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# A Customer Coalition Response to the Edison Electric Institute's Whitepaper on the Federal Energy Regulatory Commission's Two-Step DCF Methodology for Calculating Allowed Returns on Equity



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# EXECUTIVE SUMMARY

In December 2017, the Edison Electric Institute (EEI) published a Whitepaper urging the Federal Energy Regulatory Commission (Commission or FERC) to reassess whether its use of the two-step discounted cash flow (DCF) method to set the return on equity (ROE) component of electric transmission rates is “leading to outcomes necessary to meet capital attraction standards and policy goals.”<sup>1</sup> The Whitepaper recommends a number of “solutions” aimed at “existing shortcomings in the current method of employing the two-step DCF approach.”<sup>2</sup>

The Customer Coalition that has developed this response to the EEI Whitepaper consists of state public utility commission and consumer advocate representatives, public power and cooperative utility trade associations, and industrial and other wholesale customers.<sup>3</sup> While not intended as a point-by-point rebuttal of the Whitepaper, this response identifies significant deficiencies in the Whitepaper’s criticisms of the Commission’s DCF method and in EEI’s suggested “solutions.” Our conclusion is that there is no valid reason for the Commission to make the distinctly one-sided changes to the DCF method proposed by the Whitepaper and many good reasons not to do so.

The Customer Coalition makes the following key points in this response:

- The Whitepaper offers no empirical evidence to support the premise that the Commission’s two-step DCF method is producing ROE results that are insufficient to attract capital investment in transmission infrastructure, and EEI’s own industry information shows that public utilities are investing in transmission assets at a record pace.

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1 *Transmission Investment: Revisiting the Federal Energy Regulatory Commission’s Two-Step DCF Methodology for Calculating Allowed Returns on Equity*, prepared by Scott Madden, Inc. for the Edison Electric Institute at 2 (Dec. 2017) (Whitepaper).

2 *Id.* at 2.

3 The Customer Coalition includes: the American Public Power Association, the Coalition of MISO Transmission Customers; the National Association of State Utility Consumer Advocates (NASUCA); the National Rural Electric Cooperative Association; the Organization of MISO States, Inc. (OMS); the PJM Industrial Customer Coalition; and Transmission Access Policy Study Group (TAPS). NASUCA joins this paper and disagrees with the positions presented in the EEI Whitepaper. However, each member of NASUCA may utilize a different methodology for calculating ROE in the presentation of a case. Nothing herein should be read to preclude or preempt any individual NASUCA member from taking positions at the state or federal level that may conflict with the assertions in this paper and support of this paper does not indicate support for any particular ROE ultimately awarded. Further, the input provided by OMS in this paper is consistent with the policy positions approved by a majority of its Board of Directors. Nothing in OMS’ participation herein should be read as assertions or arguments by state commission members of OMS applicable to state ROE proceedings. Individual state commissions have their own proceedings and applicable precedent guiding state ROE determinations.

- The industry’s credit rating has improved over the last eight years, even in the face of large capital investment programs and ROEs that have declined in accordance with falling costs of capital.
- Transmission costs are a significant and increasing portion of wholesale customers’ total costs, a trend that would only be exacerbated by unjustified transmission ROE increases.
- The Whitepaper cites the need for certainty in setting allowed returns, but many of its proposed changes to the DCF method would reduce certainty and increase subjectivity in the ratemaking process.
- None of the alternative ROE models or other market indicators cited by the Whitepaper provides a reasonable or reliable basis to question the validity of the Commission’s two-step DCF model or to make significant changes to the model.
- The Whitepaper does not identify any methodological flaw in the Commission’s two-step DCF method, but rather simply offers an unjustified “wish list” of changes to the Commission’s DCF method geared toward increasing the ROE results.
- There is no need to consider expanding the proxy group to include less-comparable companies; there are more than enough proxy companies to produce reasonable and reliable ROE estimates.
- Using multiple analysts’ growth rate projections, as proposed by the Whitepaper, would almost certainly skew the DCF range higher without improving accuracy.
- The Commission reasonably assigns a one-third weight to the projections of long-term Gross Domestic Product (GDP) growth in its two-step DCF model, and the Whitepaper provides no persuasive basis to depart from this policy.
- The Commission properly relies on long-term projections of GDP growth given the forward-looking nature of the DCF analysis. The historical GDP growth data cited by the Whitepaper are likely to be unrepresentative of future economic conditions.
- The Whitepaper’s suggestion to exclude “low” DCF results that are less than 240 basis points above utility bond yields confuses the test for whether it is reasonable to include a proxy result in the distribution from which the ROE is selected with the test for whether it is reasonable to select a specific ROE within that range. Adopting this proposal would likely decrease the size of the proxy group. It would also exacerbate the possibility of skewed midpoints in the absence of a high-end outlier test.

