

March 4, 2019

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: **Response Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E002/M-17-797

Dear Mr. Wolf:

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

Petition of Northern States Power Company, doing business as Xcel Energy, for Approval of its Transmission Cost Recovery Rider.

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

Sincerely,

/s/ CRAIG ADDONIZIO
Financial Analyst

CA/jl
Attachment



Before the Minnesota Public Utilities Commission

Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. E002/M-17-797

I. BACKGROUND

On November 8, 2017, Northern States Power Company (NSPM, or the Company), an operating company/subsidiary of Xcel Energy, Inc. (Xcel), filed a petition (Petition) with the Minnesota Public Utilities Commission (Commission) requesting approval of its 2017-2018 Transmission Cost Recovery (TCR) Rider revenue requirements, tracker balance, and updated TCR adjustment factors.

On April 2, 2018, the Minnesota Department of Commerce, Division of Energy Resources (Department) filed Comments requesting that NSPM provide additional information in Reply Comments.

On May 14, 2018, the Company filed Reply Comments. The Company also filed Supplemental Reply Comments on May 25, 2018 and July 16, 2018.

II. DEPARTMENT ANALYSIS

A. *ADVANCED DISTRIBUTION MANAGEMENT SYSTEM*

1. *Need, Prudence, and Eligibility*

In its Comments, the Department noted in considering the prudence of NSPM's expenditures on an Advanced Distribution Management System (ADMS), it first sought to determine whether a need for an ADMS had been established, and second, given a need, whether the Company's process for acquiring the ADMS was reasonable and cost effective. The Department concluded that given a need for an ADMS, the Company's acquisition process had been prudent, and that the costs were eligible for recovery via the TCR rider, but expressed concern that a need for an ADMS had not been established. The Department also noted, however, that the Commission's June 28, 2016 Order in Docket No. E002/M-15-962 certified NSPM's ADMS project as having a "foundational role in grid modernization" and encouraged the "rapid development" of an ADMS." The Department noted that the Commission's Order seemed to indicate that an ADMS is needed, but did not explicitly so state.

If the Commission's intention in its June 28, 2016 Order in Docket No. E002/M-15-962 was to establish that NSPM had a need for an ADMS, then the Department recommends that the Commission approve NSPM's request to begin cost recovery for its ADMS project. However, if that was not the Commission's intention, the Department recommends that the Commission evaluate whether the Company's analysis in Attachment 1A to its Petition adequately demonstrates the need for an ADMS.

2. *Construction work in process for NSPM's ADMS*

In its Comments, the Department noted that NSPM had stated in its Petition that it is not seeking rider recovery of its hardware costs associated with its ADMS, and instead will include them in a future rate case. The Department noted however, that the Construction Work in Progress (CWIP) included in the revenue requirements presented in Attachment 13 of the Company's Petition more closely matches the total ADMS cost estimates, including hardware, presented in Attachment 1A of the Petition. The Department requested that NSPM confirm in Reply Comments that the CWIP balances in Attachment 13 of its Petition did not include hardware costs, and explain the difference between the cost estimates shown in Attachments 1A and 13.

In Reply Comments, the Company explained that the cost estimates presented in Attachment 1A represented the Minnesota Jurisdictional share of NSPM's costs, whereas the CWIP balances presented in Attachment 13 represented NSPM's total costs. The Company noted, however, that in reviewing its Petition for purposes of its Reply Comments, it found that it had inadvertently included some hardware costs in the CWIP balances presented in Attachment 13, from which its revenue requirements were derived. The Company provided updated CWIP balances and revenue requirements in its Supplemental Reply Comments. Table 1 summarizes the changes in CWIP balances from NSPM's Petition to its Supplemental Reply Comments, as well as the impact on revenue requirements.

Table 1
Updated CWIP Balances
(\$ Millions)

Year	CWIP in Revenue Requirements			MN Juris. Rev. Requirements		
	Petition	Supp. Reply Comments	Change	Petition	Supp. Reply Comments	Change
2017	16.4	12.2	(4.2)	1.0	0.8	(0.2)
2018	28.9	21.1	(7.8)	2.7	1.6	(1.1)
2019	42.5	31.5	(11.0)	3.8	2.5	(1.3)

Sources: Attach. 13 of Petition and Attach. 13 of Supp. Reply Comments

3. *ADMS cost allocations*

In its Comments, the Department noted that the Company is developing its ADMS at the total company level. ADMS costs that cannot be directly assigned to a particular jurisdiction must therefore be allocated from the total company level to Xcel's four operating Companies (NSPM, Northern States Power Wisconsin (NSPW), Public Service Company of Colorado (PSCo), and Southwest Public Service Company (SPS)), and NSPM's share of costs must then be allocated across its three state jurisdictions (Minnesota, North Dakota, and South Dakota).

As noted in the Department's Comments, NSPM proposes allocate ADMS costs to Xcel's four operating companies based on their electric distribution plant balances. The Company proposes to allocate NSPM's share of costs among its three state jurisdictions using an allocator called "MN JUR Electric Intangible Composite." In its Comments, the Department requested that NSPM explain in Reply Comments what the MN JUR Electric Intangible Composite is and how it is calculated. The Department also requested that NSPM explain why it is reasonable to use two different allocators to allocate the same costs (that is, one allocator to divide costs among operating companies, and a second, different allocator to divide costs among NSPM's three state jurisdictions).

In Reply Comments, NSPM explained that when an Xcel Energy information technology system is initiated, Xcel assesses what the system is intended to do, and who will benefit from the system. Based on this assessment, Xcel determined that each operating company's share of total electric distribution plant asset value is a reasonable allocator for ADMS costs that cannot be assigned directly.

The Company also explained that its “MN JUR Electric Intangible Composite” allocator is used to allocate all software-related capital costs among NSPM’s three state jurisdictions. The allocator is derived using a study of the Company’s major software systems to determine the functions the software supports (i.e. production, transmission, or distribution). The portions of software costs attributable to production and transmission are allocated to the three state jurisdictions using a demand allocator, and the portion attributable to distribution is allocated using each jurisdiction’s number of customers.

The Department concludes that the Company’s proposed allocation method is reasonable at this time, but notes that it may revisit these allocation methods as the ADMS is developed and put to use if it becomes clear that these allocation factors do not reasonably represent the use of or reliance on the ADMS of each of the Xcel’s operating companies or NSMP’s state jurisdictions.

B. MISO SCHEDULES 26/26A CHARGES (REGIONAL EXPANSION CRITERIA AND BENEFITS OR RECB)

1. Net MISO Schedule 26/26A Charges

In its Comments, the Department noted that NSPM recovers its net MISO Schedule 26/26A charges in its TCR, and that the Company’s net charges swung from a \$16.1 million credit (reducing its overall revenue requirement) in 2016, to a net charge of \$0.9 million in 2017. The Company forecasted a net charge of \$0.4 million in 2018, and a net credit of \$11.0 million in 2019. The Department noted that the expected decrease in net expense from 2018 to 2019 was attributable to a new Company-owned transmission project expected to go in service in late 2018, but requested that the Company explain the increase in net expense observed from 2016 to 2017.

In Reply Comments, the Company explained the increase in net expense results from a combination of increasing MISO-wide Schedule 26A Revenue Requirements, and the decrease in the authorized return on equity that it receives for the MVP projects it owns. The table on page 5 of the Company’s Reply Comments in particular highlights the significant growth in total MISO-wide Schedule 26A revenue requirements over the last several years, from \$87.0 million in 2013 to \$714.6 million in 2018.

The Department concludes that NSPM’s explanation of the changes in net MISO Schedule 26/26A charges is reasonable.

2. FERC ROE Adjustment

In its Comments, the Department noted that on September 28, 2016, the Federal Energy Regulatory Commission (FERC) issued Opinion 531 revising the return on equity allowed for MISO Transmission Owners down from 12.38 percent to 10.82 percent, including a 50-basis-point adder for being a member of a regional transmission organization. Pursuant to the ROE adjustment, refunds, with interest, were issued to MISO transmission customers for the period Nov. 12, 2013 through Feb. 11, 2015. The refunds were paid by MISO transmission owners in two payments during 2017.

In its Comments, the Department noted that NSPM excluded the interest component of the amount ROE from refund amounts it is proposing to recover from ratepayers via the TCR because the Company does not consider interest income or expense to be MISO RECB activity. Had NSPM including the interest component of the ROE refund amounts, its TCR revenue requirements would have been higher by approximately \$0.5 million. The Department requested that the Company provide further explanation of its reasons for excluding the interest component from its TCR revenue requirements.

On page 6 of its Reply Comments, the Company stated that interest related to the MISO ROE resettlement was recorded as interest expense (on the cumulative over-collection of revenue requirements) and not transmission or expense or transmission revenue. The Company also stated that actual interest expenses and revenues are typically not included in ratemaking. Instead, the ratemaking mechanisms rely on the cost of capital applied to the particular scope of the mechanism to determine the appropriate interest to recognize.

The Department disagrees with the Company's assertion that FERC-mandated interest payments associated with the ROE refunds are comparable to interest expense associated with the cost of capital. Minn. Stat. §216B.16, subd. 7b(b)(2) "allows the utility to recover charges incurred under a federally approved tariff that accrue from other transmission owners' regionally planned transmission projects," net of "revenues received by the utility and by amounts the utility charges to other regional transmission owners." The statute does not distinguish between the specific types of charges and revenues incurred pursuant to a federally approved tariff, and therefore the Department concludes that the interest component of the ROE refund should be included in NSPM's TCR revenue requirements.

C. RATE OF RETURN ON INVESTMENT

In its Petition, NSPM requested approval of a return on equity (ROE) of 10.0 percent for use in calculating its revenue requirements in the TCR. In its Comments, the Department disagreed

with the Company's proposed ROE, and instead proposed that the Commission authorize an ROE of 8.99 percent. In its Reply Comments, NSPM reiterated its request for a 10.0 percent ROE, and responded to the Department's ROE analysis. The Department's response is included in the Response ROE Appendix included with these Response Comments. In summary, the Department continues to disagree with the Company's proposal and instead recommends that the Commission approve an ROE of 8.59 percent.

The Department further recommends that the Commission require the Company to use the ROE determined in this Docket in all dockets filed by the Company that require an ROE until the Commission issues an order in the Company's next rate case authorizing a different ROE.

