

December 1, 2017

Daniel P. Wolf Executive Secretary Minnesota Public Utilities Commission 121 7th Place East, Suite 350 St. Paul, Minnesota 55101

RE: Comments of the Minnesota Department of Commerce, Division of Energy Resources
Docket No. E,G002/S-17-767

Dear Mr. Wolf:

Attached are the comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter:

Petition of Northern States Power Company for Approval of Capital Structure for Issuance of Long-Term and Short-Term Securities for 2018.

The petition was filed on October 26, 2017 by:

Brian J. Van Abel Vice President and Treasurer Xcel Energy Services Inc. 414 Nicollet Mall (401 – 4th Floor) Minneapolis, MN 55401.

The Department recommends **approval with modifications** and is available to respond to any questions the Minnesota Public Utilities Commission may have.

Sincerely,

/s/ STEPHEN COLLINS
Rates Analyst

SC/lt Attachment



Before the Minnesota Public Utilities Commission

Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. E,G002/S-17-767

I. INTRODUCTION

On September 26, 2017, Minnesota corporation Northern States Power Company (NSP-MN¹ or the Company) filed a petition regarding its 2018 capital structure. The petition requests that the Minnesota Public Utilities Commission (Commission) do the following by February 16, 2018:

- Approve NSP-MN's proposed 2018 capital structure (including total capitalization), effective until the Commission approves NSP-MN's 2019 capital structure;
- Continue to allow NSP-MN to issue securities, provided NSP-MN's capital structure does not go outside approved levels for more than 60 days;
- Continue to allow NSP-MN to use risk management instruments that qualify for hedge accounting treatment;
- Continue to allow NSP-MN to treat borrowing under multi-year credit agreements as short-term debt, by varying Minn. Rules 7825.1000, subp. 6;
- Grant NSP-MN the discretion to enter into financings to replace outstanding long-term debt instruments with less expensive securities after considering the debt issuance expenses and amortization of redemption premiums; and
- Grant NSP-MN the discretion to enter into tax-exempt financings for pollution control construction programs.

On November 10, 2017, NSP-MN filed a supplement with additional information.

II. DEPARTMENT ANALYSIS

The Minnesota Department of Commerce, Division of Energy Resources (Department) provides background information, reviews the completeness of NSP-MN's petition, reviews NSP-MN's

¹ There is another Northern States Power incorporated in Wisconsin; hence the Department uses the shorthand "NSP-MN" instead of only "NSP."

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compliance with ongoing requirements related to the security issuances, and analyzes each of NSP-MN's requests.

A. BACKGROUND

NSP-MN is a utility providing electricity to about 1.5 million customers in Minnesota, North Dakota, and South Dakota and natural gas to about 0.5 million customers in Minnesota and North Dakota. NSP-MN is a wholly owned subsidiary of Xcel Energy Inc. (XEI), but has its own capital structure and issues its own debt securities. (NSP-MN does not issue its own equity securities and instead receives equity infusions from XEI.) NSP-MN currently maintains a credit rating of A- from Standard & Poor's (S&P), several notches above the investment-grade minimum of BBB-.

To issue securities, NSP-MN needs approval under Minn. Stat. § 216B.49 and approval of its capital structure per Minn. Rules 7825.1100. Upon issuing securities, NSP-MN must then typically remain within the approved capital structure.

NSP-MN is also required to request approval of its capital structure each year through annual capital structure filings.² Therefore, NSP-MN's annual capital structure filing must also request approval to issue securities any time NSP-MN intends to issue securities during the period the capital structure will be in effect.

Because NSP-MN intends to issue securities during the 2018 capital-structure period, NSP-MN has submitted a petition requesting both authorization to issue securities and approval of its 2018 capital structure. The Commission approved NSP-MN's most recent capital structure and security issuances in an Order issued on March 21, 2017 in Docket No. E,G002/S-16-887, with the capital structure effective until the Commission issues its Order regarding NSP-MN's 2018 capital structure (in this docket).

B. COMPLETENESS OF NSP-MN'S PETITION

NSP-MN's capital-structure/security-issuance filings must comply with a multitude of reporting requirements from Minnesota Administrative Rules and prior Commission Orders, summarized in Attachment 1 to these comments. The Department has reviewed NSP-MN's petition, including the supplement, and concludes that it complies with all applicable reporting requirements.

² Order Approving Capital Structure with Limitations issued January 13, 2003 in Docket No. E,G002/S-02-1907.

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C. ONGOING COMPLIANCE REQUIREMENTS

NSP-MN must comply with a variety of ongoing compliance requirements related to its capital structure and security issuances, summarized in the table below. The Department concludes that NSP-MN continues to comply with these requirements.

Table 1: Ongoing Compliance Requirements related to NSP-MN's Capital Structure and Security Issuances

Source	Requirement
7-9-2004 Order in	NSP-MN must not use the Utility Money Pool if it can borrow directly
E,G002/AI-04-100	from a bank or other financial institution at a lower rate.
	NSP-MN can lend to the Utility Money Pool only if the returns on
	investment are equal to or greater than returns NSP-MN could have
	received elsewhere.
1-13-2003 Order in	File capital structures annually.
E,G002/S-02-1907	Encumber no utility property in Minnesota for purposes other than
	operating the utility, and use no Minnesota property for non-utility
	purposes.
	Make no inter-company loans to Xcel Energy Inc.

D. APPROVE NSP-MN'S PROPOSED 2018 CAPITAL STRUCTURE, EFFECTIVE UNTIL THE COMMISSION ISSUES ITS ORDER REGARDING NSP-MN'S 2019 CAPITAL STRUCTURE?

NSP-MN's requested 2018 capital structure consists of a limit on total capitalization of \$11.5 billion, with 47.07% to 57.53% of capital to be financed by common equity and up to 15% financed by short-term debt (with the remainder financed by long-term debt). NSP-MN also requests that the Commission make the approval effective until the Commission issues its Order regarding NSP-MN's 2019 capital structure. The Department reviews these requests, in turn.

1. Total Capitalization

NSP-MN's requested limit on total capitalization of \$11.5 billion is equal to NSP-MN's expected capitalization of \$10.978 million plus a cushion of \$0.522 billion in case NSP-MN needs more capital than expected. The request is \$0.3 billion more than the \$11.2 billion limit approved for 2017 due to NSP-MN expecting to spend more on capital this year. The Department concludes that NSP-MN's limit is reasonable, as NSP-MN needs Commission approval to actually recover the money spent and hence has no incentive to issue more securities than necessary.

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2. Common Equity Ratio

NSP-MN's requested common equity ratio of 47.07% to 57.53% is a ±10 percent (not percentage point) range around a midpoint of 52.3%.³ The Department first reviews NSP-MN's requested midpoint of 52.3% and then reviews the ±10 percent range.

The Department concludes that NSP-MN's proposed midpoint is reasonable, for the following reasons. NSP-MN's requested midpoint of 52.3% is 0.2 percentage points higher than NSP-MN's actual equity ratio as of June 30, 2017 of 52.1%. As over the past year NSP-MN has avoided financial distress and maintained a long-term issuer rating of A- from S&P, NSP-MN's proposed midpoint does not appear too low as to unduly risk financial distress or harm NSP-MN's ability to access capital on reasonable terms. NSP-MN's proposed midpoint also does not appear too high as to insufficiently take advantage of the benefits of debt financing, as it is slightly lower than the 52.7% median equity ratio of other U.S. investment-grade (BBB- or higher by S&P) subsidiary-level primarily electric (SIC Code 4931) utilities, as shown in the table below. Therefore, the Department recommends approval of NSP-MN's requested equity-ratio midpoint.

Table 2: Equity Ratios of Comparison Group

Company	State	Rating	Ratio
WI Electric Power	WI	A-	38.5%
PSCO of NM	NM	BBB+	45.4%
Rochester G&E	NY	A-	46.2%
Puget Sound Energy	WA	BBB	46.6%
So. Carol. Elec & Gas	SC	BBB	47.2%
ConEd	NY	A-	48.3%
Sierra Pacific Power	NV	Α	49.0%
Consumers Energy	MI	BBB+	49.1%
Entergy New Orleans	LA	BBB+	49.9%
PG&E	CA	A-	50.4%
Central Hudson G&E	NY	A-	50.7%
WI Power & Light	WI	Α	51.0%
WI Public Service	WI	A-	52.6%
PSEG	NJ	BBB+	52.7%

Company	State	Rating	Ratio
NSP-WI	WI	A-	52.9%
IP&L	IA	A-	53.2%
Duke Energy KY	ОН	A-	53.4%
Ameren Illinois	IL	BBB+	53.5%
SDG&E	CA	Α	53.8%
MidAm. Energy	IA	Α	54.0%
Tampa Electric	FL	BBB+	54.2%
PSCO of Colorado	СО	A-	54.8%
PECO Energy	PA	BBB	55.3%
Madison G&E	WI	AA-	55.7%
MidAm. Funding LLC	IA	Α	56.1%
Louisville G&E	KY	A-	58.1%
Duke Energy Ohio	ОН	A-	61.2%

Source: Compustat

³ Ten percent of 52.3% is 5.23%. 52.3% minus 5.23% equals 47.07% and 52.3% plus 5.23% equals 57.53%.

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Regarding the ±10 percent range, it has been in place for over a decade and appears to have worked well during that time. Therefore, the range has historically served its purpose of providing NSP-MN with adequate short-term financial flexibility while not unduly risking harm to ratepayers. Particularly as NSP-MN has maintained an actual equity ratio within the midpoint of this range, the Department sees no reason for a change in course and therefore recommends that the Commission continue to approve the ±10 percent range.

3. Short-Term Debt Ratio

Like the ±10 percent range, the 15% cap on short-term debt—which has also been in effect for over a decade—has historically worked to serve its purpose of providing NSP-MN with adequate short-term financial flexibility while not unduly risking harm to ratepayers. Particularly as last year NSP-MN maintained an actual short-term debt ratio of only 1.7% and continues to be rated as investment grade, the Department sees no reason for a change in course and therefore recommends that the Commission continue to approve the 15% cap.

4. Duration of Approval

NSP-MN requests that the Commission's approval of NSP-MN's capital structure be effective until the Commission issues an Order regarding NSP-MN's 2019 capital structure. The Department views this request as reasonable, particularly as the Commission authorized the same timing structure for NSP-MN's 2017 capital structure (*i.e.*, it is effective until the Commission issues an Order regarding NSP-MN's 2018 capital structure in the instant docket). The request is also consistent with the timing requirements in Minn. Rules 7825.1100.⁴ For these reasons, the Department recommends that the Commission approve NSP-MN's requested effective length.

E. CONTINUE TO ALLOW NSP-MN TO ISSUE SECURITIES, PROVIDED NSP-MN REMAINS WITHIN THE APPROVED CAPITAL STRUCTURE?

NSP-MN requests that the Commission allow NSP-MN to issue securities, as long as NSP-MN's capital structure does not go outside approved levels for more than 60 days without NSP-MN notifying the Commission. NSP-MN needs approval of this request because NSP-MN anticipates issuing debt securities to help finance its 2018 construction spending, fund ongoing operations, and provide loans to one of NSP-MN's wholly owned subsidiaries, NSP Nuclear Corporation.

⁴ Minn. Rules 7825.1100 states in relevant part: "Commission Orders approving capital structure shall be effective for at least one year, unless otherwise stated, or until the petitioner requests modification or revision; or until the commission deems conditions affecting capital structure have changed sufficiently to warrant further review."

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As specified in Minn. Stat. § 216B.49, subd. 4, to approve a security issuance, the Commission must find that the issuance is the public interest, which requires that the types of capital issued (common equity, short-term debt, long-term debt, etc.) bear a reasonable proportion to each other and to the value of the property, and that the issuance not harm ratepayers. The Department concludes that NSP-MN's request will satisfy these criteria if modified to require Commission preapproval to exceed the 60-day grace period. Otherwise, NSP-MN would be able to go outside the bounds of its allowed capital structure for an indefinite amount of time without Commission approval. Therefore, the Department recommends that the Commission approve NSP-MN's request as modified to require preapproval.

F. CONTINUE TO ALLOW NSP-MN TO USE RISK-MANAGEMENT INSTRUMENTS?

NSP-MN requests that the Commission continue to allow the Company to use risk management instruments that qualify for hedge accounting treatment under Accounting Standard Codification No. 815, such as interest rate swaps, in compliance with the policies of NSP-MN's parent company (XEI) and with required officer approvals. It appears that NSP-MN would primarily or exclusively use such instruments to hedge against the risk of changing interest rates.

The Department agrees with NSP-MN that risk-management instruments such as interest rate swaps can benefit ratepayers as long as NSP-MN follows prudent corporate guidelines in its usage of such instruments and allows the Commission sufficient oversight, which is achieved through the Department's recommended risk-management reporting requirement discussed later in these comments. Therefore, the Department recommends that the Commission approve NSP-MN's request.

G. CONTINUE TO ALLOW NSP-MN TO TREAT BORROWING UNDER MULTI-YEAR CREDIT AGREEMENTS AS SHORT-TERM DEBT, BY VARYING MINN. RULES 7825.1000, SUBP. 6?

NSP-MN requests to classify direct borrowings under any multi-year credit agreements as short-term debt. Because Minn. Rules part 7825.1000, subpart 6 defines short-term securities as those with a date of maturity of no more than one year, to classify multi-year credit agreements as short-term debt, NSP-MN needs the Commission to vary Minn. Rules 7825.1000, subp. 6.

To vary its rules, the Commission must determine, per Minn. Rules 7829.3200, subp. 1, that three requirements are met:

- 1. Enforcement of the rule would impose an excessive burden upon the applicant or others affected by the rule,
- 2. Granting the variance would not adversely affect the public interest, and

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3. Granting the variance would not conflict with standards imposed by law.

The Department agrees with NSP-MN that these requirements are met. NSP-MN's current multi-year credit agreement resembles traditional short-term debt instruments and classifying multi-year credit agreements as long-debt could cause credit-rating agencies to react unfavorably, thus imposing an excessive burden on NSP-MN and hurting ratepayers. In addition, classifying multi-year credit agreements as short-term debt would not conflict with any standards imposed by law. Therefore, the Department recommends that the Commission continue to vary Minn. Rules 7825.1000, subp. 6, and allow NSP-MN to treat borrowing under multi-year credit agreements as short-term debt. (The Commissions has made the same variance and allowance for all approvals of NSP-MN's capital structure since 2005.)

H. ALLOW NSP-MN TO ENTER INTO CERTAIN OTHER FINANCINGS?

NSP-MN requests that the Commission allow the Company to enter into two types of financings that NSP-MN is currently exploring as a possibility: financings to replace outstanding long-term debt instruments with less expensive securities, and tax-exempt financings for pollution-control construction programs. As both types of financings would reduce costs to ratepayers, the Department recommends that the Commission grant NSP-MN's request. However, to ensure adequate oversight, the Department also recommends that the Commission require NSP-MN's next capital structure filing to report on such financings and their impact on ratepayers.

