portion of the costs reflected in Form 2. For example, NGSA utilized methodologies consistent with those that would be used by FERC in a traditional rate case proceeding, such as those applied to the debt/equity ratio as well as in the determination of total rate base and revenues. In those instances where interpretation of Form 2 accounts was required, NGSA employed the more conservative options.

NGSA used the following data analyses and processing steps to develop the three elements needed to determine the return on equity of each pipeline.

1. Rate Base. Rate base includes gas plant in service, accumulated depreciation, gas stored-noncurrent, accumulated deferred income taxes (ADIT), working capital (including materials and supplies) and regulatory assets and liabilities.

- 2. Revenues. We calculated net revenues from total operating revenues by excluding revenues for transition costs and take-or-pay as well as sales revenues (Accounts 480-484).
- 3. Cost-of-Service. NGSA developed the pipeline's total cost-of-service, including an annual allowed return on rate base, federal and state income taxes, other taxes, depreciation, and operation and maintenance (O&M) costs. Multiplying the total rate base by the weighted allowed rate of return on rate base yielded the pipeline's allowed return on rate base. To determine the weighted allowed rate of return on rate base, the debt and common equity costs of capital were multiplied by their respective capitalization ratios and added together. The capitalization ratios and current debt and equity cost of capital were obtained from Form 2 when the values were within a range FERC has historically approved. Otherwise, these data were obtained from the pipeline's most recent filed and/or approved Section 4 rate case or obtained from Securities and Exchange Commission (SEC) 10-K information reported by the parent company.

To calculate the federal income taxes, the total allowed return on rate base was multiplied by the ratio of the weighted return on equity to the total return on rate base and then multiplied by the grossed-up federal income tax factor pursuant to FERC regulations. A 35 percent federal income tax rate was used for pipelines owned by corporations. For pipelines owned by Master Limited Partnerships (MLPs), the weighted federal income tax rate was used, if it was available. If not, a weighted estimated rate was used. State income tax rates were calculated as a percentage of federal income tax rates using information from each pipeline's most recent Section 4 rate case, if available. If not, state income tax rates were estimated using statutory state tax rate information from the pipeline's Form 2, and state income taxes were then added to the total cost-of-service.

Several cost components for O&M expenses listed in Form 2 were also removed, such as sales and compressor fuel expenses, in order to appropriately determine a pipeline's non-gas cost of service and properly align costs with reported revenues. Depreciation expenses and other taxes from Form 2 were added to determine the total cost of service.

Finally, we calculated the pipeline's over- or under-recovery of costs by subtracting the total cost-of-service from net revenues. Because the study's total cost of service calculation already includes the pipeline's allowed return, the difference between the cost-of-service and net revenues reflects the pipeline's

actual over- or under-recovery of costs. The formula to calculate actual earned rate of return on equity is as follows:

$$ROE = \frac{\left[\left(CR - \left(CR * \left(\frac{FGIT}{(1 + FGIT)}\right)\right) - \left(CR * \left(SIT * FGIT\right)\right)\right) + \left(AR * \left(\frac{ER}{TR}\right)\right)\right]}{RB * EC}$$

Where:

ROE = Actual Earned Rate on Equity
CR = Cost Over- or Under- Recovery

FGIT = Federal Grossed-Up Income Tax Rate

SIT = State Income Tax Rate as a Percentage of FIT

AR = Allowed Return on Rate Base

ER = Allowed Equity Return on Rate Base rate
TR = Allowed Total Return on Rate Base rate

RB = Total Rate Base

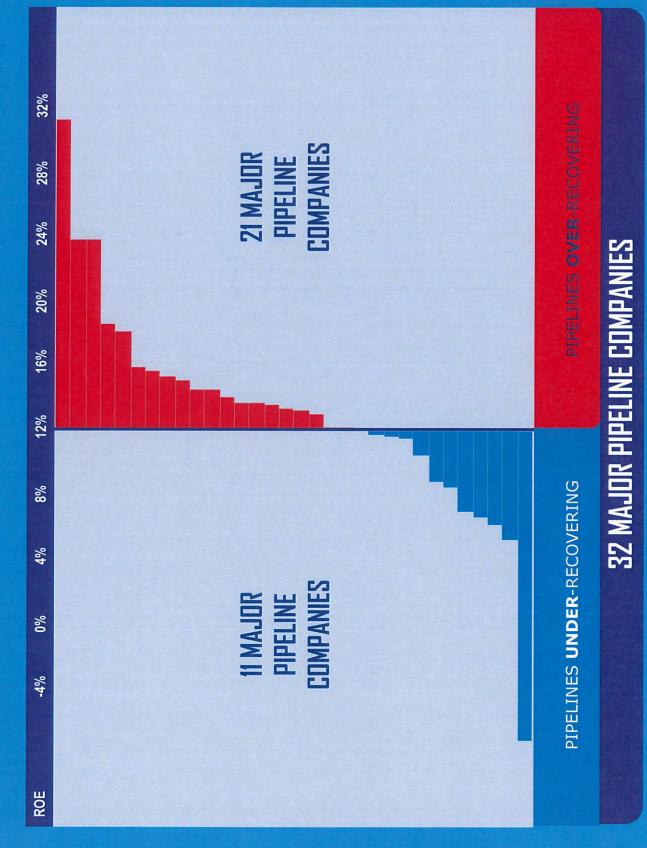
EC = Equity Capitalization Ratio

The annual rates of return on equity for each of the 32 pipelines were weighted across the five-year period based on the equity portion of rate base to calculate a weighted average rate of return on equity for each pipeline.

In addition, NGSA conducted a separate analysis to identify pipelines that do not employ a fuel tracking mechanism to true-up their fuel usage and retention volumes during the analysis period. NGSA's analysis found that five of the 32 pipelines did not employ a true-up mechanism during the analysis period. NGSA calculated the value of the fuel retained from shippers in excess of what was actually used and included that value as revenue in the ROE calculation for each of the five pipelines without a fuel tracking mechanism.

The 2017 ROE analysis does not reflect the new lower federal income tax rates as they became effective in 2018. However, for 2017, balance sheet adjustments made by pipelines in response to the Tax Cuts and Jobs Act of 2017 were incorporated into the analysis to the extent they impacted regulatory rate base accounts. For the most part, these adjustments included a reduction to ADIT and an increase to regulatory liabilities, with little or no net effect on rate base.

Actual Pipeline Rate Of Return On Equity 5 YEAR WEIGHTED AVERAGE (2013-2017)



	אל	NGSA Analysis - 32 Pipelines	32 Pipelines				
	Pipeline Name	Year Ended	Year Ended	Year Ended	Year Ended	Year Ended	5-year Average Weighted by Equity Ratebase
	1 Northern Border Pipeline Company	28.5%	28.2%	29.2%	33.1%	37.6%	30.9%
•	2 Natural Gas Pipeline Company of America LLC 1/	27.4%	21.7%	20.9%	22.8%	26.1%	23.6%
	3 Trailblazer Pipeline Company LLC	2.9%	26.8%	29.2%	25.1%	27.8%	23.5%
	4 Panhandle Eastern Pipe Line Company, LP	23.9%	14.5%	18.2%	18.0%	19.6%	18.5%
	5 Gas Transmission Northwest LLC (formerly PGT)	15.5%	15.3%	17.0%	20.7%	22.7%	18.1%
	6 Northwest Pipeline LLC	14.6%	14.8%	16.7%	16.8%	16.6%	15.9%
	7 El Paso Natural Gas Company, LLC	12.3%	14.9%	19.2%	14.7%	17.5%	15.7%
	8 Kern River Gas Transmission Co.	14.1%	14.0%	17.9%	19.3%	13.1%	15.3%
	9 Tennessee Gas Pipeline Company, LLC	11.6%	15.4%	15.8%	15.6%	16.2%	15.1%
	10 Florida Gas Transmission Company, LLC	11.4%	12.9%	14.3%	16.5%	19.4%	14.5%
•	11 Dominion Energy Transmission, Inc. (formerly CNG Trans.)	15.0%	17.2%	15.4%	12.7%	11.8%	14.5%
	12 Transcontinental Gas Pipe Line Company, LLC 2/	11.0%	15.2%	14.5%	16.8%	13.0%	14.1%
	13 Southern Natural Gas Company, LLC	14.5%	14.0%	12.3%	14.9%	13.3%	13.8%
	14 Texas Gas Transmission, LLC	12.4%	12.2%	13.4%	14.0%	16.0%	13.7%
	15 Northern Natural Gas Company	13.6%	14.0%	13.8%	13.2%	13.6%	13.6%
•	16 National Fuel Gas Supply Corporation	12.2%	15.1%	11.6%	15.4%	13.3%	13.4%
	17 Enable Gas Transmission, LLC (formerly CenterPoint)	11.7%	11.5%	10.7%	16.7%	16.7%	13.3%
	18 Great Lakes Gas Transmission Ltd. Partnership	2.4%	11.0%	18.0%	16.2%	18.8%	13.1%
	19 Southern Star Central Gas Pipeline, Inc. (formerly Williams)	7.9%	11.4%	12.8%	14.3%	15.8%	12.3%
	20 Algonquin Gas Transmission, LLC 3/	12.0%	14.8%	14.3%	7.9%	14.2%	12.3%
	21 Trunkline Gas Company, LLC	14.7%	13.8%	10.6%	10.9%	8.6	12.0%
	22 Colorado Interstate Gas Company, LLC	14.2%	12.0%	12.2%	11.0%	9.2%	11.8%
	23 Columbia Gas Transmission, LLC	15.5%	11.4%	11.1%	9.5%	13.0%	11.7%
	24 Columbia Gulf Transmission, LLC 4/	21.0%	22.5%	15.5%	3.5%	8.0%	11.6%
	25 Texas Eastern Transmission, LP	8.4%	10.5%	12.4%	10.9%	10.4%	10.6%
	26 Dominion Energy Questar Pipeline, LLC	9.3%	9.3%	8.9%	8.1%	9.3%	%0.6
	27 Mojave Pipeline Company, LLC 5/	16.5%	11.8%	2.0%	4.1%	8.1%	8.6%
•	28 Transwestern Pipeline Company, LLC	6.2%	8.8%	6.7%	7.1%	%9'9	7.1%
	29 ANR Pipeline Company	3.9%	3.4%	4.1%	8.9%	11.8%	%8.9
	30 Taligrass Interstate Gas Trans. LLC (formerly KMIGT)	3.6%	5.4%	6.2%	7.1%	11.3%	6.4%
	31 Gulf South Pipeline Co., LP (formerly Koch Gateway)	6.1%	4.2%	4.8%	6.4%	2.6%	5.4%
•	32 Sea Robin Pipeline Company, LLC 6/	20.6%	8.7%	-5.5%	-39.0%	-23.6%	-6.7%
	Simple Average	13.1%	13.6%	13.4%	12.3%	13.8%	
	Weighted Average by Equity Ratebase	12.0%	13.0%	13.1%	13.3%	13.6%	13.0%

NGSA's analysis determined these pipelines do not have a fuel tracking mechanism to true-up their fuel costs at the end of the five-year analysis period.

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Notes:

1/ Natural Gas Pipeline Company of America LLC

NGPL's 2013 through 2017 FERC Form 2s show 100% equity and thus could not be used as an accurate input for NGPL's capitalization. Therefore, NGSA utilized Kinder Morgan's cost of debt and capitalization data based on SEC Form 10-K for those years as a proxy given its ownership of NGPL.

2/ Transcontinental Gas Pipe Line Company, LLC

The decrease in Trancontinental's return on equity compared to the prior year is due primarily to several major expansions placed into service late in 2017, which creates a mismatch between project costs and project revenues. This disparity due to timing would not be expected to continue to impact future year results.

3/ Algonquin Gas Transmission, LLC

Algonquin placed into service most of the facilities of the Algonquin Incremental Market (AIM) Project in November 2016 impacting their return on equity in 2016. The decrease in Algonquin's 2016 return on equity compared to the prior year was due primarily to the major expansion placed into service late in the year, which creates a mismatch between project costs and revenues. This disparity due to timing would not continue to impact future year results.

4/ Columbia Gulf Transmission, LLC

Columbia Gulf's uncontested settlement offer after the initiation of FERC's Section 5 proceeding in 2016 was approved by FERC in 2016. Columbia Gulf had substantial increases in costs for outside services and charges from associated companies in 2016.

5/ Mojave Pipeline Company, LLC

Mojave Pipeline Company's deferred taxes were reversed in connection with Kinder Morgan, Inc.'s November 2014 acquisition of outstanding common shares of Kinder Morgan Energy Partners, LP impacting their return on equity in 2015-2017. Mojave's FERC Form 2s for each year of our analysis (2013-2017) showed 100% equity or failed to include debt/equity ratios and thus could not be used as as an accurate input for Mojave's capitalization. Therefore, NGSA utilized the capitalization ratios in El Paso's Form 2 for those years as proxy given El Paso's direct control of Mojave.

6/ Sea Robin Pipeline Company, LLC

Sea Robin Pipeline Company's FERC Form 2s show 100% equity for 2013 through 2016. Since 100% equity is not within a range FERC has historically approved, NGSA utilitized Energy Transfers Partners, LP capitalization ratios based on data in Securities and Exchange Commission (SEC) Form 10-Ks in 2013 through 2016.

INDEX OF INDIVIDUAL PIPELINE RETURNS ON EQUITY

TAB COMPANY

- 1. Algonquin Gas Transmission, LLC
- 2. ANR Pipeline Company
- 3. Colorado Interstate Gas Company, LLC
- 4. Columbia Gas Transmission, LLC
- 5. Columbia Gulf Transmission, LLC
- 6. Dominion Energy Questar Pipeline, LLC
- 7. Dominion Energy Transmission, Inc. (formerly CNG Trans.)
- 8. El Paso Natural Gas Company, LLC
- 9. Enable Gas Transmission, LLC (formerly CenterPoint Energy)
- 10. Florida Gas Transmission Company, LLC
- 11. Gas Transmission Northwest, LLC (formerly PGT)
- 12. Great Lakes Gas Transmission Ltd. Partnership
- 13. Gulf South Pipeline Company, LP (formerly Koch Gateway)
- 14. Kern River Gas Transmission Company
- 15. Mojave Pipeline Company, LLC
- 16. National Fuel Gas Supply Corporation
- 17. Natural Gas Pipeline Company of America LLC
- 18. Northern Border Pipeline Company
- 19. Northern Natural Gas Company
- 20. Northwest Pipeline LLC
- 21. Panhandle Eastern Pipe Line Company, LP
- 22. Sea Robin Pipeline Company, LLC
- 23. Southern Natural Gas Company, LLC
- 24. Southern Star Central Gas Pipeline, Inc. (formerly Williams)
- 25. Tallgrass Interstate Gas Transmission LLC (formerly Kinder Morgan)
- 26. Tennessee Gas Pipeline Company, LLC
- 27. Texas Eastern Transmission, LP
- 28. Texas Gas Transmission, LLC
- 29. Trailblazer Pipeline Company LLC
- 30. Transcontinental Gas Pipe Line Company, LLC
- 31. Transwestern Pipeline Company, LLC
- 32. Trunkline Gas Company, LLC

NGSA Pipeline Cost Model

Algonquin Gas Transmission, LLC

1 10 10 10 10 10 10 10	Aigon	Algonquin Gas Transmission, LLC		Data Input Section	ou				
Total Natural Review 2, 2026,64,951, 2192,284,243 31,811,60,753 346,422,341 1,010 1,011			Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (For	m 2)
Commission Registration Page 12, 24, 24 24, 24, 24, 24 24, 24, 24, 24, 24, 24, 24, 24, 24, 24,	_	Total Plant in Service	2,026,554,951	2,042,318,439	2,156,283,364	3,181,150,753	3,454,125,384 **	p. 110	Balance Sheet
Account lated by performance Account 122 (rate base est.) 1,774,596 1,774,5	2	Total Accum. Depreciation, Amortization	694,552,723	736,121,941	745,705,380	748,785,422	768,285,519	p. 110	Balance Sheet
Regulatory Assets and Labulities (rate base est.) 1,774,586 1,774,686 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786 1,774,786	840	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	0 301,550,584 0	322,384,240 0		0 395,283,759 0	0 316,065,416 0	pp. 234-235 pp. 274-275 pp. 276-277	
Working Capital Working Capital 961,361 450,447 72595,887 72595,887 8543,432 p. 230 Cas Slored Underground Additionance Costs Acct. 117.1 Base gas 56.783 -209,747 0 0 0 0 0 0.110 Operation and Maintenance Costs Acct. 117.1 System balancing 56.783 -209,747 0	9 2		1,774,586	1,774,586	1,774,586	1,774,586	1,774,586	p. 232 p. 278	
Gas Stored Underground Acat. 117.1 Base gas by Earth 117.1 Base gas by Earth 117.1 Base gas by Earth 117.1 S6783 -209,747 0 10 0 0 0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	& ರಾ	Working Capital Prepayments Materials and Supplies	961,361	650,847 453,405	802,742 435,401	7,259,592	8,543,432 361,397	p. 230 pp. 110-111	
Operation and Maintenance Costs 0 <t< td=""><td>01 11</td><td>- 0</td><td>0 56,783</td><td>-209,747</td><td></td><td>0 0</td><td>00</td><td>p. 110 p. 110</td><td></td></t<>	01 11	- 0	0 56,783	-209,747		0 0	00	p. 110 p. 110	
Storage less: Comp. fuel and losses 0	12	Operation and Maintenance Costs Production	0	0		0	0		O&M
Transmission less: Comp. fuel	£ 4 £	Storage less: Comp. fuel and losses Net storage costs	0 0 0	0 010	0 010	0 010	000	p. 322	
A&G Other Taxes Other Revenue ACA and GRI revenue ACA and GRI revenue Other Revenue Other Taxes Other Revenue Other Revenue Other Revenue Sales Revenues Other Revenues	16 71 81	Transmission less: Comp. fuel Net transmission costs	27,380,341 -5,146,448 32,526,789	24,073,832 -4,159,793 28,233,625	21,034,720 -5,792,584 26,827,304	18,703,348 -10,358,909 29,062,257	25,523,854 - <u>5,746,679</u> 31,270,533	p. 323	
Other Taxes 31,699,733 31,311,489 35,893,696 35,095,550 49,043,418 p. 114 Depreciation, Amortization and Negative Salvage 44,885,048 45,819,090 45,003,233 52,168,954 74,684,823 p. 114 Revenue ACA and GRI revenue 914,836 837,575 1,013,800 1,073,709 1,066,261 p. 300 Other Revenue 278,998,184 296,547,640 308,947,613 324,130,190 504,844,902 p. 301 Net Revenues 278,998,184 296,547,640 308,947,613 324,130,190 504,844,902 0	19	A&G	40,902,907	39,411,143	42,256,120	41,355,795	53,705,554	pp. 323-325	
Revenue ACA and GRI revenue 914,885,048 45,819,090 45,003,233 52,168,954 74,684,823 p. 114 Revenue ACA and GRI revenue 914,836 837,575 1,013,800 1,073,709 1,066,261 p. 300 Other Revenue 278,998,184 296,547,640 308,947,613 323,056,481 503,778,641 p. 301 Sales Revenues 0 0 0 0 0 0 0 Net Revenues 278,998,184 296,547,640 308,947,613 324,130,190 504,844,902 0	20	Other Taxes	31,699,733	31,311,489	35,893,696	35,095,550	49,043,418	p. 114	Income Statement
Revenue ACA and GRI revenue 914,836 837,575 1,013,800 1,073,709 1,066,261 Other Revenue 278,998,184 295,710,065 307,933,813 323,056,481 503,778,641 Total Revenues 278,998,184 296,547,640 308,947,613 324,130,190 504,844,902 Net Revenues 278,998,184 296,547,640 308,947,613 324,130,190 504,844,902	21	Depreciation, Amortization, and Negative Salvage	44,885,048	45,819,090	45,003,233	52,168,954	74,684,823	p. 114	Income Statement
	22 23 25 26	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	914,836 278,083,348 278,998,184 278,998,184	837,575 295,710,065 296,547,640 0 296,547,640	1,013,800 307,933,813 308,947,613 308,947,613	1,073,709 323,056,481 324,130,190 0 324,130,190	1,066,261 503,778,641 504,844,902 0 504,844,902	p. 300	

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Algond	Algonquin Gas Transmission, LLC						
	Account 495						p. 308
27	Value of excess fuel retained	0	0	0	0	0	
28	Penalty revenues	0	0	0	0	0	
29	Gains on settlements of imbalances	0	0	0	0	0	
30	Total non-cost of service revenues	0	10	0	10	0	
31	Cost of Debt	3.55%	3.54%	3.54%	3.54%	3.54%	n 218
32	Allowed Rate of Return on Equity	11.33%	11.33%	11.33%	11.33%	11.33%	p. 218
33	Account 496 - Provision for Rate Refunds	0	0	0	0	0	

******* end of data input ********

Pipeline Cost Model

Cost of Service Calculation

Algonquin Gas Transmission, LLC

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Year End 2013 Allowed Return on Rate Base	Capitalization Debt 35.22%	λ.	Return on Debt 1.25%	nity	Total Return 8.59%	Rate Base	Gas Plant in Service 2,026,554,951		preciation -69	Working Capital 1,489,900	Accepted Accepted	88	Total Rate Base 1,033,716,130	Cost of Service	Return 88,795,016	Federal Income Tax 38.89% 29,505,140	State Income Tax 13.12% 3,870,937	Other Taxes 31,699,733	Depreciation 44,885,048		A&G 40,902,907	Total Cost of Service 272,185,570	Total Revenues 278,998,184	Non-Cost of Service Revenues		Over (Under) Recovery excl. non-COS rev 6,812,614	
3 Year End 2014	34.10%		1.21%		% 8.67%		1 2,042,318,439		-736		70-	0 0	0 986,481,349		6 85,563,545		7 3,757,925	3 31,311,489	8 45,819,090	9 28,233,625	7 39,411,143	0 262,740,558	4 296,547,640	0 0		4 33,807,082	
Year End 2015	33.46%	66.54%	1.18%	7.54%	8.72%		2,156,283,364	0	-745,705,380	1,238,143	4 774 506	0.00	1,061,712,555		92,618,134	31,127,568	4,083,792	35,893,696	45,003,233	26,827,304	42,256,120	277,809,847	308,947,613	0	31,137,766	31,137,766	
Year End 2016	40 00%	%00.09	1.42%	6.80%	8.21%		3,181,150,753	0	-748,785,422	7,579,259	4 774 505	1,774,580	2,046,435,417		168,094,205	54,100,931	7,097,790	35,095,550	52,168,954	29,062,257	41,355,795	386,975,482	324,130,190	0	-62,845,292	-62,845,292	
Year End 2017	40 00% ****	%00.09	1.42%	6.80%	8.21%		3,454,125,384	0	-768,285,519	8,904,829	-310,005,416	7,774,586	2,147,343,207		176,382,771	56,768,597	7,447,775	49,043,418	74,684,823	31,270,533	53,705,554	449,303,471	504,844,902	0	55,541,431	55,541,431	

[[]Line 24 - (Line 24 *(.3889)/(1+.3889)])-(Line 24 * (State Income Tax Percentage * .3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

26

Algonquin placed into service most of the facilities of the Algonquin Incremental Market (AIM) project in November 2016 impacting the year-end 2016 balance of Gas Plant in Service. The decrease in Algonquin's return on equity compared to the prior year is due primarily to the major expansion placed into service late in the year, which creates a mismatch between project costs and project revenues. This disparity due to timing would not continue to impact future year results. *

^{***} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
***NGSA uses an estimated 60 percent equity capitalization rate instead of Algonquin's reported greater than 70% equity ratio in the 2016 and 2017
Form 2s. 70% and greater equity is not within a range FERC has historically approved.

NGSA Pipeline Cost Model

Data Input Section

ANR Pipeline Company

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	12)	
	Total Plant in Service	3,483,747,011	3,615,622,960	3,820,358,763	4,136,395,700	4,384,855,704	p. 110	Balance Sheet	
	Total Accum. Depreciation, Amortization	1,941,380,347	1,977,931,844	1,989,209,452	1,990,358,333	2,079,846,899	p. 110	Balance Sheet	
	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	15,703,315 415,247,609 10,066,699	14,471,728 432,542,072 10,596,280	13,210,147 458,945,201 12,906,386	25,729,173 573,837,214 15,680,994	13,560,697 445,682,912 ** 6,521,420	pp. 234-235 pp. 274-275 pp. 276-277		
	Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	25,965,022 98,250,336	27,423,085 100,543,502	33,401,618 106,386,118	40,719,276	25,811,050 352,502,918 **	p. 232 p. 278		
	Working Capital Prepayments Materials and Supplies	2,342,148	2,433,192	2,434,496	2,185,916	2,246,992 36,386,143	p. 230 pp. 110-111		
	Gas Stored Underground Base gas Acct. 117.2 System balancing	94,367,096	87,912,896 20,500,749	87,912,896 20,500,749	87,912,896 20,500,749	87,912,896 20,500,749	p. 110 p. 110		
	Operation and Maintenance Costs Production	283,679	1,119,858	0	0	0		O&M	
	Storage less: Comp. fuel and losses Net storage costs	68,265,200 6,168,435 62,096,765	70,683,946 7,792,076 62,891,870	67,913,441 5,649,752 62,263,689	63,099,742 2,932,064 60,167,678	47,202,613 3,842,611 43,360,002	p. 322		
	Transmission less: Comp. fuel Net transmission costs	227,077,878 63,551,025 163,526,853	253,535,201 71,483,483 182,051,718	288,803,718 36,454,090 252,349,628	247,659,754 24,757,937 222,901,817	257,664,831 41,705,984 215,958,847	p. 323		
	A&G	111,474,510	110,347,006	107,491,591	94,209,272	104,863,989	pp. 324-325		
	Other Taxes	22,092,606	22,272,971	21,800,456	22,357,081	27,881,602	p. 114	Income Statement	
	Depreciation, Amortization, and Negative Salvage	59,284,353	59,072,279	60,533,262	84,652,499	116,536,538	p. 114	Income Statement	
7.2.3	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	2,317,017 498,018,905 500,335,922 500,335,922	1,807,659 514,641,695 516,449,354 516,449,354	2,050,658 602,309,139 604,359,797 604,359,797	2,056,364 684,240,153 686,296,517 686,296,517	2,237,342 755,997,380 758,234,722 758,234,722	p. 300 p. 301		

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NGSA Pipeline Cost Model

	ANR Pipeline Company						
	Account 495						308
1	Value of excess fuel retained	0	0	0	0	0	
28	Penalty revenues	0	0	0	0	0	
6	Gains on settlements of imbalances	0	0	0	318,024	67.707	
30	Total non-cost of service revenues	0	0	0	318,024	67,707	
31	Cost of Debt	8.97%	8.97%	8.97%	8.25%	7 23%	218
32	Allowed Rate of Return on Equity	12.25%	12.25%	12.25%	12.25%	12.25%	p. 218
'n	33 Account 496 - Provision for Rate Refunds	0	0	0	0	0	

******* end of data input ********

NGSA Pipeline Cost Model

ANR Pipeline Company

Cost of Service Calculation

	Allowed Keturn on Kate Base <u>Capitalization</u>	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
-	Debt	31.58%	31.03%	31.26%	30.34%	33.88%
2	Equify	68.42%	68.97%	68.74%	%99.69	66.12%
8	Return on Debt	2.83%	2.78%	2.80%	2.50%	2.45%
4	Return on Equity	8.38%	8.45%	8 42%	8 53%	8 10%
9	Total Return	11.21%	11.23%	11.22%	11.04%	10.55%
	Rate Base					
9	Gas Plant in Service	3,483,747,011	3,615,622,960	3,820,358,763	4,136,395,700	4,384,855,704
1	Gas Stored - Noncurrent	94,367,096	87,912,896	87,912,896	87,912,896	87,912,896
8	Accumulated Depreciation	-1,941,380,347	-1,977,931,844	-1,989,209,452	-1,990,358,333	-2.079,846,899
6	Working Capital	59,725,566	57,721,864	56,307,948	56,929,122	59.133.884
10	ADIT	-409,610,993	-428,666,624	-458,641,440	-563,789,035	-438,643,635
11	Regulatory Assets	25,965,022	27,423,085	33,401,618	40,719,276	25.811,050
12	Regulatory Liabilities	-98,250,336	-100,543,502	-106,386,118	-104,881,735	-352,502,918
13	Total Rate Base	1,214,563,019	1,281,538,835	1,443,744,215	1,662,927,891	1,686,720,082
	Cost of Service					
14	Return	136,203,235	143,945,210	162,055,553	183,527,374	177,935,880
15	Federal Income Tax 53.85%	54,814,303	58,301,909	65,462,195	76,409,554	73.564.220
16	State Income Tax 8.04%	4,405,657	4,685,971	5,261,473	6,141,359	5,912,668
17	Other Taxes	22,092,606	22,272,971	21,800,456	22,357,081	27,881,602
18	Depreciation	59,284,353	59,072,279	60,533,262	84,652,499	116,536,538
19	O&M	225,907,297	246,063,446	314,613,317	283,069,495	259,318,849
20	A&G	111,474,510	110,347,006	107,491,591	94,209,272	104,863,989
21	Total Cost of Service	614,181,961	644,688,792	737,217,847	750,366,634	766,013,746
22	Total Revenues	500,335,922	516,449,354	604,359,797	686.296.517	758.234.722
23	Non-Cost of Service Revenues	0	0	0	318,024	67,707
24	Cost Over (Under) Recovery	-113,846,039	-128,239,438	-132,858,050	-64,070,117	-7.779,024
2	Over (Under) Recovery excl. non-COS rev	-113,846,039	-128,239,438	-132,858,050	-64,388,141	-7,846,731
26	Actual rate of return on equity *	3.94%	3.45%	4.13%	8.89%	11.83%

^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385))]-(Line 24 * (State Income Tax Percentage * .5385))]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

NGSA Pipeline Cost Model

Data Input Section

Colorado Interstate Gas Company, LLC

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
÷	Total Plant in Service	1,839,996,396	1,841,525,842	1,833,641,375	1,828,335,573	1,792,364,616	p. 110	Balance Sheet
2	Total Accum. Depreciation, Amortization	575,751,803	592,920,626	617,113,019	642,211,080	653,011,423	p. 110	Balance Sheet
ω 4 ν	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	1,131,870 239,881,964 816,746	840,647 43,277,332 376,069	514,769 34,166,528 0	514,948 53,646,696 0	333,936 43,966,679 **	pp. 234-235 pp. 274-275 pp. 276-277	
9 1	Regulatory Assets and Liabilities (rate base est.) Account 182.3 (rate base est.) Account 254 (rate base est.)	398,747 1,355,386	199,373 1,355,386	1,355,386	1,355,386	32,739,654 **	p. 232 p. 278	
დ თ	Working Capital Prepayments Materials and Supplies	6,457,670	5,977,157	5,640,761	36,000 5,427,337	37,000 5,344,684	p. 230 pp. 110-111	
11	Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	22,370,023 6,868,276	22,321,245 2,497,896	22,216,291	22,142,868	22,006,393 875,418	p. 110 p. 110	
12	Operation and Maintenance Costs Production	9,290,130	12,069,636	5,006,160	1,553,599	2,065,579		O&M
£ 4 £	Storage less: Comp. fuel and losses Net storage costs	34,881,524 1,466,518 33,415,006	34,842,445 1,802,869 33,039,576	34,058,745 1.009,518 33,049,227	33,236,367 <u>855,116</u> 32,381,251	34,474,296 1,113,683 33,360,613	p. 322	
16 17 18	Transmission less: Comp. fuel Net transmission costs	108,515,311 14,734,834 93,780,477	113,519,797 14,144,201 99,375,596	115,190,264 7,487,802 107,702,462	121,480,379 <u>6,359,629</u> 115,120,750	113,265,059 8,871,921 104,393,138	p. 323	
19	A&G	21,772,191	20,200,577	18,547,550	18,911,011	14,171,523	pp. 323-325	
20	Other Taxes	20,285,177	21,514,635	22,181,931	21,830,948	20,699,981	p. 114	Income Statement
21	Depreciation, Amortization, and Negative Salvage	34,617,800	33,323,023	32,869,645	31,349,645	31,132,329	p. 114	Income Statement
22 24 25 26	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	1,254,037 394,345,131 395,599,168 6,173,596 389,425,572	1,012,322 401,869,366 402,881,688 7,205,108 395,676,580	1,261,707 395,168,561 396,430,268 2,390,584 394,039,684	1,247,728 364,283,018 365,530,746 -25 365,530,771	1,162,423 318,813,027 319,975,450 2,697,401 317,278,049	p. 300	

	Model
NGSA	Pipeline Cost

	Colorado Interstate Gas Company, LLC Account 495						308
27	Value of excess fuel retained	0	0	0	0	0	p. 300
28	Penalty revenues	22,972	31,402	126,699	177,433	174.874	
29	Gains on settlements of imbalances	535,556	1,637,939	799,749	838,148	379.433	
30	Total non-cost of service revenues	558,528	1,669,341	926,448	1,015,581	554,307	
31	Cost of Debt	7.06%	7.03%	7.20%	5.60%	4 82%	0 218
32	Allowed Rate of Return on Equity	12.72%	12.72%	12.72%	12.72%	12.72%	p. 218
33	Account 496 - Provision for Rate Refunds	0	0	0	0	3,720	
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NGSA Pipeline Cost Model

Cost of Service Calculation

Colorado Interstate Gas Company, LLC

	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Allowed Return on Kate base Capitalization					
Debt	38.36%	39.42%	40.73%	42.05%	43.49%
Equity	61.64%	60.58%	59.27%	27.95%	56.51%
Return on Debt	2.71%	2.77%	2.93%	2.35%	2.10%
Return on Equity	7.84%	7 71%	7.54%	7 37%	7 10%
Total Return	10.55%	10.48%	10.47%	9.73%	9.28%
Rate Base					
Gas Plant in Service	1,839,996,396	1,841,525,842	1,833,641,375	1,828,335,573	1.792,364,616
Gas Stored - Noncurrent	22,370,023	22,321,245	22,216,291	22,142,868	22,006,393
Accumulated Depreciation	-575,751,803	-592,920,626	-617,113,019	-642,211,080	-653,011,423
Working Capital	13,325,946	8,475,053	6,855,815	6,677,825	6,257,102
ADIT	-239,566,840	-42,812,754	-33,651,759	-53,131,748	-43,632,743
Regulatory Assets	398,747	199,373	0	0	
Regulatory Liabilities	-1,355,386	-1,355,386	-1,355,386	-1,355,386	-32,739,654
Total Rate Base	1,059,417,083	1,235,432,747	1,210,593,317	1,160,458,052	1,091,244,291
Cost of Service					
Return	111,756,044	129,436,314	126,769,749	112,866,614	101,314,285
Federal Income Tax 53.85%	6 44,727,168	51,261,366	49,144,509	46,060,080	42,236,614
State Income Tax 9.09%	4,066,106	4,660,124	4,467,683	4,187,280	3,839,692
Other Taxes	20,285,177	21,514,635	22,181,931	21,830,948	20,699,981
Depreciation	34,617,800	33,323,023	32,869,645	31,349,645	31,132,329
O&M	136,485,613	144,484,808	145,757,849	149,055,600	139,819,330
A&G	21,772,191	20,200,577	18,547,550	18,911,011	14,171,523
Total Cost of Service	373,710,099	404,880,847	399,738,915	384,261,178	353,213,753
Total Revenues	389,425,572	395,676,580	394,039,684	365,530,771	317,278,049
Non-Cost of Service Revenues	558,528	1,669,341	926,448	1,015,581	554,307
Cost Over (Under) Recovery	15,715,473	-9,204,267	-5,699,231	-18,730,407	-35,935,704
Over (Under) Recovery excl. non-COS rev	15,156,945	-10,873,608	-6,625,679	-19,745,988	-36,490,011
Actual rate of return on equity *	14 17%	11 080/	10000	44 050	2000

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* [[Line 24 - (Line 24 *(.5385/(1+.5385))]-(Line 24 * (State Income Tax Percentage * .5385)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

NGSA Pipeline Cost Model

Columbia Gas Transmission, LLC

Colum	Columbia Gas Transmission, LLC		Data Input Section	ion				
		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	12)
	Total Plant in Service	5,120,688,987	5,624,648,241	6,315,890,867	6,834,536,646	7,241,130,069	p. 110	Balance Sheet
	Total Accum. Depreciation, Amortization	2,204,548,997	2,265,303,454	2,249,219,810	2,330,018,766	2,393,975,244	p. 110	Balance Sheet
	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	33,899,619 843,816,664 104,846,640	27,775,530 962,786,802 120,622,241	32,996,386 1,117,136,314 123,805,354	43,063,035 1,219,191,285 128,549,715	24,965,116 1,004,868,654 ** 83,623,703	pp. 234-235 pp. 274-275 pp. 276-277	Prior yr. changed Prior yr. changed Prior yr. changed
	Regulatory Assets and Liabilities (rate base est.) Account 182.3 (rate base est.)	43,648,961	63,949,839	85,860,415	133,139	802,541,452 **	p. 232 p. 278	
	Working Capital Prepayments Materials and Supplies	6,306,450	6,594,440	10,012,315	5,819,669	3,757,737	p. 230 pp. 110-111	
	Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	298,394,471	298,392,929	298,392,929	298,392,929	271,551,547	p. 110	
	Operation and Maintenance Costs Production	1,537,824	1,573,093	1,539,696	1,057,904	1,080,215		08M
	Storage less: Comp. fuel and losses Net storage costs	46,800,862 10,633,692 36,167,170	47,610,296 12,526,797 35,083,499	39,367,282 7,751,372 31,615,910	35,632,807 5,815,699 29,817,108	66,494,164 7,134,024 59,360,140	p. 322	
	Transmission less: Comp. fuel Net transmission costs	166,657,518 -7,140,048 173,797,566	176,629,825 -13,108,059 189,737,884	174,722,319 -2,746,291 177,468,610	174,906,269 -9,209,250 184,115,519	193,553,411 -2,492,570 196,045,981	p. 323	
	A&G	146,641,617	156,253,565	186,874,354	276,401,777	185,053,500	pp. 323-325	
	Other Taxes	52,281,764	56,127,327	60,825,556	63,760,363	66,402,179	p. 114	Income Statement
	Depreciation, Amortization, and Negative Salvage	83,310,493	89,989,948	101,732,801	116,274,386	122,117,619	p. 114	Income Statement
	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	1,790,567 984,811,159 986,601,726 170,497,990 816,103,746	1,418,018 1,115,297,183 1,116,715,201 252,138,922 864,576,279	1,725,777 1,102,817,014 1,104,542,791 142,952,033 961,590,758	2,121,806 1,129,218,996 1,131,340,802 85,282,035 1,046,058,767	2,031,419 1,220,259,256 1,222,290,675 134,581,449 1,087,709,226	p. 300	

NGSA Pipeline Cost Model

Columbia Gas Transmission, LLC

n. 308		0	208,761	208,761	٥	8.65% p. 218	3,957,128 *** p. 300, p. 278
	0	0	392,279	392,279	4.73%	9.87%	13,045,702
	0	0	61,132	61,132	5.07%	11.44%	-1,186,840
	0	0	3,838,126	3,838,126	5.27%	11.56%	-854,971
	0	0	364,785	364,785	5.79%	11.00%	6,130,517
Account 495	Value of excess fuel retained	Penalty revenues	Gains on settlements of imbalances	Total non-cost of service revenues	Cost of Debt	Allowed Rate of Return on Equity	Account 496 - Provision for Rate Refunds
	27	28	29	30	31	32	33

******* end of data input *******

Pipeline Cost Model

Cost of Service Calculation

Columbia Gas Transmission, LLC

		Lear Ella 2013	teal Ella 2014	rear End ZOIS	Year End 2016	rear End 2017
Allowed Retun	Allowed Return on Rate Base					
	Capitalization	56.46%	38.36%	37.00%	40.00%	40 00%
	Equity	43.54%	61.64%	63.00%	%00.09	60.00% ****
	Return on Debt	3.27%	2.02%	1.88%	1.89%	1.42%
	Return on Equity	4.79%	7.13%	7.21%	5 92%	5 19%
	Total Return	8.06%	9.15%	9.08%	7.81%	6.61%
Rate Base						
	Gas Plant in Service	5,120,688,987	5,624,648,241	6,315,890,867	6,834,536,646	7,241,130,069
	Gas Stored - Noncurrent	298,394,471	298,392,929	298,392,929	298,392,929	271,551,547
	Accumulated Depreciation	-2,204,548,997	-2,265,303,454	-2,249,219,810	-2,330,018,766	-2,393,975,244
	Working Capital	24,108,786	24,766,956	28,774,550	24,968,185	22,441,816
	ADIT	-914,763,685	-1,055,633,513	-1,207,945,282	-1,304,677,965	-1,063,527,241
	Regulatory Assets	0	0	0	133,139	0
	Regulatory Liabilities	-43,648,961	-63,949,839	-85,860,415	-79,287,873	-802,541,452
	Total Rate Base	2,280,230,601	2,562,921,320	3,100,032,839	3,444,046,295	3,275,079,495
Cost of Service	9.					
	Return	183,750,878	234,434,411	281,579,083	269,117,777	216,351,751
	Federal Income Tax 53.85%	58,805,042	98,335,522	120,306,074	109,822,689	91.525.875
		5,040,432	8,428,759	10,311,949	9,413,373	7.845.075
		52,281,764	56,127,327	60,825,556	63,760,363	66.402.179
	Depreciation	83,310,493	89,989,948	101,732,801	116,274,386	122,117,619
	O&M	211,502,560	226,394,476	210,624,216	214,990,531	256,486,336
	A&G	146,641,617	156,253,565	186,874,354	276,401,777	185,053,500
	Total Cost of Service	741,332,787	869,964,008	972,254,033	1,059,780,896	945,782,336
	Total Revenues	816,103,746	864,576,279	961,590,758	1,046,058,767	1,087,709,226
	Non-Cost of Service Revenues	364,785	3,838,126	61,132	392,279	208,761
	Cost Over (Under) Recovery	74,770,959	-5,387,729	-10,663,275	-13,722,129	141,926,890
	Over (Under) Recovery excl. non-COS rev	74,406,174	-9,225,855	-10,724,407	-14,114,408	141,718,129
	Actual rate of return on equity. *	4E GE0/	14 250/	44 4400	1027	

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^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385))]+(Line 24 * (State Income Tax Percentage * .5385)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

*** 2013 value represents Columbia Gas's accrual for refund for the Pipeline Modernization Settlement. 2014-2015 values represent liability to shippers associated with Modernization program. 2016-2017 values includes the revenue sharing liability associated with Modernization program in accordance with the Modernization Settlement.