D. COMPLIANCE FILING, TRUE-UP REPORT, AND TRACKER BALANCES

As discussed on page 14 of the Department's Comments, the Company's Petition described two adjustments reflected in its 2016 tracker balance as reported in its Petition that were not reflected in its January 23, 2017 Compliance Filing in Docket No. E002/M-15-891. One related to updated jurisdictional allocators approved in NSPM's most recent rate case, and the other was described in the Company's Petition as an update for a December 2016 true-up. In its Comments, the Department asked the Company to explain the need for this second adjustment.

In Reply Comments, the Company explained that the January 23, 2017 Compliance Filing included an estimate of costs and revenues for December 2016, not actuals, and the true-up simply corrected for the difference between the estimate and actuals. The Department concludes that this explanation is reasonable.

E. TWO-WAY CARRYING CHARGE

In its Comments, the Department recommended that the Commission deny NSPM's request to implement a carrying charge on its TCR tracker balances, and cited the Commission's March 10, 2014 Order in Docket No. E017/M-13-103 (the Otter Tail Order), in which the Commission carefully considered and ultimately rejected implementing a carrying charge in Otter Tail Power Company's renewable energy rider.

In its Reply Comments, the Company reiterated its request, stating that the issue it wishes to address with a carrying charge is neither one of fairness nor incentive, as discussed in the Otter Tail Order, but one of customer impact. The Company stated that it has observed that evaluation periods have lengthened, and that carryover balances have been increasing in size as a result. The Company is concerned that these larger carryover balances create significant

volatility in rider rates, and stated that a carrying charge is a tool that may help reduce this volatility by encouraging a better match between rider test periods and rate implementation periods.

While the Department understands that the Company's reasons for proposing a carrying charge in this Docket are different from the reasons discussed in the Otter Tail Order, the Department nonetheless believes that the Commission has given ample consideration to implementing carrying charges and determined not to include them. Further, the Department notes that the increases in evaluation times are due in large part to the increasing size and complexity of certain riders, and implementing a carrying charge will likely not result in reduced evaluation periods. Rather, carrying charges likely will simply add to the revenue requirements and exacerbate the problem the Company has identified. The Department therefore continues to recommend that the Commission deny the Company's request for a two-way carrying charge.

F. IMPACT OF THE TAX CUT AND JOBS ACT

In its Comments, the Department requested that the Company provide in Reply Comments updated revenue requirement calculations reflecting the impact of the Tax Cuts and Jobs Act of 2017 (TCJA) that was signed into law, which reduced the corporate income tax rate from 35.00 percent to 21.00 percent. The Company updated its revenue requirements in its May 25, 2018 Supplemental Reply Comments.

G. ACCUMULATED DEFERRED INCOME TAXES

In its Comments, the Department recommended that the Commission either (1) allow the Company to include prorated accumulated deferred income tax (ADIT) balances in its forecasted test-year revenue requirement calculations, but require it to replace its forecasted prorated ADIT balances with actual non-prorated ADIT balances in its beginning-of-month and end-of-month average calculations for true-up purposes in future TCR dockets, OR (2) require the Company to implement the adjustment factors, based on actual non-prorated ADIT balances, approved in this Docket on or after January 1, 2019.

In three sets of Reply Comments, dated May 14, May 25, and July 16, 2018, the Company addressed issue of pro-rated ADIT. Ultimately, the Company proposed a new methodology in which it treats each month in the test year as an individual test period. NSPM stated that this treatment allows it to reset the ADIT balance at the beginning of each month to its un-prorated balance, and only the monthly activity. Because the proration factor for each monthly test period is equal to 0.5 (or very close to 0.5), the prorated ADIT balance for each month is approximately equal to the average of the beginning-of-month and end-of-month ADIT balances for each month. As a result, the effect of this method of pro-rating ADIT is quite small.

In its July 16, 2018 Supplemental Reply Comments, NSPM calculated the total impact on 2018 revenue requirements of \$636.

Also in its July 16, 2018 Supplemental Reply Comments, the Company stated that it was asking to apply this proposed methodology for currently pending rider filings, with no commitment from parties regarding future treatment.

As it has on various other Dockets, the Department recommends that the Commission reject NSPM's proposed methodology and instead require the Company to calculate rates that do not reflect any ADIT proration and implement rates one day after the test period being analyzed. The Department notes that the test period for this Docket is 2018, meaning that rates implemented after January 1, 2019 do not need to include (and therefore should not include) any proration of forecasted ADIT balances.

As described in the Department's comments in several other proceedings, NSPM's proposed methodology is needlessly complex, difficult to monitor, and unnecessary to preserve the significant deferred tax benefits associated with using accelerated depreciation for tax purposes.¹

III. CONCLUSION

Based on the analysis above and in the attached Response ROE Appendix, the Department recommends that the Commission approve recovery of the 2018 revenue requirements and cost allocations presented in NSPM's May 25, 2018 Supplemental Reply Comments, modified to reflect:

- (1) an ROE of 8.59 percent;
- (2) interest associated with the FERC ROE adjustment of \$0.5 million; and
- (3) ADIT calculated without pro-rationing.

Additionally, the Department recommends that the Commission deny the Company's request to recalculate its rate adjustment to collect the approved 2018 revenue requirement over the remaining months of 2018, as 2018 is now over. Instead, the Department recommends that the Commission require NSPM to calculate its final rider rates using the approved 2018 revenue requirement and the billing determinants reflected in the Company's May 25, 2018 Supplemental Reply Comments, with no adjustment for the delayed implementation date.

/jl

¹ See, for example, the Department's December 6, 2018 Comments in Docket No. G002/M-17-787.

Response ROE Appendix

Docket No. E002/M-17-797

I. INTRODUCTION AND BACKGROUND

In Northern State Power Company's (NSPM or the Company) most recent rate case, Docket No. E002/GR-15-826 (the 2016 Rate Case), the Commission approved a settlement agreement (Settlement) that allowed NSPM to "represent its authorized [return on equity] as nine and two-tenths percent (9.20%) for settlement purposes *in this rate case Proceeding*" (*emphasis added*).¹ In its Order approving the Settlement, the Commission also made clear that the 9.20 percent return on equity (ROE) NSPM was authorized to represent was not binding on future proceedings, and that parties were "free to assert an alternative ROE" in future rider proceedings.²

In its Petition in the instant docket, the Company requested that the Commission approve an ROE of 10.0 percent to determine revenue requirements in its TCR Rider. In its Comments, the Department recommended an ROE of 8.99 percent. In Reply Comments, the Company again requested an ROE of 10.0 percent, and responded to the Department's analysis and recommendation from its Comments.

In these Response Comments, the Department provides an updated recommendation based on recent market data and responds to the Company's criticisms of its analysis. The Department recommends that the Commission approve an ROE of 8.59 percent for NSPM. Additionally, the Department recommends that the ROE established in this Docket be used in all proceedings that require an ROE for NSPM's electric operations until NSPM concludes its next rate case, at which time a new ROE would be set.

II. UPDATED ROE ANALYSES

A. UPDATED DISCOUNTED CASH FLOW ANALYSIS

As described in the Department's Comments, the Department developed two proxy groups, one comprised of companies assigned a Standard Industrial Classification (SIC) code of 4911: Electric Services (the Electric Proxy Group, or EPG), and one comprised of companies with a SIC code of 4931: Electric and Other Services Combined SIC (the Combination Proxy Group, or CPG).

¹ See August 16, 2016 Stipulation of Settlement in the 2016 Rate Case, at 6-7.

² Commission's June 12, 2017 FINDINGS OF FACT, CONCLUSIONS, AND ORDER in the 2016 Rate Case, page 22.

The Department updated its proxy group screening analysis and performed constant growth and two-growth discounted cash flow (DCF) analyses on the two updated proxy groups using recent stock prices, dividends, and long-term earnings growth rate forecasts. Table 1 below summarizes the results of the Department's updated constant and two-growth DCF analyses for the Electric Proxy Group and the Combination Proxy Group.

Table 1
Updated Constant Growth and Two-Growth DCF Analysis Results
Includes Flotation Adjustment

Model	Mean Low ROE	Mean ROE	Mean High ROE
<u><i>Constant Growth DCF Results</i></u>			
EPG	7.61%	8.21%	8.88%
CPG	8.63%	9.22%	9.82%
<u><i>Two-Growth DCF Results</i></u>			
EPG	7.47%	8.09%	8.80%
CPG	8.75%	9.34%	9.94%

Response ROE Attachments 3-10

B. UPDATED CAPITAL ASSET PRICING MODEL ANALYSIS

The Department also updated its Capital Asset Pricing Model (CAPM) analysis using more recent data to estimate the risk-free rate, the required market return, and beta.

The Department's CAPM estimate of the cost of equity for the EPG, including a 10 basis point adjustment for flotation costs, is 9.71 percent. The Department's CAPM estimate of the cost of equity for the CPG, including a flotation cost adjustment, is 9.59 percent.³

While the Department's EPG CAPM result (9.71 percent) is higher than its mean high DCF result for the EPG (8.80 percent), it's EPG CAPM result is well within the tops of the ranges established by the Department's mean and high two-growth DCF results (9.82 percent and 10.73 percent, respectively). Additionally, the Department's CPG CAPM result falls well within the range established by the mean low and mean high two-growth DCF results, as shown in Table 1. Therefore, the Department concludes that its CAPM results confirm the reasonableness of its DCF results.

C. UPDATED RECOMMENDED ROE

³ See Response ROE Attachment 15.

Consistent with past practice, the Department assigned weights of 60 percent and 40 percent to the mean average two-growth DCF results for the EPG and CPG, respectively, to derive a final ROE recommendation.

Table 2
Recommended ROE

Model	Mean Average Two-Growth DCF	Weights	Weighted ROE
	ROE Estimate		
EPG	8.09%	60.00%	4.85%
CPG	9.34%	40.00%	3.74%
Recommended ROE			8.59%

Response ROE Attachments 4 and 8

These weights produce a final ROE estimate for NSPM of 8.59 percent, including flotation costs. The Department recommends that the Commission approve an ROE of 8.59 percent for use in NSPM's TCR Rider, as well as any other riders filed before the Company concludes its next rate case.