I. ADDITIONAL PERMANENT REPORTING REQUIREMENTS

The Department recommends that the Commission require NSP-MN to provide the following information in all future NSP-MN capital-structure filings (the following information is already provided in NSP-MN's filings, but is not required indefinitely into the future by any Order):

- A schedule showing, for various time periods, the planned investment for each project;
- A summary of NSP-MN's activity in the Utility Money Pool; and
- Regarding NSP-MN's use of multi-year credit agreements, a discussion detailing how
 often they are used, the amount involved, rates and financing costs, the intended uses
 of the financing, and, for any period in which NSP-MN sells bonds, a comparison over a
 six-month period of the results of all bond issuances by other utilities.

To ensure appropriate oversight of NSP-MN's use of risk-management instruments, the Department also recommends that the Commission require all future NSP-MN capital-structure filings to include a summary of NSP-MN's use of risk-management instruments and the resulting effect on ratepayers.

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To ensure compliance with Order Points 1 and 2 of the Commission's July 9, 2004 Order in E,G002/AI-04-100, the Department recommends that the Commission require all future NSP-MN capital structure filings to include a comparison of the borrowing and lending interest rates from the money pool to alternative interest rates, such as that provided in NSP-MN's response to Department Information Request (IR) No. 2, shown in Attachment 2 to these comments.

Last, to protect ratepayers, the Department recommends that all future NSP-MN capital-structure filings provide evidence to demonstrate that any bond issuances over the preceding year were cost competitive, including at a minimum a detailed comparative analysis to other bond issuances, such as that provided in NSP-MN's response to Department IR No. 1(c), which is provided as Attachment 3 to these comments.

III. DEPARTMENT RECOMMENDATION

The Department recommends that the Commission:

- Approve NSP-MN's requested 2018 capital structure (including total capitalization) effective until the Commission approves NSP-MN's 2019 capital structure;
- Allow NSP-MN's to issue securities provided that the Company remains within the approved capital structure or does not go outside the approved capital structure for more than 60 days without the Commission's preapproval;
- Continue to allow NSP-MN to use risk-management instruments that qualify for hedge accounting treatment under Accounting Standard Codification No. 815;
- Continue to allow NSP-MN to treat borrowing under multi-year credit agreements as short-term debt, by varying Minn. Rules part 7825.1000, subpart 6;
- Allow NSP-MN to enter into financings to replace outstanding long-term debt instruments with less expensive securities, and tax-exempt financings for pollutioncontrol construction programs, provided NSP-MN's next capital structure filing reports on any such financings entered into and their effect on ratepayers.
- Require NSP-MN to report the information described in section II.I (Additional Permanent Reporting Requirements) of these comments in all future capital-structure filings.

Source	Reporting Requirement
1-13-2003 Order in	More specific explanations of the purpose for the security issuances than the explanation that funds will be used for "general corporate purposes."
E,G002/S-02-1907	
	Address the appropriate cost of capital to apply to filings for the next 12 months.
5-12-2009 Order in	An exhibit providing a general projection of capital needs, projected expenditures, anticipated sources, and anticipated timing, with the understanding that so
E,G999/CI-08-1416	exhibit is not intended to require dollar-for-dollar on the uses identified in the exhibit or to limit issuances to project-specific financing. The exhibit need not
	short-term, recurring security issuances. A report of actual issuances and uses of the funds from the prior year. The report will be for information purposes only and need not cover short-term,
	recurring security issuances.
	Within 20 days of each non-recurring security issuance, an after-the-fact report, filed for information purposes only, providing the following information: 1) tl
	type of security issued; 2) the total amount issued; 3) the purpose of the issuance; 4) the issuance cost associated with the security issuance; and 5) the total
	cost of the security issuance, including details such as interest rate or cost per share of common equity issued.
6.2.2014 Order in	Described Ved Francy has not made any ENIC (exempt wholesale consistent and/or ENICO (foreign utility company) investments the Company may simply not
6-3-2014 Order in E002/M-00-1553	Provided Xcel Energy has not made any EWG (exempt wholesale generator) and/or FUCO (foreign utility company) investments, the Company may simply not in its annual capital structure filing that it does not have any EWG and/or FUCO investments. If it does have EWG and/or FUCO investments, then it must
L002/W-00-1333	continue to provide the previously required information.
3-21-17 Order in	A schedule showing, for various time periods, the planned investment for each project.
E,G002/S-16-887 (Req.	A report on NSP-MN's use of multi-year credit agreements, including how ofen they are used, the amount involved, rates and financing costs, the intended us
Not Permanent)	of the financing, and, for any period in which Xcel sells bonds, a comparison over a six-month period of the results of all bond issuances by other utilities.
Minn. Rules 7825.1300	A cash-flow statement by month showing the most recent available 21 months actual data and forecasted data to the end of the period encompassed by the
	petition, filed on forms prescribed by the commission, with a descriptive summary of the assumptions made in the developments in the cash-flow statement
Minn. Rules 7825.1400	(this requirement only applies to petitions to issue short-term securities)
Willin: Naics 7023.1400	B. A table of contents.
	C. The exact name of the petitioner and address of its principal business office.
	D. Name, address, and telephone number of the person authorized to receive notices and communications with respect to the petition.
	E. A verified statement by a responsible officer of the petitioner attesting to the accuracy and completeness of the enclosed information.
	F. The purpose for which the securities are to be issued.
	G. Copies of resolutions by the directors authorizing the petition for the issue or assumption of liability in respect to which the petition is made; and if approved the stackholders that have a have a photography and copies of the resolution of the stackholders shall be furnished.
	of stockholders has been obtained, copies of the resolution of the stockholders shall be furnished. H. A statement as to whether, at the time of filing of the petition, the petitioner knows of any person who is an "affiliated interest" within the meaning of
	Minnesota Statutes, section 216B.48, subdivision 1, who has received or is entitled to receive a fee for services in connection with the negotiations or
	consummation of the issuance of the securities, or for services in securing underwriters, sellers, or purchasers of the securities.
	I. A signed copy of the opinion of counsel In respect to the legality of the issue or assumption of liability.
	J. A balance sheet dated no earlier than six months prior to the date of the petition together with an income statement and statement of changes in financia
	position covering the 12 months then ended. When the petitions include long-term securities, such statements shall show the effects of the issuance on such
	balance sheet and income statement. K. A description of the security or securities to be issued.
	L. An estimate of the interest or dividend cost per \$100 principal amount, except in the case of common stock, and a description of any anticipated terms or
	indenture provisions.
	M. If the petitioner is a corporation, a copy of its current articles of incorporation certified by the secretary of state of incorporation. If the current articles his
	already been filed, the petitioner need only make specific reference to such filings.
	N(1). The amount and kinds of stock authorized by articles of incorporation and amount outstanding.
	N(2). The terms of preference of preferred stock, whether cumulative or participating, or on dividends or assets, or otherwise.
	N(3). A brief description of each security agreement, mortgage, and deed of trust upon petitioner's property, showing date of execution, debtor, and secured party, mortgagor and mortgagee and trustor and beneficiary, amount of indebtedness authorized to be secured thereby, and amount of indebtedness actual
	secured, together with any sinking fund provision.
	N(4). The amount of bonds authorized and issued that exceed one percent of total debt giving the name of the public utility which issued same, describing each
	class separately, and giving the date of issue, par value, rate of interest, date of maturity, and how secured, together with the amount of interest paid thereo
	during the last fiscal year.
	N(5). Each note outstanding with a maturity of more than one year and which exceeds one percent of total debt, giving the date of issue, the amount, the da
	of maturity, the rate of interest, in whose favor, together with the amount of interest paid thereon during the last fiscal year.
	N/G). Other indehtedness with a maturity of more than one year, by class tagether with the amount of interest poid thereon during the last first than
	N(6). Other indebtedness with a maturity of more than one year, by class, together with the amount of interest paid thereon during the last fiscal year.
	N(7). The rate and amount of dividends paid during the five previous fiscal years.
	O. A statement of the manner in which such securities will be issued; and if invitations for sealed written proposals (competitive bidding) are not anticipated,
	explanation of the decision not to invite such proposals shall be submitted.
	P. A copy of each plan, offer, or agreement for the reorganization or readjustment of indebtedness or capitalization or for the retirement or exchange of
	securities.
	R. Such additional information that the staff or commission may require In a particular case.
Minn Pules 7925 1500	S. If a filing requirement does not apply, it shall be so stated with an explanation why it does not apply. A. A copy of the final registration statement, if any, and financial exhibits made a part thereof, filed with the Securities and Exchange Commission in accordance.
IVIIIII. Nuies /625.1500	A. A copy of the final registration statement, if any, and financial exhibits made a part thereof, filed with the Securities and Exchange Commission in accordal with the Securities Act of 1933.
	B. If an invitation for sealed written public proposals for the purchase or underwriting of such securities has been made, a summary of the terms of the
	proposals received, including the name of each bidder or representative of a bidding group, the interest or dividend rate specified, where applicable, the pric
	to be paid the issuer per unit or \$100 principal amount, the cost of money to the issuer, except in the case of common stock, the name of the successful bidd
	and the successful bidder's initial public offering price and the resulting yield to the public, except in the case of common stock.

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Department Attachment 2, page 1 of 2
NSP-MN's Response to Department IR No. 2

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☐ Public Document – Not Public (Or Privileged) Data Has Been Excised

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☒ Public Document

Xcel Energy

Docket No.: E,G002/S-17-767

Response To: Department of Commerce Information Request No.

Requestor: Stephen Collins

Date Received: November 9, 2017

Question:

Please demonstrate compliance with Order Points 1 and 2 from the Commission's July 9, 2004 Order in E,G002/AI-04-100.

Response:

Order Point No. 1 of the referenced Order requires that the Company not use the Utility Money Pool if it can borrow directly from a bank or other financial institution at a lower rate. Order Point No. 2 requires that Xcel Energy lend to the Utility money Pool only if the returns on investment are equal to or greater than returns it could have received elsewhere.

In the present Petition, we provided a September 2016 to August 2017 summary of Utility Money Pool activity as Attachment E. We did not however, provide comparative borrowing or investment interest rate information for the period. We provide this additional information as Attachment A to this response.

Preparer: Eric Gray

Title: Director, Cash Management

Department: Treasury

Telephone: 612-215-5363

Date: November 20, 2017

_	y Money Pool <u>Borrowir</u> September 2016 Throu		7
Date	Average Amount Outstanding	Actual Interest Rate	Alternative Interest Rate (1)
2016			
Sep.	\$0	0.0000%	3.5000%
Oct	\$0	0.0000%	3.5000%
Nov	\$0	0.0000%	3.5000%
Dec	\$354,839	0.9475%	3.7500%
2017			
Jan	\$0	0.0000%	3.7500%
Feb	\$448,276	0.9069%	3.7500%
Mar	\$387,097	0.9481%	4.0000%
Apr	\$333,333	1.1225%	4.0000%
May	\$0	0.0000%	4.0000%
Jun	\$5,566,667	1.2236%	4.2500%
Jul	\$2,322,581	1.1000%	4.2500%
Aug	\$5,290,323	1.1100%	4.2500%

·	y Money Pool <u>Investn</u> September 2016 Thro		017
	Average Amount	Actual Interest	Alternative Interest
Date	Outstanding	Rate	Rate (2)
<u>2016</u>			
Sep.	\$1,733,333	0.6572%	0.2500%
Oct	\$6,080,645	0.6233%	0.2500%
Nov	\$3,583,333	0.6300%	0.2500%
Dec	\$1,870,968	0.9475%	0.2500%
<u>2017</u>			
Jan	\$0	0.0000%	0.5000%
Feb	\$645,161	0.9069%	0.5000%
Mar	\$2,161,290	0.9481%	0.6200%
Apr	\$1,129,032	1.1225%	0.6200%
May	\$0	0.0000%	0.6200%
Jun	\$0	0.0000%	0.6200%
Jul	\$0	0.0000%	0.7500%
Aug	\$0	0.0000%	0.7500%

- (1) NSPM's short-term alternative interest rate is based on the on-demand overnight borrowing rate from the banks in the credit agreement.
- (2) Rate is from the bank sweep account. Overnight sweep accounts are standard in the treasury management field and are designed to provide investment options for earning a return on funds that would otherwise be sitting idle in a non-interest bearing checking account.

Department Attachment 3, NSP-MN's Response to Department	. •	
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		ileged) Data Has Been Excised
☑ Public Do	cument	<i>C</i> ,
Xcel Energy		
Docket No.:	E,G002/S-17-767	
Response To:	Department of Commerce	Information Request No.
Requestor:	Stephen Collins	
Date Received:	November 9, 2017	

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Question:

Docket No. E,G002/S-17-667

- (a) Page 13 of the petition states that NSP-MN may issue preferred stock. However, page 7 of the petition requests a capital structure with only common equity and no preferred equity. How would it be possible to issue preferred stock and stay within a capital structure that has no preferred equity?
- (b) Please provide a transaction overview for the \$600M long-term debt issuance in 2017 using a similar format to the transaction overview provided in Attachment I, part 3A of last year's petition. (It appears that NSP-MN intended to provide an overview of the \$600M issuance as Attachment I part 3 of this year's petition, but instead provided an overview of the \$350M issuance from last year.)
- (c) Please provide evidence to support the statement on page 2 of Attachment L of the petition that "the bond pricing is consistent with other utility transactions with similar credit ratings and bond terms." At a minimum, ensure your response includes a comparative analysis using the same methodology and format used in Attachment I, part 3B of last year's petition (such analysis was not in this year's petition).

Response:

(a) Our annual capital structure Petition seeks authorization for security issuances. Attachment B of our Petition provides a 2018 forecasted capitalization of \$11.5 billion including contingency and a consolidated equity ratio of 52.3 percent, which was based on information we had at the time of the filing. Attachment B is consistent with our actual GAAP capital structure in 2017 and illustrates what we expect our GAAP capital structure to be during 2018. However, the capital structure outlined in Attachment B would not preclude us from issuing other securities requested in the Petition, such as mandatorilyDocket No. E,G002/S-17-667 Department Attachment 3, page 2 of 7 NSP-MN's Response to Department IR No. 1(c)

redeemable preferred securities of a subsidiary trust that NSPM has issued previously, or Preferred stock that NSPM has also issued before.

Our Petition seeks authorization to operate within the parameters of \$11.5 billion capitalization, a GAAP equity ratio range of 47.07 percent to 57.53 percent, and short-term debt that does not exceed 15 percent of total capitalization. We believe flexibility to enter into various securities agreements (preferred, guarantees, tax exempt bonds) – even though we may never issue them – is beneficial to customers, because we may be able to take advantage of something favorable if the opportunity presents itself.