****NGSA uses an estimated 60 percent equity capitalization rate instead of Columbia Gas' reported greater than 85.00% equity ratio in the 2016 and 2017 Form 2s. 70% and greater equity is not within a range FERC has historically approved.

NGSA Pipeline Cost Model

	Columbia Gulf Transmission, LLC		Data Input Section	tion				
		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
7	Total Plant in Service	1,199,017,479	1,207,158,216	1,387,420,970	1,435,930,507	1,664,097,720	p. 110	Balance Sheet
2	Total Accum. Depreciation, Amortization	813,801,156	821,462,530	826,761,908	837,670,683	858,837,943	p. 110	Balance Sheet
w 4 ro	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	0 117,616,897 3,799,656	0 122,731,754 2,387,924	0 144,342,698 4,071,233	0 170,660,476 4,152,405	0 136,720,132 ** 7,274,571	pp. 234-235 pp. 274-275 pp. 276-277	
9 1	Regulatory Assets and Liabilities (rate base est.) Account 254 (rate base est.)	7,147,484	11,439,878	14,895,241	15,766,168	99,703,341 **	p. 232 p. 278	
& 50	Working Capital Prepayments Materials and Supplies	3,115,906 8,102,605	2,234,664 7,881,420	1,652,617	1,945,983	731,063 7,629,187	p. 230 pp. 110-111	
110	Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	00	00	00	00	00	p. 110	
12	Operation and Maintenance Costs Production	0	0	0	0	0		O&M
5 4 4 5	Storage less: Comp. fuel and losses Net storage costs	0 0 0	0 010	0 010	0 010	738,469 0 738,469	p. 319	
16 17 18	Transmission less: Comp. fuel Net transmission costs	33,819,011 -2,028,474 35,847,485	38,182,524 <u>574,274</u> 37,608,250	44,828,733 1,588,481 43,240,252	48,748,118 -1,640,960 50,389,078	33,969,585 -4,562,902 38,532,487	p. 323	
19	A&G	33,253,359	35,175,664	37,397,609	66,111,829	33,366,190 1/	pp. 323-325	
20	Other Taxes	8,252,064	9,082,753	9,098,069	11,650,402	11,983,628	p. 114	Income Statement
21	Depreciation, Amortization, and Negative Salvage	18,414,287	18,764,955	19,551,033	22,775,194	24,224,951	p. 114	Income Statement
23 24 25 26	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	1,068,746 142,709,359 143,778,105 143,778,105	780,451 153,787,150 154,567,601 154,567,601	787,508 164,603,398 165,390,906 165,390,906	758,251 170,441,733 171,199,984 171,199,984	681,493 158,305,543 158,987,036 158,987,036	p. 300	

NGSA Pipeline Cost Model

d 2,582,923 2,877,964 1,754,589 1,467,691 1,792,987 p. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	retained 2,582,923 2,877,964 1,754,589 1,467,691 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Columbia Gulf Transmission, LLC						
retained 2,582,923 2,877,964 1,754,589 1,467,691 1,792,987 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	retained 2,582,923 2,877,964 1,754,589 1,467,691 1,792,987 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Account 495						p. 308
of imbalances 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	of imbalances 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Value of excess fuel retained	2,582,923	2,877,964	1,754,589	1,467,691	1,792,987	
of imbalances 0 204,652 0 591,882 173,222 173,222 1,086,209 2,059,573 1,966,209 1,066,209 5,79% 5,39% 5,23% 4,73% 3,26% p. 11.00% 11.00% 15.00% 15.00% 10.24% p. ffunds 0 0 0 597,285 0	of imbalances 2,582,923 3,082,616 1,754,589 2,059,573 1,966,209 7.582,923 3,082,616 1,754,589 2,059,573 1,966,209 7.588, 0 11.00% 11.00% 15.00% 15.00% 15.00% 10.24% p. afunds 0 0 597,285 0	Penalty revenues	0	0	0	0	0	
2,582,923 3,082,616 1,754,589 2,059,573 1,966,209 5,79% 5,39% 5,23% 4,73% 3,26% p. 11.00% 11.00% 15.00% 10.24% p.	2,582,923 3,082,616 1,754,589 2,059,573 1,966,209 5,79% 5,23% 4,73% 3,26% p. 11,00% 11,00% 15,00% 10,24% p.	of imbala	OI	204,652	01	591,882	173,222	
5.79% 5.39% 5.23% 4.73% 3.26% p. 11.00% 11.00% 15.00% 10.24% p. 0. 0 697.285 p.	5.79% 5.39% 5.23% 4.73% 3.26% p. 11.00% 11.00% 15.00% 10.24% p. 0 0 597,285 0	Total non-cost of service revenues	2,582,923	3,082,616	1,754,589	2,059,573	1,966,209	
11.00% 11.00% 15.00% 16.00% 10.24% p. 0. 0 697.285 0	11.00% 11.00% 15.00% 10.24% p	Cost of Debt	5.79%	5.39%	5.23%	4.73%	3.26%	p. 218
0	0 0 0	Allowed Rate of Return on Equity	11.00%	11.00%	15.00%	15.00%	10.24%	p. 218
		Account 496 - Provision for Rate Refunds	0	0	0	597 285	C	

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Pipeline Cost Model

Columbia Gulf Transmission, LLC

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		Cost of Servi	Cost of Service Calculation		
C	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Allowed Keturn on Kate base Capitalization Debt Equity	56.46% 43.54%	49.67% 50.33%	56.72% 43.28%	40.00%	40.00%
Return on Debt Return on Equity Total Return	3.27% 4.79% 8.06%	2.68% 5.54% 8.21%	2.97% 6.49% 9.46%	1.89% 9.00% 10.89%	1.30% 6.14% 7.45%
Rate Base Gas Plant in Service Gas Stored - Noncurrent	1,199,017,479	1,207,158,216	1,387,420,970	1,435,930,507	1,664,097,720
Accumulated Depreciation Working Capital ADIT Regulatory Assets Regulatory Liabilities	-813,801,156 11,218,511 -121,416,553 0 -7,147,484	-821,462,530 10,116,084 -125,119,678 0 0	-826,761,908 16,846,536 -148,413,931 0	-837,670,683 9,901,653 -174,812,881 0 0	-858,837,943 8,360,250 -143,994,703 0 -99,703,341
Total Rate Base	267,870,797	259,252,214	414,196,426	417,582,428	569,921,983
Cost of Service	3		100 600 600		
Return Federal Income Tax 53.85%	21,586,191	7,728,528	39,176,587	45,483,078 20,236,687	42,447,789 18,854,773
State Income Tax 6.57%	% 453,964 8 252 064	507,875	951,479	1,329,839	1,239,028
Depreciation	18,414,287	18,764,955	19,551,033	22,775,194	24,224,951
O&M A&G	35,847,485	37,608,250 35,175,664	43,240,252 37,397,609	50,389,078 66,111,829	39,270,956 33,366,190
Total Cost of Service	124,715,490	130,161,739	163,894,062	217,976,107	171,387,315
Total Revenues Non-Cost of Service Revenues	143,778,105 2,582,923	154,567,601 3,082,616	165,390,906 1,754,589	171,199,984 2,059,573	158,987,036 1,966,209
Cost Over (Under) Recovery Over (Under) Recovery excl. non-COS rev	19,062,615 ev 16,479,692	24,405,862 21,323,246	1,496,844	-46,776,123 -48,835,696	-12,400,279 -14,366,488
Actual rate of return on equity *	21.05%	22.50%	15.51%	3.53%	8.01%

^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385))]-(Line 24 * (State Income Tax Percentage * .5385))]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{1/} Columbia Gulf had substantial increases in costs for outside services and charges from associated companies in 2016.

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
***NGSA uses an estimated 60 percent equity capitalization rate instead of Columbia Gulf's reported greater than 75.00% equity ratio in the 2016 and 2017 Form 2s. 70% and greater equity is not within a range FERC has historically approved.

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NGSA Pipeline Cost Model

Dominion Energy Questar Pipeline, LLC

Dominion Energy whester ripeline, LLC	П	Data Input Section	ul				
	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	n 2)
Total Plant in Service	1,139,138,168	1,182,832,342	1,216,970,243	1,220,063,646	1,241,049,740	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	463,948,184	491,228,427	508,996,039	499,076,811	520,577,928	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	6,275,160 176,314,197 0	6,087,194 184,360,891 0	1,143,985 189,142,129 0	4,887,575 117,295,626 0	3,257,480 76,396,092 ** 505,583 **	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities (rate base est.) Account 182.3 (rate base est.) Account 254 (rate base est.)	1,365,786 8,203,288	785,818 9,029,831	529,671 9,998,269	399,773 11,486,206	446,685 67,518,248 **	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	2,003,367 6,815,168	2,052,323 6,220,729	1,780,449 6,118,977	658,085 5,483,370	644,362 5,497,469	p. 230 pp. 110-111	Balance Sheet
Gas Stored Underground Base gas Acct. 117.1 Base gas Acct. 117.2 System balancing	104,216,284 2,265,893	104,175,984	104,175,076 5,317,258	104,171,529 3,378,027	104,185,082 5,005,892	p.110 p.110	
Operation and Maintenance Costs Production	0	0	0	0	0		O&M
Storage less: Comp. fuel and losses Net storage costs	10,629,596 5,707,615 4,921,981	15,372,950 8,906,605 6,466,345	11,741,717 6,142,718 5,598,999	12,578,992 6,580,810 5,998,182	14,963,977 <u>7,664,878</u> 7,299,099	p. 322	
Transmission less: Comp. fuel Net transmission costs	44,546,157 12,946,610 31,599,547	47,124,080 15,918,894 31,205,186	36,147,778 8,660,097 27,487,681	32,066,699 7,761,786 24,304,913	36,094,542 <u>8.603.113</u> 27,491,429	pp. 320-321	Prior yr. changed
A&G	29,015,443	26,569,233	26,957,963	24,583,605	14,523,702	pp. 321-322	
Other Taxes	6,035,354	6,095,694	5,985,545	6,072,761	6,110,758	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	34,016,881	35,677,808	35,626,350	35,805,313	35,731,454	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	662,026 176,564,846 177,226,872 4,481,763 172,745,109	494,031 174,690,879 175,184,910 1,497,907 173,687,003	536,681 174,756,647 175,293,328 6,386,845 168,906,483	525,740 172,136,217 172,661,957 6,602,007 166,059,950	487,051 170,657,665 171,144,716 4,723,848 166,420,868	p. 300	

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ne, LLC lel retained 0 0 0 0 ues into fimbalances 6.35% iffy 11.75% te Refunds 0 473,395,742 4		
retained 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
retained 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
of imbalances 0 s 6.35% 11.75% Refunds 0	0	0 0
of imbalances 0 8 6.35% 11.75% Refunds 0 473,395,742 455,5	0 0	0
6.35% 11.75% Refunds 0 473,395,742 455,3	0 0	0
6.35% 11.75% 0 0 473,395,742 455,5	0 0	0
11.75% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6.35%	6.35% 6.35%
0 473,395,742	11.75%	
473,395,742	0 0	0 0
	65 442,091,409 445,629,361	361 441,898,218
Account 810 Amount of Credit 18,654,225 24,825,500 Account 810 Gas Used (4th) 5 977 427	00 14,802,815 14,342,596 27 6,078,458 6,189,171	596 16,267,991 171 6.023,809

p. 218 p. 218

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NGSA Pipeline Cost Model

Cost of Service Calculation

Dominion Energy Questar Pipeline, LLC

Capitalization Debt 44.43% 44.50% 43.23% Debt Debt Equity 2.82% 2.85% 55.77% Return on Debt Featurn on Debt Total Return 2.82% 2.83% 2.75% Gas Plant in Service 1,139,138,168 1,182,832,342 1,216,970,243 1,147,15,944 1,147,15,944 1,147,15,947 1,147,15,076 Gas Plant in Service 1,139,138,168 1,182,832,342 1,216,970,243 1,147,15,944 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,147,15,076 1,175,044 1,175,084 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084,144 1,175,084	llowed F	Allowed Return on Rate Base	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
on Debt		Capitalization					
Equity 55.57% 55.50% 56.77% Return on Debt 2.82% 2.82% 2.75% Gas Stored - Vancurrent 4.133,138,168 1,182,832,342 1,216,970,243 Gas Stored - Noncurrent 463,394,184 404,175,984 104,175,076 Accumulated Depreciation 1,108,428 401,228,427 104,175,076 Morking Capital 1,108,428 1,182,233,22 1,216,670,243 Application Capital 1,108,428 1,182,233,32 1,216,670,243 Application Capital 1,108,428 1,182,333,42 1,181,309,44 Application 1,108,428 1,182,333,42 1,216,670,44 1,182,333,44 Application 1,108,333,43 1,182,333,44 1,182,333,44 1,182,333,44 1,182,333,44 1,182,333,44 1,182,333,44 1,182,333,44 1,182,333,44 1,182,333,44 1,182,333,44 1,182,333,44 1		Debt	44.43%	44.50%	43.23%	44.25%	46.52%
Return on Debt 2.82% 2.83% 2.75% Return on Equity 6.53% 6.52% 6.57% Total Return on Equity 9.35% 9.35% 9.42% Gas Slant in Service 1,139,138,168 1,182,832,342 1,216,970,243 Gas Slored - Noncurrent -463,448 104,175,894 -60,415,076 Accumulated Depreciation -463,448 1,306,461 -18,298,039 Working Capital -170,039,037 -178,273,697 -187,998,144 Regulatory Assets -1386,786 -178,273,697 -187,998,144 Regulatory Liabilities -1,385,786 -178,273,697 -187,998,144 Regulatory Liabilities -1,385,786 -1,783,48 -1,780,445 -1,783,898,222 Avice Return -1,385,786 -1,385,818 -1,396,814 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,306,414 -1,30		Equity	55.57%	25.50%	26.77%	55.75%	53.48%
Return on Equity 6.52% 9.35% 6.52% 9.42% 6.52% 9.42% 6.67% 9.42% Total Return 1,139,138,168 1,182,832,342 1,216,970,243 1,216,970,243 Gas Slored - Noncurrent 104,175,984 104,175,984 104,175,984 104,175,984 Accumulated Depreciation 463,948,184 491,228,427 13,216,684 Working Capital 17,0039,037 -178,273,897 -187,998,144 Regulatory Assets 13,365,786 178,273,897 -187,998,144 Regulatory Liabilities 13,365,786 627,899,222 roice Note 86,144,157 620,567,650 627,899,222 roice Federal Income Tax 21,737,897 4,687,697 4,900,412 4,900,412 Obbreciation 53,86% 21,737,893 21,730,875 620,567,650 627,592,488 State Income Tax 53,86% 21,753,887 4,687,697 4,900,412 4,900,412 Obbreciation 08,M 4,748,486 190,544,445 188,230,151 Total Cost of Service 172,745,109 173,682,446 <		Return on Debt	2.82%	2.83%	2.75%	2.81%	2.95%
Total Return 9.35% 9.42% Gas Plant in Service 1,139,138,168 1,182,832,342 1,216,970,243 Gas Slored - Noncurrent Accumulated Depreciation 104,216,284 104,175,984 104,175,076 Accumulated Depreciation 11,084,428 11,305,138,169 104,175,076 Working Capital 17,004,428 11,305,189 104,175,076 Accumulated Depreciation 11,004,428 104,175,076 508,996,039 Working Capital 17,004,428 11,305,189 144 AbIT 170,039,037 178,273,697 187,298,144 Regulatory Assets 17,305,776 76,505,687,650 627,899,222 Wice 17,377,771 58,004,458 59,120,354 Return 53,85% 21,573,883 21,708,875 22,552,848 Return 53,85% 21,573,883 21,708,875 22,552,848 State Income Tax 53,85% 21,573,883 21,708,875 4,900,412 Okher Taxes Depreciation 53,354 4,300,412 4,900,412 O&M A&G		Return on Equity	6.53%	6.52%	6.67%	6.55%	6.28%
Gas Plant in Service 1,139,138,168 1,182,832,342 1,216,970,243 Gas Stored - Noncurrent 404,216,284 104,175,076 404,175,076 Accumulated Depreciation 403,216,284 104,175,076 404,175,076 Accumulated Depreciation 10,039,037 11,305,461 104,175,076 ADIT 401,228,427 13,216,684 13,216,684 ADIT 10,039,037 178,273,697 187,316,414 Regulatory Assets 1365,786 178,53,88 25,671 Regulatory Labilities 613,614,157 620,567,650 627,899,222 Avice 57,377,710 58,004,458 59,120,354 Return 57,377,710 58,004,458 59,120,354 Return 57,377,710 58,004,458 59,120,354 State Income Tax 21,73% 4,687,697 4,734,846 4,900,412 Other Taxes 21,73% 4,687,697 4,734,846 4,900,412 Depreciation 0&M 36,651,528 37,677,808 35,625,350 A&G 10 15,44,45 190,544,		Total Return	9.35%	9.35%	9.45%	9.36%	9.24%
Plant in Service 1,139,138,168 1,182,832,342 1,216,970,243 104,216,284 104,175,984 104,175,984 104,175,984 11,084,427 11,084,427 11,084,427 11,084,427 11,084,427 11,084,427 11,084,427 11,084,428 11,084,187 11,084,427 11,084,447 11,	ate Bas	9.					
Stored - Noncurrent 104,216,284 104,175,984 104,175,076 mmulated Depreciation 463,948,184 491,228,427 -508,996,039 king Capital -17,039,482 11,305,461 13,216,684 11,305,786 -178,273,897 -187,998,144 -508,996,039 Jlatory Assets -170,039,037 -178,273,897 -187,998,144 -529,671 Jlatory Liabilities -9,029,831 -9,098,144 -520,671 -52,671 I Rate Base 613,614,157 620,567,650 627,899,222 -613,614,157 620,567,650 627,899,222 Income Tax 53.85% 21,573,883 21,790,875 22,552,848 59,120,354 50,0412 50,0412 60,035,354 6,095,694 5,985,545 60,035,354 6,095,694 5,985,545 60,035,354 6,095,694 5,985,545 60,035,545 60,035,545 60,035,545 60,035,545 60,035,545 60,035,545 60,035,545 60,035,545 60,035,545 60,035,044 188,230,151 172,745,109 172,745,109 173,687,003 168,906,483 168,906,483		Gas Plant in Service	1,139,138,168	1,182,832,342	1,216,970,243	1,220,063,646	1,241,049,740
innulated Depreciation 463,948,184 491,228,427 -508,996,039 -10,039,037 -178,23,697 -187,998,144 -170,039,037 -178,273,697 -187,998,144 -170,039,037 -178,273,697 -187,998,144 -1,365,786 -178,273,697 -187,998,144 -1,365,786 -178,273,697 -187,998,144 -1,365,786 -178,273,697 -187,998,144 -1,365,786 -178,273,697 -187,998,144 -1,365,786 -1,365,786 -1,305,873 -1,305,873 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,525,848 -1,790,875 -1,9,323,688 -1,9		Gas Stored - Noncurrent	104,216,284	104,175,984	104,175,076	104,171,529	104,185,082
king Capital 11,084,428 11,305,461 13,216,684 - 170,039,037 178,273,697 -187,998,144 - 18,273,697 -187,998,144 - 1365,786 785,818 529,671 - 187,998,144 - 1365,786 785,818 529,671 - 187,998,144 - 187,032,288 - 19,029,331 - 19,998,222 - 18,203,288 - 17,203,875 - 17,20,875 - 17,20,875 - 17,20,875 - 17,20,875 - 17,20,875 - 17,20,875 - 17,20,875 - 17,20,875 - 17,20,875 - 17,20,412 - 19,90,412 - 19,90,412 - 19,90,412 - 19,90,412 - 19,90,412 - 19,90,412 - 10,90,412 - 19,90,412 - 10,90,412		Accumulated Depreciation	-463,948,184	-491,228,427	-508,996,039	-499,076,811	-520,577,928
-170,039,037 -178,273,697 -187,998,144 -176,039,037 Lightory Assets		Working Capital	11,084,428	11,305,461	13,216,684	9,519,482	11,147,723
Liabilities 1,365,786 785,818 529,671 Liste Base 613,614,157 620,567,650 627,899,222 I Rate Base 613,614,157 620,567,650 627,899,222 In many serial income Tax 53.85% 21,573,883 21,790,875 22,552,848 In come Tax 21,573,883 21,734,846 4,900,412 Liste Base 613,614,157 620,567,650 627,899,222 In come Tax 53.85% 21,573,883 21,734,846 4,900,412 Liste Base 613,614,157 620,567,650 627,899,222 In come Tax 53.85% 21,734,846 4,900,412 Liste Base 613,614,157 620,567,650 627,899,222 Liste Base 613,614,157 620,567,848 5,982,548 Liste Base 613,614,157 620,567,848 5,982,548 Liste Base 613,614,157 620,567,848 5,982,548 Liste Base 613,614,157 620,567,849 188,230,151 Liste Base 613,614,157 620,650 627,899,228 Liste Base 613,614,157 620,650 627,899,222 Liste Base 613,614,157 620,650 627,899,228 Liste Base 613,614,157 620,629 Liste Base 613,614,147 620,614 Liste Base 613,614,147 620,147 Liste Base 613,614,147 620,147 Liste Base 613,614,147 620,147 Liste Base 613,614,147 Liste Base 613,614,147 Liste Base 613,614,147 Liste Base 613,614,147 Liste B		ADIT	-170,039,037	-178,273,697	-187,998,144	-112,408,051	-73,644,195
Rate Base		Regulatory Assets	1,365,786	785,818	529,671	399,773	446,685
In Rate Base 613,614,157 620,567,650 627,899,222 rial income Tax 53,85% 21,573,883 21,790,875 22,552,848 4,734,846 4,900,412 6,035,354 6,095,694 5,985,545 6,095,691 35,677,808 35,626,350 6,095,691 35,677,808 35,626,350 6,095,691 35,677,531 33,086,680 29,015,443 26,569,233 26,957,963 6,095,691 189,228,496 190,544,445 188,230,151 189,208 of Service Revenues 172,745,109 173,687,003 168,906,483 6,00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Regulatory Liabilities	-8,203,288	-9,029,831	-9,998,269	-11,486,206	-67,518,248
rial Income Tax 53.85% 21,573,883 21,790,875 22,552,848 4,900,412 21,73% 4,687,697 4,734,846 4,900,412 4,734,846 4,900,412 4,734,846 4,900,412 4,9		Total Rate Base	613,614,157	620,567,650	627,899,222	711,183,362	695,088,859
Income Tax	ost of §	Service					
53.85% 21,573,883 21,790,875 22,552,848 21.73% 4,687,697 4,734,846 4,900,412 6,035,354 6,095,694 5,985,545 34,016,881 35,677,808 35,626,350 36,521,528 37,617,331 33,086,680 29,015,443 189,228,496 190,544,445 188,230,151 1172,745,109 173,687,003 168,906,483 116,205,742 -19,323,668 -16,483,387 -16,857,442 -19,323,668 -16,483,387 -16,857,442 -19,323,668 -19,323,668 -16,483,387 -16,857,442 -19,323,668 -19,323,68 -19,323		Return	57,377,710	58,004,458	59,120,354	66,570,319	64,211,753
21.73% 4,687,697 4,734,846 4,900,412 6,035,354 6,095,694 5,985,45 34,016,881 35,677,808 35,626,350 36,521,528 34,016,881 37,671,531 33,086,680 396,521,528 496 190,544,445 188,230,151 19 172,745,109 173,687,003 168,906,483 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ncome Tax		21,790,875	22,552,848	25,085,284	23,519,294
6,035,354 6,095,694 5,985,545 34,016,881 35,677,808 35,626,350 36,521,528 37,671,531 33,086,680 29,015,443 26,569,233 26,957,963 189,228,496 190,544,445 188,230,151 11 172,745,109 173,687,003 168,906,483 11 0 0 0 -16,483,387 -16,857,442 -19,323,668 -19,323,668				4,734,846	4,900,412	5,450,674	5,110,407
34,016,881 35,677,808 35,626,350 36,521,528 37,671,531 33,086,680 29,015,443 26,569,233 26,967,963 189,228,496 190,544,445 188,230,151 11 172,745,109 173,687,003 168,906,483 11 0 0 0 0 0 -16,483,387 -16,857,442 -19,323,668 -16,483,387 -16,857,442 19,323,668 -19,323,668		Other Taxes	6,035,354	6,095,694	5,985,545	6,072,761	6,110,758
36,521,528 37,671,531 33,086,680 29,015,443 26,569,233 26,967,963 26,569,233 26,967,963 189,228,496 190,544,445 188,230,151 11 172,745,109 173,687,003 168,906,483 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Depreciation	34,016,881	35,677,808	35,626,350	35,805,313	35,731,454
29,015,443 26,569,233 26,957,963 189,228,496 190,544,445 188,230,151 172,745,109 173,687,003 168,906,483 0 0 0 -16,483,387 -16,857,442 -19,323,668 -16,483,387 -16,857,442 -19,323,668		O&M	36,521,528	37,671,531	33,086,680	30,303,095	34,790,528
189,228,496 190,544,445 188,230,151 172,745,109 173,687,003 168,906,483 0 0 0 -16,483,387 -16,857,442 -19,323,668 -16,483,387 -16,857,442 -19,323,668		A&G	29,015,443	26,569,233	26,957,963	24.583,605	14,523,702
172,745,109 173,687,003 168,906,483 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Total Cost of Service	189,228,496	190,544,445	188,230,151	193,871,050	183,997,895
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Total Revenues	172,745,109	173,687,003	168,906,483	166,059,950	166,420,868
-16,483,387 -16,857,442 -19,323,668 -16,483,387 -16,857,442 -19,323,668		Non-Cost of Service Revenues	0	0	0	0	
16,483,387 -16,857,442 -19,323,668 -19,323,668		Cost Over (Under) Recovery	-16,483,387	-16,857,442	-19,323,668	-27,811,100	-17,577,027
767 0		Over (Under) Recovery excl. non-COS rev	-16,483,387	-16,857,442	-19,323,668	-27,811,100	-17,577,027
3.170		Actual rate of return on equity *	9.17%	9.14%	8.86%	8.01%	9.23%

^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385)])-(Line 24 * (State Income Tax Percentage * .5385)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

werage price faluation of Fuel Recovery	\$924,305	\$4.15 \$4.15 \$1,039,423	\$2.44 \$2.44 \$593,287	\$2.32 \$2.32 \$568,623	\$2.70 \$2.70 \$656,219
Actual rate of return on equity including fuel	9.32%	9.30%	8.95%	8.09%	9.32%

^{2/} Annual Recalculation of Fuel - Complex Sharing Pursuant to 2005 Settlement.

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Data Input Section

Dominion Energy Transmission, Inc. (formerly GNG Transmission Corporation)

	Year End 2013	Year End 2014		Year End 2015 Year End 2016	Year End 2017	Source (Form 2)	12)
Total Plant in Service	5,081,817,969	5,408,016,781	5,605,470,943	5,397,085,852	5,915,312,613	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	1,589,498,386	1,690,799,720	1,808,521,131	1,709,494,540	1,813,731,347	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	8,092,410 843,881,401 17,863,996	6,680,603 905,642,745 18,556,733	34,328,022 985,004,109 6,167,159	48,020,209 1,040,311,081 4,141,276	24,419,394 735,282,321 ** 10,353,852	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	43,857,077 0	58,587,239 9,459,009	42,207,015 23,963,426	69,215,815 40,225,080	502,805,403 ***	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	3,914,198 47,057,475	3,536,938 42,459,259	4,848,510 44,384,064	3,889,410	3,406,165 40,324,036	p. 230 pp. 110-111	
Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	53,986,868 2,571,448	54,348,262	54,348,262 2,571,448	54,348,262 2,571,448	54,348,262 2,571,448	p. 110	
Operation and Maintenance Costs Production	206,737,769	139,427,820	100,971,903	61,428,076	27,881,398		0&M
Storage less: Comp. fuel and losses Net storage costs	33,948,594 -10,159,267 44,107,861	47,320,777 -2,413,864 49,734,641	45,797,519 1,667,302 44,130,217	46,298,155 -640,880 46,939,035	61,402,526 -637,709 62,040,235	p. 319	
Transmission less: Comp. fuel Net transmission costs	51,274,374 -57,334,231 108,608,605	55,135,235 -62,679,196 117,814,431	92,287,271 -16,710,445 108,997,716	100,767,281 -16,017,647 116,784,928	100,414,151 -29,623,321 130,037,472	pp. 320-321	
A&G	38,689,170	10,230,625	5,038,916	8,258,768	17,748,544	pp. 323-325	
Other Taxes	44,074,698	49,488,133	54,956,405	51,171,955	60,650,720	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	128,839,974	137,035,142	146,303,565	142,767,578	141,365,199	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue less: Fuel Revenues	1,835,443 1,090,207,475 72,673,702	1,041,008,920	2,145,512 891,233,647 16,470 740	2,007,567 803,341,173 36,544,850	2,118,800 785,067,660	p. 300	
Total Revenue Sales Revenues Net Revenues	1,019,369,216	980,706,466 13,538,305 967,168,161	876,908,419 5,072,841 871,835,578	768,803,890 4,567,109 764,236,781	787,186,460 7,323,237 779,863,223		

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	Model
GSA	Cost
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y Transmission	ransmission Co
Dominion Energy	(formerly CNG T)

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Account 495							
	Value of excess fuel retained	72,673,702	62,048,825	16,470,740	36,544,850	0	p. 308
	Penalty revenues	0	0	0	0	0	
	Gains on settlements of imbalances	Ol	01	01	0	0	
Total non-cost of service revenues	ice revenues	72,673,702	62,048,825	16,470,740	36,544,850	0	
Cost of Debt		3.24%	3.49%	3.38%	4.64%	4.65%	D. 218
Allowed Rate of Return on Equity	m on Equity	10.67%	10.67%	10.67%	10.67%	10.67%	p. 218
Account 496 - Provision for Rate Refunds	on for Rate Refunds	0	9,974,967	0	0	0	
Gas Received from Shippers (dth)	hippers (dth)	35,299,803	35,986,106	36,634,113	30,561,551	32,524,928	p.520
Gas Used for Compre	Gas Used for Compressor Station Fuel (dth)	15,849,785	21,013,896	21,992,947	19,963,499	24,987,591	p.520
Account 810 Amount of Credit	of Credit	85,235,521	85,118,623	33,053,818	26,092,709	39,795,824	p.331
Account 810 Gas Used (dth)	ed (dth)	24,750,716	25,543,571	23,315,457	18,715,091	18,097,900	p.331

> Dominion Energy Transmission, Inc. (formerly CNG Transmission Corporation)

Cost of Service Calculation

Allowed Return on Rate Base	Sate Base	Year End 2013	Year End 2014	rear End 2015	Year End 2013 Year End 2014 Year End 2015 Year End 2016 Year End 2017	Year End 2017
	Capitalization Debt	29.78%	42.00%	49.00%	46.00%	49.00%
	Equity	70.22%	28.00%	21.00%	54.00%	51.00%
	Return on Debt	0.96%	1.47%	1.66%	2.13%	2.28%
	Return on Equity	7.49%	6.19%			5 44%
	Total Return	8.46%	7.65%	7.10%		7.72%
Rate Base						
	Gas Plant in Service	5,081,817,969	5,408,016,781	5,605,470,943	5,397,085,852	5,915,312,613
	Gas Stored - Noncurrent	53,986,868	54,348,262		54,348,262	54,348,262
	Accumulated Depreciation	-1,589,498,386	-1,690,799,720	-1,808,521,131	-1,709,494,540	-1,813,731,347
	Working Capital	53,543,121	48,567,645	51,804,022	48,006,571	46,301,649
	ADIT	-853,652,987	-917,518,875	-956,843,246	-996,432,148	-721,216,779
	Regulatory Assets	43,857,077	58,587,239	42,207,015	69,215,815	0
	Regulatory Liabilities	O	-9,459,009	-23,963,426	-40,225,080	-502,805,403
	Total Rate Base	2,790,053,662	2,951,742,323	2,964,502,439	2,822,504,732	2,978,208,995
Cost of Service						
	Return	235,964,492	225,938,164	210,417,419	222,870,619	229,923,691
	Federal Income Tax 53.85%	5% 112,562,178	98,361,591	86,864,254	87,568,426	87,265,876
	State Income Tax 11.03%	3% 12,414,000	10,847,878	9.579.886	9,657,546	9,624,180
	Other Taxes	44,074,698	49,488,133	54,956,405	51,171,955	60,650,720
	Depreciation	128.839.974	137,035,142	146 303 565	142 767 578	141 365 199
	O&M	359,454,235	306,976,892	254.099.836	225,152,039	219 959 105
	A&G	38,689,170	10,230,625	5,038,916	8,258,768	17,748,544
	Total Cost of Service	931,998,747	838,878,425	767,260,281	747,446,932	766,537,315
	Total Revenues	1,003,787,889	967,168,161	871,835,578	764,236,781	779,863,223
	Non-Cost of Service Revenues	0	0	0	0	0
	Cost Over (Under) Recovery Over (Under) Recovery excl. non-COS rev	71,789,142	128,289,736 128,289,736	104,575,297	16,789,849	13,325,908 13,325,908
	Actual rate of return on equity *	12 83%	15 10%	14 76%	11 32%	11 10%
	Ambo to time to one to one	0.00:1	2	2011	0/35.11	0/61:11

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^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385))]-(Line 24 * (State Income Tax Percentage * .5385)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

\$62,0
\$72,673,702

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
*** DTI changed its capital structure ratios to that of Dominion Gas Holdings, LLC in 2013 instead of Dominion Resources, Inc. as previously provided.

NGSA Pipeline Cost Model Data Input Section El Paso Natural Gas Company, LLC

	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	12)
Total Plant in Service	3,495,102,306	3,529,887,574	3,556,271,693	3,581,174,437	3,635,296,931	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	1,401,404,852	1,470,353,575	1,530,562,888	1,594,845,918	1,669,576,700	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	12,081,209 626,197,300 8,330,129	19,784,485 569,442,471 7,036,609	19,481,770 572,525,500 5,685,791	19,816,471 78,516,883 5,745,831	12,438,288 63,114,321 *** 3,109,432	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	8,691,617 21,926,868	8,484,157	7,845,374 20,487,472	7,547,110	7,248,780 58,839,265 **	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	18,404,611 43,731,322	18,447,110 44,961,728	16,376,527 42,975,226	16,376,241 42,008,225	17,683,733	p. 230 pp. 110-111	Balance Sheet
Gas Stored Underground Base gas Acct. 117.1 System balancing	20,998,718 2,067,332	20,998,718	20,998,718	20,998,718	20,998,718	p. 110 p. 110	
Operation and Maintenance Costs Production	0	0	0	0	0	pp. 317-320	O&M
Storage less: Comp. fuel and losses Net storage costs	2,514,442 638,563 1,875,879	2,235,121 536,068 1,699,053	2,455,809 837,682 1,618,127	2,249,207 436,401 1,812,806	2,639,999 389,107 2,250,892	pp. 320-322	O&M
Transmission less: Comp. fuel Net transmission costs	233,045,017 86,269,041 146,775,976	282,522,341 120,951,591 161,570,750	225,082,723 71,876,752 153,205,971	223,512,338 <u>62,627,752</u> 160,884,586	242.938,177 76,773,231 166,164,946	p. 323	O&M
A&G	41,473,369	39,765,822	34,897,223	35,212,745	20,682,199	pp. 323-325	O&M
Other Taxes	26,725,536	27,953,564	29,508,692	33,220,425	33,793,020	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	86,442,202	86,814,719	91,050,233	87,813,178	88,208,339	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenues Net Revenues	2,021,617 <u>516,856,238</u> 518,877,855 518,877,855	1,651,585 575,952,507 577,604,092 4,522,561 573,081,531	1,987,729 632,223,412 634,211,141 23,286,311 610 924 830	2,003,719 625,836,811 627,840,530 2,103,185 625,733,345	2,079,048 646,025,565 648,104,613 647,473,496	p. 300	

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El Paso Natural Gas Company, LLC

593,022 1,867.292 1,802,102 918,757 1,725,474 8.06% 8.03% 8.00% 7.97% 7.94% p. 218 12.13% 12.13% 12.13% p. 218 10.151,625 38.581,000 39,752,781 35,908,437 39,091,417
5 12.13% 12.13% 12.13% p. 5. 38,581,000 39,752,781 35,908,437 39,091,417

NGSA Pipeline Cost Model

Cost of Service Calculation

El Paso Natural Gas Company, LLC

		Year End 2013	Vear End 2014	Veer Fred 2004F	1	TAOC L. 7
		200	1000	LEAL ENG ZUID	Year End 2016	rear End Zu
Allowed Return on Rate Base						
Capitalization						
Debt		47.81%	47.89%	49.22%	51.85%	53 20%
Equity		52.19%	52.11%	50.78%	48.15%	46.80%
Return on Debt		3.85%	3.85%	3.94%	4.13%	4.22%
Return on Equity		6.33%	6.32%	6.16%	5.84%	5 689
Total Return		10.18%	10.17%	10.10%	9.97%	%06.6
Rate Base						
Gas Plant in Service		3,495,102,306	3,529,887,574	3,556,271,693	3.581.174.437	3,635,296,931
Gas Stored - Noncurrent	rent	20,998,718	20,998,718	20,998,718	20,998,718	20,998,718
Accumulated Depreciation	iation	-1,401,404,852	-1,470,353,575	-1,530,562,888	-1.594.845.918	-1,669,576,700
Working Capital		64,203,265	64,240,941	60,183,856	58,384,466	58,901,833
ADIT		-622,446,220	-556,694,595	-558,729,521	-64,446,243	-53,785,465
Regulatory Assets		8,691,617	8,484,157	7,845,374	7,547,110	7.248.780
Regulatory Liabilities		-21,926,868	-21,207,170	-20,487,472	-19,767,774	-58,839,265
Total Rate Base		1,543,217,966	1,575,356,050	1,535,519,760	1,989,044,796	1,940,244,832
Cost of Service						
Return		157,163,370	160,158,730	155,044,716	198,368,233	192.102.089
Federal Income Tax	53.85%	52,605,367	53,618,577	50,928,818	62,554,181	59,308,628
State Income Tax	7.89%	4,153,055	4,233,046	4.020,696	4,938,488	4.682,260
Other Taxes		26,725,536	27,953,564	29,508,692	33,220,425	33,793,020
Depreciation		86,442,202	86,814,719	91,050,233	87,813,178	88,208,339
O&M		148,651,855	163,269,803	154,824,098	162,697,392	168,415,838
A&G		41,473,369	39,765,822	34,897,223	35,212,745	20,682,199
Total Cost of Service		517,214,755	535,814,261	520,274,476	584,804,642	567,192,373
Total Revenues		518,877,855	573,081,531	610,924,830	625.733.345	647.473.426
Non-Cost of Service Revenues	Revenues	593,022	1,867,292	1,802,102	918,757	1,725,474
Cost Over (Under) Recovery	ecovery	1,663,100	37,267,270	90,650,354	40,928,703	80,281,053
Over (Under) Recove	Over (Under) Recovery excl. non-COS rev	1,070,078	35,399,978	88,848,252	40,009,946	78,555,579
Actual rate of return on equity *	on equity *	12.26%	14.89%	19.19%	14.73%	17.50%

^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385))]-(Line 24 * (State Income Tax Percentage * .5385))]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
***In 2016, deferred taxes were reduced in connection with Kinder Morgan, Inc.'s acquisition of all outstanding common units of Kinder Morgan
Energy Partners, LP that it didn't already own. This sale is a taxable transaction under IRS rules, which increases the tax basis of the assets.