III. RESPONSE TO NSPM'S REPLY COMMENTS

A. AUTHORIZED RETURNS ON EQUITY FOR OTHER INTEGRATED ELECTRIC UTILITIES

In its Reply Comments, the Company noted that the Department's recommended ROE from its Comments was lower than all authorized ROEs authorized in state jurisdictions from January 2017 through March 2018. The Company stated that "the DOC has not provided any evidence to support a conclusion that there are differences in business or financial risk that would justify an ROE for NSPM's TCR rider below any authorized ROE for an integrated electric utility in 2017 or 2018."⁴

If the Company wishes to present evidence that ROEs authorized in other jurisdictions for other utilities are relevant, it is certainly free to do so. NSPM, however, has not done so. Rather, the Company has only asserted, without support, that those decisions are relevant. As discussed below, the majority of the authorized ROEs from January 2017 through March 2018 are not relevant to the Commission's determination of a reasonable ROE for NSPM.

⁴ NSPM's May 14, 2018 Reply Comments, Attachment B, page 5.

Figure 1 on page 5 of Attachment B of the Company's Reply Comments summarizes the ROEs authorized in 34 rate cases for vertically integrated electric utilities from January 2017 to March 2018. Of those 34 rate cases, 23 were resolved via settlements, and 11 were fully-litigated and determined by a state commission. ROEs determined by negotiated settlement agreements may not reflect unbiased assessments of the utilities' cost of equity and therefore cannot reasonably be used as reference points in determining a reasonable ROE for NSPM.

Even for the 11 fully-litigated ROEs, the Company provided no discussion of the factors considered by the state Commissions in determining the ROEs, whether the factors considered align with factors generally considered by the Minnesota Public Utilities Commission, or whether there are any utility-specific factors that do or do not apply to NSPM. For example, one of those 11 is the ROE authorized by the Minnesota Public Utilities Commission for Otter Tail Power Company (Otter Tail) in its most recent rate case. In that case, the Commission considered several factors that are not relevant to NSPM, including Otter Tail's small size, its history of completing large projects under budget, and its customer satisfaction rankings. Another of those 11 ROEs is an ROE authorized by the Public Utilities Commission of Nevada that includes an ROE incentive for "critical facilities" which is also not relevant to NSPM.

Further, to the extent any of the authorized ROEs are relevant, they reflect other Commission's assessments' of current capital market conditions. The Commission has current market data and financial model results based on that data available to it in the record in this Docket and can consider and assess that information directly, rather than indirectly through the assessments of other regulators.

B. DETERMINATIONS OF OTHER COMMISSIONS

1. Capital Market Conditions

In its Reply Comments, the Company reiterated its concern from its Petition that current capital market conditions, particularly historically low interest rates, are artificially inflating utility stock prices and causing the DCF model to understate utilities' costs of equity. The Company noted that the Federal Energy Regulatory Commission and two other state utilities commissions have reached similar conclusions.

In response, the Department reiterates the response it provided in its Comments. First, given that the low interest rates that the Company asserts are depressing utility stock prices and DCF ROE estimates have persisted for several years, it is no longer reasonable to describe them as "anomalous." Second, reasonable investors would not hold an investment if they believed that it is likely to perform poorly. Thus, if investors expected interest rates to rise and utility stock prices to fall as a result, they would sell their stock holdings and bid the price of the stock down until it reaches a point at which the expected return meets investors' required return. Investors' expectations of interest rates are therefore fully embedded in current stock prices,

and no additional adjustments, either direct or indirect, intended to reflect investor expectations are necessary.

2. Forecasted Interest Rates

In its Comments, the Department disagreed with the Company's use of forecasted interest rates in its risk premium and CAPM analyses. In its Reply Comments, the Company defended its use of forecasted interest rates, stating that it places more weight on interest rate forecasts than on current interest rates because investors are expecting higher interest rates over the next few years. The Company also cited a 2017 decision from the Massachusetts Department of Public Utilities (MDPU) that noted that current monetary policy had pushed Treasury yields to near historic lows, and concluded that the use of forecasted interest rates in the CAPM was reasonable.

The Department notes that the use of forecasted interest rates should not depend on whether the forecasted rates are higher or lower than current rates. Rather, their use should depend on whether there is a sound theoretical or empirical basis on which to conclude that forecasted rates produce more reasonable model results than current, actual interest rates. As noted in the Department's Comments, however, long-term interest rates are determined by market forces, and thus reflect current investor expectations of future economic and financial conditions. Because current, actual bond yields reflect investor expectations about the future, changes in actual bond yields occur as a result of unexpected changes in future expectations, which are of course difficult to predict. For this reason, actual bond yields are superior to forecasted yields, which are subject to uncertainty and estimation error. There is simply no valid reason to try to rely on unreliable long-term forecasts of interest rates; therefore, the Department continues to recommend that the Commission disregard any ROE results estimated using such forecasted rates.

Additionally, the Department notes that the same MDPU decision cited by the Company states the following with respect to the CAPM:

The Department has previously found that the traditional CAPM as a basis for determining a utility's cost of equity has limited value because of a number of questionable assumptions that underlie the model. D.P.U. 10-114, at 318; D.P.U. 10-70, at 270; D.P.U. 08-35, at 207; D.T.E. 03-40, at 359-360; D.P.U. 956, at 54. For example, the Department has not been persuaded that long-term government bonds are the appropriate proxy for the risk-free rate, and has found that the coefficient of determination for beta is generally so low that the statistical reliability of the results is questionable.

The Decision goes on to say “[b]ased on the above considerations, the Department will place limited weight on the results of the respective CAPM estimates in determining the appropriate ROE.”

IV. CONCLUSION

The Department recommends that the Commission approve an ROE of 8.59 percent for NSPM, based on its mean two-growth DCF analysis, and further recommends that this ROE be used until NSPM concludes its next electric rate case.

Electric Proxy Group Screen

Company	Ticker	SIC	Incorporated in US	Credit Rating Screen	Preliminary Screen	Covered By Value Line	Pays Consistent Dividend	Covered by Zacks or Thomson	M&A Activity	60% Operating Income from Retail Elec.	Vertically Integrated or at Least 25% of Sales from Owned	EPG Member
American Electric Power Company, Inc.	AEP	4911	y	y	y	y	y	y	n	y	y	y
Avangrid, Inc.	AGR	4911	y	y	y	y	y	y	n	y	n	
Black Hills Corporation	BKH	4911	y	y	y	y	y	y	n	n		
Clearway Energy, Inc.	CWEN.A	4911	y	n	n							
Dominion Energy, Inc.	D	4911	y	y	y	y	y	y	y			
Edison International	EIX	4911	y	y	y	y	y	y	n	y	n	
El Paso Electric Company	EE	4911	y	y	y	y	y	y	n	y	y	y
Entergy Corporation	ETR	4911	y	y	y	y	y	y	n	n		
Exelon Corporation	EXC	4911	y	y	y	y	y	y	n	n		
FirstEnergy Corp.	FE	4911	y	y	y	y	y	y	y	n		
Hawaiian Electric Industries, Inc.	HE	4911	y	n	n							
IDACORP, Inc.	IDA	4911	y	y	y	y	y	y	n	y	y	y
NextEra Energy, Inc.	NEE	4911	y	y	y	y	y	y	y			
NRG Energy, Inc.	NRG	4911	y	n	n							
Ormat Technologies, Inc.	ORA	4911	y	n	n							
Otter Tail Corporation	OTTR	4911	y	y	y	y	y	y	n	y	y	y
Pinnacle West Capital Corporation	PNW	4911	y	y	y	y	y	y	n	y	y	y
PNM Resources, Inc.	PNM	4911	y	y	y	y	y	y	n	y	y	y
Portland General Electric Company	POR	4911	y	y	y	y	y	y	n	y	y	y
PPL Corporation	PPL	4911	y	y	y	y	y	y	n	n		
TerraForm Power, Inc.	TERP	4911	y	n	n							
The Southern Company	SO	4911	y	y	y	y	y	y	y			
Vistra Energy Corp.	VST	4911	y	n	n							

Combination Proxy Group Screen

Company	Ticker	SIC	Incorporated in US	Credit Rating Screen	Preliminary Screen	Covered By Value Line	Pays Consistent Dividend	Covered by Zacks or Thomson	M&A Activity	60% Operating Income from Retail Elec.	Vertically Integrated or at Least 25% of Sales from Owned	CPG Member
ALLETE, Inc.	ALE	4931	y	y		y	y	y	n	y	y	y
Alliant Energy Corporation	LNT	4931	y	y		y	y	y	n	y	y	y
Ameren Corporation	AEE	4931	y	y		y	y	y	n	y	y	y
Avista Corporation	AVA	4931	y	y		y	y	y	y	y	y	
CenterPoint Energy, Inc.	CNP	4931	y	y		y	y	y	y	y		
CMS Energy Corporation	CMS	4931	y	y		y	y	y	n	y	y	y
Consolidated Edison, Inc.	ED	4931	y	y		y	y	y	n	y	n	
DTE Energy Company	DTE	4931	y	y		y	y	y	n	y	y	y
Duke Energy Corporation	DUK	4931	y	y		y	y	y	n	y	y	y
Evergy, Inc.	EVRG	4931	y	y		y	n	y	n			
Eversource Energy	ES	4931	y	y		y	y	y	y	y		
Genie Energy Ltd.	GNE	4931	y	n		n	y	n	n			
MGE Energy, Inc.	MGEE	4931	y	n		y	y	y	n			
NorthWestern Corporation	NWE	4931	y	y		y	y	y	n	y	y	y
OGE Energy Corp.	OGE	4931	y	y		y	y	y	n	y	y	y
PG&E Corporation	PCG	4931	y	y		y	n	y	n	y		
Public Service Enterprise Group Incorporated	PEG	4931	y	y		y	y	y	n	n		
SCANA Corporation	SCG	4931	y	n		y	y	y	y			
Sempra Energy	SRE	4931	y	y		y	y	y	y	n		
Spark Energy, Inc.	SPKE	4931	y	n		n	y	n	y			
Unitil Corporation	UTL	4931	y	y		n	y	y	n			
WEC Energy Group, Inc.	WEC	4931	y	y		y	y	y	n	n		
Xcel Energy Inc.	XEL	4931	y	y		y	y	y	n			