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The Commission can and should adjust its ratemaking policies when evidence clearly demonstrates that those policies are not producing just and reasonable outcomes. The Whitepaper offers no such evidence. At bottom, the Whitepaper's critique of the Commission's well-established DCF model boils down to an assertion that the DCF model should be significantly modified because it currently produces results that the Whitepaper's authors believe are insufficiently rewarding. Contrary to the Whitepaper's unsupported assertions, the two-step DCF results appropriately reflect the level of return required to support transmission investment under current market conditions.

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# CUSTOMER COALITION RESPONSE

## Capital Investment in Electric Transmission Assets Is Robust

The Whitepaper's fundamental premise is that the standard two-step DCF model as applied to electric utilities may not be "leading to outcomes necessary to meet capital attraction standards and policy goals at a time when the transmission system requires expansion and enhancement."<sup>4</sup> The Whitepaper, however, cites no evidence that base ROEs established using the two-step DCF model are insufficient to attract capital investment in transmission infrastructure. This omission is unsurprising, as there is abundant evidence — including EEI's own analyses — that public utilities are investing in transmission assets at a record pace.

As of September 2017, EEI projected that investor-owned utilities (IOUs) and stand-alone transmission companies would invest a record \$23.9 billion in transmission assets in 2018.<sup>5</sup> This figure is roughly 15% more than the 2016 transmission investment (\$20.8 billion), and nearly double the level of investment just seven years ago (\$12.0 billion).<sup>6</sup> According to EEI's 2016 Financial Review, electric utilities attribute the increase in transmission investment to several factors, including: construction of facilities to connect new energy resources, replacement of existing transmission lines, and system improvements like hardening and physical and cyber security.<sup>7</sup> The Whitepaper itself highlights this robust level of transmission investment by EEI member companies.<sup>8</sup> Although EEI expects transmission investment to moderate somewhat in 2019 and 2020, concern about FERC-authorized ROEs is not among the factors cited for the moderation in projected investment.<sup>9</sup>

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4 Whitepaper at 2. In discussing the capital attraction standards, the Whitepaper points to the Supreme Court's landmark decisions in *FPC v. Hope Nat. Gas Co.*, 320 U.S. 591, 603 (1944) (*Hope*) and *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679, 693 (1923) (*Bluefield*).

5 EEI, *Historical and Projected Transmission Investment* (Updated Sept. 2017), available at: [http://www.eei.org/issuesandpolicy/transmission/Documents/bar\\_Transmission\\_Investment.pdf](http://www.eei.org/issuesandpolicy/transmission/Documents/bar_Transmission_Investment.pdf).

6 See *id.*

7 EEI, *2017 Financial Review* at 53, available at: [http://www.eei.org/resourcesandmedia/industrydataanalysis/industryfinancialanalysis/finreview/Documents/FinancialReview\\_2017.pdf](http://www.eei.org/resourcesandmedia/industrydataanalysis/industryfinancialanalysis/finreview/Documents/FinancialReview_2017.pdf).

8 Whitepaper at 4.

9 See *EEI 2016 Financial Review* at 59.

## Electric Utilities' Credit Ratings Have Improved

The industry's credit rating has improved over the last eight years. This is noted by EEI in tracking credit ratings for the utility industry. As of the fourth quarter of 2017, approximately 88% of the electric utilities followed by EEI had bond ratings of BBB or greater.<sup>10</sup> Approximately 35% of the industry had bond ratings of A- or better. Only approximately 10% were rated at the lowest investment grade, and only one electric utility followed by EEI was below investment grade. In 2010, the number of utilities with a bond rating of BBB or higher was approximately 70%, with 23% of the industry at BBB-, and 8% below investment grade.<sup>11</sup> The fact that credit ratings have improved in the face of large capital investments shows the market's acceptance of utility-issued securities as low risk and stable, and does not suggest a need for changing the DCF method so that it would produce higher ROEs.<sup>12</sup>

## The Commission Must Weigh the Impact on Ratepayers

While urging higher returns for investors to promote new transmission investment, the Whitepaper claims that the impact on customers somehow would be insignificant because transmission currently represents only 11% of an electric customer's bill.<sup>13</sup> In fact, the Energy Information Administration's (EIA) 2018 Annual Energy Outlook puts that number at 12.5% for 2017 and projects that through 2050 the transmission component will increase by 24% and the distribution component by 25%, while the generation component will decrease by 10%. This trend was highlighted in a September 7, 2017 EIA analysis that noted "[e]lectricity delivery costs [including transmission costs] have increased in real 2016 dollar terms from 2.2 cents per kilowatt hour (kWh) in 2006 to 3.2 cents/kWh in

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10 EEI 2017 Q4 Credit Rating Report, available at: <http://www.eei.org/resourcesandmedia/industrydataanalysis/industryfinancialanalysis/QtrlyFinancialUpdates/Pages/default.aspx>.