Enable Gas Transmission, LLC (previously CenterPoint Energy Gas Transmission Company, LLC)

	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
Total Plant in Service	2,437,495,847	2,431,675,019	2,545,176,443	2,585,131,042	2,588,711,269	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	703,861,863	740,363,742	785,458,959	836,582,952	886,033,244	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	422,646 431,553,422 2,115,157	676,494 456,268,994 762,536	1,256,718 491,865,295 810,784	1,884,307 508,325,001 1,187,909	1,483,918 340,139,026 ** 873,791	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities (rate base est.) Account 182.3 Account 254 (rate base est.)	00	00	00	00	726,548 ** 227,809,499 ***	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	1,112,555	1,419,409	344,370	615,549	2,430,984	p. 230 pp. 110-111	
Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	57,376,221 cing 2,649,137	57,376,221 12,232,653	57,376,221 5,395,420	57,376,221 20,130,435	57,376,221 16,109,796	p. 110	
Operation and Maintenance Costs Production	10,756,457	17,962,744	12,299,174	6,432,699	4,728,130		O&M
Storage less: Comp. fuel and losses Net storage costs	3,498,531 1,654,734 1,843,797	4,397,541 1,856,808 2,540,733	2,995,168 969,787 2,025,381	2,461,389 459,690 2,001,699	2,840,973 340,037 2,500,936	p. 322	
Transmission less: Comp. fuel Net transmission costs	112,914,776 19,102,759 93,812,017	107,329,007 19,938,091 87,390,916	100,756,031 13,726,627 87,029,404	79,303,306 9,007,684 70,295,622	77,311,492 6,305,896 71,005,596	p. 323	
A&G	51,514,608	52,807,185	50,354,803	40,497,411	37,917,907	pp. 323-325	
Other Taxes	26,163,644	23,795,569	23,829,529	20,147,289	20,254,972	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	58,396,981	61,497,813	59,631,211	62,088,251	63,255,932	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	0 441,535,296 441,535,296 28,154,950 413,380,346	0 494.067.033 494.067,033 80.394,494 413,672,539	0 447.765.658 447.765,658 67.761.183 380,004,475	0 483,357,194 483,357,194 68,775,659 414,581,535	0 485,061,874 485,061,874 89,563,214 395,498,660	p. 300	

Enable Gas Transmission, LLC (previously CenterPoint Energy Gas Transmission Company, LLC) Account 495

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Value of excess fuel retained 7.						
	7,975,899	10,380,960	6,321,095	5,448,201	5,919,602	
Penalty revenues	0	0	0	0	0	
nts of imbalances	4,859,663	2,882,328	0	0	0	
-	2,835,562	13,263,288	6,321,095	5,448,201	5,919,602	
Cost of Debt	2.63%	3.60%	3.82%	3.35%	3.35%	
te of Return on Equity	13.25%	13.25%	13.25%	13.25%	13.10%	
3 3 4 3 3						
Account 496 - Provision for Rate Refunds	0	0	0	0	0	

p. 218 p. 218

p. 308

Enable Gas Transmission, LLC (previously CenterPoint Energy Gas Transmission Company, LLC)

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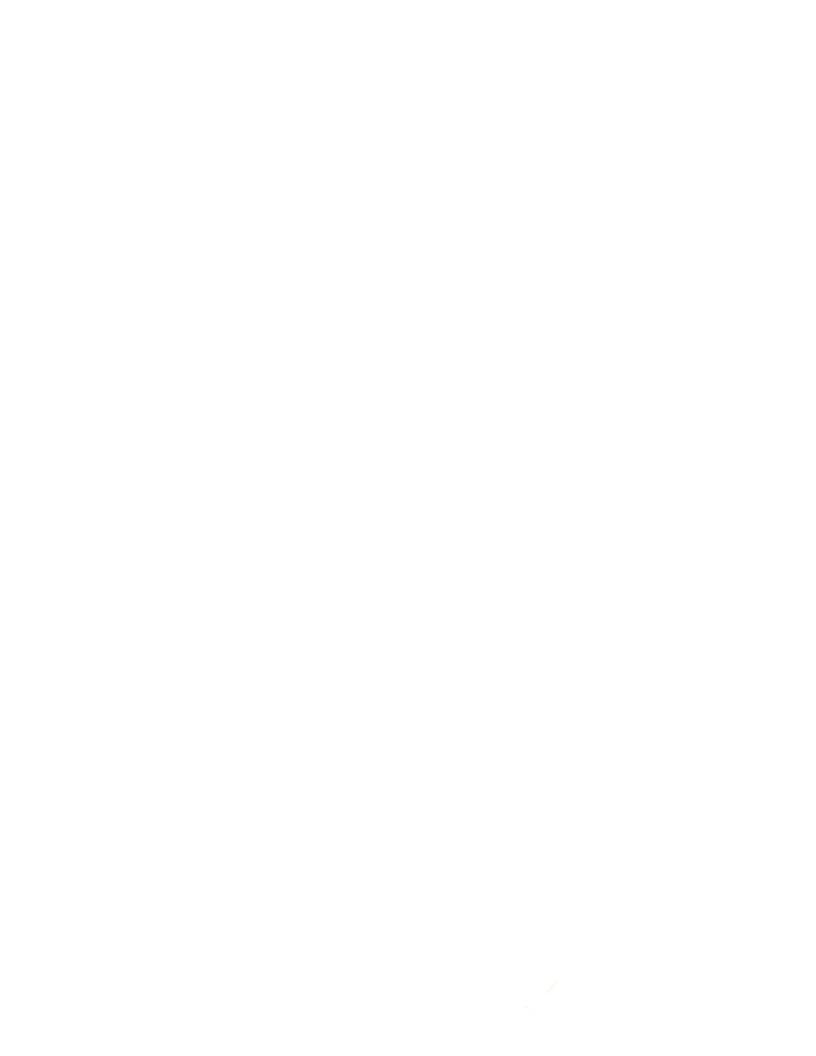
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Paper Pape	Near Ends Near End 2013 Near End 2014 Near End 2014 State Base							
Pater Base Pat	Rate Base 1,18% 1,12% 4			Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
1,000 1,00	1,382,086,313 1,324,514,874 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,08% 1,037	Allo						
184 29.88% 40.00% 40.0	1186 1186		Capitalization					
turn on Debtt turn on Equity 9.87% 1.087% 1.	turn on Debt to Debt t		Debt	31.81%	29.88%	40.00%	40.00%	40.00% ***
turn on Debt 1,08% 1,08% 1,53% 1,34% 1,34% turn on Debt turn on Debt turn on Cquilty 9,24% 1,08% 1,08% 1,38% 1,34%<	turn on Debt turn or Equity 9.87% 10.37% 1		Equity	68.19%	70.12%	%00.09	%00.09	%00.09
turn on Equity solved solved	trum on Equity 9.247,495,847 2,431,675,019 2,545,1 57,376,221 57,376,221 57,376,221 57,376,221 57,376,221 57,376,221 57,376,221 57,376,221 57,376,221 57,376,221 57,376,221 57,376,221 57,320,401 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142,142 32,182,142,142 32,182,142,142 32,182,142,142 32,182,142,142,142 32,182,144 32,142,144 32,144,142,144,142,144,144,144,144,144,14		Return on Debt	0.84%	1.08%	1.53%	1.34%	1.34%
tal Return s 9.87% tal Return s Plant in Service 2.437,495,847 2.431,675,019 2.545,176,443 2.545,176,443 2.585,131,042 2.588,77 2.431,675,019 2.545,176,443 2.585,131,042 2.588,77 2.433,242,933 2.456,355,036 2.2182,42 2.451,874,387 2.451,874,374 2.451,474,374 2.451,474,374 2.451,474,374 2.451,474,374 2.451,675,019 2.545,176,443 2.558,5131,042 2.558,817 2.433,245,933 2.456,355,036 2.2182,42 2.2575,387 2.2575,387 2.2575,387 2.2575,387 2.2575,387 2.2575,387 2.2575,387 2.2576,387 2.2578,387 2.258,27 2.2578,387 2.2578,387 2.2578,370 2.2778,370 2.2788,27 2.258,	tal Return sp. 87% tal Return sp. 87% tal Return sp. 87% tal Return sp. 877,495,847 2,437,495,847 2,431,675,019 2,545,1 57,376,221 -703,861,863 -703,861,874 -703,861,863 -703,861,863 -703,861,162		Return on Equity	9.04%	9.29%	7.95%	7.95%	7.86%
ss Stored - Noncurrent - 73.7495,847	ss Stored - Noncurrent		Total Return	%282%	10.37%	9.48%	9.29%	9.20%
sis Sland 2,437,495,847 2,431,675,019 2,545,176,443 2,585,131,042 3.585,131,042 sis Storded Lomocurrent 57,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,221 67,376,387 35,410,453 35,410,472 35,410,472 35,448,201 35,243,203 36,448,201	ss Stored - Noncurrent ss Stored - Noncurrent comulated Depreciation orking Capital Orking Capit	Rate	e Base					
st Stored - Noncurrent 57,376,221 57,376,352 57,376,352 57,376,352 436,5279,387 35,410,453 37,410,453 37,628,362 491,419,361 507,628,603 0	ss Stored - Noncurrent 57,376,221 57,376,221 -703,861,863 -740,363,742 -740,363,742 -740,361,863 -740,363,742 -740,361,863 -740,363,742 -740,361,863 -740,363,742 -740,361,863 -740,363,742 -740,361,863 -740,363,742 -740,361,963 -740,363,742 -740,361,963 -740,363,742 -740,361,963 -740,363,742 -740,363,744 -740,769 -740,760 -740,769 -740,769 -740,769 -740,769 -740,769 -740,769 -740,769		Gas Plant in Service	2,437,495,847	2,431,675,019	2,545,176,443	2,585,131,042	2.588,711,269
cumulated Depreciation -703 861 863 -740,363,742 -785,456,959 -836,582,952 cumulated Depreciation -703,861 863 -740,363,742 -785,456,959 -836,582,952 orking Capital 24,322,041 32,182,412 22,573,837 35,410,453 igulatory Assets 0 0 0 0 igulatory Liabilities 1,382,086,313 1,324,514,874 1,348,253,731 1,333,706,161 tal Rate Base 1,382,086,313 1,324,514,874 1,348,253,731 1,333,706,161 tal Rate Base 1,564,366,403 1,324,514,874 1,348,253,731 1,333,706,161 tal Rate Base 15,06% 7,315,452 7,207,179 6,209,805 1,239,706,161 tal Rate Income Tax 15,06% 7,315,452 7,306,434 23,795,569 23,829,529 20,147,289 speciation 16,412,271 107,894,393 101,353,959 414,581,535 104,371,11 tal Cost of Service 434,799,528 438,365,448 410,918,041 372,807,827 414,581,535 ist Over (Under) Recovery 21,41	cumulated Depreciation -703,861,863 -740,363,742 -103,861,863 -740,363,742 -103,22,041 32,182,412 -12,41		Gas Stored - Noncurrent	57,376,221	57,376,221	57,376,221	57,376,221	57,376,221
orking Capital 24,322,041 32,182,412 22,579,387 35,410,453 Olf Togulatory Liabilities 433,245,933 456,355,036 491,419,361 -507,628,603 gulatory Liabilities 1,382,086,313 1,324,514,874 1,348,253,731 1,333,706,161 tal Rate Base 1,382,086,313 1,324,514,874 1,348,253,731 1,333,706,161 turn 48,562,079 47,866,415 41,683,511 41,233,749 deral Income Tax 38.89% 48,562,079 47,866,415 41,683,511 41,233,749 ale Income Tax 38.89% 48,562,079 47,866,415 41,683,511 41,233,749 preciation 5.06% 7,313,452 7,207,179 6,277,539 6,209,805 der Taxes 5.68,396,981 61,497,813 59,631,211 62,088,251 AG 5.514,608 52,3826,529 20,147,289 reciation 56,412,201 50,354,803 40,497,411 tal Cost of Service 413,672,539 410,518,041 372,807,827 at Oct of Service Revenues 413,672,539	orking Capital 24,322,041 32,182,412 24,322,041 32,182,412 210TT gulatory Assets		Accumulated Depreciation	-703,861,863	-740,363,742	-785,458,959	-836,582,952	-886,033,244
Oltman -433,245,933 -456,355,036 -491,419,361 -507,628,603 gulatory Assets 0 0 0 0 gulatory Liabilities 0 0 0 0 tal Rate Base 1,382,086,313 1,324,514,874 1,348,253,731 1,333,706,161 turn 136,436,493 17,206,894 127,787,489 123,301,302 deral Income Tax 15,06% 7,313,452 7,207,179 6,209,805 her Taxes 15,06% 7,313,452 7,207,179 6,209,805 her Taxes 16,497,813 6,497,813 62,088,251 tw 106,412,271 107,894,393 101,353,959 20,147,289 spreciation 51,514,608 52,807,185 59,631,211 62,088,251 kM 434,799,528 438,365,448 410,918,041 372,807,827 tal Revenues 413,380,346 413,672,539 50,354,803 5,448,201 st Over (Under) Recovery -21,419,182 -24,692,909 -30,913,566 41,773,708 tual rate of return on e	gulatory Assets		Working Capital	24,322,041	32,182,412	22,579,387	35,410,453	32,833,489
gulatory Assets 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	tal Rate Base 1,382,086,313 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,874 1,3 1,324,514,514,874 1,3 1,324,514,514,614 1,3 1,3 1,3 1,3 1,3 1,3 1,3 1,3 1,3 1,3		ADIT	-433,245,933	-456,355,036	-491,419,361	-507,628,603	-339,528,899
tal Rate Base 1,382,086,313 1,324,514,874 1,348,253,731 1,333,706,161 1,382,086,313 1,324,514,874 1,348,253,731 1,333,706,161 1,348,62,079 1,348,62,079 1,27,787,489 1,233,749 1,332,324,89 1,332,324,89 1,332,324,393 1,323,324,89 1,332,324,393 1,323,324,891 1,332,324,891 1,332,324,891 1,332,324,891 1,332,324,891 1,332,324,891 1,332,324,891 1,332,324,891 1,332,332,391 1,333,325,391 1,333,333,333,333,333,333,333,333,333,	tal Rate Base 1,382,086,313 1,324,514,874 1,382,086,313 1,324,514,874 1,382,086,313 1,324,514,874 1,382,086,313 1,324,514,874 1,382,086,313 1,324,514,874 1,382,086,313 1,324,514,874 1,382,082,082 1,3202,082 1,3202,082 1,3202,382 1,		Regulatory Assets	0	0	0	0	726,548
turn deral Income Tax 136,436,493 deral Income Tax 136,436,493 deral Income Tax 15.06% 15.133,622 15.136,436,415 15.06% 15.133,452 26,175,339 deral Income Tax 15.06% 15.133,452 26,175,339 deral Income Tax 15.06% 15.133,622 26,133,543 23,705,161 41,233,749 23,735,569 23,829,529 20,147,289 23,739,569 25,807,179 21,419,182 101,353,959 101,333,90 101,33	tal Rate Base 1,382,086,313 1,324,514,874 1,382,086,313 1,324,514,874 1,382,086,313 1,324,514,874 1,382,086,313 1,324,514,874 1,381 1,306,894 1,386,415 1,306,894 1,386,415 1,306,894 1,386,415 1,306,894 1,306,133,96,394 1,306,133,96,394 1,306,412,271 1,07,894,393 1,06,412,271 1,07,894,393 1,06,412,271 1,07,894,393 1,006,412,271 1,07,894,393 1,006,412,271 1,006,412 1,00		Regulatory Liabilities	01	01	0	01	-227,809,499
turn deral Income Tax 38.89% 48.562.079 47.856,415 47.893,511 41.233,749 ate Income Tax 15.06% 7,313,452 26,163,644 23,795,569 23,829,529 20,147,289 26,163,644 23,795,569 23,829,529 20,147,289 24,136,181 24,191,182 24,692,909 24,48,201 37,206,894 41,233,749 41,233,749 41,233,749 41,233,749 41,233,749 41,233,749 41,233,749 41,233,749 41,233,749 41,233,749 41,233,749 41,233,749 41,358,365 41,365,448 410,918,041 372,807,827 31,267,479 41,581,535 380,004,475 414,581,535 38,365,448 410,918,041 372,807,827 31,263,289 413,672,539 380,004,475 414,581,535 38,365,448 410,918,041 372,807,827 31,248,201 41,773,708	turn deral Income Tax 38.89% deral Income Tax 15.06% T,313,452 T,207,179 T,207,189 T,2		Total Rate Base	1,382,086,313	1,324,514,874	1,348,253,731	1,333,706,161	1,226,275,885
1% 436,436,493 137,306,894 127,787,489 123,901,302 1 48,562,079 47,856,415 41,683,511 41,233,749 1 7,313,452 7,207,179 6,277,539 6,209,805 26,163,644 23,795,569 23,829,529 20,147,289 58,396,981 61,497,813 59,631,211 62,088,251 106,412,771 107,894,393 101,353,959 78,730,020 51,514,608 52,807,185 50,354,803 40,497,411 434,799,528 413,672,539 380,004,475 414,581,535 12,835,562 13,263,288 6,321,095 5,448,201 -21,419,182 -24,692,909 -30,913,566 41,773,708 -34,254,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	136,436,493 137,306,894 48,562,079 47,856,415 7,313,452 7,207,179 26,163,644 23,795,569 58,396,981 61,497,813 106,412,271 107,894,393 51,514,608 52,807,185 434,799,528 438,365,448 413,880,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197	Cos	t of Service					
9% 48,562,079 47,856,415 41,683,511 41,233,749 7,313,452 7,207,179 6,277,539 6,209,805 26,163,644 23,795,569 23,829,529 20,147,289 58,396,981 61,497,813 59,631,211 62,088,251 106,412,271 107,894,393 101,353,959 78,730,020 51,514,608 52,807,185 50,354,803 40,497,411 434,799,528 438,365,448 410,918,041 372,807,827 3 413,380,346 413,672,539 6,321,095 5,448,201 -21,419,182 -24,692,909 -30,913,566 41,773,708 -21,419,182 -24,692,909 -30,913,566 36,325,507 11,75% 11,49% 10,72% 16,70%	9% 48,562,079 47,856,415 7,313,452 7,207,179 26,163,644 23,725,569 58,386,981 61,497,813 106,412,271 107,894,393 51,514,608 52,807,185 434,799,528 438,365,448 413,380,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%		Return	136,436,493	137,306,894	127,787,489	123,901,302	112,817,381
1% 7,313,452 7,207,179 6,277,539 6,209,805 26,163,644 23,795,569 23,829,529 20,147,289 58,386,381 61,497,813 59,631,211 62,088,251 106,412,271 107,894,393 101,353,959 78,730,020 51,514,608 52,807,185 50,354,803 40,497,411 434,799,528 438,365,448 410,918,041 372,807,827 3 413,380,346 413,672,539 6,321,095 5,448,201 5,448,201 -21,419,182 -24,692,909 -30,913,566 41,773,708 -21,419,182 -24,692,909 -30,313,566 41,773,708 -34,284,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	7,313,452 7,207,179 26,163,644 23,795,569 58,396,981 61,497,813 106,412,771 107,894,393 51,514,608 52,807,185 434,799,528 438,365,448 413,380,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%				47,856,415	41,683,511	41,233,749	37,483,166
26,163,644 23,795,569 23,829,529 20,147,289 58,386,981 61,497,813 59,631,211 62,088,251 106,412,271 107,894,393 101,353,959 78,730,020 51,514,608 52,807,185 50,354,803 40,497,411 434,799,528 438,365,448 410,918,041 372,807,827 3 413,380,346 413,672,539 380,004,475 414,581,535 3 12,835,562 13,263,288 6,321,095 5,448,201 -21,419,182 -24,692,909 -30,913,566 41,773,708 -34,254,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	26,163,644 23,795,569 58,396,981 61,497,813 106,412,271 107,884,393 51,514,608 52,807,185 434,799,528 438,365,448 413,380,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%				7,207,179	6,277,539	6.209,805	5,644,967
58,396,981 61,497,813 59,631,211 62,088,251 106,412,71 107,894,393 101,353,959 78,730,020 51,514,608 52,807,185 50,354,803 40,497,411 434,799,528 438,365,448 410,918,041 372,807,827 3 413,380,346 413,672,539 380,004,475 414,581,535 3 12,835,562 13,263,288 6,321,095 5,448,201 -21,419,182 -24,692,909 -30,913,566 41,773,708 -34,254,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	58,396,981 61,497,813 106,412,271 107,894,393 51,514,608 52,807,185 434,799,528 438,365,448 413,380,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%		Other Taxes	26,163,644	23,795,569	23,829,529	20,147,289	20,254,972
106,412,271 107,894,393 101,353,959 78,730,020 51,514,608 52,807,185 50,354,803 40,497,411 434,799,528 438,365,448 410,918,041 372,807,827 3 413,380,346 413,672,539 380,004,475 414,581,535 3 12,835,562 13,263,288 6,321,095 5,448,201 -21,419,182 -24,892,309 -30,913,566 41,773,708 -34,254,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	106,412,271 107,894,393 51,514,608 52,807,185 434,799,528 438,365,448 413,380,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%		Depreciation	58,396,981	61,497,813	59,631,211	62,088,251	63,255,932
51,514,608 52,807,185 50,354,803 40,497,411 434,799,528 438,365,448 410,918,041 372,807,827 3 413,380,346 413,672,539 380,004,475 414,581,535 3 12,835,562 13,263,288 6,321,095 5,448,201 -21,419,182 -24,892,909 -30,913,566 41,773,708 -34,254,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	51,514,608 52,807,185 434,799,528 438,365,448 413,880,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%		O&M	106,412,271	107,894,393	101,353,959	78,730,020	78,234,662
434,799,528 438,365,448 410,918,041 372,807,827 3 413,380,346 413,672,539 380,004,475 414,581,535 3 12,835,562 13,263,288 6,321,095 5,448,201 -21,419,182 -24,692,909 -30,913,566 41,773,708 -34,254,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	434,799,528 438,365,448 413,380,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%		A&G	51,514,608	52,807,185	50,354,803	40,497,411	37,917,907
413,380,346 413,672,539 380,004,475 414,581,535 3 12,835,562 13,263,288 6,321,095 5,448,201 -21,419,182 -24,692,909 -30,913,566 41,773,708 -34,254,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	413,380,346 413,672,539 12,835,562 13,263,288 -21,419,182 -24,682,909 -34,254,744 -37,956,197 11,75% 11,49%		Total Cost of Service	434,799,528	438,365,448	410,918,041	372,807,827	355,608,988
12,835,562 13,263,288 6,321,095 5,448,201 -21,419,182 -24,692,909 -30,913,566 41,773,708 -34,254,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	12,835,562 13,263,288 -21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%		Total Revenues	413,380,346	413,672,539	380,004,475	414,581,535	395,498,660
-21,419,182 -24,692,909 -30,913,566 41,773,708 -34,284,744 -37,956,197 -37,234,661 36,325,507 11,75% 11,49% 10,72% 16,70%	-21,419,182 -24,692,909 -34,254,744 -37,956,197 11,75% 11,49%		Non-Cost of Service Revenues	12,835,562	13,263,288	6,321,095	5,448,201	5,919,602
-34,254,744 -37,956,197 -37,234,661 36,325,507 11.75% 11.49% 10.72% 16.70%	-34,254,744 -37,956,197 -37, 11.75% 11,49%		Cost Over (Under) Recovery	-21,419,182	-24,692,909	-30,913,566	41,773,708	39,889,672
11.75% 11,49% 10.72% 16.70%	11.75% 11,49%		Over (Under) Recovery excl. non-COS rev	-34,254,744	-37,956,197	-37,234,661	36,325,507	33,970,070
			Actual rate of return on equity *	11.75%	11.49%	10.72%	16.70%	16.69%

^{* [[}Line 24 - (Line 24 *(.3889/(1+.3889)))-(Line 24 * (State Income Tax Percentage * .3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
***NGSA uses an estimated 60 percent equity capitalization rate instead of Enable's reported greater than 70% equity ratios in the 2015-2017 Form 2s. 70% and greater equity is not within a range FERC has historically approved.



NGSA Pipeline Cost Model

Florida Gas Transmission Company, LLC

			Data Input Section	uo				
		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
•	Total Plant in Service	6,192,242,973	6,265,091,604	6,323,588,034	6,392,256,509	6,519,394,797	p. 110	Balance Sheet.
2	Total Accum, Depreciation, Amortization	1,725,759,765	1,830,183,852	1,938,401,369	2,030,216,327	2,145,863,656	p. 110	Balance Sheet
w 4 m	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	90,894,742 1,192,812,786 60,217,291	89,746,316 1,365,955,481 58,834,284	0 1,413,306,673 59,400,913	0 1,418,587,671 57,038,482	0 954,834,180 ** 36,830,461	pp. 234-235 pp. 274-275 pp. 276-277	
9 2	Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	est.) 541,621,457 est.) 18,047,890	526,866,760 21,297,623	512,653,734 23,717,656	484,417,287 24,158,343	455,273,858 665,193,429 **	p. 232 p. 278	
& 0	Working Capital Prepayments Materials and Supplies	2,618,794	1,193,734 22,509,966	2,028,645 21,296,248	1,977,418 22,125,066	1,718,756 23,041,389	p. 230 pp. 110-111	
01	Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	o 0 0	00	00	00	00	p. 110 p. 110	
12	Operation and Maintenance Costs Production	0	0	0	0	0		O&M
13 15 15	Storage less: Comp. fuel and losses Net storage costs	0 0 0	0 0 0	0 0 0	0 010	0 010	p. 322	
16 17 18	Transmission less: Comp. fuel Net transmission costs	151,065,706 49,376,639 101,689,067	174,825,578 72,525,227 102,300,351	158,940,776 59,581,677 99,359,099	144,575,679 53,476,111 91,099,568	155,488,057 60,142,468 95,345,589	p. 323	
19	A&G	36,889,300	38,176,860	39,031,051	31,938,416	36,383,192	pp. 324-325	
20	Other Taxes	58,446,752	49,777,823	54,119,259	51,708,245	53,481,473	p. 114	Income Statement
21	Depreciation, Amortization, and Negative Salvage	118,923,337	120,921,044	122,403,638	120,467,877	122,069,562	p. 114	Income Statement
28 23 23 28 28 28 28 28 28 28 28 28 28 28 28 28	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	1,409,386 782,677,504 784,086,890 1,858,059 782,228,831	1,124,229 794,866,249 795,990,478 3,400,875 792,589,603	1,374,095 815,113,820 816,487,915 2,083,450 814,404,465	1,378,614 828,080,688 829,459,302 4,125,028 825,334,274	1,244,575 838,031,331 839,275,906 7,119,886 832,156,020	р. 300 р. 301	

	ode
	Cost M
NGSA	Pipeline

Florida Gas Transmission Company, LLC						
Account 495						0.308
Value of excess fuel retained	0	0	0	0	0	
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	0	0	0	0	0	
Other	0	0	0	0	0	
Total non-cost of service revenues	0	0	0	0	0	
Cost of Debt	6.09%	6.01%	6.02%	5.97%	5.92%	p. 218
Allowed Kate of Keturn on Equity	12.10%	12.10%	12.10%	12.50%	11.79%	p. 218
Account 496 - Provision for Rate Refunds	0	0	0	0	0	
			0			

 NGSA Pipeline Cost Model

Florida Gas Transmission Company, LLC

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Allowed Determ on Date of	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Allowed Return of Trate base Capitalization Debt	7000	100/	45 450/	70000	L
	0/07:04	40.1070	43.1370	46.81%	25.58%
Equity	54.80%	53.90%	54.85%	51.19%	44.42%
Return on Debt	2.75%	2.77%	2.72%	2.91%	3.29%
Return on Family	663%	A 52%	B 6.40%	R A0%	E 340/
Total Return	9.38%	9.29%	9.35%	9.31%	8.53%
Rate Base					
Gas Plant in Service	6,192,242,973	6,265,091,604	6,323,588,034	6,392,256,509	6,519,394,797
Gas Stored - Noncurrent	0	0	0	0	0
Accumulated Depreciation	-1,725,759,765	-1,830,183,852	-1,938,401,369	-2,030,216,327	-2,145,863,656
Working Capital	21,861,395	23,703,700	23,324,893	24.102.484	24.760,145
ADIT	-1,162,135,335	-1,335,043,449	-1,472,707,586	-1.475,626,153	-991,664,641
Regulatory Assets	541,621,457	526,866,760	512,653,734	484,417,287	455,273,858
Regulatory Liabilities	-18,047,890	-21,297,623	-23,717,656	-24,158,343	-665,193,429
Total Rate Base	3,849,782,835	3,629,137,140	3,424,740,050	3,370,775,457	3,196,707,074
Cost of Service					
Return	361,243,602	337,237,932	320,380,322	313,910,442	272,597,725
Federal Income Tax 45.99%	117,387,578	108,842,247	104,522,454	99,184,760	76,986,608
State Income Tax 9.19%	10,786,736	10,001,506	9,604,561	9,114,081	7,074,294
Other Taxes	58,446,752	49,777,823	54,119,259	51,708,245	53,481,473
Depreciation	118,923,337	120,921,044	122,403,638	120,467,877	122.069.562
O&M	101,689,067	102,300,351	99,359,099	91,099,568	95.345.589
A&G	36.889,300	38,176,860	39,031,051	31,938,416	36,383,192
Total Cost of Service	805,366,373	767,257,763	749,420,384	717,423,389	663,938,443
Total Revenues	782,228,831	792,589,603	814,404,465	825,334,274	832,156,020
Non-Cost of Service Revenues	0	0	0	0	0
Cost Over (Under) Recovery	-23,137,542	25,331,840	64,984,081	107,910,885	168,217,577
Over (Under) Recovery excl. non-COS rev	-23,137,542	25,331,840	64,984,081	107,910,885	168,217,577
Actual rate of return on equity *	14 4007	10000	1000		

^{* [[}Line 24 - (Line 24 *(.4599/(1+.4599)])-(Line 24 * (State Income Tax Percentage * .4599)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017,

Data Input Section

Gas Transmission Northwest LLC (formerly Pacific Gas Transmission, Northwest Corp.)

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	(2)
Total Plant in Service		1,716,450,882	1,716,180,274	1,774,586,281	1,782,724,412	1,811,446,718	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	mortization	968,354,677	999,808,417	1,028,877,765	1,063,266,790	1,099,854,384	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	e Taxes	8,369,755 68,708,652 1,003,922	8,685,495 87,114,505 993,459	8,983,626 82,771,244 1,149,758	9,257,867 102,866,110 1,097,221	6,265,907 82,647,304 ** 551,441	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities Account 182.3 Account 254	ties (rate base est.) (rate base est.)	613,206	767,926	1,348,822	1,386,798	896,532 53,724,064 **	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	sejiddi	393,022 6,124,184	346,185 5,687,779	343,055 5,854,418	263,746 6,186,439	114,489 6,152,975	p. 230 pp. 110-111	
Gas Stored Underground Acct, 117.1 Acct, 117.2	Base gas System balancing	-91,261	-370,830	-243,942	0-478,804	0-73,434	p. 110	
Operation and Maintenance Costs Production	Sosts	0	0	0	0	0		O&M
Storage less: Comp. fuel and losses Net storage costs	iel and losses s	0 0 0	0 0 0	0 010	0010	000	p. 322	
Transmission less: Comp. fuel Net transmission costs	lel costs	42,248,639 27,351,657 14,896,982	34,218,987 21,845,490 12,373,497	42,315,504 29,638,090 12,677,414	48,825,146 33,297,188 15,527,958	54,745,887 36,173,548 18,572,339	p. 323	
A&G		24,042,192	24,043,741	22,005,937	18,736,253	23,844,042	p. 325	
Other Taxes		9,231,359	8,970,358	8,642,296	8,752,718	8,811,124	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	nd Negative Salvage	36,850,762	36,992,106	36,278,244	37,389,202	37,914,809	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues Net Revenues	venue	1,294,051 193,085,851 194,379,902 194,379,902	890,014 187,280,113 188,170,127 188,170,127	1,110,767 196,237,114 197,347,881 197,347,881	1,183,551 <u>210,876,498</u> 212,060,049 212,060,049	1,169,169 <u>216,849,103</u> 218,018,272 218,018,272	p. 300	

110

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15 16 16

		Profile Coal Mode	5			
Gas Transmission Northwest LLC						
(formerly Pacific Gas Transmission, Northwest Corp.)						
Account 495						n 308
Value of excess fuel retained	0	0	0	0	0	200
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	0	0	0	0	0	
Total non-cost of service revenues	0	0	0	0	0	
Cost of Debt Allowed Rate of Return on Equity	5.53% 12.20%	5.53%	5.07% 12.20%	4.91% 12.20%	4.68%	p. 218 p. 218
Account 496 - Provision for Rate Refunds	0	0	0	D	0	

 NGSA Pipeline Cost Model

Cost of Service Calculation

Gas Transmission Northwest LLC (formerly Pacific Gas Transmission, Northwest Corp.)

Name						
2.16% 1.86% 1.65% 63.45% 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.40% 6 63.80% 7.744% 6 60.274 1.7745.86.281 1.776.7412 1.811.44 1.028.877.765 1.063.266.790 1.099.88 63.24.412 1.346.812 6.13.81 6.11 6.13 6.13 6.13 6.13 6.13 6.13 6.1		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
99.00% 33.70% 36.55% 36.50% 5 39.00% 100% 165.	un on Kate base Capitalization					
ty 61.00% 66.30% 63.45% 63.46% 63.86% 6 m on Debt 2.16% 1.86% 1.86% 1.86% 1.78% 1.778% m on Debt 7.44% 8.09% 2.14% 1.78% 1.778% 1.778% I m on Equity 7.44% 8.09% 7.74% 7.74% 7.78% 1.778% Plant in Service 1.716.450.882 1.716.180.274 1.774.586.281 1.774.586.281 1.811.44 Stored - Noncurrent -968.354.677 -998.808.477 1.028.877.76 1.039.887 1.811.44 sting Capital 6.425.4677 -998.808.477 1.028.877.76 1.039.87 1.811.44 sting Capital 6.423.281.32 767.926 1.348.822 1.386.78 1.811.44 station Capital 6.43.28.98 2.01.2078 7.24.48 678.073.49 63.21.10.37 588.07 station Capital 6.43.28.98 1.94.28.6 1.94.33.86 1.94.33.86 1.94.30.37 1.86.03.86 1.88.70.86 mulatory Liabilities 8.88.99 <td>Debt</td> <td>39.00%</td> <td>33.70%</td> <td>36.55%</td> <td>36.20%</td> <td>38.73%</td>	Debt	39.00%	33.70%	36.55%	36.20%	38.73%
m on Debt m on Debt 1.86% 1.86% 1.86% 1.78% 1.81144	Equity	61.00%	%08.39%	63.45%	63.80%	61.27%
Name	keturn on Debt	2.16%	1.86%	1.85%	1.78%	1.81%
Plant in Service	teturn on Equity	7.44%	8.09%	7.74%	7.78%	7.47%
Plant in Service 1,716,450,882 1,716,450,882 1,716,450,882 1,716,450,882 1,716,450,882 1,716,450,882 1,716,450,824 1,716,450,8281 1,782,724,412 1,81 1,82,724,412 1,81 1,82,724,412 1,81 1,82,724,412 1,81 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,82,724,412 1,825,224,123 1,925,331 1,925,331 1,925,331 1,925,331 1,925,331 1,925,331 1,925,331 1,936,798 1,9	otal Return	9.60%	9.95%	9.59%	9.56%	9.29%
Plant in Service 1,716,450,882 1,716,450,882 1,716,486,281 1,718,474,12 1,81 Slored - Noncurrent mulated Depreciation 968,354,677 -999,808,047 -1,028,877,765 -1,063,266,790 -1,06 mulated Depreciation -968,354,677 -999,808,047 -1,028,877,765 -1,063,266,790 -1,06 sing Capital -61,342,819 -79,422,469 -74,937,376 -1,063,266,796 -1,063,266,796 alatory Liabilities 693,792,537 643,380,448 678,073,493 632,110,337 58 Instancy Liabilities 693,792,537 643,380,448 678,073,493 632,110,337 58 Instance Tax 38,89% 20,079,127 20,237,961 20,412,386 19,133,699 1 Instance Tax 38,89% 20,079,127 20,237,961 20,412,386 19,133,699 1 Instance Tax 38,89% 20,079,127 20,237,961 20,412,386 19,133,699 1 Instance Tax 38,89% 20,079,127 20,237,961 20,412,386 10,133,699 1 <						
Stored - Noncurrent 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	as Plant in Service	1,716,450,882	1,716,180,274	1,774,586,281	1,782,724,412	1,811,446,718
img Capital 6,425,946 7, 999,808,417 -1,028,877,765 -1,063,266,790 -1,069,808,417 -1,028,877,765 -1,063,266,790 -1,069,808,417 -1,028,877,765 -1,063,266,790	as Stored - Noncurrent	0	0	0	0	2
sing Capital 6,425,945 5,663,134 5,953,531 5,971,381 1 Lilatory Assets 613,206 767,926 1,348,822 1,386,796 0,436,196 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,	scumulated Depreciation	-968,354,677	-999,808,417	-1,028,877,765	-1,063,266,790	-1,099,854,384
Hate Base	orking Capital	6,425,945	5,663,134	5,953,531	5,971,381	6,194,030
Inationy Assets 613,206 767,926 1,348,822 1,386,798 Inationy Liabilities 0 0 0 0 0 Inationy Liabilities 0 0 0 0 0 0 Ination Liabilities 0 0 0 0 0 0 0 Ination Companies 0 0 0 0 0 0 0 0 0 In State Base 0 <	DIT	-61,342,819	-79,422,469	-74,937,376	-94,705,464	-76,932,838
Instrory Liabilities	egulatory Assets	613,206	767,926	1,348,822	1,386,798	896,532
In Rate Base 693,792,537 643,380,448 678,073,493 632,110,337 1 In Income Tax 38.89% 20,079,127 20,237,961 20,412,385 19,133,699 In Income Tax 9.86% 1,979,228 1,994,885 2,012,078 1,886,036 In Income Tax 9.86% 1,979,228 1,994,885 2,012,078 1,886,036 In Income Tax 9.86% 1,973,339 8,970,358 8,642,296 8,752,718 In Income Tax 9.86% 1,973,339 8,970,358 8,642,296 8,752,718 In Income Tax 9.86% 1,973,349 12,677,414 15,527,958 In Income Tax 36,850,762 36,992,106 36,278,244 37,389,202 In Income Tax 36,850,762 36,992,106 36,278,244 37,389,202 In Income Tax 173,674,714 168,643,121 167,082,624 161,862,062 In Income Tax 194,379,902 188,170,127 197,347,881 212,060,049 100,049 In Income Tax 194,379,902 18,170,127 197,	egulatory Liabilities	0	0	O	0	-53,724,064
m 66,595,064 64,030,573 65,054,269 60,436,196 coldadring set lincome Tax 38.89% 20,079,127 20,237,961 20,412,385 19,133,699 coldadring set lincome Tax 9.86% 1,979,228 1,994,885 2,012,078 1,886,036 eciation 36,850,762 36,992,106 36,2296 8,752,718 24,042,192 12,373,497 12,677,414 15,527,958 18,736,253 18,736,253 18,736,263 173,674,714 168,643,121 167,082,624 161,862,062 173,674,714 168,643,121 167,082,624 161,862,062 10,00 over (Under) Recovery excl. non-COS rev 20,705,188 19,527,006 30,265,257 50,197,987 15,53% 15,53% 175,006 30,265,257 50,197,987 15,53% 15,53% 175,006 30,265,257 50,197,987 15,53% 15,53% 15,32% 17,00% 20,68%	otal Rate Base	693,792,537	643,380,448	678,073,493	632,110,337	588,025,994
Name	92					
Income Tax 38.89% 20,079,127 20,237,961 20,412,385 19,133,699 come Tax 9.86% 1,979,228 1,994,885 2,012,078 1,886,036 axes 9.86% 1,979,228 1,994,885 2,012,078 1,886,036 axes 9.231,359 8.970,358 8.642,296 8.752,718 ation 14,896,982 12,373,497 12,677,414 15,527,958 24,042,192 24,043,741 168,643,721 167,082,624 18,736,253 st of Service 173,674,714 168,643,121 167,082,624 167,862,062 st of Service Revenues 194,379,902 188,170,127 197,347,881 212,060,049 o 0 0 0 0 0 orr (Under) Recovery 20,705,188 19,527,006 30,265,257 50,197,987 ate of return on equity * 15,53% 15,32% 17,00% 20,68%	eturn	66,595,064	64,030,573	65,054,269	60,436,196	54,612,938
IX 9.86% 1,979,228 1,994,885 2,012,078 1,886,036 9,231,359 8,970,358 8,642,296 8,752,718 36,850,762 36,992,106 36,278,244 37,389,202 14,896,982 12,373,497 12,677,414 15,527,958 24,042,192 24,043,741 167,082,624 161,862,062 vice 173,674,714 168,643,121 167,082,624 161,862,062 vice Revenues 194,379,902 188,170,127 197,347,881 212,060,049 7 scovery 20,705,188 19,527,006 30,265,257 50,197,987 turn on equity * 15,53% 17,00% 20,68%			20,237,961	20,412,385	19,133,699	17,093,452
9,231,359 8,970,358 8,642,296 8,752,718 36,850,762 36,992,106 36,278,244 37,389,202 14,896,982 12,373,497 12,677,414 15,527,958 24,042,192 24,043,741 12,677,414 15,527,958 18,736,253 18,736,253 18,736,253 18,736,253 18,736,263 194,379,902 188,170,127 197,347,881 212,060,049 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Tax		1,994,885	2,012,078	1,886,036	1,684,926
36.850.762 36.992.106 36.278,244 37.389,202 14.896,982 12.373,497 12.677,414 15.527,958 24,042,192 24,043,741 22.005,937 18.736,253 18.736,253 18.736,253 18.736,253 18.736,253 18.736,253 18.736,253 18.736,253 18.736,253 18.736,263	her Taxes	9,231,359	8,970,358	8,642,296	8,752,718	8,811,124
rvice 17.367.414 15.527.958 12.006.937 12.677.414 15.527.958 24.042.192 24.043.741 22.005.937 18.736.253 18.736.253 18.736.253 18.736.253 19.4.379.902 188.170.127 197.347,881 212.060.049 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	spreciation	36,850,762	36,992,106	36,278,244	37,389,202	37,914,809
rvice 173,674,714 168,643,121 167,082,624 161,862,062 197 194,379,902 188,170,127 197,347,881 212,060,049 20,705,188 19,527,006 30,265,257 50,197,987 10m on equity * 15,53% 15,387 15,308 20,68% 17,008 20,688 17,008 20,688	&M	14,896,982	12,373,497	12,677,414	15,527,958	18,572,339
rvice Revenues 173,674,714 168,643,121 167,082,624 161,862,062 194,379,902 188,170,127 197,347,881 212,060,049 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9%	24,042,192	24,043,741	22,005,937	18,736,253	23,844,042
vice Revenues 194,379,902 188,170,127 197,347,881 212,060,049 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	otal Cost of Service	173,674,714	168,643,121	167,082,624	161,862,062	162,533,629
20,705,188 19,527,006 30,265,257 50,197,987 20,705,188 19,527,006 30,265,257 50,197,987 15,53% 15,32% 17,00% 20,68%	otal Revenues on-Cost of Service Revenues	194,379,902	188,170,127 0	197,347,881	212,060,049	218,018,272
15,53% 15,32% 17,00% 20,68%	ost Over (Under) Recovery ver (Under) Recovery excl. non-COS r		19,527,006 19,527,006	30,265,257 30,265,257	50,197,987	55,484,643 55,484,643
	ctual rate of return on equity *	15,53%	15.32%	17.00%	20.68%	22.70%