Constant Growth DCF Analysis - Electric Proxy Group

Company	Ticker	Average Closing Price	Annualized Dividend	Dividend Yield	Low Projected Growth Rate	Mean Projected Growth Rate	High Projected Growth Rate	Low Expected Dividend Yield	Mean Expected Dividend Yield	High Expected Dividend Yield	Low ROE	Mean ROE	High ROE
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
American Electric Power Company, Inc.	AEP	72.95	2.68	3.67%	4.50%	5.21%	5.60%	3.76%	3.77%	3.78%	8.26%	8.98%	9.38%
El Paso Electric Company	EE	58.40	1.44	2.47%	4.50%	4.63%	4.70%	2.52%	2.52%	2.52%	7.02%	7.16%	7.22%
IDACORP, Inc.	IDA	97.24	2.52	2.59%	2.60%	2.80%	3.00%	2.63%	2.63%	2.63%	5.23%	5.43%	5.63%
Otter Tail Corporation	OTTR	46.55	1.34	2.88%	7.50%	8.25%	9.00%	2.99%	3.00%	3.01%	10.49%	11.25%	12.01%
Pinnacle West Capital Corporation	PNW	83.49	2.95	3.53%	4.11%	4.54%	5.00%	3.61%	3.61%	3.62%	7.72%	8.15%	8.62%
PNM Resources, Inc.	PNM	39.37	1.06	2.69%	4.70%	5.72%	7.50%	2.76%	2.77%	2.79%	7.46%	8.49%	10.29%
Portland General Electric Company	POR	45.89	1.45	3.16%	3.30%	4.13%	5.10%	3.21%	3.22%	3.24%	6.51%	7.36%	8.34%
Mean				3.00%	4.46%	5.04%	5.70%	3.07%	3.07%	3.08%	7.52%	8.11%	8.78%
Required ROE including flotation cost adjustment											7.61%	8.21%	8.88%
Flotation Costs											2.85%		

Sources and Notes:

- [1] Response ROE Attachment 12
- [2] Response ROE Attachment 11
- [3] = [2] / [1]
- [4] Response ROE Attachment 11
- [5] Response ROE Attachment 11
- [6] Response ROE Attachment 11
- [7] = [3] x (1 + 0.5 x [4])
- [8] = [3] x (1 + 0.5 x [5])
- [9] = [3] x (1 + 0.5 x [6])
- [10] = [4] + [7]
- [11] = [5] + [8]
- [12] = [6] + [9]

Two Growth Rate DCF Analysis - Electric Proxy Group
Mean Growth Rates

Docket No. E002/M-17-797
 Response ROE Appendix
 Response ROE Attachment 4

Ticker	Average Closing Price	Annualized Dividend	Dividend	Mean Projected Growth Rate	Mean Expected Dividend Yield	Second Growth Rate	Mean Expected ROE
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
AEP	72.95	2.68	3.67%	5.21%	3.77%	5.21%	8.98%
EE	58.40	1.44	2.47%	4.63%	2.52%	4.63%	7.16%
IDA	97.24	2.52	2.59%	2.80%	2.63%	3.48%	6.03%
OTTR	46.55	1.34	2.88%	8.25%	3.00%	6.60%	9.82%
PNW	83.49	2.95	3.53%	4.54%	3.61%	4.54%	8.15%
PNM	39.37	1.06	2.69%	5.72%	2.77%	5.72%	8.49%
POR	45.89	1.45	3.16%	4.13%	3.22%	4.13%	7.36%
Mean			3.00%	5.04%	3.07%	4.90%	8.00%
With Flotation Costs							8.09%
		Average		5.04%			
		Std. Dev.		1.56%		Flotation Costs (F)	2.85%
		Avg. less St. Dev.		3.48%			
		Avg. plus St. Dev		6.60%			

Ticker	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price	CHECK
	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
AEP	2.75	1.09	2.52	2.89	1.19	2.44	3.04	1.29	2.35	3.20	1.41	2.27	3.37	1.54	2.19	3.54	94.05	61.18	72.95	0.00
EE	1.47	1.07	1.37	1.54	1.15	1.34	1.61	1.23	1.31	1.69	1.32	1.28	1.77	1.41	1.25	1.85	73.25	51.84	58.40	0.00
IDA	2.56	1.06	2.41	2.63	1.12	2.34	2.70	1.19	2.27	2.78	1.26	2.20	2.85	1.34	2.13	2.93	115.10	85.90	97.24	0.00
OTTR	1.40	1.10	1.27	1.51	1.21	1.25	1.63	1.32	1.23	1.77	1.45	1.22	1.92	1.60	1.20	2.07	64.49	40.38	46.55	(0.00)
PNW	3.02	1.08	2.79	3.15	1.17	2.70	3.30	1.26	2.61	3.45	1.37	2.52	3.60	1.48	2.43	3.77	104.22	70.44	83.48	(0.00)
PNM	1.09	1.08	1.01	1.15	1.18	0.98	1.22	1.28	0.95	1.29	1.39	0.93	1.36	1.50	0.91	1.44	51.99	34.60	39.37	0.00
POR	1.48	1.07	1.38	1.54	1.15	1.34	1.60	1.24	1.30	1.67	1.33	1.26	1.74	1.43	1.22	1.81	56.19	39.40	45.89	0.00

Sources and Notes:

- [1] Response ROE Attachment 12
 [2] Response ROE Attachment 12
 [3] = [2] / [1]
 [4] Response ROE Attachment 11
 [5] = [3] x (1 + 0.5 x [4])
 [6] if [4] is less than Group Avg. less St. Dev. (3.48%), then equal to 3.48%,
 if [4] is greater than Group Avg. plu St. Dev. (6.60%), then equal to 6.60%
 else equal to [4]
 [7] ROE that sets [1] equal to [26]; solved using Excel's Goal Seek function:
 Adjustment for Flotation costs: ROE = [7] - [5] + [5]/(1-F)
 [8] = [1] x [5]
 [9] = (1 + [7])^1
 [10] = [8] / [9]
 [11] = [8] x (1 + [4])
 [12] = (1 + [7])^2
 [13] = [11] / [12]
 (continued)

Sources and Notes, Continued:

- [14] = [11] x (1 + [4])
 [15] = (1 + [7])^3
 [16] = [14] / [15]
 [17] = [14] x (1 + [4])
 [18] = (1 + [7])^4
 [19] = [17] / [18]
 [20] = [17] x (1 + [4])
 [21] = (1 + [7])^5
 [22] = [20] / [21]
 [23] = [20] x (1 + [6])
 [24] = [23] / ([7] - [6])
 [25] = [24] / [21]
 [26] = [10] + [13] + [16] + [19] + [22] + [25]
 [27] = [26] - [1]

Two Growth Rate DCF Analysis - Electric Proxy Group
Low Growth Rates

Docket No. E002/M-17-797
 Response ROE Appendix
 Response ROE Attachment 5

Ticker	Average Closing Price	Annualized Dividend	Dividend	Low Projected Growth Rate	Low Expected Dividend Yield	Second Growth Rate	Low Expected ROE
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
AEP	72.95	2.68	3.67%	4.50%	3.76%	4.50%	8.26%
EE	58.40	1.44	2.47%	4.50%	2.52%	4.50%	7.02%
IDA	97.24	2.52	2.59%	2.60%	2.63%	3.03%	5.61%
OTTR	46.55	1.34	2.88%	7.50%	2.99%	5.88%	9.09%
PNW	83.49	2.95	3.53%	4.11%	3.61%	4.11%	7.72%
PNM	39.37	1.06	2.69%	4.70%	2.76%	4.70%	7.46%
POR	45.89	1.45	3.16%	3.30%	3.21%	3.30%	6.51%
Mean			3.00%	4.46%	3.07%	4.29%	7.38%
With Flotation Costs							7.47%
		Average		4.46%			
		Std. Dev.		1.43%		Flotation Costs (F)	2.85%
		Avg. less St. Dev.		3.03%			
		Avg. plus St. Dev		5.88%			

Ticker	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price	CHECK
	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
AEP	2.74	1.08	2.53	2.86	1.17	2.44	2.99	1.27	2.36	3.13	1.37	2.28	3.27	1.49	2.20	3.41	90.92	61.15	72.95	0.00
EE	1.47	1.07	1.38	1.54	1.15	1.34	1.61	1.23	1.31	1.68	1.31	1.28	1.76	1.40	1.25	1.83	72.78	51.84	58.40	0.00
IDA	2.55	1.06	2.42	2.62	1.12	2.35	2.69	1.18	2.28	2.76	1.24	2.22	2.83	1.31	2.15	2.90	112.73	85.82	97.24	0.00
OTTR	1.39	1.09	1.27	1.49	1.19	1.26	1.61	1.30	1.24	1.73	1.42	1.22	1.86	1.54	1.20	2.00	62.35	40.36	46.55	0.00
PNW	3.01	1.08	2.79	3.13	1.16	2.70	3.26	1.25	2.61	3.40	1.35	2.52	3.54	1.45	2.44	3.68	102.11	70.41	83.48	(0.00)
PNM	1.08	1.07	1.01	1.14	1.15	0.98	1.19	1.24	0.96	1.25	1.33	0.93	1.30	1.43	0.91	1.36	49.54	34.58	39.37	0.00
POR	1.47	1.07	1.38	1.52	1.13	1.34	1.57	1.21	1.30	1.62	1.29	1.26	1.68	1.37	1.22	1.73	53.98	39.38	45.89	0.00

Sources and Notes:

- [1] Response ROE Attachment 12
 [2] Response ROE Attachment 12
 [3] = [2] / [1]
 [4] Response ROE Attachment 11
 [5] = [3] x (1 + 0.5 x [4])
 [6] if [4] is less than Group Avg. less St. Dev. (3.03%), then equal to 3.03%,
 if [4] is greater than Group Avg. plu St. Dev. (5.88%), then equal to 5.88%
 else equal to [4]
 [7] ROE that sets [1] equal to [26]; solved using Excel's Goal Seek function
 Adjustment for Flotation costs: ROE = [7] - [5] + [5]/(1-F)
 [8] = [1] x [5]
 [9] = (1 + [7])^1
 [10] = [8] / [9]
 [11] = [8] x (1 + [4])
 [12] = (1 + [7])^2
 [13] = [11] / [12]
 (continued)

Sources and Notes, Continued:

- [14] = [11] x (1 + [4])
 [15] = (1 + [7])^3
 [16] = [14] / [15]
 [17] = [14] x (1 + [4])
 [18] = (1 + [7])^4
 [19] = [17] / [18]
 [20] = [17] x (1 + [4])
 [21] = (1 + [7])^5
 [22] = [20] / [21]
 [23] = [20] x (1 + [6])
 [24] = [23] / ([7] - [6])
 [25] = [24] / [21]
 [26] = [10] + [13] + [16] + [19] + [22] + [25]
 [27] = [26] - [1]