- (b) Attachment A to this response provides an overview of the 2017 NSPM \$600 million bond transaction. We inadvertently included a transaction overview for a different, previously-reported bond issuance as Attachment I, Part 3A to the Petition. We apologize for this oversight. In addition to providing the correct transaction overview with this response, we also noted our error and included the overview for the \$600 million transaction in our November 10, 2017 Supplement filing with the Commission in the present docket.
- (c) Attachment B to this response provides bond offerings from January 2017 through September 2017. Please see the first worksheet tab "30 Year Secured Opco," for the bonds issued comparable to NSPM. Please note that this information is from an external source, and may not always be readily available to the Company.

Preparer: Mary Schell

Title: Director, Financial Policy

Department: Treasury

Telephone: 612-215-5362

Date: November 20, 2017

,	s issued January 1, 2017 through	. Сорго		,	•												
year Secured U	tility Bonds																
Date	Issuer	Moody's		Sec / FMB	Amount (\$MM)	Coupon	Maturity	IPTs	Guidance	IPTs to Pricing	Issue Spread	NIC	Book Size	Fixed / Float	Tenor	Security	Rating Buc
18-Sep-17	Oncor Electric Delivery Company	A3 /	/ A	FIVID ✓	325	3.800%	30-Sep-47	+115a	+100a (+/- 5)	-15 bps	+100 bps	NIC	3.0x	Fixed	30	Secured Opco	A A
1-Sep-17	PECO Energy Company	Aa3	/ A-	1	325	3.700%	15-Sep-47	+115a	+100a (+/- 2)		+98 bps	+3 bps	2.7x	Fixed	30	Secured Opco	AA
6-Sep-17	Northern States Power Company	Aa3	/ A		600	3.600%	15-Sep-47	+105a	+95a (+/- 2)	-12 bps	+93 bps	+8 bps	1.7x	Fixed	30	Secured Opco	AA
6-Sep-17	Northwest Natural Gas Company	A1 /	/ AA-		75	3.685%	13-Sep-47	+110a	-	-10 bps	+100 bps		2.0x	Fixed	30	Secured Opco	AA
5-Sep-17	Duke Energy Progress LLC	Aa3	/ A	· /	500	3.600%	15-Sep-47	+110a	+95a (+/- 3)	-18 bps	+92 bps	+2 bps	1.7x	Fixed	30	Secured Opco	AA
5-Sep-17	Southern California Edison	Aa3	/ A	· /	300	4.000%	01-Apr-47	+100a	+90a (+/-	-10 bps	+92 bps	+5 bps	2.3x	Fixed	30	Secured Opco	AA
6-Aug-17	Commonwealth Edison Company	A1 /	/ A-		650	3.750%	15-Aug-47	+105-110	+98a (+/- 3)	-12.5	+95 bps	+3 bps	1.8x	Fixed	30	Secured Opco	A
3-Aug-17	Connecticut Light & Power	A2 /	/ A+		225	4.300%	15-Apr-44	+100-105	+85#	-18 bps	+85 bps		3.3x	Fixed	30	Secured Opco	A
2-Aug-17	Southwestern Public Service	A2 /	/ A		450	3.700%	15-Aug-47	+105a	+90a (+/- 2)	-17 bps	+88 bps		3.3x	Fixed	30	Secured Opco	A
31-Jul-17	DTE Electric Company	Aa3	/ A		440	3.750%	15-Aug-47	+105a	+87.5a (+/-	-20 bps	+85 bps		3.2x	Fixed	30	Secured Opco	AA
2-Jun-17	Public Service Company of	A1 /	/ A		400	3.800%	15-Jun-47	+115a	+95-100	-20 bps	+95 bps		3.1x	Fixed	30	Secured Opco	A
5-Jun-17	San Diego Gas & Electric	Aa2	/ A+		400	3.750%	01-Jun-47	+115a	+95a (+/- 2)	-22 bps	+93 bps	-2 bps	3.8x	Fixed	30	Secured Opco	AA
5-May-17	Potomac Electric Power Company	A2 /	/ A		200	4.150%	15-Mar-43	+110a	1334 (17 2)	-10 bps	+100 bps	+3 bps	1.8x	Fixed	30	Secured Opco	A
-May-17	PPL Electric Utilities Corp	A1 /	/ A		475	3.950%	01-Jun-47	+115a	+100a (+/- 2)	-10 bps	+98 bps		2.9x	Fixed	30	Secured Opco	A
2-Mar-17	Duke Energy Ohio, Inc.*	A2 /	/ A		100	3.700%	15-Jun-46	+107a	+100a (+/- 2)	-17 bps	+107 bps	+4 bps	3.5x	Fixed	30	Secured Opco	A
I-Mar-17	Southern California Edison	Aa3	/ A		700	4.000%	01-Apr-47	+105-110	+95#	-12.5	+95 bps	+3 bps	1.6x	Fixed	30	Secured Opco	AA
5-Feb-17	Consumers Energy Company	A1 /	/ A	· /	350	3.950%	15-Jul-47	+110a	+90a (+/-	-22.5	+87.5 bps		4.1x	Fixed	30	Secured Opco	A
3-Jan-17	MidAmerican Energy Company***	Aa2	/ A+	· /	475	3.950%	02-Aug-47	+110-115	+100a (+/- 5)	-22.5	+95 bps	-5 bps	4.4x	Fixed	30	Secured Opco	AA
o dan 17	Mid/Midrical Energy Company	naz /	Α.		475	0.00070	OZ Nug 47	1110 113	11000 (17-5)	20 003	100 bp3	O DPS	7.77	TIXCU	50	Coodi od Opoo	, , ,
									All 30YR	Min	+85 bps						
										Max	+107 bps						
										Avg	+94 bps						
										-	•						
									Aa3/A only	Min	+85 bps						
										Max	+95 bps						
										Avg	+91 bps						