^{* [[}Line 24 - (Line 24 *(.3889)/1+.3889)])-(Line 24 * (State Income Tax Percentage * ..3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

l Pipelind Great Lakes Gas Transmission Ltd. Partnership

		Data Input Section	ction				
	2000	L	1	1			
	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	n.2)
Total Plant in Service	2,069,560,368	2,074,859,217	2,076,414,060	2,087,281,582	2,105,807,765	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	1,300,815,616	1,328,100,415	1,352,605,205	1,379,043,274	1,407,091,302	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	15,164 198,560,108 1,346,309	8,371 201,968,470 1,285,597	204,805,335 1,232,194	2,469 207,957,097 1,112,575	2,256,749 136,504,588 ** 330,722	pp. 234-235 pp. 274-275 pp. 276-277	Prior yr. changed
Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	3,548,101	3,388,098	3,247,359	2,932,113	1,345,567 97,031,071 **	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	848,939 10,703,345	891,529 10,635,245	919,695	777,693	659,516 9,689,167	p. 230 pp. 110-111	
Gas Stored Underground Base gas Acct. 117.2 System balancing	00	00	00	00	0 0	p. 110	
Operation and Maintenance Costs Production	0	0	0	0	0		O&M
Storage less: Comp. fuel and losses Net storage costs	0 010	0 0 0	0 0 0	000	000	p. 322	
Transmission less: Comp. fuel Net transmission costs	25,313,749 9,071,460 16,242,289	35,071,770 18,059,992 17,011,778	32,007,970 4,976,833 27,031,137	43,014,715 3,881,854 39,132,861	35,451,256 <u>8,735,270</u> 26,715,986	p. 323	
A&G	28,196,314	25,487,736	22,427,658	19,387,004	28,402,508	pp. 323-325	
Other Taxes	15,924,406	10,774,007	10,636,987	10,872,437	10,829,895	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	30,979,863	27,735,870	27,756,290	27,910,749	29,473,530	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	885,096 123,595,154 124,480,250 124,480,250	676,829 144,990,198 145,667,027 145,667,027	635,338 176,265,387 176,900,725 176,900,725	629,957 178,502,793 179,132,750 0 179,132,750	807,477 180,679,353 181,486,830 0 181,486,830	p. 300	

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		NGSA				
Great Lakes Gas Transmission Ltd. Partnership		ripeline cost model	leb			
Account 495						
Value of excess fuel retained	0	0	0	0	0	
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	0	0	0	0	0	
Other	O	0	0	0	0	
Total non-cost of service revenues	0	0	0	10	10	
Cost of Debt	7.79%	7.78%	7.77%	7.75%	8.12%	
Allowed Rate of Return on Equity	13.25%	13.25%	13.25%	13.25%	13.25%	
Account 496 - Provision for Rate Refunds	0	0	1.900.000	7.802.120	47 299 949	

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p. 308

p. 218 p. 218

NGSA Pipeline Cost Model

Cost of Service Calculation

Great Lakes Gas Transmission Ltd. Partnership

Year End 2013 Year End 2014 Year End 2015 Year End 2016 Year End 201							
S5.79% S5.96% S4.44% S1.00% S5.96% S4.44% S1.00% S5.96% S6.96% S		Year End 2			Year End 2015	Year End 2016	Year End 2017
Service Serv	Allowed Return on Rate Base						
55.79% 55.96% 54.44% 51.00% 5 on Debth on Equity leturn 4.21% 4.35% 4.35% 54.44% 51.00% 4 on Equity leturn 5.66% 5.84% 6.04% 6.04% 6.49% 1 non Equity leturn 10.20% 10.19% 10.27% 10.45% 1 non Equity leturn 10.20% 2.074.859.217 2.076.414.080 2.087.281.582 2.105.80 orded - Noncurrent of ulated Denoclation 11.562.284 11.552.284 11.553.885 10.479.042.74 11.045% d Capital 11.562.284 11.562.744 11.553.885 10.927.864 10.379.042.74 Lough Assets 2.00.81.53 2.03.245.866 2.06.037.85 10.927.86 10.927.86 site Base 583.953.884 568.427.978 532.652.070 513.031.082 478.88 into mer Tax 46.58% 15.965.878 15.960.037 11.427.65.98 12.323.98 10.827.86 into mer Tax 8.57% 15.965.878 15.960.037 11.427.65.80 11.4	Capitalization						
on Debt	Debt	.52		%96	54.44%	51.00%	51.89%
on Debt on Equity 5.86% 4.35% 4.25% 6.04% 6.04% 6.049% 10.27% 10.49% 10.20% 10.20% 10.19% 10.27% 10.27% 10.20% 10.20% 10.20% 10.19% 10.27% 10.27% 10.20% 10.	Equity	44.		04%	45.56%	49.00%	48.11%
on Equity on Equ	Return on Debt	4		35%	4.23%	3.95%	4.21%
10.20% 10.19% 10.27% 10.45% 1	Return on Equity	5.		84%	6.04%	6.49%	6.37%
ant in Service 2,069,560,368 2,074,859,217 2,076,414,060 2,087,281,582 order Noncurrent 1,000,815,616 1,328,100,415 1,325,605,205 1,379,043,274 1,523,385 1,001,97,864 1,99,891,263 3,245,696 1,325,605,205 1,379,043,749,203 1,001,97,864 1,001,97,97,97,97,97,97,97,97,97,97,97,97,97,	Total Return	10.		19%	10.27%	10.45%	10.59%
ant in Service 2,069,560,368 2,074,859,217 2,076,414,060 2,087,281,582 order-Noncurrent 1,1300,815,616 1,1328,100,415 1,1362,605,205 1,1379,043,274 1,1526,774 1,1526,774 1,1526,774 1,1526,774 1,1528,100,375,29 2,037,245,696 1,1526,774 1,1526,	Base						
ored - Noncurrent 0 0 0 0 outsted Depreciation -1,300,815,816 -1,328,100,415 -1,352,605,205 -1,379,043,274 -1,379,043,274 g Capital -11,526,774 -1,15,526,774 -1,373,385 -10,927,884 -10,927,884 -10,927,884 -10,927,884 -10,927,884 -10,927,884 -10,927,884 -10,927,884 -10,927,884 -206,037,529 -209,067,203 -209,067,203 ioty Liabilities 3,548,101 3,386,098 3,247,359 2,932,113 0 -206,007,203 0 inter Base 583,953,884 568,981,60 54,675,459 513,031,082 2,932,113 0 1,325,16,645 inter Base 15,924,406 10,774,007 10,636,987 1,325,16,455 1,325,16,455 1,325,16,455 1,325,16,435 1,301,445 1,232,988 1,037,407 10,636,987 1,322,166 10,877,437 1,322,166 10,877,437 1,322,166 10,877,437 1,322,166 10,877,437 1,322,165 1,336,104 1,336,104 1,336,104 1,336,104 1,336,104 1,	Gas Plant in Service	2,069,560		,217	2,076,414,060	2,087,281,582	2,105,807,765
g Capital 1,522,284 1,526,774 1,533,385 10,943,274 -1,41,533,385 10,927,884 11,552,284 11,526,774 11,533,385 10,927,884 11,552,284 11,526,774 11,533,385 10,927,884 11,532,385 10,927,884 11,532,385 10,927,884 11,532,385 10,927,884 11,532,385 10,927,884 11,532,385 10,927,884 11,532,385 10,927,884 11,532,385 10,927,884 11,532,47,559 12,932,113 10,00me Tax 46,58% 15,935,185 15,180,027 14,976,276 15,516,645 15,324,005 11,301,145 11,233,887 10,872,437 10,872,437 10,872,437 10,872,437 11,017,778 11,017,778 10,872,437 11,017,778 1	Gas Stored - Noncurrent			0	0	0	0
g Capital 11,552,284 11,526,774 11,533,385 10,927,864 11,520,77523 203,245,696 206,037,529 2,932,113 201,99,891,253 2,388,098 3,247,359 2,932,113 201,918,113,236,884 558,427,978 532,552,070 513,031,082 2,932,113 200 20 2,932,113 200 20 2,932,113 200 20 2,932,113 200 20 2,932,113 200 20 2,932,113 200 20 2,932,113 200 20 2,932,113	Accumulated Depreciation	-1,300,815			-1,352,605,205	-1,379,043,274	-1,407,091,302
tory Assets 3,548,101 3,388,098 3,247,359 2,932,113 5,948,101 3,388,098 3,247,359 2,932,113 5,948,101 3,388,098 3,247,359 2,932,113 5,948,101 3,388,098 3,247,359 2,932,113 5,948,101 3,388,101 5,948,101 5,94	Working Capital	11,552			11,533,385	10,927,864	10,348,683
tory Assets 1,548,101 2,388,098 3,247,359 2,932,113 2,932,113 2,940,586 2,932,113 2,940,586 2,932,113 3,388,098 3,247,378 2,952,070 2,932,113,113 2,932	ADIT	-199,891		969	-206,037,529	-209,067,203	-134,578,561
tory Liabilities 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Regulatory Assets	3,548		860,	3,247,359	2,932,113	1,345,567
tate Base 583,953,884 558,427,978 532,552,070 513,082 47 51 51 51 51 51 51 51 51 51 51 51 51 51	Regulatory Liabilities			O	01	O	-97,031,071
10 come Tax	Total Rate Base	583,953		826,	532,552,070	513,031,082	478,801,081
46.58% 15.86.97 56.898,160 54,675,459 53.586,097 56.898,185 15,180,027 14,976,276 15,516,645 17.329,98 17.325,873 1.301,145 1.283,681 1.329,998 15,24,406 10,774,007 10,636,997 27,756,290 27,910,749 29.863 27,735,870 27,756,290 27,910,749 28,196,314 25,487,736 22,427,658 19,387,004 25,487,736 168,229,802 154,388,723 158,787,489 167,735,790 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	t of Service						
46.58% 15,935,185 15,180,027 14,976,276 15,516,645 1 1,329,998 1,329,998 1,329,988 1,329,406 10,774,007 10,636,987 10,872,437 10,872,437 10,972,406 10,774,007 10,636,987 10,872,437 10,972,439 15,242,289 17,011,778 27,031,137 39,132,861 28,196,314 25,487,736 22,427,658 19,387,004 25,487,736 168,229,802 154,388,723 158,787,489 167,735,790 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Return	59,585		,160	54,675,459	53,586,097	50,695,664
8.57% 1,365,873 1,301,145 1,283,681 1,329,998 15,924,406 10,774,007 10,636,987 10,872,437 10,872,437 10,872,437 10,872,437 10,872,437 10,872,437 10,872,437 10,872,437 10,872,437 10,872,437 10,872,437 10,872,437 11,396,960 11,396,960 11,396,960 11,396,960 11,396,960 11,396,960 11,397,8 12,37% 10,97% 18,04% 16,18% 16,18%	Federal Income Tax			,027	14,976,276	15,516,645	14,218,328
15,924,406 10,774,007 10,636,987 10,872,437 11,624,289 27,735,870 27,756,290 27,910,749 27,910,749 27,910,749 27,031,137 39,132,861 28,196,314 25,487,736 22,427,658 19,387,004 27,031,137 39,132,861 28,196,314 25,487,736 22,427,658 19,387,004 27,044,480,250 145,667,027 176,900,725 179,132,750 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	State Income Tax			,145	1,283,681	1,329,998	1.218,714
30,979.863 27,735,870 27,756,290 27,910,749 16,242,289 17,011,778 27,031,137 39,132,861 28,196,314 25,487,736 22,427,658 19,387,004 168,229,802 154,388,723 158,787,489 167,735,790 11 24,480,250 145,667,027 176,900,725 179,132,750 11 24,3749,552 -8,721,696 18,113,236 11,396,960 27,910,749 22,37% 10,97% 18,044% 16,16%	Other Taxes	15,924		700,	10,636,987	10,872,437	10,829,895
16,242,289 17,011,778 27,031,137 39,132,861 28,136,131,32,861 28,196,314 25,487,736 22,427,658 19,387,004 168,229,802 154,388,723 158,787,489 167,735,790 11 124,480,250 145,667,027 176,900,725 179,132,750 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Depreciation	30,979		,870	27,756,290	27,910,749	29,473,530
28.196.314 25.487,736 22,427,658 19,387,004 168,229,802 154,388,723 158,787,489 167,735,790 11 124,480,250 145,667,027 176,900,725 179,132,750 11 -43,749,552 -8,721,696 18,113,236 11,396,960 * 2.37% 10.97% 18.04% 16.16%	O&M	16,242		,778	27,031,137	39,132,861	26,715,986
168,229,802 154,388,723 158,787,489 167,735,790 11 124,480,250 145,667,027 176,900,725 179,132,750 11 0-43,749,552 -8,721,696 18,113,236 11,396,960 12.37% 10.97% 18.04% 16.16%	A&G	28,196		736	22,427,658	19,387,004	28,402,508
124,480,250 145,667,027 176,900,725 179,132,750 11 0 0 0 0 -43,749,552 -8,721,696 18,113,236 11,396,960 * 2.37% 10.97% 18.04% 16.16%	Total Cost of Service	168,229		,723	158,787,489	167,735,790	161,554,625
. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Total Revenues	124,480		,027	176,900,725	179,132,750	181,486,830
-43,749,552 -8,721,696 18,113,236 11,396,960 on-COS rev -43,749,552 -8,721,696 18,113,236 11,396,960	Non-Cost of Service Revenues		0	0	0	0	0
on-COS rev -43,749,552 -8,721,696 18,113,236 11,396,960 19,5 * 2.37% 10.97% 18.04% 16.16%	Cost Over (Under) Recovery			969,	18,113,236	11,396,960	19,932,205
* 2.37% 10.97% 18.04% 16.16%	Over (Under) Recovery excl. non-C			969	18,113,236	11,396,960	19,932,205
	Actual rate of return on equity *	25		%16	18.04%	16.16%	18.81%

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* [[Line 24 - (Line 24 *(.4658/(1+.4658))]-(Line 24 * (State Income Tax Percentage * .4658))]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

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^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

Data Input Section

Gulf South Pipeline Company, LP (formerly Koch Gateway Pipeline Company)

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		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
Total Plant in Service		3,466,196,833	3,808,324,424	4,365,395,853	4,432,367,018	4,824,047,159 **	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization		1,279,664,777	1,349,403,446	1,598,592,177	1,687,125,611	1,773,723,024	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283		261,298,741 35,457,559	300,453,658 36,848,272	37,776,934	0 416,883,559 39,547,571	348,483,881 *** 15,939,882	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities Account 182.3 (rate b Account 254 (rate b	(rate base est.) (rate base est.)	35,175,818 0	39,774,498 0	40,851,858	44,572,061	38,546,405 120,436,998 ***	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies		4,319,121	5,316,781 2,702,390	8,492,046 7,472,879	9,389,636	9,489,495	p. 230	
Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System be	Base gas System balancing	4,439,248 22,046,914	18,990,310 22,046,914	78,033,688 22,046,914	78,033,688 22,046,914	78,033,688 22,046,914	p. 110	
Operation and Maintenance Costs Production		1,295,999	1,467,660	1,248,625	956,469	1,174,746		O&M
Storage less: Comp. fuel and losses less: Gas losses Net storage costs		-32,616,688 1,171,282 -37,004,139 3,216,169	1,588,816 1,464,917 -4,537,434 4,661,333	10,569,975 2,225,044 319,700 8,025,231	9,696,181 1,202,944 295,230 8,198,007	10,987,141 1,845,688 372,980 8,768,473	p. 322	
Transmission less: Comp. fuel Net transmission costs		136,301,905 35,018,375 101,283,530	146,139,046 40,284,888 105,854,158	141,194,908 24,202,155 116,992,753	136,551,529 24,552,957 111,998,572	145,104,474 37,263,906 107,840,568	p. 323	
A&G		49,997,014	51,726,897	59,143,993	60,146,635	57,107,536	pp. 323-325	15
Other Taxes		41,717,214	40,503,445	44,260,204	44,942,750	47,825,250	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	lvage	77,214,536	76,974,852	93,687,243	97,188,324	102,355,955	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues Net Revenues		1,533,870 411,926,981 413,460,851 1,709,136 411,751,715	1,223,478 398,473,011 399,696,489 399,696,489	1,432,264 471,453,016 472,885,280 0 472,885,280	1,411,123 510,144,745 511,555,868 6,681,400 504,874,468	1,340,625 508,844,559 510,185,184 510,185,184	p. 300	

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Account 495						p. 308
Value of excess fuel retained	5,988,474	9,415,231	6,694,212	1,513,670	366,209	
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	01	0	0		0	
Total non-cost of service revenues	5,988,474	9,415,231	6,694,212	1,513,670	366,209	
Cost of Debt	4.85%	5.36%	5.36%	5.47%	5.50%	0.218
Allowed Rate of Return on Equity	12.25%	12.25%	12,25%	12.25%	12.25%	p. 218
Account 496 - Provision for Rate Refunds	0	0	16,166,481	123,258	0	
Gas Received from Shippers (dth) Gas Used for Compressor Station Fuel (dth)	11,890,630	11,451,368	12,157,872 9,492,470	12,015,015		p.520 p.520
Account 810 Amount of Credit Account 810 Gas Used (dth)	36,087,980	41,561,692	26,232,971	25,607,668		p.331

Cost of Service Calculation

Gulf South Pipeline Company, LP (formerly Koch Gateway Pipeline Company)

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		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
llowed Return	Allowed Return on Kate Base <u>Capitalization</u>					
u	Debt	41.02%	38.85%	31.93%	40.00%	40.00%
ш	Equity	58.98%	61.15%	68.07%	%00.09	%00.09
II.	Return on Debt	1.99%	2.08%	1.71%	2.19%	2.20%
II.	Return on Equity	7.23%	7.49%	8.34%	7.35%	7.35%
_	Fotal Return	9.21%	9.57%	10.05%	9.54%	9.55%
Rate Base						
J	Gas Plant in Service	3,466,196,833	3,808,324,424	4,365,395,853	4,432,367,018	4,824,047,159
0	Gas Stored - Noncurrent	4,439,248	18,990,310	78,033,688	78,033,688	78,033,688
4	Accumulated Depreciation	-1,279,664,777	-1,349,403,446	-1,598,592,177	-1,687,125,611	-1,773,723,024
_	Working Capital	27,663,921	30,066,085	38,011,839	34,920,638	35,453,595
4	ADIT	-296,756,300	-337,301,930	-398,130,927	-456,431,130	-364,423,763
11	Regulatory Assets	35,175,818	39,774,498	40,851,858	44,572,061	38,546,405
	Regulatory Liabilities	0	0	01	0	-120,436,998
6	Total Rate Base	1,957,054,743	2,210,449,941	2,525,570,134	2,446,336,664	2,717,497,062
Cost of Service	٥					
	Return	180,333,201	211,611,567	253,820,379	233,331,591	259,520,969
	Federal Income Tax 38.89%	54,988,183	64,393,016	81,898,662	69,924,456	77,675,124
0)	State Income Tax 9.80%	5,388,842	6,310,516	8,026,069	6,852,597	7,612,162
J	Other Taxes	41,717,214	40,503,445	44,260,204	44,942,750	47,825,250
	Depreciation	77,214,536	76,974,852	93,687,243	97,188,324	102,355,955
7	O&M	105,795,698	111,983,151	126,266,609	121,153,048	117,783,787
1	A&G	49,997,014	51,726,897	59,143,993	60,146,635	57,107,536
F	Total Cost of Service	515,434,687	563,503,444	667,103,159	633,539,401	669,880,784
	Total Revenues	411,751,715	399,696,489	472,885,280	504,874,468	510,185,184
	Non-Cost of Service Revenues	5,988,474	9,415,231	6,694,212	1,513,670	366,209
0	Cost Over (Under) Recovery	-103,682,972	-163,806,955	-194,217,879	-128,664,933	-159,695,600
-	Over (Under) Recovery excl. nan-COS rev	-109,671,446	-173,222,186	-200,912,091	-130,178,603	-160,061,809
4	Actual rate of return on equity *	6.12%	3.99%	4.55%	6.27%	2.57%

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Effective January 1, 2015, Petal Gas Storage, LLC was merged into Gulf South. The merger was accounted for as a transaction between entities under common control, wholly owned subsidiaries of Boardwalk Pipelines, LP.
 Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
 ***NGSA uses an estimated 60 percent equity capitalization rate instead of Gulf South's reported greater than 75% equity ratio in the 2016 and 2017 Form2s. Above 70% equity is not within a range FERC has historically approved.

iel Recovery -54	-127,647 \$3.64 -\$464,635	1,065,566 \$4.43 \$4,720,457	2,665,402 \$2.68 \$7,143,277	1,084,751 \$2.48 \$2,690,182	72
equity including fuel	6.10%	4.22%	4.83%	6.40%	

^{2/} Gulf South's fuel tracker went into effect in April 2016.

^{* [[}Line 24 - (Line 24 *(.3889)/1+.3889)])-(Line 24 * (State Income Tax Percentage * .3889))]+(Line 4/Line 4/Line 5)]] / Line 13 * Line 2

			Pipeline Cost Model	Model				
	Kern River Gas Transmission Company		Data Input Section	ction				
		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	
F	Total Plant in Service	2,810,712,592	2,820,261,484	2,839,553,921	2,868,937,995	2,878,462,045	p. 110	Balance Sheet
20 80	Total Accum. Depreciation, Amortization Deferred Depreciation	1,052,478,285	1,132,272,576	1,215,787,484	1,278,667,956	1,332,265,996	p. 110 p. 232 + p. 278	Balance Sheet Prior yr changed.
4 70 0	Accumulated Deferred Income Laxes Account 190 Account 282 Account 283	127,537,265 478,396,697 21,299,484	119,536,183 485,998,797 19,985,164	122,973,693 494,787,977 24,411,046	136,119,503 513,752,529 26,763,481	152,057,936 338,186,264 ** 34,814,062	pp. 234-235 pp. 274-275 pp. 276-277	
2 8	Regulatory Assets and Liabilities (rate base est.) Account 254 (rate base est.)	est.) 26,339,300 est.) 3,365,278	24,610,000 3,134,365	22,845,000 3,639,928	21,346,800 4,620,779	14,706,352 201,904,375 **	p. 232 p. 278	
6 0	Working Capital Prepayments Materials and Supplies	1,420,190	1,302,799	1,499,806	1,476,392	1,289,626	p. 230 pp. 110-111	
12 2	Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	ancing 0	00	0	00	00	p. 110	
6	Operation and Maintenance Costs Production	0	0	0	0	0		O&M
4 t t 9	Storage less: Comp. fuel and losses Net storage costs	0 0 0	0 010	0 0 0	000	0 0 0	p. 322	
7 8 6	Transmission less: Comp. fuel Net transmission costs	79,440,925 58,209,624 21,231,301	96,361,175 67,105,353 29,255,822	69,415,504 44,499,225 24,916,279	61,481,926 38,811,796 22,670,130	63,650,901 41,822,234 21,828,667	p.323	
20	A&G	17,582,540	18,386,733	17,225,642	16,066,995	18,644,936	pp. 323-325	
21	Other Taxes	17,325,531	16,240,434	15,245,464	14,125,937	12,897,704	p. 114	Income Statement
22	Depreciation, Amortization, and Negative Salvage	84,827,922	85,857,119	86,314,999	86,978,525	66,122,810	p. 114	Income Statement
23 25 26 27	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	1,495,450 357,561,113 359,056,563 359,056,563	1,090,521 353,165,624 354,256,145 0	1,278,525 358,719,227 359,997,752 0 359,997,752	1,217,280 340,867,106 342,084,386 277,204 341,807,182	1,083,634 300,536,593 301,620,227 301,620,227	p. 300	
				The Lands				

Kern River Gas Transmission Company

Account 495						p. 308
Value of excess fuel retained	0	0	0	0	0	
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	0	0	0	0	0	
Total non-cost of service revenues	0	0	10	0	10	
Cost of Debt	6.45%	6.50%	5.32%	5.49%	5.49%	0 21
Allowed Rate of Return on Equity	11.55%	11.55%	11.55%	11.55%	11.55%	p. 218
Account 496 - Provision for Rate Refunds	0	0	0	0	4,773,833	

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Pipeline Cost Model

Cost of Service Calculation

Kern River Gas Transmission Company

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		Year End 2013	rear End 2014	Year End 2015	Year End 2016	Year End 2017
Allowed Return on Rate Base						
Debt		39.80%	36.33%	40.00%	40.00%	*** %00.0
Equity		60.20%	63.67%	%00.09	%00.09	100.00%
Return on Debt		2.57%	2.36%	2.13%	2.20%	0.00%
Return on Equity		6.95%	7.35%	6.93%	6 93%	11 55%
Total Return		9.52%	9.72%	%90.6	9.13%	11.55%
Rate Base						
Gas Plant in Service		2,810,712,592	2,820,261,484	2,839,553,921	2,868,937,995	2,878,462,045
Gas Stored - Noncurrent		0	0	0	0	0
Accumulated Depreciation		-1,052,478,285	-1,132,272,576	-1,215,787,484	-1,278,667,956	-1,332,265,996
Accumulated Regulatory Depreciation	preciation	-77,039,114	-109,259,911	-150,144,055	-254,042,339	-281,617,960
Working Capital		11,478,675	11,698,799	12,021,854	12,091,294	12,387,075
ADIT		-372,158,916	-386,447,778	-396,225,330	-404,396,507	-220,942,390
Regulatory Assets		26,339,300	24,610,000	22,845,000	21,346,800	14.706,352
Regulatory Liabilities		-3,365,278	-3,134,365	-3,639,928	-4,620,779	-201,904,375
Total Rate Base		1,343,488,974	1,225,455,653	1,108,623,978	960,648,508	868,824,751
Cost of Service						
Return		127,902,837	119,057,122	100,419,160	87.668.783	100.349.259
Federal Income Tax	53.85%	50,299,917	48,525,400	41,368,730	35,846,969	54.034,216
State Income Tax	10.00%	5,029,992	4,852,540	4,136,873	3,584,697	5,403,422
Other Taxes		17,325,531	16,240,434	15,245,464	14,125,937	12,897,704
Depreciation		84,827,922	85,857,119	86,314,999	86,978,525	66,122,810
O&M		21,231,301	29,255,822	24,916,279	22,670,130	21,828,667
A&G		17,582,540	18,386,733	17,225,642	16,066,995	18,644,936
Total Cost of Service		324,200,040	322,175,170	289,627,147	266,942,035	279,281,014
Total Revenues		359,056,563	354,256,145	359,997,752	341,807,182	301,620,227
Non-Cost of Service Revenues	les	0	0	0	0	0
Cost Over (Under) Recovery		34,856,523	32,080,975	70,370,605	74,865,147	22,339,213
Over (Under) Recovery excl. non-COS rev	non-COS rev	34,856,523	32,080,975	70,370,605	74,865,147	22,339,213
Actual rate of return on equity *	* *	14.12%	14.00%	17.86%	19.29%	13.08%

^{* [[}Line 25 - (Line 25 *(.5385/(1+.5385)])-(Line 25 * (State Income Tax Percentage * .5385)]]+[Line 15*(Line 4/Line 5)]] / Line 14 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

***NGSA uses an estimated 60 percent equity capitalization rate instead of Kern River's reported greater than 70% equity ratios in the 20152016 Form 2s. FERC Commission approved Kern River's use of 100% equity capitalization in their last rate case for design of their

"Period Two" levelized rates. 2017 cost of debt held constant from 2016 Form 2.

NGSA Pipeline Cost Model

Mojave Pipeline Company, LLC

	Mojave Pipeline Company, LLC		Data Input Section	ion				
		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	rm 2)
+	Total Plant in Service	247,467,318	248,627,498	249,176,786	249,357,053	249,916,323	p. 110	Balance Sheet
2	Total Accum. Depreciation, Amortization	169,189,496	173,069,473	176,477,465	180,382,864	184,361,760	p. 110	Balance Sheet
6 4 0	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	29,209,578 0	22,099,232 0	0 -421,864 0	243,785 0	0 055,296 0	pp. 234-235 pp. 274-275 pp. 276-277	10.10 %
9 N	Regulatory Assets and Liabilities (rate base est.) Account 182.3 (rate base est.) Account 254	00	0	00	0.0	409,612 ***	p. 232 p. 278	
9.6	Working Capital Prepayments Materials and Supplies	9,498	00	00	00	00	p. 230 pp. 110-111	
	Gas Stored Underground Base gas Acct. 117.1 Base gas Acct. 117.2 System balancing	1,039,749	1,039,749	1,039,749	1,039,749	1,039,749	p. 110	
0	Operation and Maintenance Costs Production	0	0	0	0	0		O&M
m	Storage	0	0	0	0	0	D 322	
# 10	less: Comp. fuel and losses Net storage costs	00	00	00	000	010		
2 2 8	Transmission less: Comp. fuel less: Reimbursement by Others Acct. 859 Net transmission costs	3,341,721 2,373,224 -1,909,513 2,878,010	4,169,708 2,511,668 -2,816,638 4,474,678	2,894,783 1,477,623 -2,502,042 3,919,202	3,358,858 1,532,145 -2,091,858 3,918,571	4,161,349 1,847,482 207,111	p. 323	
· Cr	A&G	1,952,178	1,801,827	1,946,738	1,971,764	1,772,652	pp. 323-325	10
0	Other Taxes	911,497	864,080	980,902	1,196,123	1,161,692	p. 114	Income Statement
_	Depreciation, Amortization, and Negative Salvage	4,002,969	3,988,297	4,010,650	4,024,875	4,061,460	p. 114	Income Statement
01 m + 10 10	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	242,523 18,650,554 18,893,077 18,893,077	162,100 18,541,629 18,703,729 18,703,729	170,839 16,247,416 16,418,255 16,418,255	199,873 15,608,714 15,808,587 15,808,587	173,328 1 <u>5,545,073</u> 15,718,401 15,718,401	p. 300	

Mojave Pipeline Company, LLC

Value of excess fuel retained Penalty revenues Gains on settlements of imbalances t of service revenues	000	0000	0 0 01	00	
of imbalances	0 010	0 010	0 01	0	
of imbalances	010	0 0	O		
	C	0		14	
			0	14	
Gost of Debt 8.06% Allowed Rate of Return on Equity 12.13%	8.03%	8.00%	7.97% 12.13%	7.94% ****	p. 218 p. 218
	c		- 1		

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NGSA Pipeline Cost Model

Cost of Service Calculation

Mojave Pipeline Company, LLC

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Allowed Return on Rate	n on Rate Base					
۵۱۵	Debt	47.81%	47.89%	49.22%	51.85%	53 20% ****
Щ	Equity	52.19%	52.11%	50.78%	48.15%	46.80%
ď	Return on Debt	3.85%	3.85%	3.94%	4 13%	4 22%
ď	Return on Equity	6.33%	6.32%	6.16%	5.84%	5.68%
T.	Total Return	10.18%	10.17%	10.10%	%26.6	%06.6
Rate Base						
Ö	Gas Plant in Service	247,467,318	248,627,498	249,176,786	249,357,053	249,916,323
Ö	Gas Stored - Noncurrent	0	0	0	0	0
Ä	Accumulated Depreciation	-169,189,496	-173,069,473	-176,477,465	-180,382,864	-184,361,760
X	Working Capital	1,049,247	1,039,749	1,039,749	1,039,749	1,039,749
A	ADIII	-29,209,578	-22,099,232	421,864	-243,785	-655,296
ă	Regulatory Assets	0	0	0	0	0
A.	Regulatory Liabilities	0	0	0	0	-409,612
Tc	Total Rate Base	50,117,491	54,498,542	74,160,934	69,770,153	65,529,404
Cost of Service						
Ŗ	Return	5,104,032	5,540,600	7,488,188	6,958,205	6,488,014
Fe	Federal Income Tax 53.85%	1,708,410	1,854,904	2,459,707	2,194,226	2,003,077
ŝ	State Income Tax 17.39%	297,115	322,592	427,775	381,605	348,361
ō	Other Taxes	911,497	864,080	980,902	1,196,123	1,161,692
۵	Depreciation	4,002,969	3,988,297	4,010,650	4,024,875	4,061,460
ŏ	O&M	2,878,010	4,474,678	3,919,202	3,918,571	2,106,756
A.	A&G	1,952,178	1,801,827	1,946,738	1,971,764	1,772,652
Tc	Total Cost of Service	16,854,211	18,846,978	21,233,162	20,645,369	17,942,012
T	Total Revenues	18,893,077	18,703,729	16,418,255	15,808,587	15,718,401
ž	Non-Cost of Service Revenues	0	0	0	0	14
ŏ	Cost Over (Under) Recovery	2,038,866	-143,249	-4,814,907	-4,836,782	-2,223,611
Ó	Over (Under) Recovery excl. non-COS rev	2,038,866	-143,249	-4,814,907	-4,836,782	-2,223,625
Ac	Actual rate of return on equity *	16.47%	11.85%	5.02%	4.12%	8.10%

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^{* [[}Line 25 - (Line 25 *(.5385/(1+.5385))]-(Line 25 * (State Income Tax Percentage * .5385)]]+[Line 15*(Line 4/Line 5)]] / Line 14 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

*** Mojave's accumulated deferred income taxes reversed in 2015 in connection with Kinder Morgan, Inc. (KMIs) November 2014 acquisition of all outstanding common shares of Kinder Morgan Energy Partners, LP.

****NGSA's analysis uses equity and debt ratios provided in El Paso's FERC Form 2 instead of Mojave's reported missing or 100% equity for 2013-2017.

NGSA Pipeline Cost Model

Data Input Section

National Fuel Gas Supply Corp.

	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
Total Plant in Service	1,101,695,932	1,208,328,271	1,402,470,058	1,461,863,208	1,535,502,415	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	521,837,659	532,690,035	548,143,926	566,876,954	583,275,847	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	15,612,971 168,500,440 -802,306	5,019,586 175,340,764 -4,782,309	3,594,393 207,428,539 -5,869,170	11,308,401 246,672,921 -7,289,062	287,998 252,572,472 -118,419,897 **	pp. 234-235 pp. 274-275 pp. 276-277	200
Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	13,648,431	14,802,537 6,226,844	30,101,528	38,610,243 15,343,095	18,117,256	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	837,650 8,731,786	992,648 8,820,753	1,157,963	1,237,942 9,896,972	1,160,067	p. 230 pp. 110-111	
Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	80,409,898 2,882,543	80,409,898 2,882,543	80,409,898 2,882,543	80,409,898 2,882,543	80,409,898 2,882,543	p. 110	
Operation and Maintenance Costs Production	887,031	1,002,671	807,219	899,549	878,487		O&M
Storage less: Comp. fuel and losses Net storage costs	13,221,354 18,540 13,202,814	13,387,717 16,712 13,371,005	12,504,874 17,488 12,487,386	11,966,141 12,452 11,953,689	13,487,560 16,287 13,471,273	p. 322	
Transmission less: Comp. fuel Net transmission costs	34,617,757 12,667,842 21,949,915	38,775,802 15,116,172 23,659,630	30,399,603 <u>6,655,700</u> 23,743,903	30,114,919 <u>5,821,488</u> 24,293,431	37,157,291 10,307,498 26,249,793	p. 323	
A&G	43,695,231	29,281,172	32,932,253	31,086,680	35,216,123	pp. 323-325	
Other Taxes	13,048,008	13,892,771	14,547,997	14,912,649	16,015,313	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	20,937,557	21,738,593	24,381,580	27,866,935	28,613,006	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	919,175 194,323,780 195,242,955 195,242,956	815,819 203,416,328 204,232,147 204,232,147	888,552 211,754,044 212,642,596 212,642,596	861,463 225,428,734 226,290,197 226,290,197	845,601 <u>218,912,091</u> 219,757,692 219,757,692	p. 300	

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NGSA Pipeline Cost Model

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	0 0 0	236,019 296,922 193,250	0 0 0	236,019 296,922 193,250	6.17% 5.58% 5.58% 5.49% 5.49%	11.30% 11.30% 11.30%	0 0 0 0	5,670,931 5,811,910 6,461,753	5,764,075	12,505,746 14,960,192 6,542,865 5,729,009 10,788,083
Account 495	Value of excess fuel retained	Penalty revenues	Gains on settlements of imbalances	Total non-cost of service revenues	Cost of Debt	Allowed Rate of Return on Equity	Account 496 - Provision for Rate Refunds	Gas Received from Shippers (dth)	Gas Used for Compressor Station Fuel (dth)	Account 810 Amount of Credit

NGSA Pipeline Cost Model

National Fuel Gas Supply Corp.