Two Growth Rate DCF Analysis - Electric Proxy Group
High Growth Rates

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 Response ROE Appendix
 Response ROE Attachment 6

Ticker	Average Closing Price	Annualized Dividend	Dividend	High Projected Growth Rate	High Expected Dividend Yield	Second Growth Rate	High Expected ROE
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
AEP	72.95	2.68	3.67%	5.60%	3.78%	5.60%	9.38%
EE	58.40	1.44	2.47%	4.70%	2.52%	4.70%	7.22%
IDA	97.24	2.52	2.59%	3.00%	2.63%	3.88%	6.41%
OTTR	46.55	1.34	2.88%	9.00%	3.01%	7.52%	10.73%
PNW	83.49	2.95	3.53%	5.00%	3.62%	5.00%	8.62%
PNM	39.37	1.06	2.69%	7.50%	2.79%	7.50%	10.29%
POR	45.89	1.45	3.16%	5.10%	3.24%	5.10%	8.34%
Mean			3.00%	5.70%	3.08%	5.61%	8.71%
With Flotation Costs							8.80%
		Average		5.70%			
		Std. Dev.		1.82%		Flotation Costs (F)	2.85%
		Avg. less St. Dev.		3.88%			
		Avg. plus St. Dev		7.52%			

Ticker	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price	CHECK
	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
AEP	2.76	1.09	2.52	2.91	1.20	2.43	3.07	1.31	2.35	3.24	1.43	2.27	3.43	1.57	2.19	3.62	95.80	61.20	72.96	0.00
EE	1.47	1.07	1.37	1.54	1.15	1.34	1.62	1.23	1.31	1.69	1.32	1.28	1.77	1.42	1.25	1.85	73.48	51.85	58.40	0.00
IDA	2.56	1.06	2.40	2.63	1.13	2.33	2.71	1.20	2.25	2.79	1.28	2.18	2.88	1.36	2.11	2.97	117.25	85.96	97.24	0.00
OTTR	1.40	1.11	1.26	1.53	1.23	1.24	1.66	1.36	1.23	1.81	1.50	1.21	1.98	1.66	1.19	2.15	67.28	40.42	46.55	0.00
PNW	3.02	1.09	2.78	3.17	1.18	2.69	3.33	1.28	2.60	3.50	1.39	2.51	3.68	1.51	2.43	3.86	106.55	70.46	83.48	(0.00)
PNM	1.10	1.10	1.00	1.18	1.22	0.97	1.27	1.34	0.95	1.37	1.48	0.92	1.47	1.63	0.90	1.58	56.52	34.63	39.37	0.00
POR	1.49	1.08	1.37	1.56	1.17	1.33	1.64	1.27	1.29	1.73	1.38	1.25	1.81	1.49	1.22	1.91	58.85	39.43	45.89	(0.00)

Sources and Notes:

- [1] Response ROE Attachment 12
 [2] Response ROE Attachment 12
 [3] = [2] / [1]
 [4] Response ROE Attachment 11
 [5] = [3] x (1 + 0.5 x [4])
 [6] if [4] is less than Group Avg. less St. Dev. (3.88%), then equal to 3.88%,
 if [4] is greater than Group Avg. plu St. Dev. (7.52%), then equal to 7.52%
 else equal to [4]
 [7] ROE that sets [1] equal to [26]; solved using Excel's Goal Seek function
 Adjustment for Flotation costs: ROE = [7] - [5] + [5]/(1-F)
 [8] = [1] x [5]
 [9] = (1 + [7])^1
 [10] = [8] / [9]
 [11] = [8] x (1 + [4])
 [12] = (1 + [7])^2
 [13] = [11] / [12]
 (continued)

Sources and Notes, Continued:

- [14] = [11] x (1 + [4])
 [15] = (1 + [7])^3
 [16] = [14] / [15]
 [17] = [14] x (1 + [4])
 [18] = (1 + [7])^4
 [19] = [17] / [18]
 [20] = [17] x (1 + [4])
 [21] = (1 + [7])^5
 [22] = [20] / [21]
 [23] = [20] x (1 + [6])
 [24] = [23] / ([7] - [6])
 [25] = [24] / [21]
 [26] = [10] + [13] + [16] + [19] + [22] + [25]
 [27] = [26] - [1]

Constant Growth Rate DCF Analysis - Combination Proxy Group

Company	Ticker	Average Closing Price	Annualized Dividend	Dividend Yield	Low Projected Growth Rate	Mean Projected Growth Rate	High Projected Growth Rate	Low Expected Dividend Yield	Mean Expected Dividend Yield	High Expected Dividend Yield	Low ROE	Mean ROE	High ROE
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
ALLETE, Inc.	ALE	75.86	2.24	2.95%	5.00%	5.67%	6.00%	3.03%	3.04%	3.04%	8.03%	8.70%	9.04%
Alliant Energy Corporation	LNT	43.42	1.34	3.09%	5.20%	5.70%	6.50%	3.17%	3.17%	3.19%	8.37%	8.87%	9.69%
Ameren Corporation	AEE	65.19	1.90	2.91%	6.70%	7.32%	7.75%	3.01%	3.02%	3.03%	9.71%	10.34%	10.78%
CMS Energy Corporation	CMS	49.71	1.43	2.88%	6.20%	6.76%	7.08%	2.97%	2.97%	2.98%	9.17%	9.73%	10.06%
DTE Energy Company	DTE	112.95	3.53	3.13%	5.50%	6.33%	7.50%	3.21%	3.22%	3.24%	8.71%	9.56%	10.74%
Duke Energy Corporation	DUK	82.36	3.71	4.50%	4.41%	4.97%	5.50%	4.60%	4.62%	4.63%	9.01%	9.59%	10.13%
NorthWestern Corporation	NWE	59.95	2.20	3.67%	2.30%	2.74%	3.50%	3.71%	3.72%	3.73%	6.01%	6.46%	7.23%
OGE Energy Corp.	OGE	37.04	1.46	3.94%	5.20%	5.60%	6.00%	4.04%	4.05%	4.06%	9.24%	9.65%	10.06%
Mean				3.38%	5.06%	5.64%	6.23%	3.47%	3.48%	3.49%	8.53%	9.11%	9.72%
Required ROE including flotation cost adjustment											8.63%	9.22%	9.82%
Flotation Costs											2.85%		

Sources and Notes:

- [1] Response ROE Attachment 14
- [2] Response ROE Attachment 13
- [3] = [2] / [1]
- [4] Response ROE Attachment 13
- [5] Response ROE Attachment 13
- [6] Response ROE Attachment 13
- [7] = [3] x (1 + 0.5 x [4])
- [8] = [3] x (1 + 0.5 x [5])
- [9] = [3] x (1 + 0.5 x [6])
- [10] = [4] + [7]
- [11] = [5] + [8]
- [12] = [6] + [9]

Two Growth Rate DCF Analysis - Combination Proxy Group
Mean Growth Rates

Docket No. E002/M-17-797
 Response ROE Appendix
 Response ROE Attachment 8

Ticker	Average Closing Price	Annualized Dividend	Dividend	Mean Projected Growth Rate	Mean Expected Dividend Yield	Second Growth Rate	Mean Expected ROE
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
ALE	75.86	2.24	2.95%	5.67%	3.04%	5.67%	8.70%
LNT	43.42	1.34	3.09%	5.70%	3.17%	5.70%	8.87%
AEE	65.19	1.90	2.91%	7.32%	3.02%	6.93%	10.00%
CMS	49.71	1.43	2.88%	6.76%	2.97%	6.76%	9.73%
DTE	112.95	3.53	3.13%	6.33%	3.22%	6.33%	9.56%
DUK	82.36	3.71	4.50%	4.97%	4.62%	4.97%	9.59%
NWE	59.95	2.20	3.67%	2.74%	3.72%	4.34%	7.81%
OGE	37.04	1.46	3.94%	5.60%	4.05%	5.60%	9.65%
Mean			3.38%	5.64%	3.48%	5.79%	9.24%
With Flotation Costs							9.34%
		Average		5.64%			
		Std. Dev.		1.29%		Flotation Costs (F)	2.85%
		Avg. less St. Dev.		4.34%			
		Avg. plus St. Dev.		6.93%			

Ticker	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price	CHECK
	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
ALE	2.30	1.09	2.12	2.43	1.18	2.06	2.57	1.28	2.00	2.72	1.40	1.95	2.87	1.52	1.89	3.03	99.93	65.84	75.86	0.00
LNT	1.38	1.09	1.27	1.46	1.19	1.23	1.54	1.29	1.19	1.63	1.41	1.16	1.72	1.53	1.12	1.82	57.29	37.45	43.42	0.00
AEE	1.97	1.10	1.79	2.11	1.21	1.75	2.27	1.33	1.70	2.43	1.46	1.66	2.61	1.61	1.62	2.80	91.27	56.66	65.19	0.00
CMS	1.48	1.10	1.35	1.58	1.20	1.31	1.68	1.32	1.28	1.80	1.45	1.24	1.92	1.59	1.21	2.05	68.94	43.33	49.71	0.00
DTE	3.64	1.10	3.32	3.87	1.20	3.23	4.12	1.32	3.13	4.38	1.44	3.04	4.66	1.58	2.95	4.95	153.54	97.28	112.95	(0.00)
DUK	3.80	1.10	3.47	3.99	1.20	3.32	4.19	1.32	3.18	4.40	1.44	3.05	4.62	1.58	2.92	4.85	104.97	66.42	82.36	0.00
NWE	2.23	1.08	2.07	2.29	1.16	1.97	2.35	1.25	1.88	2.42	1.35	1.79	2.48	1.46	1.71	2.55	73.60	50.53	59.95	0.00
OGE	1.50	1.10	1.37	1.58	1.20	1.32	1.67	1.32	1.27	1.77	1.45	1.22	1.87	1.59	1.18	1.97	48.64	30.68	37.04	0.00

Sources and Notes:

- [1] 0
 [2] Response ROE Attachment 13
 [3] = [2] / [1]
 [4] Response ROE Attachment 13
 [5] = [3] x (1 + 0.5 x [4])
 [6] if [4] is less than Group Avg. less St. Dev. (4.34%), then equal to 4.34%,
 if [4] is greater than Group Avg. plu St. Dev. (6.93%), then equal to 6.93%
 else equal to [4]
 [7] ROE that sets [1] equal to [26]; solved using Excel's Goal Seek function
 Adjustment for Flotation costs: ROE = [7] - [5] + [5]/(1-F)
 [8] = [1] x [5]
 [9] = (1 + [7])^1
 [10] = [8] / [9]
 [11] = [8] x (1 + [4])
 [12] = (1 + [7])^2
 [13] = [11] / [12]
 (continued)

Sources and Notes, Continued:

- [14] = [11] x (1 + [4])
 [15] = (1 + [7])^3
 [16] = [14] / [15]
 [17] = [14] x (1 + [4])
 [18] = (1 + [7])^4
 [19] = [17] / [18]
 [20] = [17] x (1 + [4])
 [21] = (1 + [7])^5
 [22] = [20] / [21]
 [23] = [20] x (1 + [6])
 [24] = [23] / ([7] - [6])
 [25] = [24] / [21]
 [26] = [10] + [13] + [16] + [19] + [22] + [25]
 [27] = [26] - [1]

Two Growth Rate DCF Analysis - Combination Proxy Group
Low Growth Rates

Docket No. E002/M-17-797
 Response ROE Appendix
 Response ROE Attachment 9

Ticker	Average Closing Price	Annualized Dividend	Dividend	Low Projected Growth Rate	Low Expected Dividend Yield	Second Growth Rate	Low Expected ROE
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
ALE	75.86	2.24	2.95%	5.00%	3.03%	5.00%	8.03%
LNT	43.42	1.34	3.09%	5.20%	3.17%	5.20%	8.37%
AEE	65.19	1.90	2.91%	6.70%	3.01%	6.30%	9.37%
CMS	49.71	1.43	2.88%	6.20%	2.97%	6.20%	9.17%
DTE	112.95	3.53	3.13%	5.50%	3.21%	5.50%	8.71%
DUK	82.36	3.71	4.50%	4.41%	4.60%	4.41%	9.01%
NWE	59.95	2.20	3.67%	2.30%	3.71%	3.83%	7.30%
OGE	37.04	1.46	3.94%	5.20%	4.04%	5.20%	9.24%
Mean			3.38%	5.06%	3.47%	5.20%	8.65%
With Flotation Costs							8.75%
		Average		5.06%			
		Std. Dev.		1.24%		Flotation Costs (F)	2.85%
		Avg. less St. Dev.		3.83%			
		Avg. plus St. Dev.		6.30%			

Ticker	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price	CHECK
	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
ALE	2.30	1.08	2.13	2.41	1.17	2.07	2.53	1.26	2.01	2.66	1.36	1.95	2.79	1.47	1.90	2.93	96.82	65.81	75.86	(0.00)
LNT	1.37	1.08	1.27	1.45	1.17	1.23	1.52	1.27	1.20	1.60	1.38	1.16	1.68	1.49	1.13	1.77	55.95	37.44	43.42	(0.00)
AEE	1.96	1.09	1.80	2.10	1.20	1.75	2.24	1.31	1.71	2.39	1.43	1.67	2.55	1.56	1.63	2.72	88.62	56.64	65.19	0.00
CMS	1.47	1.09	1.35	1.57	1.19	1.31	1.66	1.30	1.28	1.77	1.42	1.24	1.88	1.55	1.21	1.99	67.15	43.32	49.71	0.00
DTE	3.63	1.09	3.34	3.83	1.18	3.24	4.04	1.28	3.14	4.26	1.40	3.05	4.49	1.52	2.96	4.74	147.62	97.22	112.95	0.00
DUK	3.79	1.09	3.48	3.96	1.19	3.33	4.13	1.30	3.19	4.32	1.41	3.06	4.51	1.54	2.93	4.70	102.20	66.38	82.36	0.00
NWE	2.23	1.07	2.07	2.28	1.15	1.98	2.33	1.24	1.89	2.38	1.33	1.80	2.44	1.42	1.71	2.49	71.82	50.50	59.95	0.00
OGE	1.50	1.09	1.37	1.58	1.19	1.32	1.66	1.30	1.27	1.74	1.42	1.22	1.83	1.56	1.18	1.93	47.72	30.67	37.04	0.00

Sources and Notes:

[1] 0
 [2] Response ROE Attachment 13
 [3] = [2] / [1]
 [4] Response ROE Attachment 13
 [5] = [3] x (1 + 0.5 x [4])
 [6] if [4] is less than Group Avg. less St. Dev. (3.83%), then equal to 3.83%,
 if [4] is greater than Group Avg. plu St. Dev. (6.30%), then equal to 6.30%
 else equal to [4]
 [7] ROE that sets [1] equal to [26]; solved using Excel's Goal Seek function
 Adjustment for Flotation costs: ROE = [7] - [5] + [5]/(1-F)
 [8] = [1] x [5]
 [9] = (1 + [7])^1
 [10] = [8] / [9]
 [11] = [8] x (1 + [4])
 [12] = (1 + [7])^2
 [13] = [11] / [12]
 (continued)

Sources and Notes, Continued:

[14] = [11] x (1 + [4])
 [15] = (1 + [7])^3
 [16] = [14] / [15]
 [17] = [14] x (1 + [4])
 [18] = (1 + [7])^4
 [19] = [17] / [18]
 [20] = [17] x (1 + [4])
 [21] = (1 + [7])^5
 [22] = [20] / [21]
 [23] = [20] x (1 + [6])
 [24] = [23] / ([7] - [6])
 [25] = [24] / [21]
 [26] = [10] + [13] + [16] + [19] + [22] + [25]
 [27] = [26] - [1]

Two Growth Rate DCF Analysis - Combination Proxy Group
High Growth Rates

Docket No. E002/M-17-797
 Response ROE Appendix
 Response ROE Attachment 10

Ticker	Average Closing Price	Annualized Dividend	Dividend Rate	High Projected Growth Rate	High Expected Dividend Yield	Second Growth Rate	High Expected ROE
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
ALE	75.86	2.24	2.95%	6.00%	3.04%	6.00%	9.04%
LNT	43.42	1.34	3.09%	6.50%	3.19%	6.50%	9.69%
AEE	65.19	1.90	2.91%	7.75%	3.03%	7.49%	10.55%
CMS	49.71	1.43	2.88%	7.08%	2.98%	7.08%	10.06%
DTE	112.95	3.53	3.13%	7.50%	3.24%	7.49%	10.74%
DUK	82.36	3.71	4.50%	5.50%	4.63%	5.50%	10.13%
NWE	59.95	2.20	3.67%	3.50%	3.73%	4.96%	8.47%
OGE	37.04	1.46	3.94%	6.00%	4.06%	6.00%	10.06%
Mean			3.38%	6.23%	3.49%	6.38%	9.84%
With Flotation Costs							9.94%
		Average		6.23%			
		Std. Dev.		1.27%		Flotation Costs (F)	2.85%
		Avg. less St. Dev.		4.96%			
		Avg. plus St. Dev.		7.49%			

Ticker	Year 1 Div.	(1+k)^1	PV of Year 1 Div.	Year 2 Div.	(1+k)^2	PV of Year 2 Div.	Year 3 Div.	(1+k)^3	PV of Year 3 Div.	Year 4 Div.	(1+k)^4	PV of Year 4 Div.	Year 5 Div.	(1+k)^5	PV of Year 5 Div.	Year 6 Div.	Year 5 Stock Price	PV of Year 5 Stock Price	Current Stock Price	CHECK
	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
ALE	2.31	1.09	2.12	2.45	1.19	2.06	2.59	1.30	2.00	2.75	1.41	1.94	2.91	1.54	1.89	3.09	101.52	65.85	75.86	0.00
LNT	1.38	1.10	1.26	1.47	1.20	1.22	1.57	1.32	1.19	1.67	1.45	1.15	1.78	1.59	1.12	1.90	59.49	37.47	43.42	0.00
AEE	1.97	1.11	1.79	2.13	1.22	1.74	2.29	1.35	1.70	2.47	1.49	1.65	2.66	1.65	1.61	2.87	93.65	56.71	65.19	0.00
CMS	1.48	1.10	1.35	1.59	1.21	1.31	1.70	1.33	1.27	1.82	1.47	1.24	1.95	1.61	1.21	2.08	69.98	43.34	49.71	0.00
DTE	3.66	1.11	3.31	3.94	1.23	3.21	4.23	1.36	3.12	4.55	1.50	3.03	4.89	1.67	2.94	5.26	162.11	97.35	112.95	0.00
DUK	3.81	1.10	3.46	4.02	1.21	3.32	4.24	1.34	3.18	4.48	1.47	3.04	4.72	1.62	2.92	4.98	107.65	66.45	82.36	0.00
NWE	2.24	1.08	2.06	2.32	1.18	1.97	2.40	1.28	1.88	2.48	1.38	1.79	2.57	1.50	1.71	2.66	75.87	50.53	59.95	(0.00)
OGE	1.50	1.10	1.37	1.59	1.21	1.32	1.69	1.33	1.27	1.79	1.47	1.22	1.90	1.61	1.18	2.01	49.56	30.69	37.04	0.00

Sources and Notes:

[1] 0
 [2] Response ROE Attachment 13
 [3] = [2] / [1]
 [4] Response ROE Attachment 13
 [5] = [3] x (1 + 0.5 x [4])
 [6] if [4] is less than Group Avg. less St. Dev. (4.96%), then equal to 4.96%,
 if [4] is greater than Group Avg. plu St. Dev. (7.49%), then equal to 7.49%
 else equal to [4]
 [7] ROE that sets [1] equal to [26]; solved using Excel's Goal Seek function
 Adjustment for Flotation costs: ROE = [7] - [5] + [5]/(1-F)
 [8] = [1] x [5]
 [9] = (1 + [7])^1
 [10] = [8] / [9]
 [11] = [8] x (1 + [4])
 [12] = (1 + [7])^2
 [13] = [11] / [12]
 (continued)

Sources and Notes, Continued:

[14] = [11] x (1 + [4])
 [15] = (1 + [7])^3
 [16] = [14] / [15]
 [17] = [14] x (1 + [4])
 [18] = (1 + [7])^4
 [19] = [17] / [18]
 [20] = [17] x (1 + [4])
 [21] = (1 + [7])^5
 [22] = [20] / [21]
 [23] = [20] x (1 + [6])
 [24] = [23] / ([7] - [6])
 [25] = [24] / [21]
 [26] = [10] + [13] + [16] + [19] + [22] + [25]
 [27] = [26] - [1]

**Projected Growth Rates
Electric Proxy Group**

Company	Ticker	Zacks	Thomson	Value Line	Low Projected Growth Rate	Mean Projected Growth Rate	High Projected Growth Rate	Annualized Dividend
		[1]	[2]	[3]	[4]	[5]	[6]	[7]
American Electric Power Company, Inc.	AEP	5.60%	5.53%	4.50%	4.50%	5.21%	5.60%	2.68
El Paso Electric Company	EE	4.70%	4.70%	4.50%	4.50%	4.63%	4.70%	1.44
IDACORP, Inc.	IDA	2.80%	2.60%	3.00%	2.60%	2.80%	3.00%	2.52
Otter Tail Corporation	OTTR	n/a	9.00%	7.50%	7.50%	8.25%	9.00%	1.34
Pinnacle West Capital Corporation	PNW	4.50%	4.11%	5.00%	4.11%	4.54%	5.00%	2.95
PNM Resources, Inc.	PNM	4.70%	4.95%	7.50%	4.70%	5.72%	7.50%	1.06
Portland General Electric Company	POR	3.30%	5.10%	4.00%	3.30%	4.13%	5.10%	1.45
Average		4.27%	5.14%	5.14%	4.46%	5.04%	5.70%	

Sources and notes:

- [1] Zacks Investment Research
- [2] Thomson Financial Network; Accessed via Yahoo! Finance
- [3] Value Line
- [4] = min([1], [2], [3])
- [5] = average([1], [2], [3])
- [6] = max([1], [2], [3])
- [7] Yahoo! Finance

**30-Day Average Closing Prices and Current Dividends
Electric Proxy Group**

	AEP	EE	IDA	OTTR	PNW	PNM	POR
30 Day Average Closing Stock Price	72.95	58.40	97.24	46.55	83.49	39.37	45.89
<i>Daily Closing Prices</i>							
10/2/2018	71.35	58.80	99.05	47.61	79.42	39.42	45.63
10/3/2018	70.22	58.37	98.37	47.11	78.77	39.14	45.34
10/4/2018	70.56	58.73	98.54	46.99	80.25	39.14	45.34
10/5/2018	71.87	58.94	99.74	47.51	81.80	39.52	46.00
10/8/2018	72.85	59.15	100.44	48.11	82.77	39.88	46.42
10/9/2018	73.05	59.42	100.70	48.39	83.32	39.95	46.87
10/10/2018	72.70	59.19	99.33	47.58	82.69	39.72	46.58
10/11/2018	71.22	57.98	96.43	46.15	81.30	38.59	45.50
10/12/2018	70.90	57.56	95.49	45.18	81.50	38.31	45.07
10/15/2018	71.02	57.96	95.49	45.21	81.68	38.53	45.48
10/16/2018	71.70	59.01	97.06	46.31	83.54	38.93	46.19
10/17/2018	71.72	58.92	96.91	46.18	83.69	39.10	46.31
10/18/2018	71.68	58.91	96.87	46.07	83.48	39.57	46.61
10/19/2018	73.26	59.58	98.23	46.58	85.15	40.29	46.90
10/22/2018	73.15	59.50	98.59	46.32	84.91	39.86	46.34
10/23/2018	73.44	58.61	97.34	45.77	84.13	39.35	45.72
10/24/2018	75.56	59.75	98.32	45.54	86.43	40.26	46.54
10/25/2018	73.54	59.00	96.60	45.53	84.45	39.10	45.92
10/26/2018	72.74	56.97	94.79	45.91	82.65	38.65	44.55
10/29/2018	74.04	57.52	95.05	46.22	83.42	38.86	45.27
10/30/2018	74.29	57.50	95.58	46.44	83.68	38.98	45.66
10/31/2018	73.36	57.05	93.26	45.07	82.25	38.41	45.08
11/1/2018	72.97	57.70	95.68	44.77	82.56	38.31	45.07
11/2/2018	72.69	56.91	94.63	44.93	82.38	38.14	44.80
11/5/2018	73.50	57.97	95.55	45.09	83.41	38.96	45.20
11/6/2018	74.45	57.67	96.83	47.46	84.65	39.35	46.02
11/7/2018	75.13	58.29	97.99	48.01	85.39	40.67	46.36
11/8/2018	74.17	58.29	97.70	48.43	87.56	40.70	46.48
11/9/2018	75.32	58.37	98.00	48.41	88.47	40.61	46.68
11/12/2018	76.20	58.47	98.55	47.72	88.86	40.83	46.85

Source: Yahoo! Finance

**Projected Growth Rates & Dividend
Combination Proxy Group**

Company	Ticker	Zacks	Thomson	Value Line	Low Projected Growth Rate	Mean Projected Growth Rate	High Projected Growth Rate	Annualized Dividend
		[1]	[2]	[3]	[4]	[5]	[6]	[7]
ALLETE, Inc.	ALE	6.00%	6.00%	5.00%	5.00%	5.67%	6.00%	2.24
Alliant Energy Corporation	LNT	5.40%	5.20%	6.50%	5.20%	5.70%	6.50%	1.34
Ameren Corporation	AEE	6.70%	7.75%	7.50%	6.70%	7.32%	7.75%	1.90
CMS Energy Corporation	CMS	6.20%	7.08%	7.00%	6.20%	6.76%	7.08%	1.43
DTE Energy Company	DTE	6.00%	5.50%	7.50%	5.50%	6.33%	7.50%	3.53
Duke Energy Corporation	DUK	5.00%	4.41%	5.50%	4.41%	4.97%	5.50%	3.71
NorthWestern Corporation	NWE	2.30%	2.42%	3.50%	2.30%	2.74%	3.50%	2.20
OGE Energy Corp.	OGE	5.20%	negative	6.00%	5.20%	5.60%	6.00%	1.46
Average		5.35%	5.48%	6.06%	5.06%	5.64%	6.23%	

Sources and notes:

- [1] Zacks Investment Research
- [2] Thomson Financial Network; Accessed via Yahoo! Finance
- [3] Value Line
- [4] = min([1], [2], [3])
- [5] = average([1], [2], [3])
- [6] = max([1], [2], [3])
- [7] Yahoo! Finance

**30-Day Average Closing Prices and Current Dividends
Combination Proxy Group**

	ALE	LNT	AEE	CMS	DTE	DUK	NWE	OGE
30 Day Average Closing Stock Price	75.86	43.42	65.19	49.71	112.95	82.36	59.95	37.04
<i>Daily Closing Prices</i>								
10/2/2018	75.26	43.12	64.35	49.34	110.76	80.42	59.03	36.75
10/3/2018	74.65	42.56	63.69	48.76	108.63	79.19	58.89	36.27
10/4/2018	74.38	42.77	63.90	48.91	109.38	79.94	59.40	36.64
10/5/2018	75.69	43.61	65.10	49.89	111.62	81.40	60.52	37.03
10/8/2018	76.32	44.11	65.65	50.25	112.59	82.14	61.21	37.58
10/9/2018	77.39	44.10	66.33	50.65	113.64	82.25	61.40	37.51
10/10/2018	77.40	43.91	65.94	50.28	112.74	81.88	61.08	37.27
10/11/2018	75.56	42.62	64.04	49.21	110.58	79.98	59.56	36.28
10/12/2018	75.06	42.46	63.80	48.85	110.14	79.99	58.68	36.39
10/15/2018	74.76	42.56	63.82	49.01	110.12	80.13	58.57	36.50
10/16/2018	76.11	43.08	64.78	49.69	111.24	80.94	59.50	37.11
10/17/2018	76.26	43.23	64.76	49.87	111.29	80.77	59.32	37.31
10/18/2018	75.98	43.32	64.94	49.80	111.16	81.26	60.04	37.22
10/19/2018	76.99	44.05	66.05	50.68	112.94	82.75	60.75	37.77
10/22/2018	76.66	43.67	65.65	50.48	112.30	82.64	60.25	37.32
10/23/2018	75.92	43.60	65.49	50.27	111.94	82.30	59.41	37.10
10/24/2018	77.66	44.34	66.79	51.70	117.70	84.75	60.71	37.65
10/25/2018	76.38	43.52	65.69	50.75	115.05	83.64	59.00	37.19
10/26/2018	75.41	42.86	64.40	49.25	112.85	81.89	57.96	36.54
10/29/2018	75.54	43.63	65.20	49.79	113.63	83.46	59.36	37.08
10/30/2018	76.05	43.51	65.00	49.85	114.36	83.83	59.90	36.91
10/31/2018	74.00	42.98	64.58	49.52	112.40	82.63	58.76	36.15
11/1/2018	74.57	42.86	64.35	48.61	112.09	81.66	59.21	36.06
11/2/2018	73.59	42.47	63.61	48.14	111.38	82.59	58.91	35.76
11/5/2018	75.14	42.95	64.65	48.70	113.36	83.58	60.22	36.58
11/6/2018	75.54	43.36	65.07	49.10	114.84	84.33	61.03	37.21
11/7/2018	76.31	43.83	66.04	49.63	116.14	84.70	61.03	37.45
11/8/2018	76.69	43.83	66.30	49.50	116.38	84.33	60.95	37.70
11/9/2018	76.85	44.61	67.32	50.14	118.14	85.58	61.61	38.23
11/12/2018	77.65	45.19	68.39	50.70	119.05	85.92	62.16	38.56

Source: Yahoo! Finance

DOC CAPM Analysis

	Line No.	Formula/Note	EPG	CPG
Risk-free Rate	[1]	ROE Attachment 16	3.26%	3.26%
Thomson First Call Projected S&P 500 Earnings Growth Rate	[2]	ROE Attachment 17	11.00%	11.00%
Dividend Yield on S&P 500	[3]	ROE Attachment 18	1.93%	1.93%
Dividend yield on S&P 500 with Half Years' Worth of Growth	[4]	= [3] x (1 + 0.5 x [2])	2.04%	2.04%
DCF Required Market Return	[5]	= [2] + [4]	13.04%	13.04%
β	[6]	ROE Attachment 19	0.65	0.64
Required Return for CPEM (Simple CAPM)	[7]	= [1] + [6] x ([5] - [1])	9.61%	9.49%
Flotation Cost Adjustment	[8]	ROE Attachment 3	0.10%	0.10%
Simple CAPM with Flotation Costs	[9]	= [7] + [8]	9.71%	9.59%