Date	Issuer	Moody' At Is	s / S&P ssue	Sec / FMB	Amount (\$MM)	Coupon	Maturity	IPTs	Guidance	IPTs to Pricing	Issue Spread	NIC	Bo Si
	AEP Transmission Co LLC *		/ A-		125	3.100%	01-Dec-26	+95a	+80a (+/- 3)	-18 bps	+77 bps	-6 bps	6.
	AEP Transmission Co LLC		/ A-		500	3.750%	01-Dec-47	+115a	+103a (+/- 3)	-15 bps	+100 bps	+3 bps	2.
9-Sep-17			/ A-		400	2.400%	01-Oct-22	+80a	+65a (+/- 5)	-20 bps	+60 bps		2.
	AEP Texas Inc.		/ A-		300	3.800%	01-Oct-47	+125a	+110a (+/- 5)	-20 bps	+105 bps		3.
8-Sep-17	Oncor Electric Delivery Company Washington Gas Light Company *		/ A	✓	325 200	3.800% 3.796%	30-Sep-47	+115a +125a	+100a (+/- 5)	-15 bps	+100 bps	 12 hnc	3.
3-Sep-17 1-Sep-17	Virginia Electric & Power Company *		/ BBB+		200	2.750%	15-Sep-46 15-Mar-23	+125a +80-85		-15 bps	+110 bps +70 bps	+3 bps	1.
1-Sep-17	Virginia Electric & Power Company Virginia Electric & Power Company		/ BBB+		550	3.800%	15-Wai-23 15-Sep-47	+115-120		-7.5 bps	+110 bps	+10 bps	1.
1-Sep-17	PECO Energy Company		/ A-	✓	325	3.700%	15-Sep-47	+115a	+100a (+/- 2)	-17 bps	+98 bps	+3 bps	2.
6-Sep-17	Northern States Power Company (MN)	Aa3	/ A	· /	600	3.600%	15-Sep-47	+105a	+95a (+/- 2)	-12 bps	+93 bps	+8 bps	1.
S-Sep-17	PPL Capital Funding, Inc.		/ BBB+		500	4.000%	15-Sep-47	+150a	+135a (+/- 5)	-15 bps	+135 bps	+5 bps	2.
S-Sep-17	Arizona Public Service Company	A2	/ A-		300	2.950%	15-Sep-27	+100a	+90a (+/- 5)	-15 bps	+85 bps	+3 bps	2.
S-Sep-17	Northwest Natural Gas Company		/ AA-	✓	25	2.822%	13-Sep-27	+90a	- '	-15 bps	+75 bps		5.
6-Sep-17	Northwest Natural Gas Company	A1	/ AA-	✓	75	3.685%	13-Sep-47	+110a	-	-10 bps	+100 bps		2.
5-Sep-17	NiSource Finance Corp	Baa2	/ BBB+		750	3.950%	30-Mar-48	+145a	+130a (+/- 2)	-17 bps	+128 bps	-2 bps	2.
5-Sep-17	Pennsylvania Electric Company **	Baa1	/ BBB-		300	3.250%	15-Mar-28	+140a	+120a (+/- 2)	-22 bps	+118 bps		4.
5-Sep-17	Duke Energy Progress LLC	Aa3	/ A	✓	300	3mL+18	08-Sep-20	3mL+low 20s	3mL+20a (+/- 2)	-5 bps	+18 bps	-2 bps	1.
5-Sep-17	Duke Energy Progress LLC	Aa3	/ A	✓	500	3.600%	15-Sep-47	+110a	+95a (+/- 3)	-18 bps	+92 bps	+2 bps	1.
-Sep-17	Southern California Edison Company *	Aa3	/ A	✓	300	4.000%	01-Apr-47	+100a	+90a (+/- 2.5)	-10 bps	+90 bps	+5 bps	2.
1-Aug-17	Baltimore Gas & Electric	A3	/ A-		300	3.750%	15-Aug-47	+120a	+105a (+/- 2)	-17 bps	+103 bps	+3 bps	2.
1-Aug-17	CenterPoint Energy Resources Corp.	Baa2	/ A-		300	4.100%	01-Sep-47	+160-165	+140a (+/- 2.5)	-25 bps	+137.5 bps	+3 bps	5.
7-Aug-17	Edison International	A3	/ BBB		400	2.400%	15-Sep-22	+85-90	+75a (+/- 5)	-12.5 bps	+70 bps		4.
6-Aug-17	Commonwealth Edison Company	A1	/ A-	✓	350	2.950%	15-Aug-27	+85-90	+78a (+/- 3)	-12.5 bps	+75 bps	+2 bps	2.
6-Aug-17	Commonwealth Edison Company	A1	/ A-	✓	650	3.750%	15-Aug-47	+105-110	+98a (+/- 3)	-12.5 bps	+95 bps	+3 bps	1.
-Aug-17	Connecticut Light & Power Company *	A2	/ A+	✓	225	4.300%	15-Apr-44	+100-105	+85#	-18 bps	+85 bps		3.
-Aug-17	Oklahoma Gas & Electric Company	A1	/ A-		300	3.850%	15-Aug-47	+110-115	+100a (+/- 2)	-13 bps	+100 bps	+4 bps	1.
-Aug-17	Duke Energy Corporation		/ BBB+		500	2.400%	15-Aug-22	+75a	+65a (+/- 2)	-12 bps	+63 bps	+7 bps	2.
-Aug-17	Duke Energy Corporation	Baa1	/ BBB+		750	3.150%	15-Aug-27	+105a	+95a (+/- 2)	-12 bps	+93 bps	+10 bps	2
-Aug-17	Duke Energy Corporation	Baa1	/ BBB+		500	3.950%	15-Aug-47	+125a	+115a (+/- 2)	-12 bps	+113 bps	+10 bps	3
-Aug-17	American Water Capital Corp.	A3	/ A		600	2.950%	01-Sep-27	+95a	+75a (+/- 2)	-22 bps	+73 bps	-6 bps	3
'-Aug-17	American Water Capital Corp.	A3	/ A		750	3.750%	01-Sep-47	+115a	+95a (+/- 2)	-22 bps	+93 bps	+2 bps	2
'-Aug-17	CenterPoint Energy Inc.	Baa1	/ BBB+		500	2.500%	01-Sep-22	+95a	+75a (+/- 2)	-25 bps	+70 bps	n/a	4
-Aug-17	Georgia Power Company	A3	/ A-		500	2.000%	08-Sep-20	+75a	+55a (+/- 2)	-22 bps	+53 bps	-4 bps	2
-Aug-17	Southwestern Public Service Company	A2	/ A	✓	450	3.700%	15-Aug-47	+105a	+90a (+/- 2)	-17 bps	+88 bps		3
1-Jul-17	DTE Electric Company	Aa3	/ A	✓	440	3.750%	15-Aug-47	+105a	+87.5a (+/- 2.5)	-20 bps	+85 bps		3
1-Jul-17	Boston Gas Company **	A3	/ A-		500	3.150%	01-Aug-27	+110a	+87-90	-23 bps	+87 bps	-7 bps	4
9-Jul-17	Duquesne Light Holdings, Inc.	Baa3	/ BBB-		325	3.616%	01-Aug-27	+160-165	+140a (+/- 5)	-28 bps	+135 bps	-10 bps	3
6-Jun-17	Indiana Michigan Power Company	Baa1	/ A-		300	3.750%	01-Jul-47	+130-135	+115a (+/- 5)	-22.5 bps	+110 bps	-5 bps	3
9-Jun-17	FirstEnergy Corp	Baa3	/ BB+		500	2.850%	30-Jun-22	-62.5 bps to 10YR	+115a (+/- 5)	-37.5 bps	+110 bps	n/a	6
9-Jun-17	FirstEnergy Corp	Baa3	/ BB+		1,500	3.900%	30-Jun-27	+200-lo 200s	+180a (+/- 5)	-37.5 bps	+175 bps	n/a	4.
9-Jun-17	FirstEnergy Corp	Baa3	/ BB+		1,000	4.850%	30-Jun-47	+40 bps to 10YR	+215a (+/- 5)	-37.5 bps	+210 bps	n/a	5.
3-Jun-17	Kansas City Power & Light Company	Baa1	/ BBB+		300	4.200%	15-Jun-47	+145a	+135-140	-7.5 bps	+135 bps	+5 bps	4
2-Jun-17	Public Service Company of Colorado	A1	/ A	✓	400	3.800%	15-Jun-47	+115a	+95-100	-20 bps	+95 bps		3
6-Jun-17	Union Electric Company (Ameren MO)	A2	/ A	✓	400	2.950%	15-Jun-27	+90-95	-	-7.5 bps	+85 bps	+2 bps	2
6-Jun-17	Sempra Energy	Baa1	/ BBB+		750	3.250%	15-Jun-27	+130-135	+115-120	-17.5 bps	+115 bps	-7 bps	2
5-Jun-17	Consolidated Edison Co. of NY	A2	/ A-		500	3.875%	15-Jun-47	+120a	+105-110	-15 bps	+105 bps	+4 bps	2
5-Jun-17	Atmos Energy Corporation *	A2	/ A		250	4.125%	15-Oct-44	+120-125	+110a (+/- 5)	-17.5 bps	+105 bps	-5 bps	5
5-Jun-17	San Diego Gas & Electric Company	Aa2	/ A+	✓	400	3.750%	01-Jun-47	+115a	+95a (+/- 2)	-22 bps	+93 bps	-2 bps	3
5-Jun-17	Atmos Energy Corporation	A2	/ A		500	3.000%	15-Jun-27	+105a	+90a (+/- 5)	-20 bps	+85 bps	-5 bps	4
7-May-17	Entergy Louisiana LLC	A2	/ A	✓	450	3.120%	01-Sep-27	+100a	-	-10 bps	+90 bps	+3 bps	2
7-May-17	Rochester Gas and Electric Corp **		/ A-	✓	300	3.100%	01-Jun-27	+100-105	+90#	-12.5 bps	+90 bps	n/a	3.
5-May-17	Potomac Electric Power Company *	A2	/ A	√	200	4.150%	15-Mar-43	+110a	-	-10 bps	+100 bps	+3 bps	1
5-May-17			/ A-		300	3.300%	30-May-27	+110a	+100a (+/- 2)	-12 bps	+98 bps	n/a	2
1-May-17		Baa2	/ BBB+		1,000	3.490%	15-May-27	+140a	+115a (+/- 5)	-30 bps	+110 bps	-7 bps	2
1-May-17	NiSource Finance Corp	Baa2	/ BBB+		1,000	4.375%	15-May-47	+170a	+140a (+/- 5)	-35 bps	+135 bps	-7 bps	2
0-May-17		A2	/ A		350	3.200%	15-May-27	+95a	+80-82	-15 bps	+80 bps		2
	Monongahela Power Co		/ BBB+	_	250	3.550%	15-May-27	+135a	+120a (+/- 5)	-20 bps	+115 bps	n/a	2
-Mav-1/	Entergy Arkansas Inc *				220	3.500%	01-Apr-26	+95a	+85a (+/- 5)	-15 bps	+80 bps		2
		A2		/								-2 bps	
-May-17		A2 A1	/ A					+115a	+100a (+/- 2)	-17 hps	+98 hns	-2 bps	2
-May-17 -May-17	PPL Electric Utilities Corp	A1	/ A	✓ ✓	475	3.950%	01-Jun-47	+115a +110-115	+100a (+/- 2) +100a (+/- 2)	-17 bps	+98 bps +98 bps		
-May-17 -May-17 -May-17	PPL Electric Utilities Corp Appalachian Power Company	A1 Baa1	/ A / A-	✓ ✓	475 325	3.950% 3.300%	01-Jun-47 01-Jun-27	+110-115	+100a (+/- 2)	-14.5 bps	+98 bps	 -5 bps	3
-May-17 -May-17 -May-17 -May-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp	A1 Baa1 Baa1	/ A / A- / A-		475 325 450	3.950% 3.300% 4.400%	01-Jun-47 01-Jun-27 30-May-47	+110-115 +165a	+100a (+/- 2) +145a (+/- 5)	-14.5 bps -25 bps	+98 bps +140 bps	-5 bps -5 bps	3
-May-17 -May-17 -May-17 -May-17 -May-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company	A1 Baa1 Baa1 Aa3	/ A / A- / A- / A	✓ ✓	475 325 450 425	3.950% 3.300% 4.400% 3.000%	01-Jun-47 01-Jun-27 30-May-47 15-May-27	+110-115 +165a +85-90	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2)	-14.5 bps -25 bps -15 bps	+98 bps +140 bps +73 bps	-5 bps -5 bps 	3 3 2
-May-17 -May-17 -May-17 -May-17 -May-17 5-Apr-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings	A1 Baa1 Baa1 Aa3 Baa1	/ A / A- / A- / A / BBB+	√	475 325 450 425 1,250	3.950% 3.300% 4.400% 3.000% 3.550%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27	+110-115 +165a +85-90 +135-140	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125#	-14.5 bps -25 bps -15 bps -12.5 bps	+98 bps +140 bps +73 bps +125 bps	 -5 bps -5 bps n/a	3 3 2 2
-May-17 -May-17 -May-17 -May-17 -May-17 5-Apr-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative **	A1 Baa1 Baa1 Aa3 Baa1	/ A / A- / A- / A / BBB+ / A		475 325 450 425 1,250 500	3.950% 3.300% 4.400% 3.000% 3.550% 4.750%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47	+110-115 +165a +85-90 +135-140 very low 200s	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps	+98 bps +140 bps +73 bps +125 bps +190 bps	 -5 bps -5 bps n/a n/a	3 2 2 2
-May-17 -May-17 -May-17 -May-17 -May-17 5-Apr-17 9-Apr-17 8-Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings	A1 Baa1 Baa1 Aa3 Baa1 A3	/ A / A- / A- / A / BBB+ / A	√	475 325 450 425 1,250 500 300	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47	+110-115 +165a +85-90 +135-140 very low 200s +130a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps	 -5 bps -5 bps n/a n/a +5 bps	3 3 2 2 2 2 3
-May-17 -May-17 -May-17 -May-17 -May-17 5-Apr-17 9-Apr-17 8-Mar-17 2-Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahom Gas & Electric Company Edison International	A1 Baa1 Baa1 Aa3 Baa1 A3 A1	/ A / A- / A- / BBB+ / A / BBB+	√	475 325 450 425 1,250 500 300 400	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150% 2.125%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Apr-20	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125#	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -12.5 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps	5 bps -5 bps n/a n/a +5 bps +2 bps	3 2 2 2 2 3 1
-May-17 -May-17 -May-17 -May-17 -May-17 5-Apr-17 9-Apr-17 8-Mar-17 2-Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.*	A1 Baa1 Baa1 Aa3 Baa1 A3 A1 A3	/ A / A- / A- / BBB+ / A / BBB+ / A / BBB+	✓ ✓	475 325 450 425 1,250 500 300 400 100	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150% 2.125% 3.700%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Apr-20 15-Jun-46	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) +65a (+/- 2.5)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -12.5 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps	5 bps -5 bps n/a n/a +5 bps +2 bps +4 bps	3 3 2 2 2 2 3 1
-May-17 -May-17 -May-17 -May-17 -May-17 -May-17 5-Apr-17 9-Apr-17 8-Mar-17 2-Mar-17 1-Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company	A1 Baa1 Aa3 Baa1 A3 A1 A3 A2 A3	/ A / A- / A- / BBB+ / A / BBB+ / A / A- / BBB+ / A	✓ ✓	475 325 450 425 1,250 500 300 400 100 700	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - +65a (+/- 2.5)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps	5 bps 5 bps n/a n/a +5 bps +2 bps +4 bps +3 bps	3 3 2 2 2 3 1 3
B-May-17 B-May-17 B-May-17 B-May-17 B-May-17 B-May-17 B-Mar-17 B-Mar-17 2-Mar-17 1-Mar-17 6-Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company **	A1 Baa1 Baa1 Aa3 Baa1 A3 A1 A3 A2 Aa3	/ A / A- / A- / BBB+ / A / BBB+ / A / BBB+ / A / A- / A	✓ ✓	475 325 450 425 1,250 500 300 400 100 700 250	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000% 4.350%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Jun-46 01-Apr-47 15-Nov-45	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) +65a (+/- 2.5) +95# +110a (+/- 2)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -12.5 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps	5 bps -5 bps n/a n/a +5 bps +2 bps +4 bps +3 bps +2 bps	3 3 2 2 2 3 1 3 1 2
B-May-17 B-May-17 B-May-17 B-May-17 B-May-17 B-May-17 B-Mar-17 B-Mar-17 2-Mar-17 1-Mar-17 6-Mar-17 3-Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company	A1 Baa1 Baa1 Aa3 Baa1 A3 A1 A3 A2 Aa3 A2 A2 A2	/ A / A- / A- / BBB+ / A / BBB+ / A / BBB+ / A / A- / BBB+ / A / A / A	✓ ✓	475 325 450 425 1,250 500 300 400 100 700 250 750	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000% 4.350% 3.500%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Nov-45 15-Mar-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) -465a (+/- 2.5) -+95# +110a (+/- 2) +90-95	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -12.5 bps -15 bps 	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +90 bps		3 3 2 2 2 3 1 3 1 2 2
-May-17 -May-17 -May-17 -May-17 -May-17 -May-17 5-Apr-17 9-Apr-17 8-Mar-17 2-Mar-17 6-Mar-17 3-Mar-17 3-Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company	A1 Baa1 Baa1 Aa3 Baa1 A3 A1 A3 A1 A3 A2 A2 Baa1	/ A / A- / A- / BBB+ / A / BBB+ / A / A- / BBB+ / A / BBB+ / A / BBB+ / BBB	✓ ✓	475 325 450 425 1,250 500 300 400 100 700 250 750	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150% 2.125% 4.000% 4.350% 3.500% 3.800%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 15-May-27 01-Apr-47 01-Apr-47 15-Jun-46 01-Apr-47 15-Nov-45 15-Mar-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 2.5) - - +65a (+/- 2.5) - - +95# +110a (+/- 2) +90-95 +130a (+/- 2)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -8 bps -15 bps -15 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +90 bps +126 bps		3 3 2 2 2 3 1 3 1 2 2 1
-May-17 -May-17 -May-17 -May-17 -May-17 -May-17 5-Apr-17 9-Apr-17 8-Mar-17 2-Mar-17 6-Mar-17 3-Mar-17 -Mar-17	PPL Electric Utilities Corp Appalachian Power Company Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company * Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co *	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A1 A3 A2 A2 A2 Baa1 A3	/ A / A- / A- / BBB+ / A / BBB+ / A / A- / BBB+ / A / A / BBB+ / BBB / BBB	✓ ✓	475 325 450 425 1,250 500 300 400 700 250 750 500 200	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000% 4.350% 3.800% 4.000%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Nov-45 15-Mar-27 01-Dec-46	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - +65a (+/- 2.5) - +95# +110a (+/- 2) +90-95 +130a (+/- 2) +100#	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -8 bps -15 bps -15 bps -15 bps -15 bps -15 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +90 bps +126 bps +100 bps		3 3 2 2 2 3 1 3 1 2 2 1 2
-May-17 -May-17 -May-17 -May-17 -May-17 -5-Apr-17 -9-Apr-17 -3-Mar-17 -2-Mar-17 -5-Mar-17 -Mar-17 -Mar-17 -Mar-17 -Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co * Exelon Generation Company, LLC *	A1 Baa1 Baa1 Aa3 Baa1 A3 A1 A3 A1 A3 A2 Aa3 A2 Baa1 A3 Baa1 A3 Baa2	/ A / A- / A- / BBB+ / A / BBB+ / A / BBB+ / A / BBB+ / A / BBB+ / BBB+ / BBB+ / BBB+	✓ ✓	475 325 450 425 1,250 500 300 400 100 700 250 200 250	3.950% 3.300% 4.400% 3.000% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000% 4.350% 3.500% 4.000% 4.000% 2.950%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Apr-20 01-Apr-47 15-Nov-45 15-Mar-27 01-Dec-46 15-Jan-20	+110-115 +165a +85-90 +135-140 very low 200s +130a +775a +107a +105-110 +115-120 +105a +140a +115-120 +125a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 5) +125# +195a (+/- 5) -+65a (+/- 2.5) +95# +110a (+/- 2) +90-95 +130a (+/- 2) +100# +105a (+/- 5)	-14.5 bps -25 bps -15 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -8 bps -15 bps -15 bps -15 bps -15 bps -15 bps -15 bps -15 bps -15 bps -15 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +90 bps +126 bps +100 bps +100 bps		3 3 2 2 2 2 3 3 1 1 2 2 2 1 2 1 1 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 2 1 1 1 1 1 1 1 1 2 1 1 1 1 2 1 2 1 2 1 1 2 2 1 2 1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 2 2 2 2 3 2 3 2 2 2 2 2 2 2 2 3 3 3 2 2 2 3 2 3 2 2 2 2 3 3 3 2 3 2 2 3 2 2 2 2 3 3 3 2
-May-17 -May-17 -May-17 -May-17 -May-17 -5-Apr-17 -9-Apr-17 -3-Mar-17 -2-Mar-17 -5-Mar-17 -6-Mar-17 -Mar-17 -Mar-17 -Mar-17 -Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co* Exelon Generation Company, LLC Exelon Generation Company, LLC	A1 Baa1 Baa1 Aa3 Baa1 A3 A1 A3 A2 Aa3 A2 Baa1 A3 A2 Baa1 A3 A2 Baa2 Baa2	/ A / A- / A- / BBB+ / A / BBB+ / A / BBB+ / A / A- / BBB+ / BBB / BBB+ / BBB	✓ ✓	475 325 450 425 1,250 500 400 100 700 250 750 200 250 500	3.950% 3.300% 4.400% 3.000% 4.750% 4.150% 2.125% 3.500% 4.000% 4.000% 4.000% 4.000% 4.000% 3.500% 3.500% 3.400%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Jun-46 15-Mar-27 15-Mar-27 15-Mar-27 15-Jun-20 15-Jun-64 15-Mar-27 15-Mar-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - - +65a (+/- 2.5) - +95# +110a (+/- 2) +30.95 +130a (+/- 2) +100# +165a (+/- 5)	-14.5 bps -25 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -12.5 bps -8 bps -15 bps -17.5 bps -17.5 bps -18 bps -19 bps -29 bps -20 bps -	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +90 bps +126 bps +100 bps +140 bps +140 bps	5 bps -5 bps7 -7 -5 bps7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	3 3 2 2 2 2 3 3 1 1 1 2 2 2 2 2 2 2 2 6 6 6 7 1 1 1 2 2 2 6 6 6 6 6 7 2 2 6 6 7 1 2 2 6 6 7 2 7 2 6 6 7 2 7 2 6 7 2 7 2 7
May-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co * Exelon Generation Company, LLC * Exelon Generation Company, LLC Pacific Gas & Electric Co	A1 Baa1 Baa1 Aa3 A1 A3 A2 Aa3 A2 Baa1 A3 A2 A2 Baa1 A3	/ A / A- / A- / A / BBB+ / A / A / BBB+ / A / A / BBB+ / BBB / BBB / BBB / BBB	✓ ✓	475 325 450 425 1,250 500 300 400 100 250 750 500 200 250 500 400	3.950% 3.300% 4.400% 3.000% 4.750% 4.150% 2.125% 3.700% 4.000% 4.350% 3.500% 3.800% 4.000% 4.350% 3.400% 3.400%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Nov-45 15-Mar-27 01-Dec-46 15-Jan-20 15-Jan-20 15-Jan-22 15-Mar-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a +100a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - - +65a (+/- 2.5) - +95# +110a (+/- 2) +90-95 +130a (+/- 2) +100# +105a (+/- 5) +145a (+/- 5) +145a (+/- 5) +145a (+/- 5) +145a (+/- 5) +145a (+/- 5)	-14.5 bps -25 bps -25 bps -15 bps -12.5 bps -15 bps -12.5 bps -12.5 bps -12.5 bps -8 bps -15 bps -12 bps -17 bps -17 bps -25 bps -25 bps -17 bps -17 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +62.5 bps +107 bps +95 bps +110 bps +100 bps +100 bps +100 bps +100 bps +140 bps +3 bps +3 bps +140 bps +3 bps +3 bps	5 bps -5 bps n/a n/a +5 bps +2 bps +4 bps +3 bps +2 bps +5 bps5 bps5 bps1 bps	3 3 2 2 2 2 3 3 1 1 1 2 2 2 2 2 2 2 2 2
May-17 May-17 May-17 May-17 May-17 May-17 May-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17 Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co * Exelon Generation Company, LLC * Exelon Generation Company, LLC Pacific Gas & Electric Co Great Plains Energy Incorporated	A1 Baa1 Baa1 Aa3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 A3 Baa2 Baa2 A3 Baa3	/ A / A- / A- / BBB+ / A / BBB+ / A / A- / BBB+ / BBB+ / BBB+ / BBB / BBB+	✓ ✓	475 325 450 425 1,250 500 300 400 100 700 250 750 200 200 250 500 400 400 750	3.950% 3.300% 4.400% 4.50% 4.750% 4.750% 4.150% 4.000% 4.3500% 4.000% 4.3500% 3.500% 4.000% 4.3500% 3.800% 4.000% 2.950% 3.300% 2.500%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Nov-45 15-Mar-27 15-Mar-27 15-Jan-20 15-Jun-20 15-Jun-20 15-Mar-27 09-Mar-20	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a +160a -15 bps to 5Y	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 2.5) - +65a (+/- 2.5) - +995# +110a (+/- 2) +90-95 +130a (+/- 5) +145a (+/- 5) +145a (+/- 5) +145a (+/- 5) +150 (+/- 2)	-14.5 bps -25 bps -15 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -25 bps -15 bps -15 bps -15 bps -15 bps -15 bps -17 bps -25 bps -25 bps -25 bps -25 bps -25 bps -27 bps -28 bps -29 bps -29 bps -29 bps -40 bps	+98 bps +140 bps +73 bps +173 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +100 bps +100 bps +140 bps +33 bps +38 bps +39 bps +140 bps +39 bps +140 bps +39 bps +140 bps +39 bps +39 bps +39 bps +39 bps +39 bps		3 3 2 2 2 2 2 3 3 3 1 1 2 2 2 2 2 2 2 2
May-17 May-17 May-17 May-17 May-17 S-Apr-17 S-Apr-17 S-Mar-17 S-Mar-17 S-Mar-17 S-Mar-17 Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co* Exelon Generation Company, LLC * Exelon Generation Company, LLC Pacific Gas & Electric Co Great Plains Energy Incorporated Great Plains Energy Incorporated	A1 Baa1 Baa1 Aa3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 A3 Baa3 Baa3	/ A / A- / A- / BBB+ / A / A- / BBB+ / A / A- / BBB+ / BBB+ / BBB / BBB+ / BBB / BBB+ / BBB	✓ ✓	475 325 450 425 1,250 500 300 400 100 700 250 750 500 200 250 500 400 750 1,150	3.950% 3.300% 4.400% 4.50% 4.750% 4.750% 4.750% 3.700% 4.000% 3.500% 3.800% 4.000% 3.400% 3.300% 2.950% 3.150%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Mar-27 01-Dec-46 15-Jan-20 15-Jan-20 15-Jan-20 15-Mar-27 01-Dec-46 15-Mar-27 01-Dec-46 15-Mar-27 01-Dec-40 15-Mar-27 01-Dec-40 15-Mar-20 01-Apr-22 01-Apr-22	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +1105a +140a +115-120 +125a +165a +165a +100a -15 bps to 5Y -25 bps to 10Y	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) 	-14.5 bps -25 bps -15 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -17.5 bps -25 bps -25 bps -25 bps -40 bps -40 bps -40 bps -40 bps -40 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +126 bps +126 bps +100 bps +140 bps +33 bps +35 bps +113 bps +35 bps +115 bps		33 32 22 22 33 33 11 22 22 22 22 22 24 25 44
May-17 May-17 May-17 May-17 May-17 May-17 May-17 May-17 Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co * Exelon Generation Company, LLC * Exelon Generation Company, LLC Pacific Gas & Electric Co Great Plains Energy Incorporated	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A3 A2 Baa1 A3 Baa2 Baa2 Baa2 Baa3 Baa3	/ A / A- / A- / BBB+ / A / BBB+ / A / A- / BBB+ / BBB+ / BBB+ / BBB / BBB+	✓ ✓	475 325 450 425 1,250 500 300 400 100 700 250 750 200 200 250 500 400 400 750	3.950% 3.300% 4.400% 4.50% 4.750% 4.750% 4.150% 4.000% 4.3500% 4.000% 4.3500% 3.500% 4.000% 4.3500% 3.800% 4.000% 2.950% 3.300% 2.500%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Nov-45 15-Mar-27 15-Mar-27 15-Jan-20 15-Jun-20 15-Jun-20 15-Mar-27 09-Mar-20	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a +160a -15 bps to 5Y	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 2.5) - +65a (+/- 2.5) - +995# +110a (+/- 2) +90-95 +130a (+/- 5) +145a (+/- 5) +145a (+/- 5) +145a (+/- 5) +150 (+/- 2)	-14.5 bps -25 bps -15 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -25 bps -15 bps -15 bps -15 bps -15 bps -15 bps -17 bps -25 bps -25 bps -25 bps -25 bps -25 bps -27 bps -28 bps -29 bps -29 bps -29 bps -40 bps	+98 bps +140 bps +73 bps +173 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +100 bps +100 bps +140 bps +33 bps +38 bps +39 bps +140 bps +39 bps +140 bps +39 bps +140 bps +39 bps +39 bps +39 bps +39 bps +39 bps		33 33 22 22 22 33 31 11 11 22 22 22 22 25 44 33
May-17 May-17 May-17 May-17 May-17 May-17 May-17 May-17 Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company * Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co * Exelon Generation Company, LLC * Exelon Generation Company, LLC Corea Electric Co Great Plains Energy Incorporated Great Plains Energy Incorporated Great Plains Energy Incorporated Great Plains Energy Incorporated	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 Aa3 A2 Baa1 A3 Baa2 A2 Baa2 A3 Baa3 Baa3 Baa3	/ A / A- / A- / BBB+ / A / BBB+ / A / BBB+ / BBB+ / BBB / BBB / BBB / BBB	✓ ✓	475 325 450 450 1,250 500 300 400 100 700 250 500 200 250 400 750 1,150	3.950% 3.300% 4.400% 4.550% 4.750% 4.750% 4.150% 4.000% 4.000% 4.350% 4.350% 3.500% 3.800% 4.000% 2.950% 3.400% 3.300% 2.500% 3.150% 3.900%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 01-Apr-47 15-Nov-45 15-Mar-27 15-Mar-27 15-Mar-22 15-Mar-20 15-Mar-22 15-Mar-22 15-Mar-22 15-Mar-22	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a +100a -15 bps to 5Y -25 bps to 10Y +hi 100s	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - - +65a (+/- 2.5) - - +95# +110a (+/- 2) +90-95 +130a (+/- 2) +100# +105a (+/- 5) +85a (+/- 2) +100# +100a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -8 bps -15 bps -15 bps -15 bps -15 bps -15 bps -17 bps -25 bps -25 bps -25 bps -25 bps -25 bps -36 bps -30 b	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +1107 bps +95 bps +110 bps +90 bps +100 bps +100 bps +140 bps +35 bps +140 bps +35 bps +14140 bps +35 bps +145 bps +15 bps +15 bps +115 bps +115 bps		33 33 22 22 22 33 31 11 22 22 22 22 25 44 33 44