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
we	Allowed Return on Rate Base Capitalization					
	Debt	39.97%	42.05%	39.93%	55.05%	56.38%
	Equity	60.03%	57.95%	%20.09	44.95%	43.62%
	Return on Debt	2.47%	2.35%	2.23%	3.02%	3.10%
	Return on Equity	6.78%	6.55%	6.79%	2.08%	4.93%
	Total Return	9.25%	8.89%	9.05%	8.10%	8.02%
e	Rate Base					
	Gas Plant in Service	1,101,695,932	1,208,328,271	1,402,470,058	1.461.863.208	1,535,502,415
	Gas Stored - Noncurrent	80,409,898	80,409,898	80,409,898	80,409,898	80,409,898
	Accumulated Depreciation	-521,837,659	-532,690,035	-548,143,926	-566,876,954	-583.275,847
	Working Capital	12,451,979	12,695,944	13,066,759	14,017,457	15,127,578
	ADIT	-152,085,163	-165,538,869	-197,964,976	-228,075,458	-133.864.577
	Regulatory Assets	13,648,431	14,802,537	30,101,528	38,610,243	18,117,256
	Regulatory Liabilities	-4,948,221	-6,226,844	-14,277,213	-15,343,095	-130,925,633
	Total Rate Base	529,335,197	611,780,902	765,662,128	784,605,299	801,091,090
stc	Cost of Service					
	Return	48,961,065	54,416,321	69,032,128	63,565,544	64,282,129
	Federal Income Tax 53.85%	19,334,469	21,571,606	27,985,169	21,459,227	21,261,833
	State Income Tax 16.73%	3,234,558	3,608,820	4,681,777	3,590,020	3,556,997
	Other Taxes	13,048,008	13,892,771	14,547,997	14,912,649	16,015,313
	Depreciation	20,937,557	21,738,593	24,381,580	27,866,935	28,613,006
	O&M	36,039,760	38,033,306	37,038,508	37,146,669	40,599,553
	A&G	43,695,231	29,281,172	32,932,253	31,086,680	35,216,123
	Total Cost of Service	185,250,649	182,542,589	210,599,411	199,627,723	209,544,953
	Total Revenues	195,242,955	204,232,147	212,642,596	226.290.197	219.757.692
	Non-Cost of Service Revenues	87,915	236,019	296,922	193,250	94,987
	Cost Over (Under) Recovery	9,992,306	21,689,558	2,043,185	26,662,474	10,212,739
	Over (Under) Recovery excl. non-COS rev	9,904,391	21,453,539	1,746,263	26,469,224	10,117,752
	Actual rate of return on equity *	13.06%	14.73%	11.55%	15.53%	12.94%

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

		\$1,140,211 \$2,267,447	15.35% 13.30%
47,835 -92		T.	11.56%
505,979	\$4.27	\$2,160,530	15.07%
-1,342,206	\$3.53	-\$4,737,987	12.23%
1/ Over/Under Dth Fuel Recovery	Average price	Valuation of Fuel Recovery	Actual rate of return on equity including fuel

^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385))]-(Line 24 * (State Income Tax Percentage * .5385)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

NGSA Pipeline Cost Model

Natural Gas Pipeline Company of America LLC

15,890,376 4,127,896,824 4,195,219,694 p. 110 595,000,737 2,644,046,219 2,703,009,099 p. 110 595,000,780 419,960,832 298,861,877 pp. 234-235 506,780 0 0 0 204,839,773 pp. 237 524,97,302 185,497,856 185,497,856 pp. 110 52,962,475 pp. 110 52,962,487 pp. 1114 585,943,62 164,107,506 188,529,340 pp. 323 524,347,375 23,986,061 24,060,565 pp. 114 586,643,62 91,458,795 92,741,208 pp. 301,304,305 56,026,086 581,339,290 677,386,553 pp. 301,304,305 56,026,086 581,339,290 677,386,553 pp. 301,304,305 56,026,086 581,339,329 677,386,553 pp. 301,304,305 502,337,337 580,554,73	Natural Gas Pipeline Company of America LLC		Data Input Section	ion				
Sear End 2015 Sear End 2016 Sear End 2016 Sear End 2016 Sear End 2017 Sear End 2017 Sear End 2017			and many					
2513.022.555 2.566.491.087 2.595.000.737 2.44.046.219 2.703.009.099 p. 110 2513.022.555 2.566.491.087 2.595.000.737 2.440.46.219 2.703.009.099 p. 110 2513.022.555 2.566.491.087 2.595.000.737 2.440.46.219 2.703.009.099 p. 110 2513.022.519 4.022.227 4.06.776.000		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Forn	m 2)
2,513,022,555 2,566,491,097 2,695,000,737 2,644,046,219 2,703,009,099 p. 110	fotal Plant in Service		3,984,762,026	4,015,890,376	4,127,896,824	4,193,219,694	p. 110	Balance Sheet
San	fotal Accum. Depreciation, Amortization		2,556,491,097	2,595,000,737	2,644,046,219	2,703,009,099	p. 110	Balance Sheet
(rate base est.) (fate	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	394,335,191 5,084,334	0 402,152,287 5,106,035	0 406,776,008 0	0 419,960,832 0	298,861,877 ***	pp. 234-235 pp. 274-275 pp. 276-277	
578,545 508,849 490,348 30,652 225,527 p. 230 Base gas 154,207,750 148,705,680 185,497,886 185,497,886 185,497,866 185,497,866 pp. 110-111 Base gas 154,207,750 148,705,680 185,497,866 185,497,866 185,497,866 pp. 110 System balancing 2,846 1,660 0 0 0 0 4,028 2,847 1,660 0 0 0 0 0 4,028 1,686,0786 2,845,497,866 30,120,606 34,882,493 p. 110 2,048,070 1,1487,213 2,886,786 24,335,088 24,667,057 2,862,475 p. 110 by Others Acct 868 1,383,102 187,173,02 164,107,506 186,529,340 p. 323,342 5,806,578 1,388,102 186,487,375 25,4667,677 36,561,958 p. 114 40,101,872 40,702,357 41,839,074 35,496,471 38,561,958 p. 114 31,064,068 24,935,679 1,889,121 2		476,186	00	00	00	204,839,713 **	p. 232 p. 278	
Base gas 154,207,750 148,705,890 185,497,856 165,497,856 165,497,856 10,10,907,449 185,497,856 160,497,856 10,10,907,449 185,497,856 185,497,856 10,10,907,449 185,497,856 185,497,856 10,10,907,449 185,497,856 185,497,856 10,10,907,475 10,10,907,449 185,497,856 185,497,856 10,10,907,475 10,10,907,47	Vorking Capital Prepayments Materials and Supplies	578,545 27,086,580	508,849 19,175,027	490,348 17,445,643	30,652 16,455,799	225,527 16,302,391	p. 230 pp. 110-111	
4,028 2,846 1,660 0 0 0 31,381,585 40,168,105 32,197,369 30,120,605 34,682,493 p. 322 20,891,515 28,660,786 24,335,098 24,667,057 28,117,313 p. 322 220,510,068 236,958,392 187,971,302 164,107,606 188,529,340 p. 323 85,806,578 108,465,122 53,574,897 42,270,476 60,581,723 p. 323 by Others Acct 858 1,33,314,388 127,861,340 133,534,908 127,671,483 pp. 323-325 40,101,872 40,702,351 41,839,074 35,490,471 38,561,958 p. 114 gative Salvage 89,239,757 88,455,053 88,564,362 91,458,795 92,741,208 p. 114 2,035,554 1,604,873 1,1,889,121 2,009,719 2,092,681 p. 304-306 614,752,2815 652,217,389 65,026,086 58,736,067 71,515,515 p. 304-306 92,312,045 117,756,587 66,026,086 92,741,208 p. 301,304-30 19,3		154,207,750	148,705,690 10,907,449	185,497,856 3,506,780	185,497,856 9,614,875	185,497,856 2,962,475	p. 110	
range ses: Comp. fuel and losses 31,381,585 40,168,105 32,197,389 30,120,605 34,682,493 p. 322 ass: Comp. fuel and losses 10,490,070 11,497,319 28,60,786 24,335,098 24,667,057 28,117,313 p. 322 ansmission 220,510,068 236,988,392 187,971,302 164,107,506 188,529,340 p. 323 ses: Comp. Fuel 8.8,806,578 108,485,122 53,574,897 42,270,476 60,581,723 9. 323 ses: Comp. Of Gas by Others Acct. 858 12,381,102 611,930 133,534,908 127,671,483 127,071,483 127,071,483 Ad. 101,1872 40,702,351 41,839,074 35,490,471 38,561,958 p. 114 And GRI Irevenue 89,239,757 88,455,053 88,544,377 2,092,791 2,092,691 p. 301,304,30 Ins Revenue 92,312,045 117,750,587 512,913,501 55,480,771 55,480,533 97,441,208 p. 301,304,30 And GRI Irevenue 2,035,554 1,604,873 1,889,121 2,009,719 2,092,681 p. 301,4306 <tr< td=""><td>pperation and Maintenance Costs Production</td><td>4,028</td><td>2,846</td><td>1,660</td><td>0</td><td>0</td><td></td><td>O&M</td></tr<>	pperation and Maintenance Costs Production	4,028	2,846	1,660	0	0		O&M
asst. Comp. Fuel 85,806,578 108,485,122 53,574,897 42,270,476 60,551,723 861,497 133,514,388 127,812 611,930 121,250,438 127,0476 60,551,723 861,349 133,514,388 127,813,40 133,534,908 127,250,433 127,071,483 127,071,071,071,071,071,071,071,071,071,07	Storage less: Comp. fuel and losses Net storage costs	31,381,585 10,490,070 20,891,515	40,158,105 11,497,319 28,660,786	32,197,369 7,862,271 24,335,098	30,120,605 5,453,548 24,667,057	34,682,493 6,565,180 28,117,313	p. 322	
G 40,101,872 40,702,351 41,839,074 35,490,471 38,561,958 pp. 323-325 mortization, and Negative Salvage 24,935,879 24,347,375 23,986,061 24,060,565 p. 114 A and GRI revenue 89,239,757 88,455,053 88,564,362 91,458,795 92,741,208 p. 114 A and GRI revenue 2,035,554 1,604,873 1,889,121 2,009,719 2,092,691 p. 301, 304-30 siss: Fuel Revenues 614,752,815 652,217,389 576,050,465 611,389,290 677,386,553 p. 304,305 193,40,706 19,340,706 19,614,456 10,379,378 54,662,942 607,962,577 p. 304,305 505,135,618 516,457,219 502,634,123 520,304,534 553,911,162 p. 304,305	Transmission less: Comp. Fuel less: Comp. Of Gas by Others Acct. 858 Net transmission costs	220,510,068 85,806,578 1,389,102 133,314,388	236,958,392 108,485,122 611,930 127,861,340	187,971,302 53,574,897 <u>861,497</u> 133,534,908	164,107,506 42,270,476 <u>586,597</u> 121,250,433	188,529,340 60,581,723 876,134 127,071,483	p. 323	
And GRI revenue 2,035,554 1,604,875 1389,121 2,009,719 2,032,691 p. 114	A&G	40,101,872	40,702,351	41,839,074	35,490,471	38,561,958	pp. 323-325	
mortization, and Negative Salvage 89,239,757 88,455,053 88,564,362 91,458,795 92,741,208 p. 114 2,035,554 1,604,873 1,889,121 2,009,719 2,092,691 p. 300 14,752,815 652,217,389 576,050,465 611,389,290 677,386,553 p. 301, 304-305 19,314,76,224 536,071,675 512,913,501 554,662,942 607,987,729 19,344,76,324 536,071,675 512,913,501 554,662,942 607,987,729 19,344,766 19,614,456 10,379,378 520,304,534 553,911,152	other Taxes	31,064,069	24,935,879	24,347,375	23,986,061	24,060,565	p. 114	Income Statement
A and GRI revenue 2,035,554 1,604,873 1,889,121 2,009,719 2,092,691 2 ner Revenue 614,752,815 622,217,389 576,050,465 611,389,290 677,386,553 92,312,045 117,750,587 65,026,085 58,736,067 71,515,515 524,476,324 536,071,675 512,913,501 554,662,942 607,963,729 19,340,706 19,614,456 10,379,378 34,358,408 54,052,577 505,135,618 516,457,219 502,534,123 520,304,534 553,911,152	epreciation, Amortization, and Negative Salvage	89,239,757	88,455,053	88,564,362	91,458,795	92,741,208	p. 114	Income Statement
A and GRI revenue 2,035,554 1,604,873 1,889,121 2,009,719 2,092,691 arise. Fuel Revenue 614,752,815 652,217,389 576,050,465 611,389,290 677,386,553 92,312,045 117,750,587 65,026,085 58,736,067 71,515,515 524,476,324 536,071,675 512,913,501 554,662,942 607,963,729 arise. Revenues 605,135,618 516,457,219 502,534,123 520,304,534 553,911,152	Gevenue							
res revenue 014, 725,015 025,117,389 576,020,495 011,389,290 077,386,553 012,386,553 017,386,553 017,386,553 017,386,553 017,560,587 015,387,290 077,955,750 015,387,290 077,955,770 015,387,290 015,387,790 015,3		2,035,554	1,604,873	1,889,121	2,009,719	2,092,691	p. 300	
iles Kevenues 19,340,706 19,614,456 10,379,378 34,358,408 505,135,618 516,457,219 502,534,123 520,304,534	Other Revenues less: Fuel Revenues otal Revenue	92,312,045 92,476,324	536,071,675 536,071,675	576,050,465 65,026,085 512,913,501	58,736,067 554,662,942	677,386,553 71,515,515 607,963,729	p. 301, 304-3 p. 304-305	307
	Sales Revenues let Revenues	19,340,706	19,614,456 516,457,219	502,534,123	34,358,408 520,304,534	54,052,577 553,911,152		

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NGSA. Pipeline Cost Model

Natural Gas Pipeline Company of America LLC

	Account 495						p. 308
27	Value of excess fuel retained	0	0	0	0	0	
28	Penalty revenues	-265,483	-273,756	0	0	0	
29	Gains on settlements of imbalances	0	311,535	0	0	0	
30	Total non-cost of service revenues	-265,483	37,779	10	10	10	
3	Cost of Debt	4.64%	5.02%	4.92%	4.95%	5.02% ***	0.218
32	Allowed Rate of Return on Equity	12.17%	12.17%	12.17%	12.17%	12.17%	p. 218
33	Account 496 - Provision for Rate Refunds	0	0	0	0	0	
34	Gas Received from Shippers (dth) Gas Used for Compressor Station Fuel (dth)	25,228,404	26,062,320	25,334,996	24,197,288	25,096,115	p.520
36		71,297,848	99,624,583	38,755,073	26,493,582	36,401,999	p.331
37	Account 810 Gas Used (dth)	19,543,467	21,198,033	14,910,330	10,695,438	12,844,328	p.331

Pipeline Cost Model NGSA

Natural Gas Pipeline Company of America LLC

Signoward Sign	Cabilitation G6.06% 53.90% 54.50% 51.77% Feulit Capitalization 33.94% 45.10% 45.50% 48.23% Feulit Feulit 33.94% 45.10% 45.50% 48.23% Feulit Total Return 4.13% 5.61% 5.54% 8.43% Return on Debt Feulit 3.930,456.510 3.984,752.026 4.015.890.376 4.127.886.82 Gas Stored - Noncurrent -2.513,052.556 -2.564.999 -2.596.000.377 -2.644.042.19 -2.644.042.19 Accumulated Depreciation 16.700.976 -2.596.000.377 -2.644.042.19 -2.596.000.377 -2.644.042.19 Regulatory Liabilities 1.189,369.325 -407.258.32 -406.776.008 1.136.00.377 -2.644.042.19 Regulatory Liabilities 1.189,369.324 1.200.309.622 1.221.054.258 1.742.71 2.51.462.71 Regulatory Liabilities 1.189,389.344 1.200.30.622 1.221.054.258 1.755.488.355 Redulatory Liabilities 1.189,389.34 1.200.30.30 1.271.054.258 1.757.498.36 <	A	Allowed Return on Rate Base	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Publit P	Publit Set Debt Set Debt Debt Set Debt Debt Debt Debt Debt Debt Debt De		Capitalization					
ly 33.94% 46.10% 45.50% 48.23% nn on Debt 3.07% 2.71% 2.68% 2.56% nn on Debt 4.13% 5.61% 5.64% 5.87% In mon Equily 7.20% 3.984,762,026 4,015,890,376 4,127,896,824 4,133,89 Plant in Service 3.930,456,510 3.984,762,026 4,015,890,376 4,127,896,824 4,127,896,824 4,127,896,824 4,133,89 Stored - Noncurrent 1.5,13,052,556 2.56,491,097 2.566,491,097 2.566,491,097 2.566,491,097 2.640,46,219 2.703,406,200 Annualsed Depreciation 2.5,13,052,556 2.56,491,097 2.565,000,737 2.64,046,219 2.703,406,200 Annualsed Depreciation 2.5,13,052,556 3.981,523 30,591,322 40,17,60,08 41,935,80,80 2.043,406,219 2.703,40,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219 2.704,406,219<	ly 33.94% 46.10% 45.50% 48.23% nn on Debt 3.07% 2.77% 2.77% 2.66% 48.23% nn on Equily 7.20% 5.61% 5.54% 5.54% 5.87% nn on Equily 7.20% 3.984.782.026 4.015.890.376 3.637.88 3.83% Plant in Service 3.984.782.026 148.705.690 185.497.886 185.497.886 nnulated Depreciation 1.513.02.555 2.56.491.097 2.05.600.737 2.644.046.219 3.640.6219 king Capital 1.61.700.978 4.017.288.322 4.017.76.08 1.85.497.886 3.61.01.326 diatory Liabitities 1.189,369,344 1.200.309,622 1.21.054.288 1.275.488.955 IRate Base 1.189,369,344 1.200.309,622 1.221.054.288 1.275.488.955 Irrax 1 Rate Base 1.189,369,344 1.200.309,622 1.221.054.288 1.275.488.955 Irrax 1 Rate Base 1.189,369,344 1.200.309,622 1.221.054.288 1.275.488.955 Irrax 1 Rate Base 1.189,369,		Debt	%90.99	53.90%	54.50%	51.77%	49.92% ***
Table Tabl	Take Base Take		Equity	33.94%	46.10%	45.50%	48.23%	20.08%
Facture	Facture 1,20% 1,50% 1,		Return on Debt	3.07%	2.71%	2.68%	2.56%	251%
Plant in Service	Plant in Service		Return on Equity	4.13%	561%	5 54%	5 87%	8 00%
Plant in Service 3,930,456,510 3,984,762,026 4,015,890,376 4,127,896,824 Slored - Moncurrent 154,207,750 148,705,890 185,497,856 185,497,856 Invibated Depreciation 1,510,057,556 2,556,491,097 2,564,000,737 2,544,046,219 Invibated Depreciation 1,200,305,256 2,556,491,097 2,544,046,219 2,541,01326 Integrated Depreciation 476,186 407,258,325 406,776,008 419,608,332 Integrated Depreciation 45,994 1,200,309,622 1,221,054,258 1,275,488,955 Integrated Base 1,189,369,344 1,200,309,622 1,221,054,268 1,275,488,955 Integrated Base 1,189,369,344 1,200,309,622 1,221,054,268 1,275,488,955 Integrated Base 1,189,369,344 1,200,309,622 1,221,054,268 1,275,488,955 Integrated Income Tax 45,999 22,591,192 30,967,402 31,092,591 34,427,424 Integration 1,222,091,592 1,222,092,591 44,556,693 14,598,643 14,598,795 Integration 1,222,591,192 <td> Plant in Service 3.930,456,510 3.984,762,026 4.015,890,376 4.127,896,824 Storder - Noncurrent 154,207,756 148,705,690 185,497,856 156,497,856 156,497,856 156,497,865 156,497,856 156,497,856 156,497,856 156,497,952 156,491,097 156,590,007,77 156,101,326 156,497,856 156,497,097 156,590,007,77 156,196,832 156,597,771 156,597,856 156,597,771 156,597,856 156,497,957 156,597,856 157,485,955</td> <td></td> <td>Total Return</td> <td>7.20%</td> <td>8.32%</td> <td>8.22%</td> <td>8.43%</td> <td>8.60%</td>	Plant in Service 3.930,456,510 3.984,762,026 4.015,890,376 4.127,896,824 Storder - Noncurrent 154,207,756 148,705,690 185,497,856 156,497,856 156,497,856 156,497,865 156,497,856 156,497,856 156,497,856 156,497,952 156,491,097 156,590,007,77 156,101,326 156,497,856 156,497,097 156,590,007,77 156,196,832 156,597,771 156,597,856 156,597,771 156,597,856 156,497,957 156,597,856 157,485,955		Total Return	7.20%	8.32%	8.22%	8.43%	8.60%
Signature 3,930,456,510 3,984,762,026 4,015,890,376 4,127,896,824 154,207,756 148,705,690 185,497,856 185,497,856 25ford - Noncurrent 2,213,052,555 2,556,491,097 2,595,000,737 2,644,046,219 16,700,978 30,591,325 406,776,008 419,960,832 16,700,978 30,591,325 406,776,008 419,960,832 16,700,978 30,591,325 406,776,008 419,960,832 16,700,978 30,591,325 406,776,008 419,960,832 16,700,978 442,771 26,101,326 419,960,832 17,866 22,591,192 30,967,402 31,092,591 34,427,424 17,866 22,591,192 30,967,402 31,092,591 34,427,424 18,390,07 12,869 22,591,192 30,967,402 31,092,591 34,466,398 16,200 20,301,401,872 448,086,084 443,288,480 16,20st of Service Revenues 425,694,638 445,386,729 448,086,084 16,20st of Service Revenues 425,694,638 71,070,490 54,466,039 77,046,054 16,20st of return on equity * 24,499 20,219 20,219 20,219 16,301,465 22,301,463 22,304,534 20,201,98 16,301,465 22,301,483 22,304,534 33,437 32,304,634 17,046,054 31,032,711 54,466,039 77,046,054 18,301,465 32,301,483 32,304,634 33,437 32,304,634 18,301,41 35,4301,41 35,4301,41 35,4301,41 35,4301,41 18,301,41 35,4301,	Plant in Service 3,930,456,510 3,984,762,026 4,015,890,376 4,127,896,824 4,127,806,824 4,127,806,824 4,127,806,824 4,127,826,8322 4,162,910,977 2,644,046,219 2,641,047 2,641,046 2,64	œ	ate Base					
Stored - Noncurrent 154,207,750 148,705,690 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,440,6219 185,440,6219 185,440,6219 185,440,6219 185,440,6219 185,440,6219 185,440,6219 185,441,365 185,441,046,219 185,441,436,219 185,441,436,219 185,441,436,219 185,441,436,219 185,441,436,219 185,441,436,219 185,441,436,219 185,441,424 185,	Stored - Noncurrent 154,207,750 148,705,690 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,497,856 185,442,771 26,101,326 36,407,427 26,101,326 36,917,427 26,101,326 36,917,427 26,101,326 36,917,427 26,101,326 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,917,427 36,91		Gas Plant in Service	3,930,456,510	3,984,762,026	4,015,890,376	4,127,896,824	4,193,219,694
rindleted Depreciation -2,513,052,555 -2,564,91,097 -2,595,000,737 -2,644,046,219 king Capital 16,700,978 30,591,325 21,442,771 26,101,326 -399,419,525 -407,258,322 -406,776,008 20,641,326 Uattory Liabilities 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 Indiatory Liabilities 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 Indiatory Liabilities 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 Indiatory Liabilities 85,583,236 99,819,549 1,221,054,258 1,275,488,955 Indiatory Liabilities 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 Indiatory Liabilities 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 Indiatory Liabilities 1,286,8 2,290,458 39,057,02 31,032,341 426,386,795 Indiatory Exercise 1,286,8 1,286,33,34 1,286,33,34 1,286,33,36 1,286,396,39 1,286,396,391 1,286,396,391 1,286,396,391	Immulated Depreciation -2,513,052,555 -2,556,491,097 -2,595,000,737 -2,644,046,219 king Capital -2,513,052,555 -2,556,491,097 -2,595,000,737 -2,644,046,219 Ling Capital -39,419,525 -407,258,322 -407,776,008 -2,644,046,219 Unatory Liabilities 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 In Rate Base 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 In Rate Base 1,286% 22,591,192 30,981,9549 100,355,397 107,551,856 In Rate Base 1,286% 22,591,192 30,981,523 31,002,591 4,276,385 In Rate Base 1,286% 2,294,358 24,337,375 34,27,440 In Recome Tax 12,86% 2,294,582 3,981,523 3,981,523 3,981,524 In Cost of Service 42,509,83 156,524,972 44,266,383 44,268,795 In Cost of Service 425,694,638 445,386,729 448,086,004 443,258,480 In Cost of Service Revenues 726,440,980 77,070,490		Gas Stored - Noncurrent	154,207,750	148,705,690	185,497,856	185,497,856	185,497,856
king Capital Fig. 16,700,978 Fig. 186 Fig.	king Capital 16,700,978 30,591,325 21,442,771 26,101,326 0 allatory Assets 16,700,978 476,186 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Accumulated Depreciation	-2,513,052,555	-2,556,491,097	-2,595,000,737	-2.644.046,219	-2.703.009.099
Particle	Particle		Working Capital	16,700,978	30,591,325	21,442,771	26,101,326	19,490,393
ulatory Assets 476,186 0	ulatory Assets 476,186 0		ADIT	-399,419,525	-407,258,322	-406,776,008	-419,960,832	-298.861.877
Interior Liabilities	unatory Liabilities 0 0 0 0 0 I Rate Base 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 In mine Base 45.99% 22,591,192 30,967,402 31,092,591 34,427,424 In come Tax 12.86% 2,904,582 3,981,523 31,092,591 34,427,424 In come Tax 12.86% 2,904,582 3,981,523 3,997,619 4,426,383 In come Tax 12.86% 2,904,582 3,981,523 3,997,619 4,426,383 In cost of Service 156,224,972 157,871,666 145,917,490 In Cost of Service 425,694,638 445,386,729 448,068,084 443,258,480 I Revenues 505,135,618 516,457,219 502,534,123 520,304,534 Cost of Service Revenues 505,135,618 516,467,219 502,534,123 520,304,534 Cost of Service Revenues 71,070,490 71,070,490 54,466,039 77,046,054 Cost of Service Revenues 79,706,463 71,032,711 54,466,039 77,046,054 <		Regulatory Assets	476,186	0	0	0	0
In Rate Base 1,189,369,344 1,200,309,622 1,221,054,258 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,275,488,955 1,223,3427,424 1,226,323,426,382 1,223,3427,424 1,226,323,757 1,226,337 1,226,332,375 1,226,332,375 1,226,34,372 1,236,360 1,236,372 1,232,771 1,332,772 1,332,771 1,332,771 1,332,771 1,332,771 1,332,771 1,332,771 1,	In the Base		Regulatory Liabilities	0	0	O	O	-204,839,713
Inn 85,583,236 99,819,549 100,355,397 107,551,856 10 aral Income Tax 45,99% 22,591,192 30,967,402 31,092,591 34,427,424 3 a Income Tax 12.86% 2,904,582 3,991,523 3,997,619 4,426,383 3 ar Taxes 31,064,069 24,935,879 24,347,375 23,986,061 2 3,997,619 4,426,383 34,427,424 3 3 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,385 3,997,619 4,426,385 3,997,619 4,426,385 3,997,619 4,426,385 3,439,471 35,490,471 35,490,471 35,490,471 35,490,471 3,779 0	Inn 85,583,236 99,819,549 100,355,397 107,551,856 10 aral Income Tax 45,99% 22,591,192 30,967,402 31,092,591 34,427,424 3 a Income Tax 12.86% 2,904,582 3,991,523 3,997,619 4,426,383 3 ar Taxes 31,064,069 24,935,879 24,347,375 23,986,061 2 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 3,997,619 4,426,383 3,997,619 4,426,383 3,997,619 4,426,383 3,437,49 1,43,328,480 44 443,258,480 44 443,258,480 44 443,258,480 44 443,258,480 44 443,258,480 44 443,258,480 44 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10		Total Rate Base	1,189,369,344	1,200,309,622	1,221,054,258	1,275,488,955	1,191,497,254
85,583,236 99,819,549 100,355,397 107,551,856 110,259% 22,591,192 30,967,402 31,092,591 34,427,424 31,092,581 12.86% 2.904,582 3.987,619 4,426,383 31,064,069 24,935,879 24,347,375 23,986,061 24,935,879 154,209,331 156,524,972 157,871,666 145,917,490 154,010,1872 40,101,872 445,386,729 448,068,084 443,258,480 445,386,729 505,135,618 516,457,219 502,534,123 520,304,534 550 -265,483 77,070,490 54,466,039 77,046,054 100,00-COS rev 79,706,463 71,032,711 71,032,71	85,583,236 99,819,549 100,355,397 107,551,856 10 22,591,192 30,967,402 31,092,591 34,427,424 3 12.86% 2,904,582 3,981,523 3,997,619 4,426,383 3,1064,069 24,935,879 24,347,375 23,986,061 24,935,879 154,209,331 156,524,972 157,871,666 145,917,490 154,010,1872 40,101,872 445,386,729 448,068,084 443,258,480 445,386,729 505,135,618 516,457,219 502,534,123 520,304,534 55 265,483 77,070,490 54,466,039 77,046,054 10	Ü	ost of Service					
45.99% 22,591,192 30,967,402 31,092,591 34,427,424 31,026,606 2,904,582 3,981,523 3,997,619 4,426,383 31,064,069 24,935,879 24,347,375 23,986,061 28,9239,757 88,455,053 88,564,362 91,458,795 154,209,931 156,524,972 157,871,666 145,917,490 164,0101,872 40,702,351 41,839,074 35,490,471 35,490,471 35,490,471 35,490,471 37,779 00.00-COS rev 79,706,463 71,070,490 54,466,039 77,046,054 100.00-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 100.00-COS rev 79,706,463 20,21% 18,31% 20,01%	45.99% 22,591,192 30,967,402 31,092,591 34,427,424 31,026,606 2,904,582 3,997,619 4,426,383 31,064,069 24,935,879 24,347,375 23,986,061 28,239,757 88,455,053 88,564,362 91,458,795 154,209,931 156,524,972 157,871,666 145,917,490 16,40101,872 40,101,872 40,702,351 41,839,074 35,490,471 35,490,471 35,490,471 35,490,471 37,779 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Return	85,583,236	99,819,549	100.355.397	107,551,856	102.477.343
12.86% 2,904,582 3,981,523 3,997,619 4,426,383 31,064,069 24,935,879 24,347,375 23,986,061 89,239,757 88,455,053 88,564,362 91,458,795 154,209,931 156,524,972 157,871,666 145,917,490 154,209,931 156,524,972 157,871,666 145,917,490 154,209,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 37,779 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12.86% 2,904,582 3,981,523 3,997,619 4,426,383 31,064,069 24,935,879 24,347,375 23,986,061 89,239,757 88,455,053 88,564,362 91,458,795 154,209,931 156,524,972 157,871,666 145,917,490 154,209,931 156,524,972 157,871,666 145,917,490 154,209,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 35,490,471 37,779 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			22,591,192	30,967,402	31.092.591	34.427.424	33,393,960
31,064,069 24,935,879 24,347,375 23,986,061 289,239,757 88,455,053 88,564,362 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,974 91,459,886,729 448,068,084 443,258,480 48,565,135,618 516,457,219 502,534,123 520,304,534 56 79,440,980 71,070,490 54,466,039 77,046,054 10000-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 10000-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 100000-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 100000-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 1000000-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 100000000000000000000000000000000000	31,064,069 24,935,879 24,347,375 23,986,061 289,239,757 88,455,053 88,564,362 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,795 91,458,974 91,483,974 91,483,974 91,483,974 91,483,974 91,483,974 91,483,974 91,483,974 91,483,974 91,483,974 91,483,974 91,483,774 91,486,039 77,046,054 101,483,775 91,486,039 77,046,054 101,483,775 91,486,039 77,046,054 101,483,775 91,486,039 77,046,054 101,483,775 91,486,039 77,046,054 101,483,784 91,484,784 91,484 9				3,981,523	3,997,619	4,426,383	4.293.509
89,239,757 88,455,053 88,564,362 91,458,795 154,209,931 156,524,972 157,871,666 145,917,490 40,101,872 40,702,351 41,839,074 35,490,471 425,694,638 445,386,729 448,068,084 443,258,480 505,135,618 516,457,219 502,534,123 520,304,534 37,779 0 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 79,706,483 20,21% 18,31% 20,01%	89,239,757 88,455,053 88,564,362 91,458,795 154,209,931 156,524,972 157,871,666 145,917,490 40,101,872 40,702,351 41,839,074 35,490,471 425,694,638 445,386,729 448,068,084 443,258,480 505,135,618 516,457,219 502,534,123 520,304,534 37,779 0 54,466,039 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 77,046,483 71,032,711 54,466,039 77,046,054 79,706,483 20.21% 18.31% 20.01%		Other Taxes	31,064,069	24,935,879	24,347,375	23,986,061	24.060.565
154,209,931 156,524,972 157,871,666 145,917,490 40,101,872 40,702,351 41,839,074 35,490,471 425,694,638 445,386,729 448,068,084 443,258,480 505,135,618 516,457,219 502,534,123 520,304,534 -265,483 37,779 0 54,466,039 77,046,054 on-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 * 24,49% 20,21% 18,31% 20,01%	154,209,931 156,524,972 157,871,666 145,917,490 40,101,872 40,702,351 41,839,074 35,490,471 425,694,638 445,386,729 448,068,084 443,258,480 505,135,618 516,457,219 502,534,123 520,304,534 -265,483 37,779 0 79,440,980 71,070,490 54,466,039 77,046,054 * 24,49% 20.21% 18,31% 20,01%		Depreciation	89,239,757	88,455,053	88,564,362	91,458,795	92,741,208
40,101,872 40,702,351 41,839,074 35,490,471 425,694,638 445,386,729 448,068,084 443,258,480 505,135,618 516,457,219 502,534,123 520,304,534 37,779 01,070,490 54,466,039 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 * 24,49% 20,21% 18,31% 20,01%	40,101,872 40,702,351 41,839,074 35,490,471 425,694,638 445,386,729 448,068,084 443,258,480 505,135,618 516,457,219 502,534,123 520,304,534 2-265,483 37,779 0 79,440,980 71,070,490 54,466,039 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 * 24,49% 20.21% 18,31% 20.01%		O&M	154,209,931	156,524,972	157,871,666	145,917,490	155,188,796
425,694,638 445,386,729 448,068,084 443,258,480 505,135,618 516,457,219 502,534,123 520,304,534 255,483 37,779 0 77,046,054 79,440,980 71,070,490 54,466,039 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 20.21% 18.31% 20.01%	425,694,638 445,386,729 448,068,084 443,258,480 505,135,618 516,457,219 502,534,123 520,304,534 37,779 0 77,046,039 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 \$		A&G	40,101,872	40,702,351	41,839,074	35,490,471	38,561,958
5	5		Total Cost of Service	425,694,638	445,386,729	448,068,084	443,258,480	450,717,339
s -265,483 37,779 0 0 0 79,440,980 71,070,490 54,466,039 77,046,054 on-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 * 24,49% 20.21% 18,31% 20.01%	s -265,483 37,779 0 0 0 79,440,980 71,070,490 54,466,039 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 * 20.21% 18.31% 20.01%		Total Revenues	505,135,618	516,457,219	502,534,123	520,304,534	553,911,152
79,440,980 71,070,490 54,466,039 77,046,054 79,706,463 71,032,711 54,466,039 77,046,054 * 20,21% 18,31% 20,01%	79,440,980 71,070,490 54,466,039 77,046,054		Non-Cost of Service Revenues	-265,483	37,779	0	0	0
on-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 * 20.21% 18.31% 20.01%	on-COS rev 79,706,463 71,032,711 54,466,039 77,046,054 * 24,49% 20.21% 18.31% 20.01%		Cost Over (Under) Recovery	79,440,980	71,070,490	54,466,039	77,046,054	103,193,813
* 24.49% 20.21% 18.31% 20.01%	* 20.21% 18.31%		Over (Under) Recovery excl. non-COS rev	79,706,463	71,032,711	54,466,039	77,046,054	103,193,813
			Actual rate of return on equity *	24.49%	20.21%	18.31%	20.01%	22.99%

[[]Line 24 - (Line 24 *(.4599)(1+.4599))} (Line 24 * (State Income Tax Percentage * .4599)] + [Line 14*(Line 4/Line 5)] / Line 13 * Line 2

10,572,695	\$29,920,727	26.13%
11,029,463	\$27,353,068	22.79%
8,916,206	\$23,182,136	20.92%
2,794,783	\$13,135,480	21.69%
5,121,237	\$18,692,515	27.39%
Over/Under Dth Fuel Recovery Average price	Valuation of Fuel Recovery	Actual rate of return on equity including fuel

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
***NGSA uses Kinder Morgan Energy Partners, LP cost of debt, equity and debt capitalization data based on SEC Form 10-K in 2013 and Kinder Morgan, Inc. SEC Form 10-K in 2014 thru 2017 due to NGPL's reported 100% equity ratios in the Form 2. 100% equity is not within a range FERC has historically approved.

NGSA Pipeline Cost Model

Data Input Section

Northern Border Pipeline Company

			Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form
+	Total Plant in Service		2,561,820,884	2,579,060,825	2,566,710,335	2,580,555,618	2,602,115,143	p. 110
2	Total Accum. Depreciation, Amortization	tion	1,382,702,388	1,436,140,349	1,467,447,709	1,517,823,058	1,572,156,310	p. 110
w 4 c	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283		7,886,429 403,668,028 4,848,273	7,013,156 392,212,717 4,465,636	6,148,297 382,204,770 4,058,777	5,276,164 370,380,939 3,759,566	4,395,748 235,333,106 ** 2,257,046	pp. 234-235 pp. 274-275 pp. 276-277
9 2	Regulatory Assets and Liabilities Account 182.3 Account 254	(rate base est.) (rate base est.)	20,540,718	18,273,076	16,027,277	13,762,596	136,017,031	p. 232 p. 278
80 00	Working Capital Prepayments Materials and Supplies		874,255 5,469,560	890,072 5,539,362	907,532 5,648,703	847,908 5,727,004	741,334 5,216,019	p. 230 pp. 110-111
10	Gas Stored Underground Acct. 117.1 Acct. 117.2	Base gas System balancing	0 0	00	00	00	00	p. 110
12	Operation and Maintenance Costs Production		0	0	0	0	0	
£ 1 £	Storage less: Comp. fuel and losses Net storage costs	losses	0 0 0	0 010	0 010	0 0 0	0 010	p. 319
16 77 18	Transmission less. Comp. fuel Net transmission costs		121,293,332 105,028,112 16,265,220	137,925,767 122,803,689 15,122,078	77,468,138 61,896,828 15,571,310	82,154,327 64,159,686 17,994,641	91,546,547 73,733,812 17,812,735	p. 323
19	A&G		24,920,178	25,953,757	22,959,058	19,760,736	27,415,390	p. 325
20	Other Taxes		23,052,460	23,383,208	22,825,566	24,199,847	23,480,563	p. 114
21	Depreciation, Amortization, and Negative Salvage	itive Salvage	57,452,005	57,941,549	58,760,573	58,002,578	58,615,483	p. 114
	Revenie							
22	ACA and GRI revenue		1,691,090	1,225,881	1,463,205	1,471,741	1.418.640	p. 300
23	Other Revenue		284,157,574	292,092,584	284,046,766	290,169,977	289,977,478	p. 301
24	Lotal Revenue		285,848,664	293,318,465	285,509,971	291,641,718	291,396,118	
26	Net Revenues		285,848,664	293,318,465	285,509,971	291,641,718	291,396,118	

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Northern Border Pipeline Company

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Value of excess fuel retained	0	0	0	0	0	p. 308
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	0	0	0	0	0	
Total non-cost of service revenues	0	0	0	0	10	
Cost of Debt	5.67%	6.32%	6.30%	6.36%	5.21%	0 218
Allowed Rate of Return on Equity	22.23%	21.69%	22.20%	22.48%	25.83%	p. 218
Account 496 - Provision for Rate Refunds	0	0	0	0	0	

NGSA Pipeline Cost Model

Northern Border Pipeline Company

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Allowed Return on	turn on Rate Base	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
	Capitalization					
	Debt	22.10%	51.03%	52.34%	54.86%	60.37%
	Equity	44.90%	48.97%	47.66%	45.14%	39.63%
	Return on Debt	3.12%	3.23%	3.30%	3.49%	3 15%
	Return on Fauity	9 98%	10 62%	10.58%	10 150/	100000
	Total Return	13.11%	13.85%	13.88%	13.64%	13.38%
Rate Base						
	Gas Plant in Service	2,561,820,884	2.579.060.825	2.566.710.335	2 580 555 618	2 602 115 143
	Gas Stored - Noncurrent	0	0	0	0	
	Accumulated Depreciation	-1,382,702,388	-1,436,140,349	-1,467,447,709	-1,517,823,058	-1,572,156,310
	Working Capital	6,343,815	6,429,434	6,556,235	6,574,912	5,957,353
	ADIT	-400,629,872	-389,665,197	-380,115,250	-368,864,341	-233,194,404
	Regulatory Assets	0	0	0	0	
	Regulatory Liabilities	-20,540,718	-18,273,076	-16,027,277	-13,762,596	-136,017,031
	Total Rate Base	764,291,721	741,411,637	709,676,334	686,680,535	666,704,751
Cost of Service	rvice					
	Return	100,163,793	102,660,964	98,488,456	93,639,658	89,216,470
	Federal Income Tax 38.89%	29,666,786	30,624,894	29,200,674	27.098.056	26,540,406
	State Income Tax 10.00%	2,966,679	3,062,489	2,920,067	2,709,806	2,654,041
	Other Taxes	23,052,460	23,383,208	22,825,566	24,199,847	23,480,563
	Depreciation	57,452,005	57,941,549	58,760,573	58,002,578	58,615,483
	O&M	16,265,220	15,122,078	15,571,310	17,994,641	17,812,735
	A&G	24,920,178	25,953,757	22,959,058	19,760,736	27,415,390
	Total Cost of Service	254,487,120	258,748,939	250,725,704	243,405,322	245,735,087
	Total Revenues	285,848,664	293,318,465	285,509,971	291,641,718	291,396,118
	Non-Cost of Service Revenues	0	0	0	0	
	Cost Over (Under) Recovery	31,361,544	34,569,526	34,784,267	48,236,396	45,661,031
	Over (Under) Recovery excl. non-COS rev	31,361,544	34,569,526	34,784,267	48,236,396	45,661,031
	Actual rate of return on equity *	28.45%	28.18%	29.20%	33.08%	37.60%

^{* [[}Line 24 - (Line 24 *(.3889/(1+.3889)))-(Line 24 * (State Income Tax Percentage * .3889))]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

\$823,326
\$196,166
\$0
\$1,081,252
\$2,311,527
 Compressor Usage Surcharge Tracker

p. 232 & 278

NGSA Pipeline Cost Model

Northern Natural Gas Company

Vorther	Northern Natural Gas Company			Data Input Section	ion				
			Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	n2)
	Total Plant in Service		3,484,949,717	3,681,036,431	3,838,473,638	3,995,661,549	4,224,383,452	p. 110	Balance Sheet
	Total Accum. Depreciation, Amortization	ization	1,253,886,542	1,254,423,493	1,284,588,325	1,320,392,762	1,360,160,345	p. 110	Balance Sheet
	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	xes	19,556,640 588,565,757 14,308,196	19,307,128 661,254,709 14,342,693	19,309,995 781,598,340 14,254,693	19,201,016 844,871,731 14,038,474	20,917,737 616,180,726 ** 23,024,870	pp. 234-235 pp. 274-275 pp. 276-277	
	Regulatory Assets and Liabilities Account 182.3 Account 254	(rate base est.) (rate base est.)	30,072,462 24,871,421	29,768,648 24,190,051	29,191,581	28,385,813 25,800,456	27,460,594 450,174,020 **	p. 232 p. 278	
	Working Capital Prepayments Materials and Supplies	lies	4,317,470 24,793,032	4,002,590 26,252,771	4,237,714 26,839,547	4,354,809	5,182,984	p. 230 pp. 110-111	
	Gas Stored Underground Acct. 117.1 Acct. 117.2	Base gas System balancing	28,429,396 41,211,532	28,429,396	28,429,396 41,211,532	28,429,396 41,211,532	28,429,396 41,211,532	p. 110	
	Operation and Maintenance Costs Production		19,502	1,394	1,086	0	0		O&M
	Storage less: Comp. fuel and losses Net storage costs	and losses	30,595,867 3,227,745 27,368,122	44,776,105 4,718,973 40,057,132	28,814,690 1,977,338 26,837,352	28,058,245 1,875,834 26,182,411	33,683,355 2,902,98 <u>6</u> 30,780,369	p. 322	
	Transmission less: Comp. fuel Net transmission costs	sts	133,627,170 43,303,561 90,323,609	204,269,979 86,283,955 117,986,024	131,131,359 34,642,137 96,489,222	112,283,068 19,773,475 92,509,593	135,557,737 29,716,005 105,841,732	p. 323	
	A&G		62,948,504	73,651,891	70,701,091	74,378,674	78,719,297	pp. 324-325	Prior yr. changed
	Other Taxes		52,683,283	52,638,789	55,433,507	57,118,801	57,065,839	p. 114	Income Statement
	Depreciation, Amortization, and Negative Salvage	egative Salvage	64,656,813	68,727,594	70,201,331	74,360,354	76,908,621	p. 114	Income Statement
	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues Net Revenues	חרפ	1,651,333 590,928,901 592,580,234 25,370,869 567,209,365	1,287,801 747,751,586 749,039,387 102,300,391 646,738,996	1,473,867 658,404,510 659,878,377 34,467,234 625,411,143	1,496,315 634,953,384 636,449,699 9,872,829 626,576,870	1,475,875 691,962,424 693,438,299 28,436,340 665,001,959	p.300	