**20-Year Treasury
Bond Yields**

Date	Rate (%)
2018-10-22	3.31
2018-10-23	3.29
2018-10-24	3.24
2018-10-25	3.27
2018-10-26	3.23
2018-10-29	3.23
2018-10-30	3.26
2018-10-31	3.30
2018-11-01	3.29
2018-11-02	3.37
2018-11-05	3.34
2018-11-06	3.35
2018-11-07	3.35
2018-11-08	3.36
2018-11-09	3.32
2018-11-13	3.28
2018-11-14	3.26
2018-11-15	3.27
2018-11-16	3.23
2018-11-19	3.22
2018-11-20	3.22
2018-11-21	3.22
2018-11-23	3.21
2018-11-26	3.22
2018-11-27	3.22
2018-11-28	3.23
2018-11-29	3.21
2018-11-30	3.19
2018-12-03	3.15
2018-12-04	3.05
Average	3.26

Source:
Federal Reserve Bank of St. Louis

S&P 500

2,706.16

-84.21 (-3.02%)

Dow 30

25,097.90

-728.53 (-2.82%)

Nasdaq

7,178.79

-262.72 (-3.53%)

Russell 2000

1,487.46

-61.50 (-3.97%)

Ameritrade

Keep calm and trade on

OPEN AN ACCOUNT

ETRADE

Xcel Energy Inc. (XEL)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD

Add to watchlist

Quote Lookup

53.00

+0.06 (+0.11%)

Buy

Sell

As of 3:28PM EST. Market open.

Summary

Chart

Conversations

Statistics

Historical Data

Profile

Financials

Analysis

Options

Holders

Sustainability

Earnings Estimate				
	Current Qtr. (Dec 2018)	Next Qtr. (Mar 2019)	Current Year (2018)	Next Year (2019)
No. of Analysts	9	5	15	16
Avg. Estimate	0.42	0.6	2.47	2.6
Low Estimate	0.39	0.58	2.44	2.58
High Estimate	0.48	0.63	2.49	2.62
Year Ago EPS	0.42	0.57	2.3	2.47

Revenue Estimate				
	Current Qtr. (Dec 2018)	Next Qtr. (Mar 2019)	Current Year (2018)	Next Year (2019)
No. of Analysts	4	3	10	11
Avg. Estimate	2.88B	3.12B	11.58B	11.9B
Low Estimate	2.74B	3.01B	11.33B	11.52B
High Estimate	3.01B	3.3B	12.12B	12.49B
Year Ago Sales	2.8B	2.95B	11.4B	11.58B
Sales Growth (year/est)	3.00%	5.70%	1.50%	2.80%

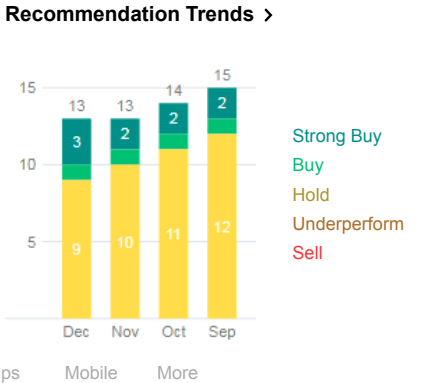
Earnings History				
	12/30/2017	3/30/2018	6/29/2018	9/29/2018
EPS Est.	0.43	0.51	0.47	0.98
EPS Actual	0.42	0.57	0.52	0.96
Difference	-0.01	0.06	0.05	-0.02
Surprise %	-2.30%	11.80%	10.60%	-2.00%

EPS Trend				
	Current Qtr. (Dec 2018)	Next Qtr. (Mar 2019)	Current Year (2018)	Next Year (2019)
Current Estimate	0.42	0.6	2.47	2.6
7 Days Ago	0.42	0.6	2.47	2.6
30 Days Ago	0.42	0.6	2.46	2.6

Get live quotes and news on new tabs



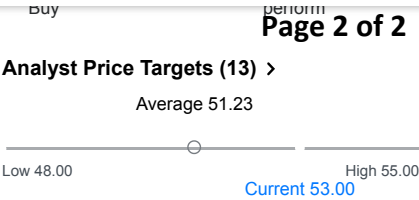
People Also Watch			
Symbol	Last Price	Change	% Change
WEC	73.33	+0.34	+0.47%
WEC Energy Group, Inc.			
PNW	90.52	+0.29	+0.32%
Pinnacle West Capital Corporati			
TE	27.64	-0.01	-0.04%
TE			
CNP	28.18	-0.19	-0.65%
CenterPoint Energy, Inc (Holdin			
PEG	55.75	+0.07	+0.13%
Public Service Enterprise Group			



Finance Home

EPS Revisions	Current Qtr. (Dec 2018)	Next Qtr. (Mar 2019)	Current Year (2018)	Next Year (2019)
Up Last 7 Days	N/A	N/A	1	N/A
Up Last 30 Days	4	3	5	7
Down Last 7 Days	N/A	N/A	N/A	N/A
Down Last 30 Days	N/A	N/A	N/A	N/A

Growth Estimates	XEL	Industry	Sector	S&P 500
Current Qtr.	N/A	N/A	N/A	0.48
Next Qtr.	5.30%	N/A	N/A	0.40
Current Year	7.40%	N/A	N/A	0.21
Next Year	5.30%	N/A	N/A	0.10
Next 5 Years (per annum)	6.49%	N/A	N/A	0.11
Past 5 Years (per annum)	6.12%	N/A	N/A	N/A



Upgrades & Downgrades >

Downgrade	Mizuho: Buy to Neutral	11/2/2018
Downgrade	Morgan Stanley: Overweight to Equal-Weight	9/21/2018
Initiated	Barclays: to Overweight	7/10/2018
Downgrade	Bank of America: Buy to Neutral	6/20/2018
Upgrade	Mizuho: Neutral to Buy	3/27/2018
Upgrade	Morgan Stanley: Equal-Weight to Overweight	2/13/2018

More Upgrades & Downgrades



S&P 500 Dividend Yield



Master the tricks of the trade.

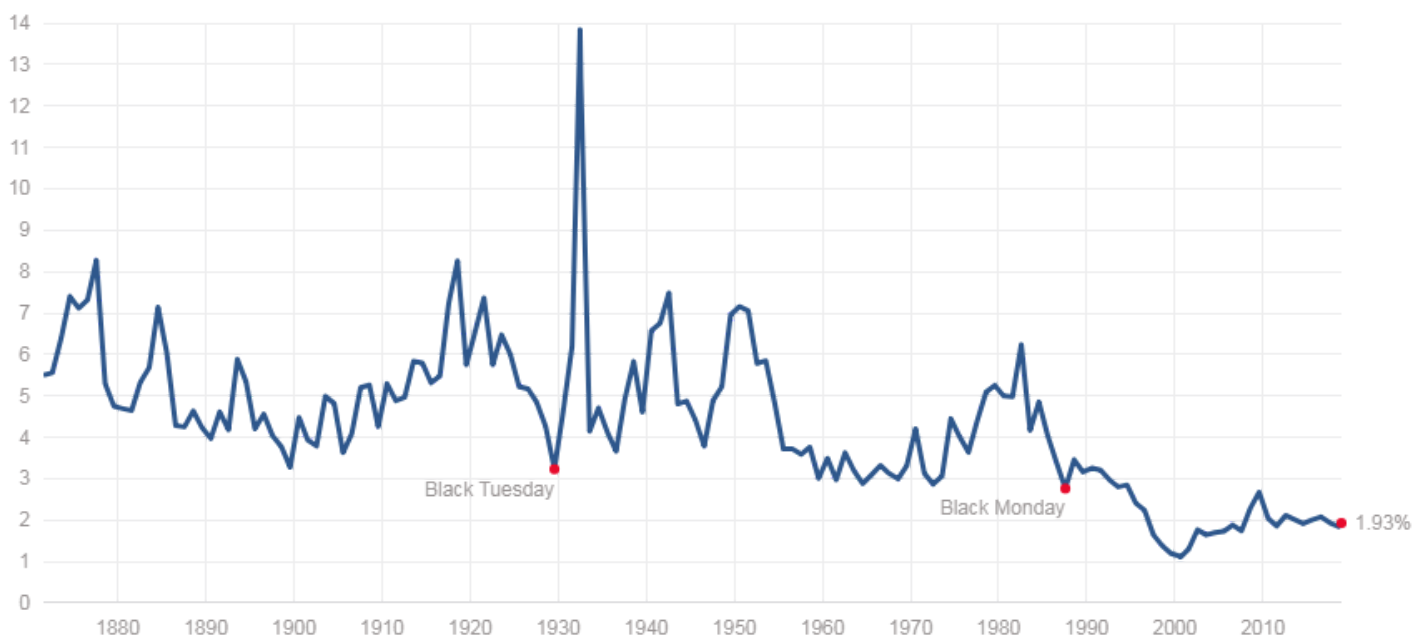


Chart Table

Share

Current Yield: 1.93% +5.35 bps

3:15 PM EST, Tue Dec 4

Mean: 4.34%

Median: 4.28%

Min: 1.11% (Aug 2000)

Max: 13.84% (Jun 1932)

S&P 500 dividend yield — (12 month dividend per share)/price.

Yields following September 2018 (including the current yield) are estimated based on 12 month dividends through September 2018, as reported by S&P.

Sources:

- [Standard & Poor's](#) for current S&P 500 Dividend Yield.
- [Robert Shiller](#) and his book [Irrational Exuberance](#) for historic S&P 500 Dividend Yields.

**Value Line Betas
For Members of
DOC Proxy Groups**

Ticker	EPG	CPG
AEP	0.60	
EE	0.70	
IDA	0.60	
OTTR	0.80	
PNW	0.60	
PNM	0.65	
POR	0.60	
ALE		0.70
LNT		0.65
AEE		0.60
CMS		0.55
DTE		0.60
DUK		0.50
NWE		0.60
OGE		0.90
Average	0.65	0.64

Source:

Value Line

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
Response Comments**

Docket No. E002/M-17-797

Dated this 4th day of March 2019

/s/Sharon Ferguson

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