May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co * Exelon Generation Company, LLC * Exelon Generation Company, LLC Coreation Generation Company, LLC Great Plains Energy Incorporated	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 Aa3 Baa2 Baa2 A3 Baa2 Baa2 A3 Baa3 Baa3 Baa3 Baa3 A2	/ A / A- / A- / BBB+ / A / BBB+ / A / BBB+ / BBB	* * * *	475 325 450 400 100 700 250 200 250 500 400 750 1,150 1,400	3.950% 3.300% 4.400% 3.550% 4.750% 4.150% 2.125% 3.700% 4.350% 3.500% 3.500% 3.500% 3.400% 2.950% 3.400% 2.950% 4.550% 4.550%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 09-Mar-20 01-Apr-42 01-Apr-42 01-Apr-47	+110-115 +165a +85-90 +135-140 very low 200s +130a +775a +107-110 +115-120 +105a +140a +115-120 +125a +165a +1100a -15 bps to 5Y -25 bps to 10Y +hi 100s +35 bps to 10Y	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - +65a (+/- 2.5) - +99-5 +110a (+/- 2) +90-95 +130a (+/- 2) +105a (+/- 5) +145a (+/- 5) +145a (+/- 5) +120a (+/- 5) +120a (+/- 5) +150a (+/- 5) +150a (+/- 5) +180a (+/- 5)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -15 bps -15 bps -17 bps -17 bps -17 bps -25 bps -25 bps -25 bps -35 bps -36 bps	+98 bps +140 bps +73 bps +173 bps +190 bps +115 bps +62.5 bps +110 bps +95 bps +110 bps +90 bps +100 bps +140 bps +140 bps +140 bps +15 bps +15 bps +15 bps +15 bps +15 bps +15 bps +15 bps +15 bps +15 bps +115 bps +115 bps +115 bps +115 bps +115 bps +115 bps +115 bps +115 bps	-5 bps -5 bps -5 bps -7 -7/a -7/a -7/a -7/a -7/b -7/b -7/b -7/b -7/b -7/a -7/a -7/a -7/a -7/a -7/a -7/a -7/a	33 33 33 22 22 23 33 11 11 22 22 22 24 25 25 26 26 27 27 27 27 27 27 27 27 27 27 27 27 27
May-17 May-17 May-17 May-17 May-17 May-17 May-17 S-Apr-17 S-Apr-17 S-Mar-17 S-Mar-17 S-Mar-17 Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co Exelon Generation Company, LLC * Exelon Generation Company, LLC Pacific Gas & Electric Co Great Plains Energy Incorporated Connecticut Light & Power Company	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A3 A2 Baa1 A3 Baa2 Baa2 Baa2 Baa3 Baa3 Baa3 Baa3 Baa	/ A / A- / A- / A / BBB+ / A / BBB+ / A / A- / BBB-	* * * *	475 325 450 425 1,250 500 300 400 100 700 250 750 500 200 250 500 400 1,150 1,1400 1,000 300	3.950% 3.300% 4.400% 4.50% 4.750% 4.750% 4.150% 2.125% 3.700% 4.000% 3.500% 3.500% 3.400% 2.950% 3.400% 3.150% 3.150% 3.900% 4.850% 3.200%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-20 01-Apr-20 01-Apr-47 15-Mar-20 01-Apr-20 01-Apr-47 15-Mar-21	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +1105a +140a +115-120 +125a +165a +100a -15 bps to 5Y -25 bps to 10Y +hi 100s +35 bps to 10Y +90a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) 	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -17.5 bps -25 bps -25 bps -25 bps -27 bps -28 bps -27 bps -28 bps -28 bps -30 bps -31 bps -15 bps -15 bps -17 bps -17 bps -19 bps -10 bps -1	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +95 bps +110 bps +126 bps +126 bps +100 bps +140 bps +33 bps +33 bps +35 bps +115 bps +115 bps +115 bps +115 bps +1175 bps +175 bps +75 bps		33 33 33 22 22 23 33 11 11 22 22 22 22 24 33 34 44 45 55
May-17 May-17 May-17 May-17 May-17 May-17 May-17 May-17	PPL Electric Utilities Corp Appalachian Power Company Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company * Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co* Exelon Generation Company, LLC * Exelon Generation Company, LLC C Pacific Gas & Electric Co Great Plains Energy Incorporated	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 Baa2 Baa3 Baa3 Baa3 Baa3 Baa	/ A / A- / A- / A / BBB+ / A / BBB+ / A / BBB+ / BBB / BBB-	* * * *	475 325 450 450 1,250 500 300 100 700 250 500 200 250 400 750 1,150 1,400 1,000 300	3.950% 3.300% 4.400% 4.550% 4.750% 4.750% 4.150% 4.00% 4.350% 4.300% 4.000% 3.500% 3.400% 3.400% 3.400% 3.400% 3.400% 3.400% 3.500% 3.500% 3.500% 3.400% 3.500% 3.500% 3.500% 3.500% 3.500% 3.500% 3.500% 3.500% 3.500% 3.500%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Jun-46 15-Mar-27 15-Mar-27 01-Dec-46 15-Jan-20 15-Jun-20	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a +100a -15 bps to 5Y +bi 100s +35 bps to 10Y +90a +100a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - - +65a (+/- 2.5) - - +95# +110a (+/- 2) +90-95 +130a (+/- 2) +100# +105a (+/- 5) +145a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +75a (+/- 5)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -15 bps -15 bps -12 bps -17.5 bps -25 bps -25 bps -25 bps -30 bps -30 bps -35 bps -30 bps -35 bps -36 bps -37 bps -37 bps -38 bps -17 bps -25 bps -27 bps -28 bps -17 bps -28 bps -17 bps -29 bps -29 bps -20 bps -30 bps -30 bps -30 bps -35 bps -36 bps -3	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +1107 bps +95 bps +110 bps +30 bps +100 bps +100 bps +140 bps +35 bps +140 bps +145 bps +145 bps +175 bps +175 bps +175 bps		33 33 33 33 33 33 33 33 31 11 11 11 22 22 22 22 24 24 24 24 24 24 24 24 24
May-17 Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co * Exelon Generation Company, LLC * Exelon Generation Company, LLC Coreation Generation Company, LLC Great Plains Energy Incorporated Great Plains Energy Incorporated Great Plains Energy Incorporated Great Plains Energy Incorporated Connecticut Light & Power Company Eversource Energy Georgia Power Company Eversource Energy Georgia Power Company	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 Aa3 Baa2 Baa2 A3 Baa3 Baa3 Baa3 Baa3 A2 Baa1 A3	/ A / A- / A- / BBB+ / A / BBB+ / A / BBB+ / A / BBB+ / BBB / BBB+ / BBB	* * * *	475 325 450 425 1,250 500 300 400 100 250 750 200 250 750 1,150 1,400 300 300 300 300 400	3.950% 3.300% 4.400% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000% 3.550% 4.000% 2.950% 3.400% 2.950% 3.150% 3.300% 4.850% 3.200% 4.850% 3.250%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Mar-27 15-Mar-27 15-Mar-27 01-Apr-47 15-Mar-22 01-Apr-47 15-Mar-27 01-Apr-47 15-Mar-22 01-Apr-42 01-Apr-42 01-Apr-42 01-Apr-42 01-Apr-22	+110-115 +165a +85-90 +135-140 very low 200s +130a +775a +107-110 +115-120 +105a +140a +115-120 +125a +165a +1100a -15 bps to 5Y -25 bps to 10Y +90a +100a +100a +100s +100a +100s +100a +100a +100s +100a +100a +100a +100a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 5) +125# +195a (+/- 5) 	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -17 bps -17 bps -17 bps -17 bps -25 bps -36 bps -36 bps -36 bps -36 bps -36 bps -36 bps -15 bps -15 bps -16 bps -17 bps -18 bps -19 bps -10 bps	+98 bps +140 bps +73 bps +125 bps +190 bps +115 bps +62.5 bps +107 bps +90 bps +110 bps +1100 bps +100 bps +140 bps +35 bps +15 bps +15 bps +175 bps +175 bps +175 bps +175 bps +75 bps +75 bps +75 bps +75 bps	-5 bps -5 bps -5 bps -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	33 33 33 33 33 33 31 11 11 22 22 22 22 24 34 44 44 45 55 22 22 22 22 22 22 22 22 22 22 22 22
May-17 Mar-17 Ma	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Paclific Gas & Electric Co Exelon Generation Company, LLC Exelon Generation Company, LLC Pacific Gas & Electric Co Great Plains Energy Incorporated Connecticut Light & Power Company Eversource Energy Georgia Power Company Georgia Power Company Georgia Power Company Georgia Power Company	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A3 A2 Baa1 A3 Baa2 Baa2 Baa2 Baa2 Baa2 A3 Baa3 Baa3 Baa3 Baa3 Baa3 Baa3 Baa3 B	/ A / A- / A- / A / BBB+ / A / BBB+ / A / BBB+ / BBB+ / BBB	* * * *	475 325 450 425 1,250 500 300 400 100 700 250 750 500 200 250 1,150 1,400 1,000 300 300 440 450	3.950% 3.300% 4.400% 4.50% 4.750% 4.750% 4.150% 2.125% 3.700% 4.000% 3.500% 3.500% 3.400% 2.950% 3.400% 3.150% 3.900% 4.850% 3.200% 2.750% 3.200% 2.750% 3.200%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-20 01-Apr-20 01-Apr-47 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27 15-Mar-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +175a +107a +105-110 +115-120 +1105a +140a +115-120 +125a +165a +100a +15 bps to 5Y -25 bps to 10Y +hi 100s +35 bps to 10Y +90a +100a +100a +100a +100a +100a +100a +100a	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) 	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -15 bps -12.5 bps -15 bps -12 bps -17 bps -25 bps -25 bps -25 bps -30 bps -30 bps -30 bps -30 bps -35 bps -15 bps -17 bps -19 bps -10 bps -1	+98 bps +140 bps +173 bps +173 bps +190 bps +115 bps +190 bps +117 bps +85 bps +110 bps +110 bps +126 bps +110 bps +126 bps +100 bps +100 bps +110 bps +130 bps +1140 bps +35 bps +115 bps +145 bps +175 bps +75 bps +75 bps +75 bps +75 bps +53 bps		33 33 33 33 33 31 11 11 22 22 22 25 55 44 44 44 55 22 22 22 22 22 22 22 22 22 22 22 22
May-17 Mar-17 Ma	PPL Electric Utilities Corp Appalachian Power Company Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company * Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co* Exelon Generation Company, LLC * Exelon Generation Company, LLC C Pacific Gas & Electric Co Great Plains Energy Incorporated Great Plains Energy Inco	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 Baa1 A3 Baa3 Baa3 Baa3 A2 A2 A3 A3 A4	/ A / A / A / A / BBB+ / A / BBB+ / A / BBB+ / BBB	· · · · · · · · · · · · · · · · · · ·	475 325 450 425 1,250 500 300 400 100 250 750 200 250 750 1,150 1,400 1,400 1,000 300 400 450	3.950% 3.300% 4.400% 3.550% 4.750% 4.750% 2.125% 3.700% 4.000% 4.350% 3.500% 3.3500% 2.950% 4.000% 2.950% 4.000% 2.950% 3.150% 4.850% 3.250% 2.500% 4.850%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Jun-46 15-Mar-27 01-Dec-46 15-Jan-20 15-Mar-27 01-Apr-22 01-Apr-22 01-Apr-22 01-Apr-23 01-Apr-24 01-Apr-24 01-Apr-25 01-Apr-25 01-Apr-25 01-Apr-25 01-Apr-25 01-Apr-25 01-Apr-26 01-Apr-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a +100a -15 bps to 5Y +25 bps to 10Y +hi 100s +35 bps to 10Y +100a +105a +100a +105a +100a +105a +70a +70a +70-75	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - - +65a (+/- 25) - +95# +110a (+/- 2) +100# +100a (+/- 5) +105a (+/- 5) +105a (+/- 5) +105a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +75a (+	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -15 bps -15 bps -17 bps -25 bps -25 bps -25 bps -35 bps -30 bps -35 bps -35 bps -35 bps -17 bps -35 bps -17 bps -35 bps -37 bps -37 bps -38 bps -17 bps -17 bps -18 bps -17 bps -19 bps -17 bps -17 bps -18 bps -19 bps -10	+98 bps +140 bps +173 bps +173 bps +125 bps +190 bps +1115 bps +62.5 bps +1107 bps +95 bps +110 bps +115 bps +115 bps +115 bps +115 bps +175 bps +175 bps +75 bps +95 bps +175 bps +95 bps +195 bps +175 bps	-5 bps -5 bps -5 bps -7 -7/a -7/a -7/a -7/a -7/bps -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	33 33 33 33 33 33 33 31 11 11 22 22 22 22 22 24 44 44 44 44 45 45 45 45 45 45 45 45 45
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May-17 May-17 May-17 May-17 May-17 May-17 May-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co* Exelon Generation Company, LLC * Exelon Generation Company, LLC Pacific Gas & Electric Co Great Plains Energy Incorporated Great Plains Energy Incorporated Great Plains Energy Incorporated Great Plains Energy Incorporated Connecticut Light & Power Company Eversource Energy Georgia Power Company Alabama Power Company Mestar Energy Inc Consolidated Edison Inc	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 Baa3 Baa3 Baa3 Baa3 Baa3 A2 A2 A2 A3 A3 A3 A4 A3 A4	/ A / A / A / A / BBB+ / A / BBB+ / A / BBB+ / BBB+ / BBB+ / BBB- / A+ / A- / A- / A-		475 325 450 400 100 700 250 750 200 250 500 400 1,150 1,400 1,000 300 450 450 550 300 400	3.950% 3.300% 4.400% 4.50% 4.750% 4.750% 4.150% 2.125% 3.700% 4.000% 3.500% 3.500% 3.800% 4.000% 3.900% 2.950% 3.400% 3.250% 3.250% 3.250% 2.250% 3.250% 2.250% 3.250% 3.250% 2.250% 3.250% 2.250% 3.250% 2.250% 3.250% 3.250%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 01-May-27 26-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Mar-27 15-Mar-27 15-Mar-20 01-Apr-27 01-Apr-27 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-22 01-Apr-27 15-Mar-20 01-Apr-27 15-Mar-20 01-Apr-27 15-Mar-20 10-Apr-27 10-Apr-27 10-Apr-27 10-Apr-27 10-Apr-27 10-Apr-27 15-Mar-20	+110-115 +165a +85-90 +135-140 very low 200s +130a +175a +107a +105-110 +115-120 +1105a +140a +115-120 +125a +165a +100a +1105a +100a +105a +100a +100a +105a +70a +70a +70a +70-75	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) 	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -12.5 bps -12.5 bps -15 bps -17 bps -25 bps -25 bps -25 bps -30 bps -30 bps -30 bps -30 bps -30 bps -31 bps -15 bps -15 bps -17 bps -17 bps -19 bps -19 bps -19 bps -19 bps -19 bps -10 bps	+98 bps +140 bps +173 bps +173 bps +190 bps +115 bps +62.5 bps +1107 bps +95 bps +110 bps +13 bps +175 bps +175 bps +75 bps +75 bps +60 bps +78 bps +60 bps +78 bps	-5 bps -5 bps -5 bps -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	33 33 33 33 33 33 31 11 22 22 22 22 24 44 45 55 22 22 23 33 33 34 44 45 45 45 45 45 45 45 45 45 45 45 45
-May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -S-Apr-17 -S-Mar-17 -Mar-17 -M	PPL Electric Utilities Corp Appalachian Power Company Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company * Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co* Exelon Generation Company, LLC * Exelon Generation Company, LLC C Pacific Gas & Electric Co* Great Plains Energy Incorporated Connecticut Light & Power Company Eversource Energy Georgia Power Company Alabama Power Company Westar Energy Inc Consolidated Edison Inc Consolidated Edison Inc	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 Baa3 Baa3 Baa3 Baa3 Baa3 A2 A2 A2 A3 A3 A3 A4 A3 A4	/ A / A / A / BBB+ / BBB+ / A / BBB+ / A / BBB+ / BBB		475 325 450 425 1,250 500 300 400 100 250 750 200 250 750 1,150 1,400 1,400 1,000 300 400 450 300 450 300 400 450 350	3.950% 3.300% 4.400% 3.550% 4.750% 4.750% 2.125% 3.700% 4.000% 4.350% 4.350% 4.350% 4.350% 4.350% 4.350% 4.000% 4.950% 4.350% 4.000% 4.950%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Jun-20 15-Jun-46 15-Mar-27 15-Mar-27 01-Dec-46 15-Jan-20 01-Apr-47 15-Mar-27 01-Apr-47 15-Mar-27 01-Apr-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a +100a -15 bps to 5Y -25 bps to 10Y +90a +100a +100a +105a +170a +70-75 +95-100	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) 	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -15 bps -15 bps -17 bps -12 bps -17.5 bps -25 bps -17 bps -26 bps -30 bps -35 bps -15 bps -17 bps -27 bps -28 bps -17 bps -29 bps -17 bps -19 bps -15 bps -17 bps -17 bps -18 bps -19 bps -19 bps -19 bps -17 bps -19 bps -17 bps -18 bps -19 bps -19 bps -19 bps -19 bps -19 bps -19 bps -19 bps -17 bps -19 bps -17 bps	+98 bps +140 bps +173 bps +173 bps +1125 bps +190 bps +1115 bps +62.5 bps +1107 bps +95 bps +110 bps +13 bps +145 bps +175 bps +75 bps +75 bps +60 bps +75 bps +76 bps		33 33 33 33 31 11 22 22 22 25 55 44 44 45 55 22 22 22 22 22 23 33 33 24 25 26 26 27 27 27 27 27 27 27 27 27 27 27 27 27
May-17 May-17 May-17 May-17 May-17 May-17 S-Apr-17 S-Apr-17 S-Apr-17 Mar-17 Mar	PPL Electric Utilities Corp Appalachian Power Company Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company * Virginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co * Exelon Generation Company, LLC * Exelon Generation Company, LLC Capific Gas & Electric Co Great Plains Energy Incorporated Connecticut Light & Power Company Eversource Energy Georgia Power Company Westar Energy Inc Consolidated Edison Inc Consumers Energy Incorporation MidAmerican Energy Company** MidAmerican Energy Company** MidAmerican Energy Company***	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 Baa2 A3 Baa3 Baa3 Baa3 Baa3 A2 A2 A2 A2 A3 A3 A3 A3 A1 A3 A3 A1 A2 A3 A3 A3 A4 A4 Baa2 Aa2 Aa2 Aa2	/ A / A / A / BBB+ / BBB+ / A / BBB+ / A / BBB+ / BBB		475 325 450 425 1,250 500 300 400 100 700 250 750 200 250 750 1,150 1,400 1,400 1,400 400 450 300 400 450 350 350 350 355	3.950% 3.300% 4.400% 3.550% 4.750% 2.125% 3.700% 4.000% 4.350% 3.500% 3.3500% 3.300% 4.000% 2.950% 3.400% 2.950% 3.400% 3.200% 4.850% 3.200% 3.200% 3.200% 3.200% 3.300%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Jun-20 15-Jun-20 15-Jun-20 15-Mar-27 01-Dec-46 15-Jan-20 01-Apr-27 01-Apr-27 01-Apr-27 01-Apr-27 01-Apr-27 01-Apr-22 01-Apr-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +105a +140a +115-120 +125a +165a +100a -15 bps to 5Y -25 bps to 10Y +hi 100s +35 bps to 10Y +90a +100a +105a +70a +70-75 +95-100 +70-75 +110a +125-130 +85-90 +110-115	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) - - +65a (+/- 2) +95# +110a (+/- 2) +100# +100a (+/- 5) +150a (+/- 2) +100a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +150a (+/- 5) +155a (+/- 5) +25a (+/- 5) +25a (+/- 5) +25a (+/- 5) +25a (+/- 5) +25a (+/- 5) +25a (+/- 5) +26a (+/- 5) +26a (+/- 5) +26a (+/- 5) +26a (+/- 5) +26a (+/- 5) +26a (+/- 5) +36a (+/- 5) +46a (+/- 5) +475a (+/- 5)	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -12.5 bps -15 bps -15 bps -17.5 bps -25 bps -17 bps -26 bps -30 bps -35 bps -15 bps -17 bps -27 bps -28 bps -17 bps -29 bps -17 bps -29 bps -17 bps -29 bps -17 bps -29 bps -17 bps -29 bps -17 bps -21 bps -15 bps -15 bps -17 bps -25 bps -17 bps -25 bps -15 bps -15 bps -17 bps -25 bps -17 bps -25 bps -17 bps -25 bps -17 bps -25 bps -17 bps -25 bps -17 bps -25 bps -17 bps -19.5 bps -17.5 bps -17.5 bps -17.5 bps -17.5 bps -17.5 bps -17.5 bps -17.5 bps -17.5 bps -20 bps -20 bps -20 bps	+98 bps +140 bps +173 bps +173 bps +190 bps +115 bps +190 bps +1115 bps +62.5 bps +1107 bps +95 bps +110 bps +110 bps +110 bps +110 bps +110 bps +13 bps +140 bps +145 bps +145 bps +175 bps +175 bps +75 bps +83 bps +85 bps +117 bps +75 bps +175 bps +75 bps +100 bps +83 bps +175 bps +110 bps +175 bps		33 33 33 33 33 33 31 11 22 22 22 22 22 22 22 22 22 22 22 22
-May-17 -Mar-17 -Mar-1	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Yirginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co* Exelon Generation Company, LLC * Exelon Generation Company, LLC * Great Plains Energy Incorporated Connecticut Light & Power Company Eversource Energy Georgia Power Company Halabama Power Company Westar Energy Inc Consolidated Edison Inc Consulidated Edison Inc Consulidated Edison Inc Consulidated Energy Company MidAmerican Energy Company** MidAmerican Energy Company*** CenterPoint Energy Houston Electric LLC	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 Baa2 A3 Baa3 Baa3 Baa3 Baa3 Baa3 A2 A2 A2 A2 A2 A3	/ A / A / A / BBB+ / A / BBB+ / A / BBB+ / A / BBB+ / BBB /		475 325 450 425 1,250 500 300 400 100 700 250 750 500 200 250 1,150 1,400 300 400 450 550 400 450 550 400 350 375 475 300	3.950% 3.300% 4.400% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000% 3.550% 3.500% 3.500% 3.500% 3.500% 3.500% 3.200% 2.950% 3.150% 3.200% 2.250% 3.150% 3.200% 2.450% 3.200% 2.450% 3.100% 3.950% 3.950% 3.150%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 101-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Mar-27 15-Mar-27 15-Mar-20 01-Apr-47 15-Mar-27	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +115-120 +115-120 +115-120 +115-5a +165a +100a -15 bps to 5Y -25 bps to 10Y +hi 100s +35 bps to 10Y +90a +100a +70-75 +95-100 +70-75 +110a +125-130 +85-90 +110-115 +85-90 +110-115	+100a (+/- 2) +145a (+/- 5) +75a (+/- 5) +125# +195a (+/- 5) - - +65a (+/- 2.5) - +95# +110a (+/- 2) +109# +105a (+/- 2) +100# +105a (+/- 5) +145a (+/- 5) +145a (+/- 5) +150a (+/- 5)	-14.5 bps -25 bps -15 bps -12.5 bps -12.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -25 bps -17.5 bps -25 bps -17 bps -35 bps -35 bps -35 bps -35 bps -15 bps -15 bps -17 bps -20 bps -20 bps -10 bps	+98 bps +140 bps +173 bps +173 bps +190 bps +115 bps +190 bps +117 bps +82 5 bps +117 bps +90 bps +126 bps +110 bps +110 bps +110 bps +140 bps +130 bps +140 bps +135 bps +175 bps +175 bps +75 bps +75 bps +76 bps +78 bps +79 bps		33333333333333333333333333333333333333
-May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -May-17 -9-Apr-17 -9-Apr-17 -9-Apr-17 -9-Apr-17 -9-Apr-17 -9-Apr-17 -9-Apr-17 -Mar-17	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Virginia Electric & Power Company Preservice Company Preservice Company Preservice Service Company Preservice Company Preservice Service Service Company Preservice Service Servic	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa2 A3 Baa3 Baa3 Baa3 A2 Baa1 A3 A1 Baa2 Baa2 A3 A1 Baa2 A3 A3 A1 Baa2 A3 A3 A1 A3 A1 Baa2 A3 A3 A1 Baa2 A3 A3 A1	/ A / A / A / A / BBB+ / A / BBB+ / A / BBB+ / BBB+ / BBB+ / BBB-		475 325 450 325 450 300 400 100 700 250 750 500 250 500 400 1,150 1,400 1,000 300 450 550 300 450 450 550 300 400 350 375 475 300 400	3.950% 3.300% 4.400% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000% 3.550% 3.500% 3.500% 3.800% 2.950% 3.400% 3.250% 3.200% 2.2750% 3.250% 3.200% 2.2450% 2.200% 2.450% 3.100% 3.350% 3.100% 3.350% 3.100% 3.350% 3.100% 3.350% 3.100% 3.350% 3.100% 3.350% 3.100% 3.350% 3.100% 3.350% 3.100% 3.350% 3.150%	01-Jun-47 01-Jun-27 30-May-47 15-May-27 26-Apr-47 11-Apr-47 15-Apr-20 15-Jun-46 01-Apr-47 15-Mar-27 15-Mar-27 15-Mar-20 11-Apr-47 15-Mar-20 15-Mar-20	+110-115 +165a +85-90 +135-140 very low 200s +130a +175a +107a +105-110 +115-120 +1105a +140a +115-120 +125a +165a +100a +15 bps to 5Y -25 bps to 10Y +hi 100s +35 bps to 10Y +90a +100a +100a +100a +70-75 +110a +125-130 +125-130 +125-130 +185-90 +110-115 +85-90 +110-115 +85-90 +110-115 +85-90 +110-115 +85-90 +150-140 +105-140 +105-140 +105-140	+100a (+/- 2) +145a (+/- 5) +75a (+/- 2) +125# +195a (+/- 5) 	-14.5 bps -25 bps -15 bps -12.5 bps -15 bps -15 bps -15 bps -15 bps -12.5 bps -15 bps -12.5 bps -15 bps -12 bps -17.5 bps -25 bps -25 bps -25 bps -25 bps -17 bps -40 bps -30 bps -30 bps -30 bps -31 bps -15 bps -15 bps -17 bps -17 bps -19 bps -17 bps -17 bps -18 bps -19 bps -17 bps -20 bps -17 bps -20 bps -10 bps -10 bps -10 bps -10 bps -17 bps -20 bps -10 bps -10 bps -10 bps -10 bps -10 bps -17 bps -20 bps -10 bps -1	+98 bps +140 bps +173 bps +173 bps +190 bps +115 bps +190 bps +117 bps +82 5 bps +110 bps +110 bps +126 bps +110 bps +126 bps +110 bps +140 bps +130 bps +140 bps +130 bps +140 bps +135 bps +115 bps +145 bps +175 bps +75 bps +75 bps +75 bps +87 5 bps +110 bps +83 1ps +80 0ps +76 bps +77 bps +78 bps +79 0ps +78 bps +79 bps +70 bps +95 bps +70 bps +95 bps +70 bps +95 bps +710 bps		2 2 2 2 2 2 2 2 2 2 3 3 4 4 4 4 4 4 2 2 2 2
	PPL Electric Utilities Corp Appalachian Power Company Southern Company Gas Capital Corp Public Service Electric & Gas Company NextEra Energy Capital Holdings Basin Electric Power Cooperative ** Oklahoma Gas & Electric Company Edison International Duke Energy Ohio, Inc.* Southern California Edison Company Arizona Public Service Company Yirginia Electric & Power Company DTE Energy Company Pacific Gas & Electric Co* Exelon Generation Company, LLC * Exelon Generation Company, LLC * Great Plains Energy Incorporated Connecticut Light & Power Company Eversource Energy Georgia Power Company Halabama Power Company Westar Energy Inc Consolidated Edison Inc Consulidated Edison Inc Consulidated Edison Inc Consulidated Energy Company MidAmerican Energy Company** MidAmerican Energy Company*** CenterPoint Energy Houston Electric LLC	A1 Baa1 Baa1 A3 Baa1 A3 A1 A3 A2 A2 A2 Baa1 A3 Baa2 Baa1 A3 Baa2 Baa1 A3 Baa2 A3 Baa3 Baa3 A2 A2 A2 A3 A1 Baa2 A2 A3 A1 A3 A1 A2 A3 A1 A1 A2 A3 A1 A1 Baa2 A2 A2 A3 A1	/ A / A / A / BBB+ / A / BBB+ / A / BBB+ / A / BBB+ / BBB /		475 325 450 425 1,250 500 300 400 100 700 250 750 500 200 250 1,150 1,400 300 400 450 550 400 450 550 400 350 375 475 300	3.950% 3.300% 4.400% 3.550% 4.750% 4.150% 2.125% 3.700% 4.000% 3.550% 3.500% 3.500% 3.500% 3.500% 3.500% 3.200% 2.950% 3.150% 3.200% 2.250% 3.150% 3.200% 2.450% 3.200% 2.450% 3.100% 3.950% 3.950% 3.150%	01-Jun-47 01-Jun-27 01-Jun-27 15-May-27 16-May-27 26-Apr-47 15-Apr-20 15-Jun-46 15-Jun-27 15-Mar-27 15-Mar-27 01-Apr-47 15-Mar-27 01-Apr-47 15-Mar-22 01-Apr-22 01-Apr-22 01-Apr-22 01-Apr-22 01-Apr-22 01-Apr-27 15-Mar-20 15-Mar-27 15-Mar-20 15-Mar-27 15-Mar-20 15-Mar-27 15-Mar-20 15-Mar-27 15-Mar-20 15-Mar-27 15-Mar-20 15-Mar-27 15-Mar-27 15-Mar-20 15-Mar-27 15-Mar-20 15-Mar-27 15-Mar-20 15-Mar-27 15-Mar-20	+110-115 +165a +85-90 +135-140 very low 200s +130a +75a +107a +105-110 +115-120 +115-120 +115-120 +115-120 +115-5a +165a +100a -15 bps to 5Y -25 bps to 10Y +hi 100s +35 bps to 10Y +90a +100a +70-75 +95-100 +70-75 +110a +125-130 +85-90 +110-115 +85-90 +110-115	+100a (+/- 2) +145a (+/- 5) +75a (+/- 5) +125# +195a (+/- 5) - - +65a (+/- 2.5) - +95# +110a (+/- 2) +109# +105a (+/- 2) +100# +105a (+/- 5) +145a (+/- 5) +145a (+/- 5) +150a (+/- 5)	-14.5 bps -25 bps -15 bps -12.5 bps -12.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -15.5 bps -25 bps -17.5 bps -25 bps -17 bps -35 bps -35 bps -35 bps -35 bps -15 bps -15 bps -17 bps -20 bps -20 bps -10 bps	+98 bps +140 bps +173 bps +173 bps +1125 bps +190 bps +1115 bps +682.5 bps +1107 bps +90 bps +1100 bps +1100 bps +1100 bps +1100 bps +1100 bps +130 bps +140 bps +83 bps +155 bps +115 bps +175 bps +75 bps		33 33 33 33 33 31 11 22 22 21 22 22 22 22 23 33 34 44 22 22 23 33 34 44 24 25 26 26 26 26 26 26 26 26 26 26 26 26 26