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NGSA Pipeline Cost Model

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Account 495 Value of excess fuel retained Penalty revenues Gains on settlements of imbalances Total non-cost of service revenues Cost of Debt Allowed Rate of Return on Equity

NGSA Pipeline Cost Model

Northern Natural Gas Company

Rate Base Year End 2014 Year End 2014 Year End 2014 Year End 2014 Year End 2015 Year End 2016 Year End 2017 Year End 2016 Year End 2017 Year End 20							
March Energy	Allowed Deturn or Date Deco		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Debt 99 82% 40.36% 36.20% 36.21% 36.21% 36.21% 36.31% 36.21% <td>Allowed Neturn on Nate base Capitalization</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Allowed Neturn on Nate base Capitalization						
Return on Debt 1.98% 59.64% 63.80% 63.79% 75.86%	Debt		39.82%	40.36%	36.20%	36.21%	33.61%
Return on Debt 7,222% 7,165% 1,80%	Equity		60.18%	59.64%	63.80%	63.79%	66.39%
Petum on Equity 1,22% 1,16% 1,45% 1,	Return on Debt		1.98%	2.00%	1.80%	1.80%	1.67%
Total Return Gas Plant in Service Gas Storder-Aboncurrent Gas Storder-Aboncurrent 1.253,886 28,429,386 Accumulated Depreciation 70,322,034 ADIT Regulatory Assets Regulatory Liabilities 1.751,698,333 Total Rate Base Federal Income Tax Sass 86, 868,115,733 Depreciation 14,57% Gas Trial Rate Base Total Rate Base Total Rate Base 1.751,698,333 Total Rate Base Total R	Return on Equity		7.22%	7.16%	7 66%	7.65%	7 97%
Gas Plant in Service 3,484,949,717 3,681,036,431 3,838,473,638 3,995,661,549 4,25,396 28,429,396 28,429,396 28,429,396 28,429,396 28,429,396 21,220,392,762 1,13 23,883,725 1,13 3,995,661,549 4,25,396 28,429,396 28,429,396 28,429,396 1,13 3,995,661,549 4,228,936 28,429,396 28,429,396 1,13 28,23,392,762 1,13 28,23,392,762 1,13 28,23,392,762 1,13 28,307,091,89 6,13 28,307,091,89 6,13 28,307,091,89 6,13 28,307,091,89 6,13 28,307,091,89 6,13 28,307,091,89 6,13 28,307,091,89 6,13 28,307,091,89 6,13 28,307,091,89 6,13 28,307,091,89 6,13 1,14 1,13 1,14 1,14 1,14 1,14	Total Return		9.20%	9.16%	9.45%	9.45%	9.63%
s Stored – Noncurrent 1, 253,895,617 3,681,036,431 3,838,473,638 3,995,661,549 4,5 s Stored – Noncurrent 1, 223,826,942 1, 224,3396 28,429,396 21,283,286,742 1, 284,588,325 1, 284,588,325 1, 230,392,762 1, 253,826,642 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,325 1, 284,588,328 1, 284,588,388 1, 284,588,38	Rate Base						
s Stored - Noncurrent 28,429,396 28,429,396 1,254,458,325 1,320,392,762 1,373,476,243,349 1,254,458,325 1,228,793,793 1,732,334 1,254,423,493 1,284,588,793 1,388,0055 1,320,392,783 1,381,792,845 1,983,343,400 1,940,454,416 1,910,910,910 1,391,910	Gas Plant in Service		3,484,949,717	3,681,036,431	3,838,473,638	3,995,661,549	4.224,383,452
cumulated Depreciation -1,253,886,542 -1,254,423,493 -1,254,588,325 -1,320,392,762 orking Capital 70,322,034 71,466,893 72,288,733 73,20,392,762 indiatory Assets 71,466,893 72,288,733 73,20,392,762 gulatory Liabilities 2-24,871,421 2-24,190,051 2-23,908,645 2-55,800,456 tal Rate Base 1,751,698,333 1,875,797,550 1,883,343,400 1,940,454,416 tum 6ex.16,773 72,286,889 77,640,107 79,881,949 ter Taxes 68,115,733 72,286,889 77,640,107 79,881,949 ter Income Tax 14,57% 68,115,733 72,286,889 77,640,107 79,881,949 ter Taxes 68,115,733 72,286,889 77,640,107 79,881,949 ter Taxes 68,115,733 72,286,889 77,640,107 79,981,949 ter Taxes 64,656,81 66,888 77,640,107 79,040,456 73,001,331 tal Cost of Service 537,138,951 607,680,790 586,621,547 599,575,071 at Over (Unde	Gas Stored - Noncurrent		28,429,396	28,429,396	28,429,396	28,429,396	28,429,396
priking Capital 70,322,034 71,466,893 72,288,793 73,880,065 priking Capital 70,322,034 71,466,893 72,288,793 73,880,065 gulatory Assets 583,317,313 656,290,274 776,540,38 839,709,189 gulatory Labilities 1,751,698,333 1,875,797,550 1,883,343,400 1,940,454,416 tal mome Tax 68,115,733 72,286,889 77,640,107 79,81,949 tel income Tax 14,57% 9,925,435 10,533,232 11,313,273 11,654,513 perciation 53.86% 68,115,733 72,286,889 77,640,107 79,981,949 tel income Tax 14,57% 9,925,435 10,533,232 11,313,273 11,654,513 perciation 68,115,733 52,683,789 55,433,607 77,143,801 AM A 62,948,504 73,651,891 70,201,331 74,360,354 AB A 62,948,504 73,651,891 607,680,790 586,621,547 599,575,071 Isal Cost of Service 587,209,385 646,738,996 625,411	Accumulated Depreciation		-1,253,886,542	-1,254,423,493	-1,284,588,325	-1,320,392,762	-1,360,160,345
Figure Rate Base 1,751,698,333 1,875,797,550 1,883,343,400 1,940,454,416 1,097,950 1,751,698,333 1,875,797,550 1,883,343,400 1,940,454,416 1,097,950 1,751,698,333 1,875,797,550 1,883,343,400 1,940,454,416 1,097,950 1,751,698,333 1,875,797,550 1,883,343,400 1,940,454,416 1,097,950 1,751,698,333 1,875,797,550 1,883,343,400 1,940,454,416 1,097,950 1,71,797,845 1,754,0107 1,940,454,416 1,097,950 1,754,698,333 1,875,797,594 1,754,107 1,533,327 1,1564,513 1,1654,5	Working Capital		70,322,034	71,466,893	72,288,793	73,880,065	76,432,502
gulatory Assets gulatory Assets gulatory Assets gulatory Labilities 1,751,698,333 1,875,797,550 1,883,343,400 1,940,454,416 Lun Lun Lun Lun Lun Lun Lun Lu	ADIT		-583,317,313	-656,290,274	-776,543,038	-839,709,189	-618,287,859
gullatory Liabilities -24,871,421 -24,190,051 -23,908,645 -25,800,456 tal Rate Base 1,751,688,333 1,875,797,550 1,883,343,400 1,940,454,416 turn 6aral Income Tax 161,087,950 171,797,845 176,40,107 79,981,949 tite Income Tax 14,57% 9,925,435 10,533,232 11,313,273 11,664,513 ner Taxes 64,666,813 68,727,594 70,201,331 74,360,354 M 62,948,504 73,614,891 74,360,354 AM 62,948,504 73,651,891 70,201,331 74,360,354 AM 62,948,504 73,651,891 70,701,091 74,378,674 AB 62,948,504 72,680,790 586,576,771 599,575,071 AB 62,948,722 86,738,996 66,576,870 76,680,	Regulatory Assets		30,072,462	29,768,648	29,191,581	28,385,813	27,460,594
turn deral Income Tax the Income Tax	Regulatory Liabilities		-24,871,421	-24,190,051	-23,908,645	-25,800,456	-450,174,020
turn 161,097,950 171,797,845 178,004,578 183,388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 185, 388,776 182, 388,776 182, 388,776 182, 388,776 182, 388,776 182, 388,776 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 388,778 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 319 182, 322, 318 182, 322, 318 182,	Total Rate Base		1,751,698,333	1,875,797,550	1,883,343,400	1,940,454,416	1,928,083,720
re Tax 53.85% 68,115,733 72,286,889 77,640,107 79,981,349 82, 185, 12,845 Tax 14.57% 9,925,435 10,533,222 11,313,273 11,654,513 12,113,127 Tax 14.57% 9,925,435 10,533,222 11,313,273 11,654,513 12,112,123 52,683,283 52,683,789 55,433,507 57,118,801 70,201,031 70,201,031 70,201,031 70,201,031 70,201,031 70,201,031 70,201,031 66,576,870 66,576,870 66,576,870 66,576,870 66,576,870 66,576,870 66,576,870 30,570,071,799 30,700,474 30,058,206 38,789,596 27,001,799 31,572,919 31,598, 31,285% 13,255,919 31,572,919 31,572,919 31,572,919 31,572,918 31,572,	Cost of Service						
ne Tax 53.85% 68,115,733 72,286,889 77,640,107 79,981,949 82, 11,654,513 Tax 14,57% 9,925,435 10,533,232 11,313,273 11,654,513 12, 12, 12, 12, 12, 12, 12, 12, 12, 12,	Return		161,097,950	171,797,845	178.004.578	183,388,776	185.748.809
Tax 14.57% 9,925,435 10,533,232 11,313,273 11,654,513 12,13,273 Fax, 68, 813 52,683,789 55,433,607 57,118,801 58,512,714 58,512,714 58,512,714 58,512,714 58,512,714 58,512,714 58,512,714 31,518,51 57,001,799 35,512,714 31,518,58 13,558 13,258 13,258 13,258	Federal Income Tax	53.85%	68.115,733	72,286,889	77 640 107	79 981 949	82 711 232
S2,683,283 52,633,789 55,433,507 57,118,801 57,118,801 64,656,813 68,727,594 70,201,331 74,360,354 76,769 Service 62,948,504 73,651,891 70,201,091 74,378,674 78,76,769 Service 537,138,951 607,680,790 586,621,547 599,575,071 629,575,071 es 567,209,365 646,738,996 625,411,143 626,576,870 665,33 herrice Revenues 540,802 2,485,422 803,286 678,880 3,50,70,414 Recovery excl. non-COS rev 29,529,612 36,572,784 37,986,310 26,322,919 31,59 return on equity * 13,63% 14,00% 13,85% 13,25%	State Income Tax	14 57%	9 925 435	10 533 232	11 313 273	11 654 513	12 052 208
Service 537,138,951 646,66,813 68,727,594 70,201,331 74,360,354 76,1091 Service 52,948,504 73,651,891 70,701,091 74,378,674 78,60,354 76,136,274 Service 537,138,951 607,680,790 586,621,547 599,575,071 629,575,071 es 567,209,365 646,738,996 625,411,143 626,576,870 665,394 redrice Revenues 540,802 2,485,422 803,286 677,001,799 35,700,704,14 Recovery excl. non-COS rev 29,529,612 36,572,784 37,986,310 26,322,919 31,140,000 return on equity * 13,63% 14,00% 13,85% 13,25%	Other Taxes		52,683,283	52,638,789	55 433 507	57 118 801	57 065 839
Service Service 537,138,951 607,680,790 586,621,547 599,575,071 629, 567,209,365 646,738,996 37,986,310 26,322,919 31,700.041 39,680,790 586,621,547 599,575,071 629, 567,209,365 646,738,996 625,411,143 626,576,870 665, 567,209,365 646,738,996 625,411,143 626,576,870 665, 367,0070,414 39,058,206 38,789,596 27,001,799 35,780,0070,414 39,058,206 37,986,310 26,322,919 31,780,7780 713,63% 13,25% 13,25%	Depreciation		64,656,813	68 727 594	70 201 331	74 360 354	76 908 621
Service 537,138,951 73,651,891 70,701,091 74,378,674 78,575,071 es 537,138,951 607,680,790 586,621,547 599,575,071 629,75,071 es 567,209,365 646,738,996 625,411,143 626,576,870 665,376,870 service Revenues 540,802 2,485,422 803,286 678,880 3,7880 nder) Recovery 30,070,414 39,058,206 38,789,596 27,001,799 35,780,799 Recovery excl. non-COS rev 29,529,612 36,572,784 37,986,310 26,322,919 31,578 return on equity * 13,63% 14,00% 13.85% 13.25%	W%O		117 711 233	158 044 550	123 327 660	118 692 004	136 622 101
537,138,951 607,680,790 586,621,547 599,575,071 629, 567,209,365 646,738,996 625,411,143 626,576,870 665, 540,802 2,485,422 803,286 678,880 3, 30,070,414 39,058,206 38,789,596 27,001,799 35, 0n-COS rev 29,529,612 36,572,784 37,986,310 26,322,919 31, * 13.63% 13.25%	A&G		62,948,504	73,651,891	70,701,091	74,378,674	78,719,297
567,209,365 646,738,996 625,411,143 626,576,870 665, 540,802 2,485,422 803,286 678,880 3,3 30,070,414 39,058,206 38,789,596 27,001,799 35, on-COS rev 29,529,612 36,572,784 37,986,310 26,322,919 31,3 * 13.63% 13.25% 13.25%	Total Cost of Service		537,138,951	607,680,790	586,621,547	599,575,071	629,828,107
s 540,802 2,485,422 803,286 678,880 3, 30,070,414 39,058,206 38,789,596 27,001,799 35, on-COS rev 29,529,612 36,572,784 37,986,310 26,322,919 31, * 13.63% 14.00% 13.85% 13.25%	Total Revenues		567,209,365	646,738,996	625,411,143	626,576,870	665,001,959
30,070,414 39,058,206 38,789,596 27,001,799 35, on-COS rev 29,529,612 36,572,784 37,986,310 26,322,919 31, * 13.63% 14.00% 13.85% 13.25%	Non-Cost of Service Reveni	ser	540,802	2,485,422	803,286	678,880	3,818,647
on-COS rev 29,529,612 36,572,784 37,986,310 26,322,919 31, * 13.63% 14.00% 13.85% 13.25%	Cost Over (Under) Recover	,	30,070,414	39,058,206	38,789,596	27,001,799	35,173,852
* 13.63% 14.00% 13.85% 13.25%	Over (Under) Recovery excl	non-COS rev	29,529,612	36,572,784	37,986,310	26,322,919	31,355,205
	Actual rate of return on equi	* 4	13.63%	14.00%	13.85%	13.25%	13.57%

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* [[Line 24 - (Line 24 *(.5385/(1+.5385))]-(Line 24 * (State Income Tax Percentage * .5385)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

NGSA Pipeline Cost Model

Northwest Pipeline LLC

Northwest Pipeline LLC			Data Input Section	ы				
		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017		Source (Form 2)
Total Plant in Service		3,212,419,994	3,281,074,219	3,309,567,975	3,343,170,973	3,406,033,465	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization		1,345,841,255	1,421,672,610	1,506,238,210	1,578,282,591	1,662,747,009	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283		7,293,837 434,397,498 23,665,000	8,946,000 450,545,498 22,587,000	10,275,776 458,735,278 21,353,876	11,699,718 439,688,442 19,743,670	8,329,539 283,979,530 ** 9,695,934	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities Account 182.3 Account 254. (ra	(rate base est.) (rate base est.)	59,825,781	55,861,010 23,375,401	54,588,288 26,801,499	50,631,180	38,945,453 241,094,277 **	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies		2,348,439 9,668,547	2,014,439 9,457,013	2,426,997 9,563,929	1,911,775	1,723,010 9,462,450	p. 230 pp. 110-111	
Gas Stored Underground Acct. 117.1 Ba Acct. 117.2 Sy	Base gas System balancing	7,719,255 5,700,000	7,719,255 5,700,000	7,719,255 5,700,000	7,719,255 5,700,000	7,719,255 5,700,000	p. 110	
Operation and Maintenance Costs Production		1,636	0	1,605	0	0		O&M
Storage less: Comp. fuel and losses Net storage costs	Ses	6,831,361 179,113 6,652,248	8,100,705 298,116 7,802,589	6,716,601 133,340 6,583,261	8,982,658 138,057 8,844,601	7,796,843 217,329 7,579,514	pp. 320-322	
Transmission less: Comp. fuel Net transmission costs		53,031,612 -6,759,648 59,791,260	52,735,379 -7,053,167 59,788,546	56,589,406 -3,223,375 59,812,781	63,440,619 -1,414,650 64,855,269	61,196,150 -543,930 61,740,080	p. 323	
A&G		71,094,595	68,620,332	63,139,820	57,276,780	62,712,059	p. 325	
Other Taxes		19,420,338	19,425,139	19,749,428	20,354,949	20,538,059	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	Salvage	92,530,781	95,559,548	96,975,543	98,094,011	98,506,449	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues		1,723,079 467,937,794 469,660,873 0 469,660,873	1,426,953 468,622,704 470,049,657 470,049,657	1,619,467 471,379,106 472,998,573 0 472,998,573	1,497,382 472,553,135 474,050,517 0 474,050,517	1,483,109 471,923,296 473,406,405 473,406,405	p. 300	

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NGSA Pipeline Cost Model

Northwest Pipeline LLC						
Account 495						p. 308
Value of excess fuel retained	0	0	0	0	0	
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	01	0	0	0	0	
Total non-cost of service revenues	0	0	0	0	10	
Cost of Debt	6.71%	6.70%	6.69%	6.67%	6.45%	p. 218
Allowed Rate of Return on Equity	10.37%	10,73%	11.09%	12.14%	12.52%	p. 218
Account 496 - Provision for Rate Refunds	C	1 225 001	1 225 001	1 225 001	909 898	

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NGSA Pipeline Cost Model

Northwest Pipeline LLC

bit third in the control of the cont	Allowed Return on Rate Base		102 012		במו דוון למוס	rear End 2017
uity 56.87% 57.38% 56.00% tum on Debt 2.89% 2.86% 2.94% tum on Debt 2.89% 2.86% 2.94% tum on Debt 5.90% 6.16% 6.16% 6.21% tal Return 3.212.419,994 3.281,074,219 3.309,567,975 7.719,255 </td <td>Capitalization</td> <td>43 13%</td> <td>A2 62%</td> <td>74 00%</td> <td>12 010</td> <td>26 040/</td>	Capitalization	43 13%	A2 62%	74 00%	12 010	26 040/
turn on Debt 2.89% 2.86% 2.94% 2.90% 6.16% 6.21% 6.21% 6.21% 6.16% 6.21%	Fourity	26 870	57 200/	EE 0097	2000	200
turn on Debt	Signal	9/ 10:00	07.00.70	20.00%	00.0370	03.00%
trum on Equity 8.79% 8.79% 8.79% 8.79% 8.79% 8.79% 8.79% 8.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.719,255 7.710,20	Return on Debt	2.89%	2.86%	2.94%	2.93%	2.38%
ss Stored - Noncurrent 8.79% 9.01% 9.15% s. Stored - Noncurrent 7.719,255 7.710,366 1.421,672,610 1.710,452 7.719,255 7.719,255 7.710,365 1.421,672,610 1.710,452 7.719,255 7.719,255 7.710,365 1.421,672,610 1.710,492 1.313,78 55,861,010 1.26,801,499 1.462,591,427 1.386,713,357 1.30,913,553 1.26,939,741 1.30,913,553 1.26,939,741 1.30,913,553 1.26,939,741 1.30,913,553 1.30,913,513 1.30,913,913,913,913,913,913,913,913,913,913	Return on Equity	5.90%	6.16%	6.21%	6.81%	7.90%
ss Stored - Noncurrent	Total Return	8.79%	9.01%	9.15%	9.74%	10.28%
ss Stored - Noncurrent	Rate Base					
ss Stored - Noncurrent 7,719,255 7,719,255 7,719,255 1,004,255 1,719,255 1,004,255 1,719,255 1,004,255 1,0	Gas Plant in Service	3,212,419,994	3,281,074,219	3,309,567,975	3,343,170,973	3,406,033,465
cumulated Depreciation 1,345,841,255 -1,421,672,610 -1,506,238,210 - 77,716,386 77,716,386 77,714,452 77,690,326 Orking Capital 17,717,452 77,690,326 Jagulatory Assets 5,841,864,98 469,813,378 59,813,378 59,813,378 59,813,378 59,813,378 59,813,378 130,291,315 130,291,315 130,913,553 126,939,741 deral Income Tax 38,89% 33,989,351 34,779,976 33,491,285 ate Income Tax 9,36% 3,180,180 3,254,154 34,779,976 3,133,578 19,425,139 19,749,428 19,420,338 19,425,139 19,749,428 19,749,428 19,749,789 19,749,749 19,749,749 19,749,749	Gas Stored - Noncurrent	7,719,255	7,719,255	7,719,255	7,719,255	7,719,255
orking Capital 17,716,986 17,171,452 17,690,926 17,690,926 17,690,926 17,171,452 17,690,926 17,171,452 17,690,926 17,171,452 17,690,926 17,171,452 17,690,926 17,171,452 17,690,926 17,171,452 17,690,926 17,171,452 17,690,926 17,171,452 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,926 17,690,927,742 17,691,926 17,	Accumulated Depreciation	-1,345,841,255	-1,421,672,610	-1,506,238,210	-1,578,282,591	-1,662,747,009
901T	Working Capital	17,716,986	17,171,452	17,690,926	17,104,849	16,885,460
gulatory Assets 59,825,781 55,861,010 54,588,288 -19,047,701 -23,375,401 -26,801,499 -26,801,499	ADIT	-450,768,661	-464,186,498	-469,813,378	-447,732,394	-285,345,925
tal Rate Base 1,482,024,399 1,452,591,427 1,386,713,358 1,378,378 1,378,378 1,378,378 1,378,378 1,378,378 1,378,378 1,378,378 1,378,378 1,378,378 1,388,388 1,3888,388 1,3888,388 1,3888 1,3888,388 1,3888,388 1,3888 1,3888 1,3888 1,3888 1,3888 1,3888 1,3	Regulatory Assets	59,825,781	55,861,010	54,588,288	50,631,180	38,945,453
turn deral Income Tax 38.89% 33,989,351 34,779,976 31,491,285 31,60,1315 31,60,913,553 31,60,1315 31,60,913,553 31,60,1315 31,60,913,553 31,60,1315 31,60,	Regulatory Liabilities	-19,047,701	-23,375,401	-26,801,499	-30,586,547	-241,094,277
turn deral Income Tax 38,89% 33,989,351 34,779,976 ate Income Tax 9,36% 3,180,180 3,254,154 her Taxes 9,36% 19,420,338 19,425,139 92,530,781 95,559,548 66,445,144 67,591,135 416,951,704 420,143,837 tal Revenues 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820 10,004,005,820	Total Rate Base	1,482,024,399	1,452,591,427	1,386,713,357	1,362,024,725	1,280,396,422
130,291,315 130,913,553 33,989,351 34,779,976 3,36% 3,180,180 3,254,154 19,420,338 19,425,139 92,530,781 95,559,548 66,445,144 67,591,135 71,094,595 68,620,332 416,951,704 420,143,837 469,660,873 470,049,657 6covery 52,709,169 49,905,820 ery excl. non-COS rev 52,709,169 49,905,820	Cost of Service					
38.89% 33,989,351 34,779,976 9.36% 3,180,180 3,254,154 19,420,338 19,425,139 92,530,781 95,559,548 66,445,144 67,591,135 71,094,585 68,620,332 416,951,704 420,143,837 469,660,873 470,049,657 ecovery 52,709,169 49,905,820 ery excl. non-COS rev 52,709,169 49,905,820	Return	130,291,315	130,913,553	126,939,741	132,635,643	131,595,841
9.36% 3,180,180 3,254,154 19,420,338 19,425,139 92,530,781 95,558,548 66,445,144 67,591,135 71,094,595 68,620,332 416,951,704 420,143,837 469,660,873 470,049,657 6covery 52,709,169 49,905,820 ery excl. non-COS rev 52,709,169 49,905,820			34,779,976	33,491,285	36,067,385	39,312,284
19,420,338 19,425,139 92,530,781 95,559,548 66,445,144 67,591,135 71,094,595 68,620,332 71,094,595 68,620,332 68,620,332 68,620,332 68,660,873 470,049,657 68,660,873 470,049,657 69,660,873 49,905,820 69,905,820 69,905,820	State Income Tax		3,254,154	3,133,578	3,374,609	3,678,214
eciation 92,530,781 95,559,548 66,445,144 67,591,135 71,094,595 68,620,332 71,094,595 68,620,332 71,094,595 68,620,332 68,020,322 68,020 69,021 of Service Revenues 469,660,873 470,049,657 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Other Taxes	19,420,338	19,425,139	19,749,428	20,354,949	20,538,059
66,445,144 67,591,135 71,094,595 68,620,332 Cost of Service Revenues 469,660,873 470,049,657 Over (Under) Recovery axcl. non-COS rev 52,709,169 49,905,820	Depreciation	92,530,781	95,559,548	96,975,543	98,094,011	98,506,449
71,094,595 68,620,332 Cost of Service 416,951,704 420,143,837 Revenues 469,660,873 470,049,657 Cost of Service Revenues 0 0 0 Over (Under) Recovery 52,709,169 49,905,820 (Under) Recovery excl. non-COS rev 52,709,169 49,905,820	O&M	66,445,144	67,591,135	66,397,647	73,699,870	69,319,594
Cost of Service 416,951,704 420,143,837 Revenues 469,660,873 470,049,657 Cost of Service Revenues 0 0 Over (Under) Recovery 52,709,169 49,905,820 (Under) Recovery excl. non-COS rev 52,709,169 49,905,820	A&G	71,094,595	68,620,332	63,139,820	57,276,780	62,712,059
Revenues 469,660,873 470,049,657 Cost of Service Revenues 0 0 Over (Under) Recovery 52,709,169 49,905,820 (Under) Recovery excl. non-COS rev 52,709,169 49,905,820	Total Cost of Service	416,951,704	420,143,837	409,827,042	421,503,246	425,662,501
Cost of Service Revenues 0 0 0 Over (Under) Recovery 52,709,169 49,905,820 63, (Under) Recovery excl. non-COS rev 52,709,169 49,905,820 63, (1996)	Total Revenues	469,660,873	470,049,657	472,998,573	474,050,517	473,406,405
Over (Under) Recovery 52,709,169 49,905,820 63, (Under) Recovery excl. non-COS rev 52,709,169 49,905,820 63,	Non-Cost of Service Revenues	0	0	0	0	
** ***********************************	Cost Over (Under) Recovery		49,905,820	63,171,531	52,547,271	47,743,904
**	over (Origer) Necovery exc. Horizon		49,903,020	03,171,531	177,146,26	47,743,904
14.65%	Actual rate of return on equity *	14.65%	14.82%	16.65%	16.84%	16.56%

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^{* [[}Line 24 - (Line 24 *(.3889/(1+.3889)])-(Line 24 * (State Income Tax Percentage * .3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

NGSA Pipeline Cost Model

Panhandle Eastern Pipe Line Company, LP

Income Statement Income Statement Balance Sheet p. 230 pp. 110-111 Balance Sheet Balance Sheet O&M Source (Form 2) pp. 234-235 pp. 274-275 pp. 276-277 pp. 323-325 p. 110 p. 110 p. 232 p. 278 p. 114 p. 110 p. 320 p. 323 p. 114 p. 322 p. 300 -1,397,832 251,666,506 ** -629,319 15,860,425 651,742 1,046,188 70,363,980 3,065,504 36,619,497 299,257,488 300,084,314 2,048,727,053 1,115,676,108 26,934,216 14,206,792 300,084,314 Year End 2017 67,298,476 111,092,364 40,819,306 826,826 $\frac{0}{325,109,535}$ 705,916 9,677,977 -1,509,897 363,751,132 -949,302 15,216,106 00 3,151,104 35,031,832 Year End 2016 1,973,904,304 0 1,074,609,401 72,578,916 29,838,570 16,252,654 324,271,575 325,109,535 110,874,998 40,322,962 837,960 -1,136,616 344,815,297 -531,311 671,282 8,726,628 78,057,860 5,342,236 72,715,624 Year End 2015 1,945,159,089 14,834,268 67,172,788 849,299 334,097,088 334,946,387 00 36,622,947 1,038,281,051 13,541,131 334,946,387 117,196,837 31,159,787 39,073,862 Data Input Section 0 105,652,983 4,923,812 668,553 14,382,504 61,654,810 91,695,788 80,865,586 356,480,846 Year End 2014 1,003,103,815 00 0 9,071,973 29,418,784 17,297,682 1,904,784,897 84,055,620 172,561,374 38,005,438 764,493 357,245,339 0 257,427,246 5,052,086 13,193,593 56,753,750 859,704 7,578,697 0 5,346,342 00 Year End 2013 1,820,764,533 954,986,736 80.979.369 31,656,941 18,588,924 379,645,310 380,614,193 380,614,193 154,906,509 74,042,697 80,863,812 37,198,256 968,883 Base gas System balancing (rate base est.) (rate base est.) Depreciation, Amortization, and Negative Salvage less: Comp. fuel and losses Total Accum. Depreciation, Amortization Accumulated Deferred Income Taxes
Account 190
Account 282
Account 283 Prepayments Materials and Supplies Net transmission costs ACA and GRI revenue Operation and Maintenance Costs Regulatory Assets and Liabilities Account 182.3 Account 254 less: Comp. fuel Net storage costs Sales Revenues Other Revenue Transmission Gas Stored Underground Acct. 117.1 Acct. 117.2 Production Total Plant in Service Storage A&G Working Capital Total Revenue Net Revenues Other Taxes Revenue 100 80 0 16 17 19 20 20 10 20 14 23 21 22

NGSA Pipeline Cost Model

Panhandle Eastern Pipe Line Company, LP

29 30 32 32 33

Account 450 Value of excess fuel retained Penalty revenues Gains on settlements of imbalances Total non-cost of service revenues	6000	0000	0000	0000	00010	p. 308
Cost of Debt Allowed Rate of Return on Equity	6,89% 13,25%	7.08% 13.25%	7.08%	6.70% 13.25%	6.98% 13.25%	p. 218
Account 496 - Provision for Rate Refunds	Ø	0	0	0	0	

Pipeline Cost Model

Panhandle Eastern Pipe Line Company, LP

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	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Allowed Return on Rate Base					
Capitalization					
Debt	40.00%	40.00%	40.00%	40.00%	43.36%
Equity	%00.09	%00.09	%00.09	%00.09	56.64% ***
Return on Debt	2.76%	2.83%	2.83%	2.68%	3.03%
Return on Equity	7.95%	7.95%	7.95%	7.95%	7.50%
Total Return	10.71%	10.78%	10.78%	10.63%	10.53%
Rate Base					
Gas Plant in Service	1,820,764,533	1,904,784,897	1,945,159,089	1,973,904,304	2.048.727.053
Gas Stored - Noncurrent	0	0	0	0	0
Accumulated Depreciation	-954,986,736	-1,003,103,815	-1,038,281,051	-1,074,609,401	-1,115,676,108
Working Capital	8,438,401	9,264,328	9,397,910	10,383,893	12,852,081
ADIT	-262,479,332	-110,576,795	-345,420,602	-364,311,727	-252,435,019
Regulatory Assets	13,193,593	14,382,504	14,834,268	15,216,106	15,860,425
Regulatory Liabilities	-56,753,750	-61,654,810	-67,172,788	-74,749,560	-316,089,959
Total Rate Base	568,176,709	753,096,309	518,516,826	485,833,615	393,238,473
Cost of Service					
Return	60,828,998	81,198,844	55,906,484	51,644,113	41,413,233
Federal Income Tax 38.89%	17,566,130	23,283,228	16,030,812	15,020,356	11,476,796
State Income Tax 16.18%	2,842,200	3,767,226	2,593,785	2,430,294	1,856,946
Other Taxes	18,588,924	17,297,682	13,541,131	16,252,654	14,206,792
Depreciation	37,198,256	38,005,438	39,073,862	40,322,962	40,819,306
O&M	156,496,839	155,849,233	153,289,514	148,422,082	141,771,343
A&G	31,656,941	29,418,784	31,159,787	29,838,570	26,934,216
Total Cost of Service	325,178,288	348,820,435	311,595,375	303,931,031	278,478,632
Total Revenues	380,614,193	357,245,339	334,946,387	325,109,535	300,084,314
Non-Cost of Service Revenues	0	0	0	0	0
Cost Over (Under) Recovery	55,435,905	8,424,904	23,351,012	21,178,504	21,605,682
Over (Under) Recovery excl. non-COS rev	55,435,905	8,424,904	23,351,012	21,178,504	21,605,682
Actual rate of return on equity *	23.93%	14.48%	18.18%	18.02%	19.62%

^{* [[}Line 26 - (Line 26 *(.3889/(1+.3889)])-(Line 26 * (State Income Tax Percentage * .3889)]]+[Line 16*(Line 4/Line 5)]] / Line 15 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
***NGSA uses an estimated 60 percent equity capitalization rate instead of Panhandle's reported greater than 70% equity ratios in the Form 2s for 2013 thru 2016. 70% and greater equity ratios are not within a range FERC has historically approved.

NGSA Pipeline Cost Model

Data Input Section

Sea Robin Pipeline Company, LLC

		Year End 2013	113 Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
1	Total Plant in Service	659,540,217	17 662,241,197	662,436,549	627,511,990	636,941,009	p. 110	Balance Sheet
2	Total Accum. Depreciation, Amortization	526,289,589	189 519,353,597	535,402,078	526,645,197	541,740,689	p. 110	Balance Sheet
w 4 ro	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	24,347,689 204,348	0 0 0 89 9,657,312 48 303,057	7,534,060 278,890	0 1,157,767 377,644	3,184,999 200,627	pp. 234-235 pp. 274-275 pp. 276-277	
9 2	Regulatory Assets and Liabilities (rate b Account 182.3 (rate b Account 254 (rate b	(rate base est.) 575,705 (rate base est.) 0	05 633,083 0 0	854,656	1,042,737	1,159,129	p. 232 p. 278	
& 5	Working Capital Prepayments Materials and Supplies	29,705	05 215,523 67 800,972	1,031,464	145,190	141,008	p. 230 pp. 110-111	
22	Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System b	Base gas System balancing	0 0	00	00	00	p.110	
12	Operation and Maintenance Costs Production	4,888,844	44 6,991,058	6,041,148	6,640,635	6,370,706		O&M
5 4 5	Storage less: Comp. fuel and losses Net storage costs		0 0 0	0 010	000	0 010	p. 322	
16 17 18	Transmission less: Comp. fuel Net transmission costs	10,197,020 3.153,565 7,043,455	20 11,244,756 65 5,734,089 55 5,510,667	9,004,660 1,494,364 7,510,296	11,305,280 4,430,236 6,875,044	11,266,414 4,227,134 7,039,280	p. 323	
19	A&G	5,447,294	3,049,209	1,511,864	2,448,392	2,301,716	pp. 323-325	
20	Other Taxes	720,326	26 615,686	658,691	619,425	567,035	p. 114	Income Statement
21	Depreciation, Amortization, and Negative Salvage	age 10,285,538	38 8,251,754	21,707,515	23,521,254	18,530,586	p. 114	Income Statement
25 42 33 25	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	233,794 44,218,296 44,452,090 44,452,090	94 161,426 96 36,203,595 90 36,365,021 0 36,365,021	157,727 37,923,825 38,081,552 38,081,552	117,360 <u>27,715,724</u> 27,833,084 27,833,084	94,819 <u>22,883,708</u> 22,978,527 <u>0</u> 22,978,527	p. 300	