Date Issu	Jer	Mood At	ly's / Issu		Sec / FMB	Amount (\$MM)	Coupon	Maturity	IPTs	Guidance	IPTs to Pricing	Issue Spread	NIC	Book Size
18-Sep-17 Onc	cor Electric Delivery Company	A3	/	Α	$\overline{}$	325	3.800%	30-Sep-47	+115a	+100a (+/- 5)	-15 bps	+100 bps		3.0x
11-Sep-17 PEC	CO Energy Company	Aa3	/	A-	✓	325	3.700%	15-Sep-47	+115a	+100a (+/- 2)	-17 bps	+98 bps	+3 bps	2.7x
6-Sep-17 Nort	thern States Power Company (MN)	Aa3	/	Α	✓	600	3.600%	15-Sep-47	+105a	+95a (+/- 2)	-12 bps	+93 bps	+8 bps	1.7x
6-Sep-17 Nort	thwest Natural Gas Company	A1	/	AA-	✓	25	2.822%	13-Sep-27	+90a	-	-15 bps	+75 bps		5.0x
6-Sep-17 Nort	thwest Natural Gas Company	A1	/	AA-	✓	75	3.685%	13-Sep-47	+110a	-	-10 bps	+100 bps		2.0x
5-Sep-17 Duk	e Energy Progress LLC	Aa3	/	Α	✓	300	3mL+18	08-Sep-20	3mL+low 20s	3mL+20a (+/- 2)	-5 bps	+18 bps	-2 bps	1.5x
5-Sep-17 Duk	e Energy Progress LLC	Aa3	/	Α	✓	500	3.600%	15-Sep-47	+110a	+95a (+/- 3)	-18 bps	+92 bps	+2 bps	1.7x
5-Sep-17 Sou	thern California Edison Company *	Aa3	/	Α	✓	300	4.000%	01-Apr-47	+100a	+90a (+/- 2.5)	-10 bps	+90 bps	+5 bps	2.3x
16-Aug-17 Com	nmonwealth Edison Company	A1	/	A-	✓	350	2.950%	15-Aug-27	+85-90	+78a (+/- 3)	-12.5 bps	+75 bps	+2 bps	2.9x
16-Aug-17 Com	nmonwealth Edison Company	A1	/	A-	✓	650	3.750%	15-Aug-47	+105-110	+98a (+/- 3)	-12.5 bps	+95 bps	+3 bps	1.8x
8-Aug-17 Con	nnecticut Light & Power Company *	A2	/	A+	✓	225	4.300%	15-Apr-44	+100-105	+85#	-18 bps	+85 bps		3.3x
2-Aug-17 Sou	thwestern Public Service Company	A2	/	Α	✓	450	3.700%	15-Aug-47	+105a	+90a (+/- 2)	-17 bps	+88 bps		3.3x
31-Jul-17 DTE	Electric Company	Aa3	/	Α	✓	440	3.750%	15-Aug-47	+105a	+87.5a (+/- 2.5)	-20 bps	+85 bps		3.2x
12-Jun-17 Pub	olic Service Company of Colorado	A1	/	Α	✓	400	3.800%	15-Jun-47	+115a	+95-100	-20 bps	+95 bps		3.1x
6-Jun-17 Unio	on Electric Company (Ameren MO)	A2	/	Α	✓	400	2.950%	15-Jun-27	+90-95	-	-7.5 bps	+85 bps	+2 bps	2.0x
5-Jun-17 San	Diego Gas & Electric Company	Aa2	/	A+	✓	400	3.750%	01-Jun-47	+115a	+95a (+/- 2)	-22 bps	+93 bps	-2 bps	3.8x
17-May-17 Ente	ergy Louisiana LLC	A2	/	Α	✓	450	3.120%	01-Sep-27	+100a	-	-10 bps	+90 bps	+3 bps	2.2x
17-May-17 Roc	chester Gas and Electric Corp **	A1	/	A-	✓	300	3.100%	01-Jun-27	+100-105	+90#	-12.5 bps	+90 bps	n/a	3.0x
15-May-17 Poto	omac Electric Power Company *	A2	/	Α	✓	200	4.150%	15-Mar-43	+110a	-	-10 bps	+100 bps	+3 bps	1.8x
9-May-17 Mon	nongahela Power Co	А3	/	BBB+	✓	250	3.550%	15-May-27	+135a	+120a (+/- 5)	-20 bps	+115 bps	n/a	2.5x
9-May-17 Ente	ergy Arkansas Inc *	A2	/	Α	✓	220	3.500%	01-Apr-26	+95a	+85a (+/- 5)	-15 bps	+80 bps	-2 bps	2.4x
8-May-17 PPL	Electric Utilities Corp	A1	/	Α	✓	475	3.950%	01-Jun-47	+115a	+100a (+/- 2)	-17 bps	+98 bps		2.9x
2-May-17 Pub	olic Service Electric & Gas Company	Aa3	/	Α	✓	425	3.000%	15-May-27	+85-90	+75a (+/- 2)	-15 bps	+73 bps		2.2x
22-Mar-17 Duk	e Energy Ohio, Inc.*	A2	/	Α	✓	100	3.700%	15-Jun-46	+107a	-		+107 bps	+4 bps	3.5x
21-Mar-17 Sou	thern California Edison Company	Aa3	/	Α	✓	700	4.000%	01-Apr-47	+105-110	+95#	-12.5 bps	+95 bps	+3 bps	1.6x
2-Mar-17 Con	nnecticut Light & Power Company	A2	/	A+	✓	300	3.200%	15-Mar-27	+90a	+75a (+/- 5)	-15 bps	+75 bps		4.3x
27-Feb-17 Wes	star Energy Inc	A2	/	Α	✓	300	3.100%	01-Apr-27	+95-100	+80a (+/- 2)	-19.5 bps	+78 bps	-5 bps	3.3x
15-Feb-17 Con	nsumers Energy Company	A1	/	Α	✓	350	3.950%	15-Jul-47	+110a	+90a (+/- 2.5)	-22.5 bps	+87.5 bps		4.1x
	American Energy Company***	Aa2	/	A+	✓	375	3.100%	01-May-27	+85-90	+75a (+/- 5)	-20 bps	+70 bps	-5 bps	3.7x
23-Jan-17 Mid/	American Energy Company***	Aa2	/	A+	✓	475	3.950%	02-Aug-47	+110-115	+100a (+/- 5)	-20 bps	+95 bps	-5 bps	4.4x
	terPoint Energy Houston Electric LLC	A1	/	Α	✓	300	3.000%	01-Feb-27	+85a	+75a (+/- 5)	-15 bps	+70 bps	-4 bps	1.8x
	se Energy Florida LLC	A1	/	Α	✓	250	1.850%	15-Jan-20	+55a	+45a (+/- 5)	-15 bps	+40 bps		3.2x
3-Jan-17 Duk	e Energy Florida LLC	A1	/	Α	✓	650	3.200%	15-Jan-27	+90a	+80a (+/- 5)	-15 bps	+75 bps		2.5x

Date	Issuer	Moody's At Is:		Sec / Amount FMB (\$MM)	Coupon	Maturity	IPTs	Guidance	IPTs to Pricing	Issue Spread	NIC	Book Size
25-Sep-17	AEP Transmission Co LLC	A2 /	A-	500	3.750%	01-Dec-47	+115a	+103a (+/- 3)	-15 bps	+100 bps	+3 bps	2.6x
19-Sep-17	AEP Texas Inc.	Baa1 /	A-	300	3.800%	01-Oct-47	+125a	+110a (+/- 5)	-20 bps	+105 bps		3.3x
13-Sep-17	Washington Gas Light Company *	A1 /	Α	200	3.796%	15-Sep-46	+125a	-	-15 bps	+110 bps	+3 bps	1.8x
11-Sep-17	Virginia Electric & Power Company	A2 /	BBB+	550	3.800%	15-Sep-47	+115-120	-	-7.5 bps	+110 bps	+10 bps	1.5x
21-Aug-17	CenterPoint Energy Resources Corp.	Baa2 /	A-	300	4.100%	01-Sep-47	+160-165	+140a (+/- 2.5)	-25 bps	+137.5 bps	+3 bps	5.7x
21-Aug-17	Baltimore Gas & Electric	A3 /	A-	300	3.750%	15-Aug-47	+120a	+105a (+/- 2)	-17 bps	+103 bps	+3 bps	2.4x
8-Aug-17	Oklahoma Gas & Electric Company	A1 /	A-	300	3.850%	15-Aug-47	+110-115	+100a (+/- 2)	-13 bps	+100 bps	+4 bps	1.9x
26-Jun-17	Indiana Michigan Power Company	Baa1 /	A-	300	3.750%	01-Jul-47	+130-135	+115a (+/- 5)	-22.5 bps	+110 bps	-5 bps	3.1x
13-Jun-17	Kansas City Power & Light Company	Baa1 /	BBB+	300	4.200%	15-Jun-47	+145a	+135-140	-7.5 bps	+135 bps	+5 bps	4.0x
5-Jun-17	Consolidated Edison Co. of NY	A2 /	A-	500	3.875%	15-Jun-47	+120a	+105-110	-15 bps	+105 bps	+4 bps	2.0x
5-Jun-17	Atmos Energy Corporation *	A2 /	Α	250	4.125%	15-Oct-44	+120-125	+110a (+/- 5)	-17.5 bps	+105 bps	-5 bps	5.6x
28-Mar-17	Oklahoma Gas & Electric Company	A1 /	A-	300	4.150%	01-Apr-47	+130a	-	-15 bps	+115 bps	+5 bps	3.7x
16-Mar-17	Arizona Public Service Company *	A2 /	A-	250	4.350%	15-Nov-45	+115-120	+110a (+/- 2)	-8 bps	+110 bps	+2 bps	2.0x
7-Mar-17	Pacific Gas & Electric Co *	A3 /	BBB+	200	4.000%	01-Dec-46	+115-120	+100#	-17.5 bps	+100 bps	-5 bps	2.8x
25-Sep-17	AEP Transmission Co LLC *	A2 /	A-	125	3.100%	01-Dec-26	+95a	+80a (+/- 3)	-18 bps	+77 bps	-6 bps	6.4x
6-Sep-17	Arizona Public Service Company	A2 /	A-	300	2.950%	15-Sep-27	+100a	+90a (+/- 5)	-15 bps	+85 bps	+3 bps	2.8x
5-Sep-17	Pennsylvania Electric Company **	Baa1 /	BBB-	300	3.250%	15-Mar-28	+140a	+120a (+/- 2)	-22 bps	+118 bps		4.3x
31-Jul-17	Boston Gas Company **	A3 /	A-	500	3.150%	01-Aug-27	+110a	+87-90	-23 bps	+87 bps	-7 bps	4.6x
5-Jun-17	Atmos Energy Corporation	A2 /	Α	500	3.000%	15-Jun-27	+105a	+90a (+/- 5)	-20 bps	+85 bps	-5 bps	4.4x
15-May-17	Gulf Power Company	A2 /	A-	300	3.300%	30-May-27	+110a	+100a (+/- 2)	-12 bps	+98 bps	n/a	2.5x
10-May-17	NSTAR Electric Company	A2 /	Α	350	3.200%	15-May-27	+95a	+80-82	-15 bps	+80 bps		2.1x
8-May-17	Appalachian Power Company	Baa1 /	A-	325	3.300%	01-Jun-27	+110-115	+100a (+/- 2)	-14.5 bps	+98 bps	-5 bps	3.4x
13-Mar-17	Virginia Electric & Power Company	A2 /	BBB+	750	3.500%	15-Mar-27	+105a	+90-95	-15 bps	+90 bps	+5 bps	2.3x
7-Mar-17	Pacific Gas & Electric Co	A3 /	BBB+	400	3.300%	15-Mar-27	+100a	+85a (+/- 2)	-17 bps	+83 bps		2.8x
28-Feb-17	Georgia Power Company	A3 /	A-	400	3.250%	30-Mar-27	+105a	+95a (+/- 5)	-15 bps	+90 bps	+2 bps	2.0x
19-Sep-17	AEP Texas Inc.	Baa1 /	A-	400	2.400%	01-Oct-22	+80a	+65a (+/- 5)	-20 bps	+60 bps		2.5x
11-Sep-17	Virginia Electric & Power Company *	A2 /	BBB+	200	2.750%	15-Mar-23	+80-85	-	-12.5 bps	+70 bps		3.3x
27-Feb-17	Alabama Power Company	A1 /	A-	550	2.450%	30-Mar-22	+70-75	+65a (+/- 5)	-12.5 bps	+60 bps		2.3x
3-Aug-17	Georgia Power Company	A3 /	A-	500	2.000%	08-Sep-20	+75a	+55a (+/- 2)	-22 bps	+53 bps	-4 bps	2.8x
28-Feb-17	Georgia Power Company	A3 /	A-	450	2.000%	30-Mar-20	+70a	+55a (+/- 2)	-17 bps	+53 bps	+2 bps	2.1x