NGSA Pipeline Cost Model

Sea Robin Pipeline Company, LLC

Account 495						0.308	
Value of excess fuel retained	0	0	0	0	0		
Penalty revenues	0	0	0	0	0		
Gains on settlements of imbalances	0	0	0	0	0		
Total non-cost of service revenues	0	10	10	10	0		
Cost of Debt **	5.16%	4.69%	4.52%	4.15%	** %86.9		
Allowed Rate of Return on Equity	11.35%	11.35%	11.39%	11.39%	11.39%	p. 218	
Account 496 - Provision for Rate Refunds	C	10 450 161	132 680	c	c		
	,	12120101	200,201	>	>		
Gas Received from Shippers (dth)	846,798	804,325	689,811	521,592	446,532	p.520	
Gas Used for Compressor Station Fuel (dth)	983,738	1,266,636	1,260,466	1,646,255	1,411,631	p.520	
Account 810 Amount of Credit	3,153,565	5,837,929	1,494,364	4,430,236	4,227,134	p.331	
Account 810 Gas Used (dth)	846,383	1,376,726	968,168	1,631,670	1,411,632	p.331	

p. 232

NGSA Pipeline Cost Model

Cost of Service Calculation

Sea Robin Pipeline Company, LLC

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Patient Plane Patient Plan							
Figure F		i d	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
bit 62.68% 63.74% 62.62% 67.99% puty 37.32% 36.26% 37.38% 67.99% quty 32.33% 2.89% 2.89% 2.82% atum on Debt 4.24% 4.12% 4.26% 3.56% atum on Equity 4.24% 4.12% 4.26% 3.56% as Plant in Service 659,540,217 662,241,197 662,436,549 677,11990 6336 countilated Depreciation 526,286 510,363,30 -1,016,495 -1,016,496 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 -1,016,360 <	Allowed Ketu	um on Kate Base Capitalization					
pully 37.32% 36.26% 37.38% 32.01% stum on Debt 4.24% 4.12% 4.26% 2.83% 2.82% stum on Equity 7.47% 4.12% 4.26% 2.83% 2.82% stum on Equity 7.47% 4.12% 4.26% 2.83% 2.82% strain on Equity 7.47% 7.47% 7.10% 4.26% 2.83% 2.82% strain on Equity 4.26% 6.2436,549 6.27511,990 6.36,645,197 6.41,77 strain communities of Depreciation 656,289,589 -519,353,697 -526,403,707 -526,645,197 -641,17 Difference of Mind Capital -24,552,037 -9900,389 -7,812,950 -1,535,417 -1,518,41 -1,518,42 -1,518,41 -1,518,42 -1,518,41 -1,518,42 -1,518,41 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42 -1,518,42		Debt	62.68%	63.74%	62.62%	64.99%	43.36% ***
sturn on Debt 3.23% 2.99% 2.83% 2.82% 2.82% sturn on Debt sturn 4.24% 4.12% 4.12% 5.26% 3.66% start 4.24% 4.12% 4.12% 5.08% 3.66% start 5.26.283, 12 662,241,197 662,436,549 627,511,990 636,90 start 5.26.283, 289 -519,353,589 -519,353,587 -536,402,77 -1161,884 -111,814,84 -115,534,11 -541,737 -11,181,884		Equity	37.32%	36.26%	37.38%	32.01%	56.64%
turn on Equity		Retum on Debt	3.23%	2.99%	2.83%	2.82%	3.03%
stall Return 7.47% 7.10% 7.09% 6.47% as Plant in Service 659,540,217 662,241,197 662,436,549 627,511,990 636,90 as S S (lorded Noncurrent -526,289,589 -519,353,587 -1,208,330 -1,161,864 -1,176,864 cumulated Depreciation -526,289,572 1,016,485 -1,208,330 -1,161,864 1,116,1864 porking Capital -24,522,037 -9,860,389 -7,812,950 -1,161,864 1,116,1864 pull atom Assets -24,522,037 -9,860,389 -7,812,950 -1,161,864 1,1142,737 gual atomy Assets -25,670,509 633,083 -8,586,683 -1,042,737 1,11 squal atomy Assets -25,670,509 134,576,809 121,284,507 101,535,983 90.9 stal Rate Base 109,967,868 134,576,809 121,284,507 101,535,983 90.9 stern Taxes 10,963 101,948 73,087 14,439,643 14,439,643 12,443,325 stern Taxes 5,08% 11,963 12,107,515 23,512,644		Retum on Equity	4.24%	4.12%	4.26%	3.65%	6.45%
ss Stored – Noncurrent – 526,289,589 – 519,355,597 – 535,402,078 – 526,645,197 – 635,402,078 – 526,645,197 – 635,402,078 – 526,645,197 – 635,402,078 – 526,645,197 – 635,402,078 – 526,645,197 – 635,402,078 – 526,645,197 – 636,403,695 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 7,812,950 – 1,956,868 – 109,967,868 – 134,576,809 – 121,284,507 – 101,535,983 – 109,967,868 – 109,967,968 – 100,967,703 – 100,967,703 – 100,967,703 – 100,967,703 – 100,967,703 – 100,967,703 – 100,967,703 – 100,967,703 – 100,967,709 – 100,967		Total Retum	7.47%	7.10%	7.09%	6.47%	9.48%
as Slared + Noncurrent	Rate Base						
so Stored - Noncurrent - 526,289,589 - 519,383,597 - 554,02,078 - 526,645,197 - 56 cumulated Depreciation - 526,289,589 - 519,383,597 - 535,402,078 - 526,645,197 - 56 cumulated Depreciation - 24,552,037 - 9,960,369 - 7,812,950 - 1,535,411 - 590,369 - 1,016,495 - 1,016,405 - 1,016,4		Gas Plant in Service	659,540,217	662,241,197	662,436,549	627,511,990	636,941,009
counmlated Depreciation -526,289,589 -519,353,597 -535,402,078 -526,645,197 -56,046,197 -56,045,197 -57,047 -57,056 -7,1208,330 -1,161,864 <t< td=""><td></td><td>Gas Stored - Noncurrent</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></t<>		Gas Stored - Noncurrent	0	0	0	0	0
orking Capital 693,572 1,016,495 1,208,330 1,161,864 DIT -24,552,037 -9,960,369 -7,812,950 -1,535,411 sgulatory Liabilities 57,705 633,083 854,656 1,042,737 sgulatory Liabilities 109,967,868 134,576,809 121,284,507 101,535,983 s stal Rate Base 109,967,868 134,576,809 121,284,507 101,535,983 s stal Rate Base 1,811,460 2,153,870 2,008,140 1,439,643 s stal Income Tax 38,89% 1,811,460 2,153,870 2,008,140 1,439,643 ster Income Tax 38,89% 1,811,460 2,153,870 2,008,140 1,439,643 ster Income Tax 5,08% 10,285,538 8,261,754 21,707,515 23,521,254 1 ster Income Tax 5,08% 11,932,299 12,501,725 13,551,444 13,515,679 1 ster Income Tax 38,503,599 36,243,159 48,136,255 27,833,084 2 3,501,404 13,551,444 <td< td=""><td></td><td>Accumulated Depreciation</td><td>-526,289,589</td><td>-519,353,597</td><td>-535,402,078</td><td>-526,645,197</td><td>-541,740,689</td></td<>		Accumulated Depreciation	-526,289,589	-519,353,597	-535,402,078	-526,645,197	-541,740,689
9ulatory Assets 575,705 633,083 -7,812,950 -1,535,411 agulatory Labilities 109,967,868 134,576,809 121,284,507 101,535,983 attal Rate Base 109,967,868 134,576,809 121,284,507 101,535,983 attal Income Tax 5.08% 1,811,460 2,153,870 2,008,140 1,439,643 attal Income Tax 5.08% 10,285,538 8,251,554 21,707,515 23,521,254 11,932,299 12,501,725 13,551,444 13,515,679 14,932,299 12,501,725 13,551,444 13,515,679 14,932,299 12,501,725 13,551,444 13,515,679 14,932,299 12,501,725 13,551,444 13,515,679 14,932,299 12,501,284,314 13,515,679 14,932,299 12,501,725 13,551,444 13,515,679 12,501,725 13,501,725 13,551,264 13,515,679 14,932,299 12,501,725 13,551,344 13,515,679 14,932,299 12,501,725 13,501,444 13,515,679 14,932,299 12,501,725 14,932,299 12,932,299		Working Capital	693,572	1,016,495	1,208,330	1,161,864	1,195,247
guilatory Assets 575,705 633,083 854,656 1,042,737 9ulatory Assets 9guilatory Assets 9 9 9ulatory Liabilities 0 109,967,866 134,576,809 121,284,507 101,535,983 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		ADIT	-24,552,037	-9,960,369	-7,812,950	-1,535,411	-3,385,626
gulatory Liabilities 0 0 0 2 3		Regulatory Assets	575,705	633,083	854,656	1,042,737	1,159,129
turn term line Base turn		Regulatory Liabilities	Ol	01	O	OI	-3,251,247
sturn scale income Tax 38.89% 1,811,460 2,153,870 2,008,140 1,439,643 ate income Tax 5.08% 1,811,460 2,153,870 2,008,140 1,439,643 are income Tax 5.08% 19,163 109,346 101,948 73,087 720,326 615,686 658,691 619,425 spreciation 10,285,538 8,251,754 21,707,515 23,521,254 11,932,299 12,501,725 13,551,444 135,556,79 5,448,392 12,501,725 13,551,444 13,515,679 5,447,294 30,49,209 36,365,021 38,081,552 27,833,084 0 n-Cost of Service Revenues 0 0 0 0 0 0 0 0 0 st Over (Under) Recovery exct. non-COS rev 5,948,491 121,862 -10,054,703 -20,351,260 -20,351,260 -32,486		Total Rate Base	109,967,868	134,576,809	121,284,507	101,535,983	90,917,823
38.89% 1,811,460 2,153,870 2,008,140 1,439,643 19,963 6,566,864 1,911,460 2,153,870 2,008,140 1,439,643 19,963 19,963 109,346 101,948 73,087 73,087 720,326 615,866 658,691 619,425 10,285,538 8,281,754 21,707,515 23,521,254 11,932,299 12,501,725 13,551,444 13,515,679 2,448,392 36,243,159 48,136,255 48,184,344 44,452,090 36,365,021 38,081,552 27,833,084 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cost of Serv	rice					
38.89% 1,811,460 2,153,870 2,008,140 1,439,643 5.08% 5.08% 1,811,460 2,153,870 2,008,140 1,439,643 73,087 7		Return	8,214,719	9,561,569	8,596,653	6,566,864	8,617,031
5.08% 91,963 109,346 101,948 73,087 720,326 615,686 658,691 619,425 10,286,538 8,251,754 21,707,515 23,521,254 11,932,299 12,501,725 1,511,864 13,515,679 36,365,029 36,243,159 48,136,255 48,184,344 44,452,090 36,365,021 38,081,552 27,833,084 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ax	1,811,460	2,153,870	2,008,140	1,439,643	2,280,980
720,326 615,686 658,691 619,425 10,2265,538 8,281,754 21,707,515 23,521,254 11,932,299 12,501,725 13,551,444 13,515,679 5,447,294 3,049,209 1,511,864 2,448,392 38,503,599 36,243,159 48,136,255 48,184,344 44,452,090 36,385,021 38,081,552 27,833,084 0 0 0 5,948,491 121,862 -10,054,703 -20,351,260 -21,509 21,50% 11,52% -4,14% -32,46%			91,963	109,346	101,948	73,087	115,799
10,285,538 8,251,754 21,707,515 23,521,254 11,932,299 12,501,725 13,551,444 13,515,679 2,448,392 3,049,209 1,511,864 2,448,392 3,049,209 36,365,021 38,081,552 27,833,084 44,452,090 36,365,021 38,081,552 27,833,084 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Other Taxes	720,326	615,686	658,691	619,425	567,035
11,932,299 12,501,725 13,551,444 13,515,679 5,447,294 3,049,209 1,511,864 2,448,392 3,049,209 36,243,159 48,136,255 48,184,344 4,452,090 36,365,021 38,081,552 27,833,084 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Depreciation	10,285,538	8,251,754	21,707,515	23,521,254	18,530,586
5.447,294 3.049,209 1.511,864 2.448,392 2,301,71 38,503,599 36,243,159 48,136,255 48,184,344 45,823,13 0 0 0 0 0 5.948,491 121,862 -10,054,703 -20,351,260 -22,844,60 2.150% 11,52% -4.14% -32,46% -19,674		O&M	11,932,299	12,501,725	13,551,444	13,515,679	13,409,986
38,503,589 36,243,159 48,136,255 48,184,344 45,823,13 44,452,090 36,365,021 38,081,552 27,833,084 22,978,52 0 0 0 0 0 0 5,948,491 121,862 -10,054,703 -20,351,260 -22,844,60 21,50% 11,52% -4,14% -32,46% -19,674		A&G	5,447,294	3,049,209	1,511,864	2,448,392	2,301,716
44,452,090 36,365,021 38,081,552 27,833,084 22,978,52 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0-22,978,52 0-10,054,703 -20,351,260 -22,844,60 121,862 -10,054,703 -20,351,260 -22,844,60 11.52% 11.52% -32,46% -19,674		Total Cost of Service	38,503,599	36,243,159	48,136,255	48,184,344	45,823,134
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Total Revenues	44,452,090	36,365,021	38,081,552	27,833,084	22,978,527
5,948,491 121,862 -10,054,703 -20,351,260 -22 5,948,491 121,862 -10,054,703 -20,351,260 -22 21.50% 11,52% -4,14% -32,48%		Non-Cost of Service Revenues	0	0	0	0	0
1-COS fev 5,948,491 121,862 -10,054,703 -20,351,260 -22 21.50% 11.52% -4.14% -32.46%		Cost Over (Under) Recovery	5,948,491	121,862	-10,054,703	-20,351,260	-22,844,607
21.50% 11.52% -4.14% -32.46%		Over (Under) Recovery exci. non-COS rev	5,948,491	721,862	-10,054,703	-20,351,260	-22,844,607
		Actual rate of return on equity *	21.50%	11.52%	-4.14%	-32.46%	-19.67%

^{* [[}Line 24 - (Line 24 *(.3889/(1+.3889))]-(Line 24 * (State Income Tax Percentage * .3889))]-[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

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Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
 NGSA uses Energy Transfers Partners, LP cost of debt, equity and debt capitalization data based on SEC Form 10Ks from 2013 to 2016 due to Sea Robin's reported 100% equity ratios in the Form 2. 100% equity is not within a range FERC has historically approved.

-462,311 -570,655 -1,124,663 -965,099 \$4.24 \$1.54 \$2.72 \$2.99 -\$1,960,199 -\$878,809 -\$3,059,083 -\$2,885,646	8.71% -5.50% -39.05% -23.60%	\$600,924 \$363,058 \$212,826 \$62,595
1/ Over/Under Dth Fuel Recovery -136,940 Average price \$3.73 Valuation of Fuel Recovery -\$510,786	Actual rate of return on equity including fuel 20.63%	2/ Hurricane Surcharge \$5,177,587

NGSA Pipeline Cost Model

Data Input Section

Southern Natural Gas Company, LLC

			1		1				
			Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	n2)
	Total Plant in Service		3,554,712,565	3,540,320,185	3,542,908,191	3,625,652,229	3,700,205,818	p. 110	Balance Sheet
144	Total Accum. Depreciation, Amortization	tion	1,190,920,224	1,215,386,761	1,280,857,193	1,344,104,230	1,411,995,535	p. 110	Balance Sheet
	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	70	2,511,878 300,658,445 3,006,955	2,533,047 347,169,747 1,781,059	0 87,784,493 5,151,487	0 144,513,011 3,929,414	99,941,346 ** *** 2,266,832	pp. 234-235 pp. 274-275 pp. 276-277	
1.0	Regulatory Assets and Liabilities Account 1823 Account 254	(rate base est.) (rate base est.)	35,032,078	35,033,346	0 17,661,960	19,220,980	0 89,799,668	p. 232 p. 278	
9.5	Working Capital Prepayments Materials and Supplies	0	32,909 18,441,275	32,909 18,327,165	32,909 18,247,602	34,105 18,562,826	64,125 17,706,244	p. 230 pp. 110-111	
E	Gas Stored Underground Acct. 117.1 Acct. 117.2	Base gas System balancing	112,439,891 6,166,906	109,965,196 6,166,906	109,965,196 6,166,906	109,965,196	109,965,196 6,166,906	p. 110	
5.	Operation and Maintenance Costs Production		0	0	0	0	0		O&M
64 75 84	Storage less: Comp. fuel and losses Net storage costs	sesso p	21,583,713 3.867,708 17,716,005	23,062,065 4,743,503 18,318,562	20,147,815 2,546,516 17,601,299	19,486,462 1,850,543 17,635,919	23,522,471 2,109,065 21,413,406	p. 322	
	Transmission less: Comp. fuel Net transmission costs	10	165,423,286 71,870,497 93,552,789	170,271,699 79,111,220 91,160,479	165,368,643 67,980,229 97,388,414	158,090,782 61,143,458 96,947,324	185,180,863 56,019,809 129,161,054	pp. 323	
	A&G		34,517,562	33,742,878	34,033,006	31,419,628	29,942,043	pp, 323-325	
	Other Taxes		40,149,262	39,120,464	40,226,031	40,364,606	39,668,497	p. 114	Income Statement
	Depreciation, Amortization, and Negative Salvage	ative Salvage	68,961,779	82,728,754	81,487,607	82,270,240	84,562,714	p.114	Income Statement
(a) (a) (b) (2 (a)	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues Net Revenues		1,420,122 581,894,931 583,225,053 583,225,053	1,136,474 <u>575,900,583</u> 577,037,057 577,037,057	1,324,279 578,535,588 579,859,867 579,859,867	1,329,870 608,266,790 609,596,660 0	1,192,125 604,905,846 606,097,971 0 606,097,971	p. 300	

NGSA Pipeline Cost Model

Southern Natural Gas Company, LLC

Account 495						
Value of excess fuel retained	0	0	1,429	240,948	24,552	p. 308
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	01	OI	0	0	0	
Total non-cost of service revenues	0	0	1,429	240,948	24,552	
Cost of Debt	6.72%	6.58%	6.58%	6.57%	6.56%	p. 218
Allowed Rate of Return on Equity	12.00%	12.00%	12.00%	12.00%	12.00%	p. 218
Account 496 - Provision for Rate Refunds	0	0	0	0	0	
Gas Received from Shippers (dth)	28,467,618	20,193,938	21,294,774	31,071,657	23,651,957	0.520
Gas Used for Compressor Station Fuel (dth)	14,048,117	13,889,320	15,127,997	14,583,720	10,891,065	p.520
Account 810 Amount of Credit	51,344,224	57,456,913	42,158,416	36,623,186	37,924,943	p.331
Account 810 Gas Used (dth)	14,101,960	13,261,949	15,951,243	14,928,581	12,919,730	p.331

NGSA Pipeline Cost Model

Southern Natural Gas Company, LLC

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Allowed Return on Rate Base	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Capitalization	2000 00	700000			1
Den	42.29%	43.38%	44.29%	46.00%	47.25%
Equity	57.71%	56.62%	55.71%	54.00%	52.75%
Return on Debt	2.84%	2.85%	2 91%	3 02%	3 10%
Detrim on Equity	1000 0	2007.0	70000	0	0.00
Total Return	9.77%	9.65%	9.60%	9.50%	9.43%
Rate Base					
Gas Plant in Service	3,554,712,565	3,540,320,185	3,542,908,191	3,625,652,229	3.700,205,818
Gas Stored - Noncurrent	112,439,891	109,965,196	109,965,196	109,965,196	109,965,196
Accumulated Depreciation	-1,190,920,224	-1,215,386,761	-1,280,857,193	-1.344,104,230	-1,411,995,535
Working Capital	24,641,090	24,526,980	24,447,417	24,763,837	23,937,275
ADIT	-301,153,522	-346,417,759	-92,935,980	-148,442,425	-102,208,178
Regulatory Assets	0	0	0	0	
Regulatory Liabilities	-35,032,078	-35,033,346	-17,661,960	-19,220,980	-89,799,668
Total Rate Base	2,164,687,722	2,077,974,495	2,285,865,671	2,248,613,627	2,230,104,908
Cost of Service					
Retum	211,426,955	200,499,686	219,431,264	213,667,764	210,289,972
Federal Income Tax 53.85%	5% 80,720,206	76,023,176	82,284,834	78,459,319	76,012,268
State Income Tax 11.34%	4% 9,153,838	8,621,185	9,331,270	8,897,448	8,619,948
Other Taxes	40,149,262	39,120,464	40,226,031	40,364,606	39,668,497
Depreciation	68,961,779	82,728,754	81,487,607	82,270,240	84,562,714
O&M	111,268,794	109,479,041	114,989,713	114,583,243	150,574,460
A&G	34,517,562	33,742,878	34,033,006	31,419,628	29,942,043
Total Cost of Service	556,198,396	550,215,185	581,783,725	569,662,248	599,669,902
Total Revenues	583,225,053	577,037,057	579,859,867	609,596,660	176,097,971
Non-Cost of Service Revenues	0	0	1,429	240,948	24,552
Cost Over (Under) Recovery	27,026,657	26,821,872	-1,923,858	39,934,412	6,428,069
Over (Under) Recovery excl. non-COS rev	27,026,657	26,821,872	-1,925,287	39,693,464	6,403,517
Actual rate of return on equity *	13.27%	13.34%	11.91%	13.94%	12.32%

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^{* [[}Line 24 * (Line 24 * (.5385/1+.5385)]). (Line 24 * (State Income Tax Percentage * .5385)]] [Line 14 * (Line 4/Line 5)]] / Line 13 * Line 2

Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
 Effective January 1, 2015, Southern Natural became a subsidiary of Kinder Morgan as a result of its merger with El Paso. In accordance,
 \$318 million of ADIT was reduced in connection with KM's acquisition of all of outstanding Southern Natural common shares.

^{6,380,446} \$2.94 \$18,758,511 13.26% 8,243,969 \$2.45 \$20,197,723 14.92% 3,083,389 \$2.64 \$8,140,146 12.29% \$13,649,498 3,152,309 14.03% 7,209,751 \$3.64 \$26,243,492 14.51% Actual rate of return on equity including fuel 1/ Over/Under Dth Fuel Recovery 2/ Average price Valuation of Fuel Recovery

^{2/} Southem's annual recalculation of fuel is based on a complex formula - NGSA assumes 50 percent sharing.

NGSA Pipeline Cost Model

Data Input Section

Southern Star Central Gas Pipeline, Inc. (formerly Williams Gas Pipelines Central, Inc.)

	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	n 2)
Total Plant in Service	1,426,888,120	1,490,032,582	1,543,588,329	1,572,303,780	1,610,430,289	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	685,443,027	713,945,147	752,156,521	783,914,518	815,895,261	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	0 119,180,935 0	0 141,030,557 0	0 155,759,712 0	0 173,767,349 0	0 118,613,376 ** 0	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	23,984,492	44,092,152	43,658,361	53,326,024	42,327,297 82,877,507 **	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	5,245,739	4,208,073 10,559,542	3,912,529	3,701,758 12,393,769	3,643,420 13,958,175	p. 230 pp. 110-111	
Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	8,947,605	8,947,605	8,947,605	8,947,605	8,947,605	p. 110	
Operation and Maintenance Costs Production	0	0	0	0	0		O&M
Storage less: Comp. fuel and losses Net storage costs	5,775,123 1,320,169 4,454,954	5,857,741 1,374,298 4,483,443	5,510,999 801,551 4,709,448	4,787,722 623,087 4,164,635	6,384,117 711,850 5,672,267	p. 322	
Transmission less: Comp. fuel Net transmission costs	61,716,945 11,548,156 50,168,789	65,969,578 14,058,531 51,911,047	59,416,551 <u>8,267,471</u> 51,149,080	56,927,397 7,271,982 49,655,415	54,366,584 <u>9,228,503</u> 45,138,081	p. 323	
A&G	39,585,765	39,604,119	45,016,587	42,617,963	42,785,824	pp. 323-325	
Other Taxes	18,376,601	18,153,088	18,860,170	19,768,676	20,583,735	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	36,439,699	37,966,997	40,006,867	41,247,576	42,389,991	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales revenues	524,816 215,653,799 216,178,615 216,178,615	424,621 248,148,474 248,573,095 248,573,095	481,829 255,310,327 255,792,156 255,792,156	470,628 260,554,551 261,025,179 261,025,179	477,638 <u>260,458,163</u> 260,935,801 260,935,801	p. 300	

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	Model
NGSA	Pipeline Cost I

Southern Star Central Gas Pipeline, Inc. (formerly Williams Gas Pipelines Central, Inc.)

Account 495						308
Value of excess fuel retained	0	0	0	0	0	2000
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	0	OI	O	O	0	
Total non-cost of service revenues	0	0	0	0	0	
Cost of Debt Allowed Rate of Return on Equity	6.32%	6.32%	5.23%	5.29%	4.07%	p. 218
Account 496 - Provision for Rate Refunds	4,445,543	4,803,164	0	0	Ō	

 NGSA Pipeline Cost Model

Southern Star Central Gas Pipeline, Inc. (formerly Williams Gas Pipelines Central, Inc.)

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			Cost of Servi	Cost of Service Calculation		
Allowed Return on Rate Base		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
<u>Capitalization</u> Debt		36 53%	36 569/	44 600/	144 7200/	44 470
Equity		63.48%	63.45%	55.40%	55.28%	55.53%
Return on Debt		2 31%	231%	1056 6	701E C	1 010
Return on Equity		7.14%	7.14%	5.83%	6.31%	7.95%
Total Return		9.45%	9.45%	8.17%	8.68%	9.76%
Rate Base						
Gas Plant in Service		1,426,888,120	1,490,032,582	1,543,588,329	1,572,303,780	1,610,430,289
Gas Stored - Noncurrent		8,947,605	8,947,605	8,947,605	8,947,605	8,947,605
Accumulated Depreciation		-685,443,027	-713,945,147	-752,156,521	-783,914,518	-815,895,261
Working Capital		16,319,699	15,313,901	16,515,412	16,370,207	17,871,574
ADIT		-119,180,935	-141,030,557	-155,759,712	-173,767,349	-118,613,376
Regulatory Assets		23,984,492	44,092,152	43,658,361	53,326,024	42,327,297
Regulatory Liabilities		-3,700,575	0	O	0	-82,877,507
Total Rate Base		667,815,379	703,410,536	704,793,474	693,265,749	662,190,621
Cost of Service						
Return		63,105,642	66,458,825	57,554,845	60,166,205	64,641,890
Federal Income Tax	53.85%	25,680,327	27,036,328	22,138,832	23,566,146	28,353,613
State Income Tax	7.71%	1,981,054	2,085,660	1,707,853	1,817,960	2,187,279
Other Taxes		18,376,601	18,153,088	18,860,170	19,768,676	20,583,735
Depreciation		36,439,699	37,966,997	40,006,867	41,247,576	42,389,991
O&M		54,623,743	56,394,490	55,858,528	53,820,050	50,810,348
A&G		39,585,765	39,604,119	45,016,587	42,617,963	42,785,824
Total Cost of Service		239,792,830	247,699,507	241,143,681	243,004,576	251,752,679
Total Revenues Non-Cost of Service Revenues		216,178,615	248,573,095 0	255,792,156 0	261,025,179	260,935,801 0
Cost Over (Under) Recovery Over (Under) Recovery excl. non-COS rev	COS rev	-23,614,215 -23,614,215	873,588 873,588	14,648,475 14,648,475	18,020,603 18,020,603	9,183,122 9,183,122
Actual rate of return on equity *		7.86%	11.37%	12.81%	14.28%	15.84%

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^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385)))-(Line 24 * (State Income Tax Percentage * .5385))]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

NGSA Pipeline Cost Model

Data Input Section

Tallgrass Interstate Gas Transmission LLC (formerly Kinder Morgan Interstate Gas Transmission, LLC)

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
Total Plant in Service		681,893,111	693,204,696	704,650,518	691,351,581	699,238,344	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization		284,279,428	299,834,480	318,527,709	314,229,662	328,911,163	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283		0 -44,635,101 0	1,999,060 -39,866,941 0	4,980,058 32,951,100 604,395	20,978,311 1,895,365 670,655	14,388,391 11,454,322 ** 1/ 318,722	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities Account 182.3 (r. Account 254 (r.	(rate base est.) (rate base est.)	377,020	377,020	377,020	293,240	609,821 **	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies		21,734	23,365	50,419	204,384	18,551 1,739,248	p. 230 pp. 110-111	
Gas Stored Underground Acct. 117.1 Bs. Acct. 117.2 Sy	Base gas System balancing	8,914,347	9,807,050	18,871,776	18,871,776	18,871,776	p. 110 p. 110	
Operation and Maintenance Costs Production		0	0	0	0	0		O&M
Storage less: Comp. fuel and losses Net storage costs	ses	837,550 264,346 573,204	684,204 15,926 668,278	888,771 0 888,771	728,651 0 728,651	768,033 0 768,033	p. 322	
Transmission less: Comp. fuel Net transmission costs		27,975,512 6,333,471 21,642,041	41,294,139 16,952,736 24,341,403	30,997,194 4,418,280 26,578,914	30,531,373 2,423,133 28,108,240	28,374,888 2,206,573 26,168,315	p. 323	
A&G		21,997,894	17,580,665	12,398,292	12,973,220	12,239,928	pp. 323-325	
Other Taxes		6,999,110	5,707,365	5,054,518	4,590,114	4,626,237	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	Salvage	22,499,103	19,647,180	19,487,670	17,131,828	15,229,558	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue less: Fuel Revenues Total Revenue Sales Revenues Net Revenues		204,748 106,418,487 10,166,044 96,457,191 5,036,359 91,420,832	155,882 111,030,410 13,727,863 97,458,429 5,439,909 92,018,520	178,808 102,474,425 8,093,517 94,559,716 5,409,397 89,150,319	161,820 104,893,547 4,657,319 100,398,048 2,968,058 97,429,990	174,898 107,380,871 3,786,145 103,769,624 2,484,301 101,285,323	p. 300 p. 301, 304, 306 pp. 304-305	306

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NGSA Pipeline Cost Model

Tallgrass Interstate Gas Transmission LLC (formerly Kinder Morgan Interstate Gas Transmission, LLC)

Account 495						p. 308
	0	0	0	1,754,665	1,226,597	
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	O	0	0	0	0	
Total non-cost of service revenues	0	0	0	1,754,665	1,226,597	
Cost of Debt	2.52%	2.45%	2.08%	5.50%	5.50% **	D. 21
Allowed Rate of Return on Equity	12.45%	12.45%	12.45%	13.02%	13.02%	p. 218
Account 496 - Provision for Rate Refunds	0	0	0	0	0	

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Pipeline Cost Model NGSA

(formerly Kinder Morgan Interstate Gas Transmission, LLC) Tallgrass Interstate Gas Transmission LLC

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Allowed Return on Rate Base	on Rate Base	ופמו דווח לחום	16al Ella 2014	I cal Cilo co io	Teal Lilu zu io	Ical Ello 2017
)	Capitalization					
	Debt	40.00%	41.12%	31.75%	40.48%	50.44% ***
7	Equity	%00.09	58.88%	68.25%	59.52%	49.56%
	Return on Debt	1.01%	1.01%	0.66%	2.23%	2.77%
	Return on Equity	7.47%	7.33%	8 50%	7 75%	6 15%
	Total Return	8.48%	8.34%	9.16%	9.98%	9.23%
Rate Base						
	Gas Plant in Service	681,893,111	693,204,696	704,650,518	691,351,581	699,238,344
	Gas Stored - Noncurrent	8.914.347	9.807.050	18.871.776	18 871 776	18 871 776
	Accumulated Depreciation	-284 279 428	-299 834 480	-318 527 709	-314 229 662	-328 911 163
	Working Capital	1 757 861	1 794 724	1 827 849	1 760 013	1 757 799
*	ADIT	44,635,101	41 866 001	-28 575 437	18 412 291	2615 347
	atora Contributed	000 446	000 220	000 220	07,100	100000
	regulatory Assets	070,116	377,020	377,020	293,240	609,821
-	Regulatory Liabilities	01	0	0	0	0
E	Total Rate Base	453,298,012	447,215,011	378,624,017	416,459,239	394,181,924
Cost of Service	•					
	Return	38,430,605	37,288,788	34,672,589	41,545,574	36,370,819
	Federal Income Tax 38.89%	13,168,307	12,749,086	12,511,394	12,550,815	9,891,554
	State Income Tax 8.56%	1,127,244	1,091,357	1.071.010	1.074.385	846.745
_	Other Taxes	6,999,110	5,707,365	5.054.518	4.590,114	4.626.237
	Depreciation	22,499,103	19,647,180	19,487,670	17,131,828	15,229,558
3	O&M	22,215,245	25,009,681	27,467,685	28.836.891	26,936,348
*	A&G	21,997,894	17,580,665	12,398,292	12,973,220	12,239,928
, T	Total Cost of Service	126,437,509	119,074,122	112,663,158	118,702,827	106,141,189
	Total Revenues	91,420,832	92,018,520	89,150,319	97,429,990	101,285,323
	Non-Cost of Service Revenues	0	0	0	1,754,665	1,226,597
~	Cost Over (Under) Recovery	-35,016,677	-27,055,602	-23,512,839	-21,272,837	-4,855,866
~	Over (Under) Recovery excl. non-COS rev	-35,016,677	-27,055,602	-23,512,839	-23,027,502	-6,082,463
7	* white of return or a return to a terrile and a	2000	1000	2000	1	4

^{* [[}Line 24 - (Line 24 *(.3889/(1+,3889)))-(Line 24 * (State Income Tax Percentage * .3889))]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
*** NGSA uses 60% equity and 40% debt instead of TIGT's missing debt and equity ratios for 2013. 2014-2017 capitalization in addition to 2013-2015 cost of debt ratios derived from data in Tallgrass Energy Partners, LP 2013-2017 SEC Form 10-K.

^{1/} The accrual of expenses in 2015 reimbursed by PXP Abandonment of \$60,834,748 is included using data from Rate Case Docket No. RP16-137, Schedule B-1, page 2. The 2016 ADIT is likely underestimated by \$50 to \$60 million attributable to the PXP Abandonment. Unfortunately, Form 2 does not provide specificity.

NGSA Pipeline Cost Model

Data Input Section

Tennessee Gas Pipeline Company, LLC

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	n 2)
-	Total Plant in Service	7,315,979,000	7,443,590,861	7,789,831,516	8,093,617,755	8,609,956,465	p. 110	Balance Sheet
2	Total Accum. Depreciation, Amortization	3,159,560,732	3,221,922,169	3,351,751,345	3,462,884,909	3,612,109,795	p. 110	Balance Sheet
240	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	390,317,056 955,222,867 61,157	259,582,704 1,018,429,944 168,854	178,777,281 1,074,477,185 -236,755	1,128 264,315,540 1,535	223,811,548 ***	pp. 234-235 pp. 274-275 pp. 276-277	Prior yr. changed
9	Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	20,421,158	20,421,158	00	0.0	157,792,762 **	p. 232 p. 278	
80 60	Working Capital Prepayments Materials and Supplies	50,233,141	45,734,169	2,896 45,458,667	4,185 48,699,141	4,255 49,928,973	p. 230 pp. 110-111	
51	Gas Stored Underground Base gas Acct. 117.1 Base gas Acct. 117.2 System balancing	71,152,074	71,152,074	71,152,074	71,152,074	71,152,074 0	p. 110	
12	Operation and Maintenance Costs Production	0	0	0	0	0	p.320	O&M
t 4 t	Storage less: Comp. fuel and losses Net storage costs	33,778,269 4,087,370 29,690,899	31,540,239 4,504,973 27,035,266	30,482,109 2,097,152 28,384,957	35,948,745 3,434,323 32,514,422	41,811,045 4,413,040 37,398,005	p. 322	
15 4 81	Transmission less: Comp. fuel Net transmission costs	268,906,207 80,040,665 188,865,542	328,876,598 125,063,868 203,812,730	291,185,048 78,821,909 212,363,139	318,082,342 84,763,336 233,319,006	349,679,120 110,973,081 238,706,039	pp. 323	
19	A&G	73,462,451	63,869,213	64,863,341	66,911,382	63,346,697	pp. 325	
20	Other Taxes	63,357,282	65,532,583	73,218,555	76,918,126	87,731,779	p. 114	Income Statement
21	Depreciation, Amortization, and Negative Salvage	163,624,642	167,353,276	175,471,550	179,130,112	183,225,123	p. 114	Income Statement
22 24 25 26 26	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	4,239,143 1,038,456,405 1,042,695,548 1,042,695,548	3,743,574 1,188,877,546 1,192,621,120 0 1,192,621,120	4,384,780 1,235,802,658 1,240,187,438 1,240,187,438	4,507,403 1,441,429,542 1,445,936,945 1,445,936,945	4,420,287 1,545,990,962 1,550,411,249 1,550,411,249	p. 300 p. 301 p. 301	

nnessee Gas Pipeli Account 495	Tennessee Gas Pipeline Company, LLC Account 495						0.308
Value o	Value of excess fuel retained	0	0	0	0	0	
Penalty	Penalty revenues	0	0	0	0	0	
Gains	Gains on settlements of imbalances	581,243	0	0	0	0	
Total non-cost of service revenues	service revenues	581,243	10	10	10	10	
Cost of Debt		7.79%	7.77%	7.76%	7.75%	7 17%	218
Allowed Rate of Return on Equity	leturn on Equity	12.71%	12.71%	12.71%	12.71%	12.71%	p. 218
Account 496 - Pr	Account 496 - Provision for Rate Refunds	0	0	0	0	0	
Sas Received fro Sas Used for Co	Gas Received from Shippers (dth) Gas Used for Compressor Station Fuel (dth)						p.520 p.520
Account 810 Amount of Credit Account 810 Gas Used (dth)	unt of Credit Used (dth)						p.331

Pipeline Cost Model

Tennessee Gas Pipeline Company, LLC

		A COLOR		A PUC PULL	OFOC POLL	C
Allowed	Allowed Return on Rate Base		במו רווס למו	Cal Lily 2013	Teal Ella 2010	Teal Ella 2017
	Capitalization					
	Debt	41.33%	37.05%	38.11%	34.94%	33.43%
	Equity	28.67%	62.95%	61.89%	65.06%	%2999
	Return on Debt	3.22%	2.88%	2.96%	2.71%	2.40%
	Return on Equity	7.46%	8.00%	7.87%	8.27%	8.46%
	Total Return	10.68%	10.88%	10.82%	10.98%	10.86%
Rate Base	ise					
	Gas Plant in Service	7,315,979,000	7,443,590,861	7,789,831,516	8,093,617,755	8,609,956,465
	Gas Stored - Noncurrent	71,152,074	71,152,074	71,152,074	71,152,074	71,152,074
	Accumulated Depreciation	-3,159,560,732	-3,221,922,169	-3,351,751,345	-3,462,884,909	-3,612,109,795
	Working Capital	50,233,141	45,734,169	45,461,563	48,703,326	49,933,228
	ADIT	-564,966,968	-759,016,094	-895,463,149	-264,315,947	-223,811,548
	Regulatory Assets	20,421,158	20,421,158	0	0	0
	Regulatory Liabilities	0	0	0	0	-157,792,762
	Total Rate Base	3,733,257,673	3,599,959,999	3,659,230,659	4,486,272,299	4,737,327,662
Cost of	Cost of Service					
	Return	398,583,645	391,665,928	396,058,843	492,457,034	514,377,995
	Federal Income Tax 53.85%	149,900,918	155,093,518	154,992,437	199,756,043	215,830,203
	State Income Tax 10.57%		16,387,240	16,376,559	21,106,299	22,804,701
	Other Taxes	63,357,282	65,532,583	73,218,555	76,918,126	87,731,779
	Depreciation	163,624,642	167,353,276	175,471,550	179,130,112	183,225,123
	O&M	218,556,441	230,847,996	240,748,096	265,833,428	276,104,044
	A&G	73,462,451	63,869,213	64,863,341	66,911,382	63,346,697
	Total Cost of Service	1,083,323,966	1,090,749,754	1,121,729,381	1,302,112,424	1,363,420,542
	Total Revenues	1,042,695,548	1,192,621,120	1,240,187,438	1,445,936,945	1,550,411,249
	Non-Cost of Service Revenues	581,243	0	0	0	0
		-40,628,418	101,871,366	118,458,057	143,824,521	186,990,707
	Over (Under) Recovery excl. non-COS rev	-41,209,661	101,871,366	118,458,057	143,824,521	186,990,707
	Actual rate of return on equify *	11 610/	45 300/	15 010/	15 620/	16 000

^{* [[}Line 24 - (Line 24 *(.5385/(1+.5385))]-(Line 24 * (State Income Tax Percentage * .5385)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

1/ In 2016, deferred taxes were reduced in connection with Kinder Morgan, Inc.'s acquisition of all outstanding common units of Kinder Morgan Energy Partners, LP that it didn't already own. This sale is a taxable transaction under IRS rules, which increases the tax basis of the assets.

Texas Eastern Transmission, LP

	בלאמי במסופון ומוויסוווים במסופון בן		Data Input Section	uo				
		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	n 2)
-	Total Plant in Service	8,272,415,886	8,832,190,925	9,748,131,481	10,008,393,561	10,610,781,746	p. 110	Balance Sheet
2	Total Accum. Depreciation, Amortization	3,154,604,283	3,212,117,812	3,274,569,067	3,338,709,741	3,405,087,680	p. 110	Balance Sheet
E 4 D	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	0 984,687,072 0	0 1,068,612,975 0	0 1,222,295,760 0	0 1,373,882,592 0	793,132,966 ** 0	pp. 234-235 pp. 274-275 pp. 276-277	
9 2	Regulatory Assets and Liabilities (rate base est.) Account 182.3 (rate base est.) Account 254	15,731,513	17,317,268	17,864,217	17,843,553	14,912,242 746,934,981 ***	p. 232 p. 278	
დ თ	Working Capital Prepayments Materials and Supplies	9,293,865 18,980,692	12,214,435	12,786,301	9,876,818 19,628,937	7,655,762 19,764,050	p. 230 pp. 110-111	Balance Sheet
10	Gas Stored Underground Base gas Acct. 117.1 Base gas Acct. 117.2 System balancing	23,464,246	23,464,246 12,959,121	23,464,246 12,959,121	23,464,246 12,959,121	23,464,246	p. 110 p. 110	
	Operation and Maintenance Costs Production	75,086,938	92,297,199	56,251,435	40,240,344	40,434,983		
£ 4 £ 5	Storage less: Comp. fuel and losses Net storage costs	23,234,293 6,263,798 16,970,495	30,972,386 8,220,382 22,752,004	29,894,870 5,335,720 24,559,150	20,913,706 5,083,279 15,830,427	19,536,386 3,630,539 15,905,847	p. 319	
16 17 18	Transmission less: Comp. fuel Net transmission costs	257,946,350 80,588,244 177,358,106	281,512,698 91,699,790 189,812,908	331,857,312 133,884,925 197,972,387	438,468,173 146,274,401 292,193,772	359,156,143 1 <u>27,622,312</u> 231,533,831	pp. 320-321	
19	A&G	160,265,684	170,356,734	157,117,297	154,526,304	215,180,562	pp. 324-325	
20	Other Taxes	50,695,860	77,026,804	50,414,779	83,505,809	95,243,589	p. 114	Income Statement
21	Depreciation, Amortization, and Negative Salvage	92,499,172	104,312,548	110,354,556	122,604,293	123,167,525	p. 114	Income Statement
23 24 26 26	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues Net Revenues	2.805,079 942,829,304 945,634,383 945,634,383	2,892,133 1,162,356,259 1,165,248,392 1,165,248,392	4,061,656 1,285,292,076 1,289,353,732 0 1,289,353,732	4,521,945 1,345,639,718 1,350,161,663 1,350,161,663	4,501,382 1,385,009,217 1,389,510,599 0 1,389,510,599	p. 300	

	Model
GSA	Cost
Z	peline
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Texas Eastern Transmission, LP	mission, LP						
Account 495	1 495						0.308
	Value of excess fuel retained	0	0	0	0	0	
	Penalty revenues	0	0	0	0	0	
	Gains on settlements of imbalances	0	0	0	0	0	
Total n	Total non-cost of service revenues	0	0	0	0	10	
Cost of Debt	Debt	5.02%	5.06%	5.06%	2.00%	5.00%	p. 218
Allower	Allowed Rate of Return on Equity	12.75%	12.75%	12.75%	12.75%	12.75%	p. 218
Accoun	Account 496 - Provision for Rate Refunds	0	0	0	0	0	

NGSA Pipeline Cost Model

Texas Eastern Transmission, LP

Allowed Return on Rate Base	207017	10401	200	I car Lilo 2010	
Capitalization					
Debt	43.77%	40.73%	38.61%	35.20%	33.15%
Equity	56.23%	59.27%	61.39%	64.80%	66.85%
Return on Debt	2.20%	2.06%	1.95%	1.76%	1.66%
Return on Equity	7.17%	7.56%	7.83%	8.26%	8.52%
Total Return	9.37%	9.62%	9.78%	10.02%	10.18%
Rate Base					
Gas Plant in Service	8,272,415,886	8,832,190,925	9,748,131,481	10,008,393,561	10,610,781,746
Gas Stored - Noncurrent	23,464,246	23,464,246	23,464,246	23,464,246	23,464,246
Accumulated Depreciation	-3,154,604,283	-3,212,117,812	-3,274,569,067	-3,338,709,741	-3,405,087,680
Working Capital	41,233,678	45,578,279	44,969,980	42,464,876	40,378,933
ADIT	-984,687,072	-1,068,612,975	-1,222,295,760	-1,373,882,592	-793,132,966
Regulatory Assets	15,731,513	17,317,268	17,864,217	17,843,553	14,912,242
Regulatory Liabilities	0	01	0	OI	-746,934,981
Total Rate Base	4,213,553,968	4,637,819,931	5,337,565,097	5,379,573,903	5,744,381,540
Cost of Service					
Return	394,665,861	446,059,167	522,061,424	539,140,897	584,828,304
Federal Income Tax 38.89%	117,476,869	136,296,445	162,471,256	172,845,710	190,405,903
State Income Tax 14.82%	17,410,072	20,199,133	24,078,240	25,615,734	28,218,155
Other Taxes	50,695,860	77,026,804	50,414,779	83,505,809	95,243,589
Depreciation	92,499,172	104,312,548	110,354,556	122,604,293	123,167,525
O&M	269,415,539	304,862,111	278,782,972	348,264,543	287,874,661
A&G	160,265,684	170,356,734	157,117,297	154,526,304	215,180,562
Total Gost of Service	1,102,429,057	1,259,112,943	1,305,280,524	1,446,503,289	1,524,918,699
Total Revenues	945,634,383	1,165,248,392	1,289,353,732	1,350,161,663	1,389,510,599
Non-Cost of Service Revenues	0	0	0	0	
Cost Over (Under) Recovery Over (Under) Recovery excl. non-COS rev	-156,794,674	-93,864,551	-15,926,792	-96,341,626	-135,408,100
					100
Actual rate of return on equity *	8.37%	10 49%	12 43%	10 92%	10 41%

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^{* [[}Line 24 - (Line 24 *(.3889/(1+.3889))]-(Line 24 * (State Income Tax Percentage * .3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.