Date	Issuer	Moody's At Is:		Sec / Amount FMB (\$MM)	Coupon	Maturity	IPTs	Guidance	IPTs to Pricing	Issue Spread	NIC	Book Size
6-Sep-17	PPL Capital Funding, Inc.	Baa2 /	BBB+	500	4.000%	15-Sep-47	+150a	+135a (+/- 5)	-15 bps	+135 bps	+5 bps	2.0x
5-Sep-17	NiSource Finance Corp	Baa2 /	BBB+	750	3.950%	30-Mar-48	+145a	+130a (+/- 2)	-17 bps	+128 bps	-2 bps	2.1x
7-Aug-17	Duke Energy Corporation	Baa1 /	BBB+	500	3.950%	15-Aug-47	+125a	+115a (+/- 2)	-12 bps	+113 bps	+10 bps	3.2x
7-Aug-17	American Water Capital Corp.	A3 /	Α	750	3.750%	01-Sep-47	+115a	+95a (+/- 2)	-22 bps	+93 bps	+2 bps	2.5x
19-Jun-17	FirstEnergy Corp	Baa3 /	BB+	1,000	4.850%	30-Jun-47	+40 bps to 10YR	+215a (+/- 5)	-37.5 bps	+210 bps	n/a	5.2x
11-May-17	NiSource Finance Corp	Baa2 /	BBB+	1,000	4.375%	15-May-47	+170a	+140a (+/- 5)	-35 bps	+135 bps	-7 bps	2.9x
4-May-17	Southern Company Gas Capital Corp	Baa1 /	A-	450	4.400%	30-May-47	+165a	+145a (+/- 5)	-25 bps	+140 bps	-5 bps	3.3x
19-Apr-17	Basin Electric Power Cooperative **	A3 /	Α	√ 500	4.750%	26-Apr-47	very low 200s	+195a (+/- 5)	-15 bps	+190 bps	n/a	2.2x
6-Mar-17	Great Plains Energy Incorporated	Baa3 /	BBB	1,000	4.850%	01-Apr-47	+35 bps to 10Y	+180a (+/- 5)	-35 bps	+175 bps	n/a	4.9x
7-Aug-17	Duke Energy Corporation	Baa1 /	BBB+	750	3.150%	15-Aug-27	+105a	+95a (+/- 2)	-12 bps	+93 bps	+10 bps	2.9x
7-Aug-17	American Water Capital Corp.	A3 /	Α	600	2.950%	01-Sep-27	+95a	+75a (+/- 2)	-22 bps	+73 bps	-6 bps	3.3x
19-Jul-17	Duquesne Light Holdings, Inc.	Baa3 /	BBB-	325	3.616%	01-Aug-27	+160-165	+140a (+/- 5)	-28 bps	+135 bps	-10 bps	3.5x
19-Jun-17	FirstEnergy Corp	Baa3 /	BB+	1,500	3.900%	30-Jun-27	+200-lo 200s	+180a (+/- 5)	-37.5 bps	+175 bps	n/a	4.0x
6-Jun-17	Sempra Energy	Baa1 /	BBB+	750	3.250%	15-Jun-27	+130-135	+115-120	-17.5 bps	+115 bps	-7 bps	2.3x
11-May-17	NiSource Finance Corp	Baa2 /	BBB+	1,000	3.490%	15-May-27	+140a	+115a (+/- 5)	-30 bps	+110 bps	-7 bps	2.6x
25-Apr-17	NextEra Energy Capital Holdings	Baa1 /	BBB+	1,250	3.550%	01-May-27	+135-140	+125#	-12.5 bps	+125 bps	n/a	2.1x
8-Mar-17	DTE Energy Company	Baa1 /	BBB	500	3.800%	15-Mar-27	+140a	+130a (+/- 2)	-12 bps	+126 bps	+2 bps	1.9x
6-Mar-17	Great Plains Energy Incorporated	Baa3 /	BBB	1,400	3.900%	01-Apr-27	+hi 100s	+150a (+/- 5)	-30 bps	+145 bps	n/a	3.7x
8-Feb-17	CMS Energy Corporation	Baa2 /	BBB	350	3.450%	15-Aug-27	+125-130	+115a (+/- 5)	-17.5 bps	+110 bps	-3 bps	2.1x
17-Aug-17	Edison International	A3 /	BBB	400	2.400%	15-Sep-22	+85-90	+75a (+/- 5)	-12.5 bps	+70 bps		4.0x
7-Aug-17	Duke Energy Corporation	Baa1 /	BBB+	500	2.400%	15-Aug-22	+75a	+65a (+/- 2)	-12 bps	+63 bps	+7 bps	2.5x
7-Aug-17	CenterPoint Energy Inc.	Baa1 /	BBB+	500	2.500%	01-Sep-22	+95a	+75a (+/- 2)	-25 bps	+70 bps	n/a	4.4x
19-Jun-17	FirstEnergy Corp	Baa3 /	BB+	500	2.850%	30-Jun-22	-62.5 bps to 10YR	+115a (+/- 5)	-37.5 bps	+110 bps	n/a	6.4x
7-Mar-17	Exelon Generation Company, LLC	Baa2 /	BBB	500	3.400%	15-Mar-22	+165a	+145a (+/- 5)	-25 bps	+140 bps	-1 bps	2.6x
6-Mar-17	Great Plains Energy Incorporated	Baa3 /	BBB	1,150	3.150%	01-Apr-22	-25 bps to 10Y	+120a (+/- 5)	-35 bps	+115 bps	n/a	4.0x
2-Mar-17	Eversource Energy	Baa1 /	A-	300	2.750%	15-Mar-22	+100a	+75a (+/- 5)	-25 bps	+75 bps		5.7x
9-Jan-17	Dominion Resources, Inc.	Baa2 /	BBB	400	2.750%	15-Jan-22	+105a	+95a (+/- 5)	-15 bps	+90 bps	-1 bps	2.5x
22-Mar-17	Edison International	A3 /	BBB+	400	2.125%	15-Apr-20	+75a	+65a (+/- 2.5)	-12.5 bps	+62.5 bps	+2 bps	1.8x
7-Mar-17	Exelon Generation Company, LLC *	Baa2 /	BBB	250	2.950%	15-Jan-20	+125a	+105a (+/- 5)	-25 bps	+100 bps	-2 bps	6.0x
6-Mar-17	Great Plains Energy Incorporated	Baa3 /	BBB	750	2.500%	09-Mar-20	-15 bps to 5Y	+100a (+/- 5)	-40 bps	+95 bps	n/a	5.3x
27-Feb-17	Consolidated Edison Inc	A3 /	BBB+	400	2.000%	15-Mar-20	+70-75	+60a (+/- 5)	-17.5 bps	+55 bps	-5 bps	3.0x
9-Jan-17	Dominion Resources, Inc.	Baa2 /	BBB	400	1.875%	15-Jan-19	+85a	+75a (+/- 3)	-13 bps	+72 bps		2.3x

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce Comments

Docket No. E,G002/S-17-767

Dated this 1st day of December 2017

/s/Sharon Ferguson

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