NGSA Pipeline Cost Model

Texas Gas Transmission, LLC

	lexas Gas Transmission, LLC	۵۱	Data Input Section					
		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
-	Total Plant in Service	2,934,729,769	2,959,989,889	2,995,069,417	3,280,870,547	3,458,989,883	p. 110	Balance Sheet
0	Total Accum. Depreciation, Amortization	1,300,202,934	1,369,880,919	1,431,251,727	1,478,998,719	1,549,938,166	p. 110	Balance Sheet
640	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	1,600,000 181,139,786 23,110,144	1,400,000 203,883,920 28,597,279	1,200,000 228,896,604 30,761,052	1,300,000 265,435,728 28,550,542	1,600,000 217,050,113 ** 27,798,495	pp. 234-235 pp. 274-275 pp. 276-277	
9 1	Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	10,581,766 32,686,653	10,581,766 34,232,810	10,581,766	10,581,766	10,581,766 159,420,077 **	p. 232 p. 278	
80 D	Working Capital Prepayments Materials and Supplies	3,804,115 11,416,230	4,419,326	4,683,966	4,540,746 13,941,922	4,582,299 12,644,461	p. 230 pp. 110-111	
13	Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	25,202,872 106,998,287	25,202,872 114,605,903	25,202,872 148,668,398	25,202,872 133,201,761	25,202,872 102,000,672	p. 110	
12	Operation and Maintenance Costs Production	0	0	0	0	0		O&M
ह र प	Storage less: Comp. fuel and losses Net storage costs	7,027,169 1,509,829 5,517,340	15,461,987 2,280,122 13,181,865	10,520,653 1,391,870 9,128,783	5,477,353 1,083,348 4,394,005	12,977,453 1,381,059 11,596,394	p. 322	
16 71 81	Transmission less: Comp. fuel Net transmission costs	90,359,500 27,190,264 63,169,236	98,680,579 31,880,247 66,800,332	80,024,084 16,481,496 63,542,588	72,509,123 12,583,127 59,925,996	77,640,759 16.393,248 61,247,511	p. 323	
19	A&G	37,778,528	38,518,645	41,597,176	53,444,487	48,641,629	pp. 323-325	
20	Other Taxes	26,927,465	26,080,071	25,306,003	28,620,794	31,266,736	p. 114	Income Statement
27	Depreciation, Amortization, and Negative Salvage	72,268,376	73,671,181	74,768,178	74,450,824	78,211,587	p. 114	Income Statement
22 23 25 26	Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	1,793,908 402,206,160 404,000,068 10,792,826 393,207,242	1,444,165 405,117,823 406,561,988 1,864,800 404,697,188	1,567,900 416,034,259 417,602,159 0 417,602,159	1,395,642 461,867,813 463,263,455 3,686,200 459,577,255	1,334,961 499,296,405 500,631,366 500,631,366	p. 300	

	Texas Gas Transmission, LLC						
	Account 495						308
27	Value of excess fuel retained	0	0	0	0	0	, 300
28	Penalty revenues	0	0	0	0	0	
29	Gains on settlements of imbalances	0	0	0	0	0	
30	Total non-cost of service revenues	10	10	0	10	0	
31	Cost of Debt	5.03%	5.42%	5.35%	5.52%	5.65%	0.218
32	Allowed Rate of Return on Equity	10.04%	10.30%	10,87%	11.00%	11.55%	p. 218
60	33 Account 496 - Provision for Rate Refunds	0	C	C	C	c	

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Pipeline Cost Model

Texas Gas Transmission, LLC

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	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Allowed Return on Rate Base					
Capitalization					
Debt	45.94%		39.72%	40.00%	40.00% ***
Equity	54.06%	24.59%	60.28%	%00.09	%00.09
Retum on Debt	2.31%	2.30%	2.13%	2.21%	2.26%
Return on Equity	5.43%		6.55%	6.60%	6.93%
Total Return	7.74%	8.23%	8.68%	8.81%	9.19%
Rate Base					
Gas Plant in Service	2,934,729,769	2,959,989,889	2,995,069,417	3,280,870,547	3.458.989.883
Gas Stored - Noncurrent	25,202,872		25,202,872	25.202.872	25,202,872
Accumulated Depreciation	-1,300,202,934	-1.3	-1.431,251,727	-1,478,998,719	-1.549,938,166
Working Capital	122,218,632		166,557,105	151,684,429	119,227,432
ADIT	-202,649,930	T	-258,457,656	-292,686,270	-243 248 608
Requiatory Assets	10.581.766		10,581,766	10.581.766	10.581.766
Regulatory Liabilities	-32 686 653		-39 944 979	-45 RRG 099	159 420 077
	25,000,000		0.0,440,00	660,000,01	110,024,001
Total Rate Base	1,557,193,522	1,491,719,950	1,467,756,798	1,650,768,526	1,661,395,102
Cost of Service					
Return	120,501,957	122,774,399	127,363,950	145,399,692	152.682.210
Federal Income Tax	38.89% 32,868,348		37,400,932	42,369,726	44,774,598
State Income Tax	13.74% 4,515,012	4,726,919	5,137,637	5,820,183	6,150,532
Other Taxes	26,927,465	26,080,071	25,306,003	28,620,794	31,266,736
Depreciation	72,268,376	73,671,181	74,768,178	74,450,824	78,211,587
O&M	68,686,576	79,982,197	72,671,371	64,320,001	72,843,905
A&G	37.778,528	38,518,645	41,597,176	53,444,487	48,641,629
Total Cost of Service	363,546,262	380,164,400	384,245,247	414,425,706	434,571,197
Total Revenues	393,207,242	404,697,188	417,602,159	459,577,255	500,631,366
Non-Cost of Service Revenues	0	0	0	0	0
Cost Over (Under) Recovery	29,660,980		33,356,912	45,151,549	66,060,169
Over (Under) Recovery excl. non-COS rev	29,660,980	24,532,788	33,356,912	45,151,549	66,060,169
Actual rate of return on equity *	12.39%	12.20%	13.38%	14.04%	15.97%

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^{* [[}Line 24 - (Line 24 *(.3889)(1+.3889))]-(Line 24 * (State Income Tax Percentage * .3889))]-[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
*** NGSA uses an estimated 60 percent equity capitalization rate instead of Texas Gas' reported equal to or greater than 70% equity ratios in the 2016-2017 Form 2s. 70% and greater equity ratios are not within a range FERC has historically approved.

NGSA Pipeline Cost Model

Data Input Section

Trailblazer Pipeline Company LLC

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
. 2	Total Plant in Service	335,769,353	348,724,398	348,928,845	359,051,513	369,044,341	p. 110	Balance Sheet
Č.	Total Accum. Depreciation, Amortization	280,883,560	284,773,879	288,209,654	286,319,251	289,350,896	p. 110	Balance Sheet
m -+ 10	Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	1,128,476 -538,749 0	193,841 -134,071	318,419 1,014,392 0	451,763 4,945,227 0	1,701,528 ** 6,420,884 **	pp. 234-235 pp. 274-275 pp. 276-277	10.10.4
(A. b.	Regulatory Assets and Liabilities (rate base est. Account 182.3 (rate base est. Account 254 (rate base est.)	sst.) 32,227 sst.) 0	00	00	00	1,628,479 ***	p. 232 p. 278	
	Working Capital Prepayments Materials and Supplies	1,221	4,023 528,233	10,547 2,502,513	4,242	350 361,755	p. 230 pp. 110-111	
	Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	o ancing 0	0 0	00	00	00	p. 110	
À.	Operation and Maintenance Costs Production	0	0	0	0	0		O&M
in 10	Storage less: Comp, fuel and losses Net storage costs	0 010	0 0 0	0 010	0 0 0	000	p. 322	
<i>7</i> 0 b. <i>m</i>	Transmission less: Comp. fuel Net transmission costs	6,669,786 3,940,578 2,729,208	8,741,191 4,387,806 4,353,385	8,886,558 5,225,999 3,660,559	7,882,191 4,425,459 3,456,732	9,294,253 5,361,875 3,932,378	pp. 323	
	A&G	6,648,179	5,285,942	4,101,201	4,077,386	4,390,815	pp. 323-325	10
	Other Taxes	1,268,968	1,607,386	1,122,290	1,023,110	1,062,252	p. 114	Income Statement
0	Depreciation, Amortization, and Negative Salvage	7,339,898	4,211,767	3,439,447	3,844,266	3,951,133	p. 114	Income Statement
	Revenue ACA and GRI revenue Other Revenue less: Fuel Revenues Total Revenue Sales Revenues Net Revenues	425,161 22,721,444 <u>55,433</u> 23,091,172 1,417,610 21,673,562	310,874 38,609,512 <u>5,019,078</u> 33,901,308 <u>2,838,304</u> 31,063,004	393,237 32,287,908 1,246,304 31,434,841 509,548 30,925,293	386,104 30,068,943 1,083,243 29,371,804 489,225 28,882,579	398,172 32,893,323 2,479,617 30,811,878 581,570 30,230,308	p. 300 p. 301, 304 pp. 304-305	

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NGSA Pipeline Cost Model

						p. 308
Value of excess fuel retained	0	190,959	0	0	0	
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	138,576	718,140	362,026	243,868	114,880	
Total non-cost of service revenues	138,576	660'606	362,026	243,868	114,880	
Cost of Debt	4.25%	2.45%	2.08%	2.50%	5.50%	p. 218
Allowed Rate of Return on Equity	15.00%	11.20%	11.20%	11.20%	11.20%	p. 218
Account 496 - Provision for Rate Refunds	0	0	0	0	0	

Pipeline Cost Model

Trailblazer Pipeline Company LLC

	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Allowed Return on Rate Base					
Capitalization					
Debt	40.91%	41.12%	31.75%	40.48%	50.44% ***
Equity	29.09%	58.88%	68.25%	59.52%	49.56%
Return on Debt	1.74%	1.01%	0.66%	2.23%	2.77%
Return on Faulty	8 86%	E 50%	7 640/	76233	2000
Total Return	10.60%	7.60%	8.30%	8.89%	8.32%
Rate Base					
Gas Plant in Service	335,769,353	348,724,398	348,928,845	359,051,513	369.044.341
Gas Stored - Noncurrent	0	0	0	0	0
Accumulated Depreciation	-280.883.560	-284.773.879	-288.209.654	-286.319.251	-289 350 896
Working Capital	401.796	532,256	2.513,060	428.289	362 105
ADIT	1,667,225	327,912	-695,973	-4.493.464	4 719 356
Regulatory Assets	32.227	0	C	C	0
Regulatory Liabilities	0	O	0	o ol	-1,628,479
Total Rate Base	56,987,041	64,810,687	62,536,278	68,667,087	73,707,715
Cost of Service					
Return	6,041,866	4.926.908	5.193.263	6.106.317	6.136.108
Federal Income Tax 38.89%	1,964,296	1,662,103	1,858,995	1,780,144	1.591,065
State Income Tax 11.27%	221,463	187,392	209,590	200,700	179,383
	1,268,968	1.607.386	1,122,290	1.023,110	1.062,252
Depreciation	7,339,898	4,211,767	3,439,447	3.844.266	3 951 133
O&M	2,729,208	4,353,385	3,660,559	3,456,732	3,932,378
A&G	6,648,179	5,285,942	4,101,201	4,077,386	4,390,815
Total Cost of Service	26,213,877	22,234,884	19,585,345	20,488,655	21,243,134
Total Revenues	21,673,562	31,063,004	30,925,293	28,882,579	30.230.308
Non-Cost of Service Revenues	138,576	660'606	362,026	243,868	114,880
Cost Over (Under) Recovery	4,540,315	8,828,120	11,339,948	8,393,924	8,987,174
Over (Under) Recovery excl. non-COS rev	4,678,891	7,919,021	10,977,922	8,150,056	8,872,294
Actual rate of return on equity *	5.88%	26.84%	29.16%	25.09%	27.84%

^{* [[}Line 24 *(.3889/(1+.3889)])-(Line 24 * (State Income Tax Percentage * .3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
***NGSA uses 2014-2017 capitalization and 2014-2015 cost of debt ratios derived from data in Taligrass Energy Partners, LP SEC Form 10-Ks due to Trailblazer's reported missing debt and equity ratios in the Form 2s.

NGSA Pipeline Cost Model

Transcontinental Gas Pipe Line Company, LLC

		Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
Total Plant in Service		9,196,338,409	9,350,471,844	10,660,114,642	10,945,386,071	12,562,677,365	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	ıtion	4,651,309,345	4,800,830,537	5,001,227,826	5,203,258,907	5,377,699,428	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	Ø	133,835,104 1,264,711,761 574,568	144,993,307 1,320,592,782 388,239	161,215,407 1,591,531,181 201,909	186,352,890 1,701,783,965 15,580	61,414,613 1,195,989,557 *** 26,407,128	pp. 234-235 pp. 274-275 pp. 276-277	
Regulatory Assets and Liabilities Account 182.3 Account 254	(rate base est.)	00	00	00	00	840,396,422 **	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	V 2	9,482,329 36,980,143	9,851,166 36,927,192	9,708,715	9,562,752 36,959,613	8,614,548 37,037,044	p. 230 pp. 110-111	
Gas Stored Underground Acct. 117.1 Acct. 117.2	Base gas System balancing	76,011,237 18,620,789	76,011,237 36,329,052	76,001,991 26,298,224	76,273,878 22,753,384	76,273,878 8,867,537	p. 110	
Operation and Maintenance Costs Production		7,552,109	6,316,414	5,350,416	3,226,481	4,596,521		O&M
Storage less: Comp. fuel and losses Net storage costs	d losses	90,611,563 11,272,824 79,338,739	90,744,348 12,262,858 78,481,490	81,543,815 7,412,031 74,131,784	75,160,292 6,186,332 68,973,960	82,601,616 <u>6,369,041</u> 76,232,575	p. 322	
Transmission less: Comp. fuel Net transmission costs	v	124,115,674 -35,095,065 159,210,739	179,086,172 2,409,805 176,676,367	207,005,189 12,215,019 194,790,170	231,545,880 215,411 231,330,469	294,815,655 -3,264,410 298,080,065	p. 323	
A&G		198,590,915	187,011,413	183,160,505	171,237,808	194,297,301	pp. 323-325	
Other Taxes		50,556,007	51,346,011	56,858,655	67,425,132	73,431,358	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	ative Salvage	328,039,512	233,969,800	242,300,633	272,235,729	282,015,729	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues		4,766,305 1,243,203,586 1,247,969,891 1,247,969,891	4,011,028 1,300,578,593 1,304,589,621 1,304,589,621	4,396,188 1,445,718,600 1,450,114,788 1,450,114,788	4,494,824 1,546,741,266 1,551,236,090 1,491,295 1,549,744,795	4,524,790 1,689,786,114 1,694,310,904 1,694,310,904	p. 300 p. 301 & p. 308	308

110

	Model
NGSA	Pipeline Cost

Transcontinental Gas Pipe Line Company, LLC

With the state of							308
value or exces.	Value of excess fuel retained	0	0	0	0	0	
Penalty revenues	les	-582,050	1,191,915	369,658	171,603	6,736,070	
Gains on settlements of ir	ements of imbalances	124,118	293,195	15,948	36,137	362,108	
Total non-cost of service revenues	sunes	-457,932	1,485,110	385,606	207,740	7,098,178	
Cost of Debt		5.81%	5.81%	5.81%	5.81%	6.72%	p. 218
Allowed Rate of Return on Equity	tnity	9.11%	9.39%	%89.6	10.78%	10.63%	p. 218
Account 496 - Provision for Rate Refunds	ate Refunds	97,013,595	19,122,024	14,993,200	267,027	2,137	

 Pipeline Cost Model

Transcontinental Gas Pipe Line Company, LLC

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Allowed Return on Rate Base	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
Capitalization					
Debt	37.76%	35.23%	33.07%	40.00%	35.29% ***
Equity	62.24%	64.77%	%66.93%	%00'09	64.71%
Return on Debt	2.19%	2.05%	1.92%	2.32%	2.37%
Return on Equity	5.67%	6.08%	6.48%	6.47%	6.88%
Total Return	7.86%	8.13%	8.40%	8.79%	9.25%
Rate Base					
Gas Plant in Service	9,196,338,409	9,350,471,844	10,660,114,642	10,945,386,071	12,562,677,365
Gas Stored - Noncurrent	76,011,237	76,011,237	76,001,991	76,273,878	76,273,878
Accumulated Depreciation	-4,651,309,345	-4,800,830,537	-5,001,227,826	-5,203,258,907	-5,377,699,428
Working Capital	4 4 2 4 4 5 4 5 2 5 5	83,107,410	72,134,538	69,275,749	54,519,129
ADI	677,164,161,1-	417,786,011,1-	-1,430,517,683	-1,515,446,655	-1,160,982,072
Regulatory Assets	0	0	0	0	0
Regulatory Liabilities	Ol	OI	Ol	01	-840,396,422
Total Rate Base	3,554,672,337	3,532,772,240	4,376,505,662	4,372,230,136	5,314,392,450
Cost of Service					
Return	279,536,589	287,170,789	367,634,835	384,406,474	491,589,858
Federal Income Tax 38.89%		83,556,581	110,267,927	109,976,162	142,162,097
Tax		7,051,280	9,305,432	9,280,810	11,996,958
Other Taxes	50,556,007	51,346,011	56,858,655	67,425,132	73,431,358
Depreciation	328,039,512	233,969,800	242,300,633	272,235,729	282,015,729
O&M	246,101,587	261,474,271	274,272,370	303,530,910	378,909,161
A&G	198,590,915	187,011,413	183,160,505	171,237,808	194,297,301
Total Cost of Service	1,187,820,571	1,111,580,146	1,243,800,357	1,318,093,025	1,574,402,462
Total Revenues	1,247,969,891	1,304,589,621	1,450,114,788	1,549,744,795	1,694,310,904
Non-Cost of Service Revenues	-457,932	1,485,110	385,606	207,740	7,098,178
Cost Over (Under) Recovery	60,149,320	193,009,475	206,314,431	231,651,770	119,908,442
Over (Under) Recovery excl. non-COS rev	60,607,252	191,524,365	205,928,825	231,444,030	112,810,264
Actual rate of return on equity *	10.98%	15.19%	14.52%	16.85%	12 030/

* [[Line 24 - (Line 24 *(.3889/(1+.3889)])-(Line 24 * (State Income Tax Percentage * .3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
***NGSA uses an estimated 60 percent equity capitalization rate instead of Transcontinental's reported greater than 70% equity ratios in the 2016
Form 2. 70% and greater equity ratios are not within a range FERC has historically approved.

	ď	NGSA Pipeline Cost Model	-			
Transwestern Pipeline Company, LLC	۵۱	Data Input Section	-			
	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	
Total Plant in Service	2,266,746,866	2,310,950,876	2,316,782,671	2,354,992,633	2,348,416,593 2/	
Total Accum. Depreciation, Amortization	593,002,768	625,717,314	657,096,820	699,239,303	723,507,230	
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	0 277,809,557 876,548	0 319,145,986 15,652,994	33,619,716 267,275,912 11,718,958	33,011,212 292,632,818 11,468,503	31,900,386 ** 313,145,049 11,181,285	
Regulatory Assets and Liabilities Account 182.3 (rate base est.) Account 254 (rate base est.)	2,249,225 442,767	3,515,647	2,432,184	2,103,641	2,055,113	
Working Capital Prepayments Materials and Supplies	10,118,410 7,204,804	10,203,618 7,991,649	10,185,432 12,547,722	10,387,992	10,540,856 17,219,592	
Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	9,406,006	9,406,006	9,406,006	9,406,006	9,406,006	
Operation and Maintenance Costs. Production	0	0	0	0	0	
Storage less: Comp. fuel and losses Net storage costs	0 010	0 010	0 010	0 010	0 010	
Transmission less: Comp. fuel Net transmission costs	74,445,531 <u>26,919,738</u> 47,525,793	70,704,070 29,411,146 41,292,924	61,979,174 21,896,072 40,083,102	60,639,599 18,447,366 42,192,233	60,107,967 20,410,362 39,697,605	
A&G	14,526,280	13,943,767	12,737,295	10,470,006	11,083,954	
Other Taxes	23,722,344	10,015,328	15,920,353	18,712,489	21,970,978	
Depreciation, Amortization, and Negative Salvage	32,219,563	27,503,210	31,782,130	31,660,544	32,130,337	
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	794,137 228,138,220 228,932,357 24,848,072 204,084,285	575,592 227,609,158 228,184,750 24,981,555 203,203,195	678,949 211,787,477 212,466,426 18,012,072 194,454,354	628,143 212,958,452 213,586,595 15,639,674 197,946,921	595,304 208,247,171 208,842,475 17,977,402 190,865,073	

Balance Sheet Balance Sheet

p. 110

pp. 234-235 pp. 274-275 pp. 276-277

Source (Form 2)

Income Statement Income Statement

p. 114 p. 114

p. 300 p. 301

pp. 323-325

O&M

p. 322

p. 323

p. 230 pp. 110-111

p. 110 p. 110

p. 232 p. 278

Transwestern Pipeline Company, LLC

Account 495						p. 308
Value of excess fuel retained	0	0	0	0	0	
Penalty revenues	0	0	712	0	0	
Gains on settlements of imbalances	0	0	0	0	0	
Total non-cost of service revenues	0	0	712	10	10	
Cost of Debt	5.81%	5.82%	5.57%	5.74%	5.74%	0.218
Allowed Rate of Return on Equity	11.20%	11.20%	10.52%	11.20%	10.52%	p. 218
Account 496 - Provision for Rate Refunds	0	0	0	-80,501	0	
Gas Received from Shippers (dth) Gas Used for Compressor Station Fuel (dth)	9,586,920 4,223,588	9,312,011	10,310,718 5,136,956	9,808,317 4,584,222	9,435,809	p.520 p.520
Account 810 Amount of Credit Account 810 Gas Used (dth)	16,997,046 4,451,624	17,693,078 4,190,340	11,938,970 4,938,041	9,642,437	10,150,192	p.331

Pipeline Cost Model

Transwestern Pipeline Company, LLC

41.05% 37.30% 40.66% 58.35% 62.70% 59.34% 2.33% 6.60% 6.60% 8.99% 2.316,782,671 2.354,992,633 2.607,17,314 6.57,096,820 6.99,239,303 2.7601,273 2.7601,273 2.716,864 117,363,454 35,4592,635 12,422,341 115,776,864 117,363,454 35,4592,333 13,943,769 2.203,203,195 12,225,341 115,776,864 117,363,454 35,202 2.254,757,094 2.52,765,962 2.56,374,605 2.54,757,094 2.52,765,962 2.56,374,605 2.54,757,094 2.52,765,962 2.56,374,605 2.553,899 -58,311,608 -58,427,684 5.1,553,899 -58,311,608 -58,427,684 5.563,899 -58,312,320 -58,427,684 5.568,89 5.68%			Vans End 2012	Vent End 2011	Vacar Paul 2004	V	L
1,423,936, 1,324,234 1,334,51,51 1,336,51 1,3	owed Return on Rate Base		real Elia 2013	rear End 2014	rear End 2015	Year End 2016	Year End 2017
y 59.45% 58.95% 62.70% 59.34% m on Debt 2.36% 2.39% 2.08% 6.66% m on Equity 6.66% 2.39% 2.08% 6.66% Return 2.366, 46, 866 2.310,950,876 2.346,782,671 8.57% 6.65% Plant in Service 2.266,746,866 2.310,950,876 2.316,782,671 2.344,992,633 3.24,391,60 0.00 stored - Noncurrent mulated Depreciation -583,002,768 -625,717,714 -657,066,80 2.346,992,633 3.243,113 2.746,992,633 3.24,992,633 3.243,113 3.243,113 3.243,113 3.243,113 3.243,113 3.243,113 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.243,133 3.244,233 3.243,133 3.244,233 3.243,133 3.244,233 3.244,233 3.244,233 3.244,233 3.244,233 3.244,233	<u>Capitalization</u> Debt		40.55%	41.05%	37.30%	40.66%	36.64%
Part in Service C.266,746,866 C.310,950,876 C.366,746,866 C.310,950,876 C.310,950,976 C.310,950,976 C.310,950,976 C.310,950,976 C.310,950,976 C.310,950,976 C.310,976,976 C.310,976,	Equity		59.45%	58.95%	62.70%	59.34%	63,36%
Rate Base	Return on Debt		2.36%	2.39%	2.08%	2.33%	2.10%
Fraction Service Cost of Servi	Return on Equity		6.66%	%09.9	6.60%	6.65%	6.67%
Plant in Service 2,266,746,866 2,310,950,876 2,316,782,671 2,354,992,633 Stored - Noncurrent			2		0.0.0	0.30%	0.17.0
Stored - Noncurrent	17/		2,266,746,866	2,310,950,876	2,316,782,671	2,354,992,633	2.348.416.593
mulated Depreciation -593,002,768 -625,717,314 -657,096,820 -699,239,303 -639,203,203,203,203,203,203,203,203,203,203	Gas Stored - Noncurrent		0	0	0	0	
ing Capital 26,729,220 27,601,273 32,139,160 32,637,113 218,009,109 278,606,105 34,798,900 245,375,154 271,090,109 21,249,225 3,515,647 2,432,184 2,103,641 2,432,641 2,432,644 2,757 2,432,647 2,432,184 1,124,550,38	Accumulated Depreciation		-593,002,768	-625,717,314	-657,096,820	-699,239,303	-723,507,230
Particle	Working Capital		26,729,220	27,601,273	32,139,160	32,637,113	37,166,454
Particle	ADIT		-278,686,105	-334,798,980	-245,375,154	-271,090,109	-292,425,948
Rate Base 1,423,593,671 1,381,551,502 1,334,811,340 1,12,456,038 Rate Base 1,423,593,671 1,381,551,502 1,334,811,340 1,306,947,937 Income Tax 128,327,787 124,222,341 115,776,864 117,363,454 Income Tax 6.50% 2,397,167 2,306,807 2,226,617 2,106,677 Income Tax 6.50% 2,374,344 10,015,328 18,220,353 18,712,489 Criation 32,219,663 27,503,210 31,782,130 31,606,544 47,525,793 42,192,233 Revenues Cost of Service 285,581,152 254,757,094 252,765,962 256,374,605 Cost of Service Revenues 204,084,285 203,203,195 194,454,354 197,946,921 Cost of Service Revenues 0 -61,496,867 -51,553,899 -58,311,608 -58,427,684 Harlae of return on equity ** 4,51% -51,553,899 -58,311,608 -58,427,684 13 rate of return on equity ** 4,51% -51,553,899 -58,311,608 -58,427,684	Regulatory Assets		2,249,225	3,515,647	2,432,184	2,103,641	2,055,113
Rate Base 1,423,593,671 1,381,551,502 1,334,811,340 1,306,947,937 Income Tax 38,89% 36,862,218 34,239,602 33,779,202 Income Tax 6.50% 2,397,467 2,306,807 2,226,617 2,196,677 Income Tax 6.50% 2,397,467 2,306,807 2,226,617 2,196,677 Income Tax 6.50% 2,397,467 2,306,807 2,226,617 2,196,677 Income Tax 6.50% 2,397,467 0,015,328 15,920,333 18,712,489 eciation 32,719,563 27,503,210 31,782,130 31,600,544 Aq, 52,579 41,292,924 40,083,102 42,192,233 In, 470,006 13,943,767 12,737,285 10,470,006 Cost of Service Revenues 204,084,285 203,203,195 194,454,354 197,946,921 Cost of Service Revenues 0 -81,496,867 -51,553,899 -58,311,608 -58,427,684 Under) Recovery excl. non-COS rev 4,51% -51,553,899 -58,311,608 -58,427,684 A 5,1%	Regulatory Liabilities		-442,767	O	-114,070,701	-112,456,038	-113,915,775
Taxes 128,327,787 124,222,341 115,776,864 16,50% 2,997,167 2,306,802 218 35,472,716 34,239,602 2,397,167 2,306,807 2,226,617 2,307,167 2,306,807 2,226,617 2,307,167 2,306,807 2,306,807 2,307,307 31,782,304 31,	Total Rate Base		1,423,593,671	1,381,551,502	1,334,811,340	1,306,947,937	1,257,789,207
128,327,787 124,222,341 115,776,864 38,89% 36,862,218 35,472,716 34,239,602 6,50% 2,397,167 2,306,807 2,226,617 23,722,344 10,015,328 15,920,353 32,219,563 27,503,210 31,782,130 47,525,793 41,292,924 40,083,102 14,526,280 13,943,767 12,737,295 285,581,152 254,757,094 252,765,962 204,084,285 203,203,195 194,454,354 0 0 712 -81,496,867 -51,553,899 -58,311,608 -81,496,867 -51,553,899 -58,311,608 -81,496,867 -51,553,899 -58,312,320	st of Service						
38.89% 36.862,218 35,472,716 34,239,602 2.367,167 2.306,807 2.226,617 2.306,807 2.326,617 2.306,807 2.326,617 2.306,807 2.322,617 2.306,807 2.326,617 2.375,03.210 47,525,793 41,292,924 40,083,102 14,526,280 13,943,767 12,737,295 285,581,152 254,757,094 252,765,962 204,084,285 203,203,195 194,454,354 0 6.80% 58,311,608 4.516,808 5.814,996,867 5.1553,899 58,312,320	Return		128,327,787	124,222,341	115,776,864	117,363,454	110,290,60
6.50% 2,397,167 2,306,807 2,226,617 2,226,617 2,3122,344 10,015,328 15,920,353 32,219,563,210 31,782,130 47,525,793 41,282,224 40,083,102 14,526,280 13,943,767 12,737,295 285,811,152 254,757,094 252,765,962 204,084,285 203,203,195 194,454,354 0 0 712 496,867 -51,553,899 -58,311,608 +451,863,847 51,553,899 -58,312,320 45,51% 6,80% 5,88%	Federal Income Tax	38.89%	36,862,218	35,472,716	34,239,602	33,779,202	32,603,506
23,722,344 10,015,328 15,920,353 18,732,314 10,015,328 15,920,353 18,732,139 32,219,563 27,263,210 31,782,130 31,6 14,526,280 13,943,767 12,737,295 10,4 14,526,280 13,943,767 12,737,295 10,4 14,526,581,152 254,757,094 252,765,962 256,3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	State Income Tax	6.50%	2,397,167	2,306,807	2,226,617	2,196,677	2,120,221
32,219,563 27,503,210 31,782,130 31,6 47,525,793 41,292,924 40,083,102 42,1 10,4526,280 13,943,767 12,737,295 10,4 10,553,1152 254,757,094 252,765,962 256,3 204,084,285 203,203,195 194,454,354 197,5 0 712 81,496,867 -51,553,899 -58,311,608 -58,4 4,51,553,899 -58,312,320 -58,4 4,51,51,51,51,51,51,51,51,51,51,51,51,51,	Other Taxes		23,722,344	10,015,328	15,920,353	18,712,489	21,970,978
47,525,793 41,292,924 40,083,102 42,1 14,526,280 13,943,767 12,737,295 10,4 285,581,152 254,757,094 252,765,962 256,3 204,084,285 203,203,195 194,454,354 197,5 0 0 712 -81,496,867 -51,553,899 -58,311,608 -58,4 -4,51% 6.80% 5.68%	Depreciation		32,219,563	27,503,210	31,782,130	31,660,544	32,130,337
14,526,280 13,943,767 12,737,295 10.4 285,581,152 254,757,094 252,765,962 256,3 204,084,285 203,203,195 194,454,354 197,5 0 7712 -81,496,867 -51,553,899 -58,311,608 -58,41,496,867 -51,553,899 -58,312,320 -58,41,496,867 -51,553,899 -58,312,320 -58,451,496,867 -51,553,899 -58,312,320 -58,451,496,867 -51,553,899 -58,312,320 -58,451,496,867 -51,553,899 -58,312,320 -58,451,496,451,496,496,496,496,496,496,496,496,496,496	O&M		47,525,793	41,292,924	40,083,102	42,192,233	39,697,605
285,581,152 254,757,094 252,765,962 256,3 204,084,285 203,203,195 194,454,354 197,5 0 0 712 -81,496,867 -51,553,899 -58,311,608 -58,4 -4,51% 6,80% 5,68%	A&G		14,526,280	13,943,767	12,737,295	10,470,006	11,083,954
204,084,285 203,203,195 194,454,354 197,5 0 712 -81,496,867 -51,553,899 -58,311,608 -58,4 * 4.51% 6.80% 5.68%	Total Cost of Service		285,581,152	254,757,094	252,765,962	256,374,605	249,897,206
0 712 -81,496,867 -51,553,899 -58,311,608 -58, 201,496,867 -51,553,899 -58,312,320 -58, * 4,51% 6,80% 5,68%	Total Revenues		204,084,285	203,203,195	194,454,354	197,946,921	190,865,073
-81,496,867 -51,553,899 -58,311,608 -58,4 -81,496,867 -51,553,899 -58,312,320 -58,4 * 4,51% 6,80% 5,68%	Non-Cost of Service Revenues		0	0	712	0	
* 6.80% 5.68%	Cost Over (Under) Recovery Over (Under) Recovery excl. non-COS rev.		-81,496,867	-51,553,899 -51,553,899	-58,311,608 -58,312,320	-58,427,684	-59,032,133 -59,032,133
	Actual rate of return on equity *		4.51%	6.80%	5.68%	%265	537%
			The state of the s				

^{* [[}Line 24 -(Line 24 *(.3889)/(1+.3889)])-(Line 24 *(State Income Tax Percentage * .3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes Reversal of South Georgia deferred tax liability in 2015.

1/ Over/Under Dth Fuel Recovery	5,363,332	5,595,318	5,173,762	5,224,095	5,113,022
Average price	\$3.82	\$4.22	\$2.42	\$2.35	\$2.64
Valuation of Fuel Recovery	\$20,487,928	\$23,612,242	\$12,520,504	\$12,276,623	\$13,498,378
Actual rate of return on equity including fuel	6.19%	8.82%	6.72%	7.07%	6.55%
2/ Pursuant to Enron's plan of reorganization, effective in 2004. Transwestern Pipeline became a subsidiary of CCE Holdings, LLC,	e in 2004, Transweste	rn Pipeline became	a subsidiary of CC	CE Holdings, LLC,	
which is a joint venture owned by Southern Union Company, GE Commercial Finance Energy Financial Services and four minority interest owners. Transwestern Pipeline was converted to a limited liability company (LLC) and will cease to exist on	Company, GE Comme as converted to a limit	rcial Finance Energed liability compan	yy Financial Service v (LLC) and will ce:	es and four ase to exist on	
November 15, 2034, unless terminated sooner. On December 1, 2006 Transwestern was acquired by Energy Transfer	In December 1, 2006 T	Franswestern was a	acquired by Energy	Transfer	

Partners, L.P. The acquisition was accounted for using the purchase method of accounting with Transwestern recording their net assets at the estimated value as of the acquisition date. In accordance with FERC accepted rate base calculation, the acquisition adjustment has been excluded from plant.

Trunkline Gas Company, LLC		Data Input Section	ion				
	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017	Source (Form 2)	m 2)
Total Plant in Service	1,403,106,615	1,420,086,390	1,365,407,682	1,376,890,098	1,442,474,224	p. 110	Balance Sheet
Total Accum. Depreciation, Amortization	766,272,506	783,484,764	719,803,066	734,483,107	753,496,793	p. 110	Balance Sheet
Accumulated Deferred Income Taxes Account 190 Account 282 Account 283	0 155,623,936 4,097,287	0 156,482,833 4,074,450	0 172,350,544 3,866,204	0 182,397,701 4,981,342	0 131,053,079 ** 2,946,521	pp. 234-235 pp. 274-275 pp. 276-277	10.10
Regulatory Assets and Liabilities (rate base est.) Account 182.3 (rate base est.) Account 254. (rate base est.)	9,923,867 20,902,756	10,185,747 24,845,968	10,523,282 25,683,713	12,279,766 27,720,090	12,576,343	p. 232 p. 278	
Working Capital Prepayments Materials and Supplies	674,866 6,054,213	352,319 6,635,758	356,734 7,678,572	422,850 8,083,341	359,652 8,544,998	p. 230 pp. 110-111	45
Gas Stored Underground Acct. 117.1 Base gas Acct. 117.2 System balancing	42,131,376	42,131,376 3,753,408	42,131,376 7,136,593	42,131,376 8,147,004	42,131,376 8,446,839	p. 110	
Operation and Maintenance Costs Production	-7,504	148	0	0	0		O&M
Storage less: Comp. fuel and losses Net storage costs	1,248,353 158,709 1,089,644	1,374,363 263,132 1,111,231	1,334,491 137,775 1,196,716	1,004,661 77,713 926,948	1,250,284 67.728 1,182,556	p. 322	
Transmission less: Comp. fuel Net transmission costs	63,209,901 28,003,502 35,206,399	65,736,267 28,074,517 37,661,750	59,802,468 18,923,871 40,878,597	35,917,454 4,357,304 31,560,150	38,111,026 4,379,500 33,731,526	pp. 323	
A&G	16,353,045	15,237,440	20,046,672	16,611,696	13,909,049	pp. 323-325	
Other Taxes	11,847,871	10,723,558	6,431,716	8,669,494	9,409,963	p. 114	Income Statement
Depreciation, Amortization, and Negative Salvage	24,037,474	24,353,344	25,402,816	24,190,026	24,835,475	p. 114	Income Statement
Revenue ACA and GRI revenue Other Revenue Total Revenue Sales Revenues	1,188,274 169,597,613 170,785,887	867,350 166,416,288 167,283,638	886,314 156,028,793 156,915,107	660,590 144,337,814 144,998,404	682,572 13 <u>9,589,582</u> 140,272,154	p. 300	
Net Kevenues	170,785,887	167,283,638	156,915,107	144,998,404	140,272,154		

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NGSA	line Cost
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Trunkline Gas Company, LLC

Account 495						p. 308
Value of excess fuel retained	0	0	0	0	0	
Penalty revenues	0	0	0	0	0	
Gains on settlements of imbalances	0	01	01	0	0	
Total non-cost of service revenues	0	0	0	0	0	
Cost of Debt	8.25%	8.25%	8.25%	8.25%	6.98%	9 218
Allowed Rate of Return on Equity	12.56%	12.56%	12.56%	12.56%	11.96%	p. 218
Account 496 - Provision for Bate Refunde	c	c	C	-,0	C	
to a consider to the relation		0	0	0	T)	

Pipeline Cost Model

Trunkline Gas Company, LLC

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O I V	and Dating on Date Bone	Year End 2013	Year End 2014	Year End 2015	Year End 2016	Year End 2017
É	Allowed Neturn on Nate base Capitalization					
	Debt	40.00%	40.00%	40.00%	40.00%	43.36%
	Equity	%00.09	%00.09	%00.09	%00.09	56.64% ***
	Return on Debt	3.30%	3.30%	3.30%	330%	3 03%
	Return on Equity	7.54%	7.54%	7.54%	7.54%	6 77%
	Total Return	10.84%	10.84%	10.84%	10.84%	9.80%
Rat	Rate Base					
	Gas Plant in Service	1,403,106,615	1,420,086,390	1,365,407,682	1,376,890,098	1,442,474,224
	Gas Stored - Noncurrent	42,131,376	42,131,376	42,131,376	42,131,376	42,131,376
	Accumulated Depreciation	-766,272,506	-783,484,764	-719,803,066	-734,483,107	-753,496,793
	Working Capital	6,729,079	10,741,485	15,171,899	16,653,195	17,351,489
	ADIT	-159,721,223	-160,557,283	-176,216,748	-187,379,043	-133,999,600
	Regulatory Assets	9,923,867	10,185,747	10,523,282	12,279,766	12,576,343
	Regulatory Liabilities	-20,902,756	-24,845,968	-25,683,713	-27,720,090	-105,019,965
	Total Rate Base	514,994,452	514,256,983	511,530,712	498,372,195	522,017,074
Co	Cost of Service					
	Return	55,804,799	55,724,887	55,429,468	54,003,611	51,161,181
	Federal Income Tax 38,89%	15,092,771	15,071,158	14,991,260	14,605,628	13,751,962
	State Income Tax 10,98%	1,656,991	1,654,618	1,645,846	1,603,509	1,509,787
	Other Taxes	11,847,871	10,723,558	6,431,716	8,669,494	9,409,963
	Depreciation	24,037,474	24,353,344	25,402,816	24,190,026	24,835,475
	O&M	36,288,539	38,773,129	42,075,313	32,487,098	34,914,082
	A&G	16,353,045	15,237,440	20,046,672	16,611,696	13,909,049
	Total Cost of Service	161,081,489	161,538,134	166,023,091	152,171,062	149,491,500
	Total Revenues Non-Cost of Service Revenues	170,785,887	167,283,638	156,915,107 0	144,998,404	140,272,154
	Cost Over (Under) Recovery Over (Under) Recovery excl. non-COS rev	9,704,398	5,745,504	-9,107,984	-7,172,658 -7,172,658	-9,219,346 -9,219,346
	Actual rate of return on equity *	14.69%	13.82%	10.55%	10.94%	9.85%

^{* [[}Line 24 - (Line 24 *(.3889/(1+.3889)])-(Line 24 * (State Income Tax Percentage * .3889)]]+[Line 14*(Line 4/Line 5)]] / Line 13 * Line 2

^{**} Includes deferred income tax adjustment as recorded by the pipeline as a result of U.S. Tax Reform Legislation of 2017.
*** NGSA uses an estimated 60 percent equity capitalization rate instead of Trunkline's reported greater than 85% equity ratios in the Form 2s from 2013-2016. Above 85% equity is not within a range FERC has historically approved.

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