11 EEI 2017 Q1 Credit Rating Report.

12 In January, 2018, Moody's Investors Service changed its ratings outlook on 25 utility companies, including a number of electric utilities, following enactment of the Tax Cuts and Jobs Act of 2017. Moody's noted, however, that "[t]he short-term and long-term ratings for all 25 companies were affirmed." Further, the report observed that "[t]he vast majority of US regulated utilities . . . continue to maintain stable rating outlooks." A copy of the Moody's report is available at: [https://www.moodys.com/research/Moodys-changes-outlooks-on-25-US-regulated-utilities-primarily-impacted--PR\\_378086](https://www.moodys.com/research/Moodys-changes-outlooks-on-25-US-regulated-utilities-primarily-impacted--PR_378086).

13 Whitepaper at 4.

2016, roughly offsetting the decrease in the generation cost.”<sup>14</sup> Information on transmission costs in RTOs and ISOs shows that wholesale transmission costs are increasing, and that they account for a significant portion of the overall bill.<sup>15</sup> For some wholesale customers, transmission costs already approach 45% of their total electric costs.

Furthermore, the percentage of transmission costs in customers’ bills as compared with other costs (such as distribution or energy costs) says nothing about the rate impact on wholesale or retail rates of the significant changes to the DCF methodology sought by EEI. And even if the effect of unjustified higher returns on transmission investment “would make a small dent in the consumer’s pocket, when compared with”<sup>16</sup> other costs in consumers’ electric bills, the Commission has no grounds to relax its scrutiny, because the Federal Power Act “makes unlawful all rates which are not just and reasonable, and does not say a little unlawfulness is permitted.”<sup>17</sup>

## Adopting the Whitepaper’s Proposals Would Decrease Regulatory Certainty and Increase Subjectivity in Ratemaking

The Whitepaper cites the need for “regulatory certainty” as a key consideration in establishing ROEs that will encourage investment.<sup>18</sup> Promoting “regulatory certainty,” however, does not mean guaranteeing that a transmission investment is entitled to earn a particular level of return over time, regardless of changes in market conditions and the cost of capital. This principle is at least as old as *Bluefield* itself.<sup>19</sup> The Commission’s two-step DCF model provides the stability and certainty that the market requires, but it does not, and should not, guarantee any particular return.

Ironically, the Whitepaper itself repeatedly contradicts its own appeal for “regulatory certainty,” by proposing new and controversial changes to the Commission’s DCF model that would increase subjectivity in ratemaking. This subjectivity

would be a recipe for lengthier, more complex and more fractious litigation in individual ROE cases, including appeals where outcomes based on subjective factors could be found arbitrary and capricious if applied inconsistently and without reasonable guidance or criteria. Protracted litigation also would make it more difficult and expensive for customer groups (including state governments, consumer advocates, municipal utilities, and cooperatives) to participate in these proceedings and would thereby deprive the Commission of critical information necessary to balance investor and customer interests.

## The Whitepaper’s Criticisms of the Commission’s Two-Step DCF Method Do Not Withstand Scrutiny

For over two decades, the Commission has utilized a two-step DCF method to calculate the allowed ROE for interstate natural gas pipelines regulated under the Natural Gas Act (NGA). In 2014, the Commission issued Opinion No. 531, in which it extended this well-established method to electricity transmission rates for public utilities regulated under the Federal Power Act (FPA). In explaining its reasons for doing so, the Commission found that investor uncertainty associated with electric industry restructuring had diminished to the point that it was appropriate to reflect an estimate of long-term dividend growth in the DCF model used to establish ROEs for public utilities.<sup>20</sup>

The Whitepaper’s criticisms of the Commission’s two-step DCF method can be generally categorized as follows: (1) the DCF methodology suffers from certain “inherent limitations;” and (2) the ROE results produced by the two-step DCF methodology for electric transmission are lower than the results produced by other methodologies and other market indicators. Based on these arguments, the Whitepaper contends that certain elements of the Commission’s existing method should be modified and/or that the Commission should make greater use of “benchmarking” against other methods in setting transmission ROEs. The Whitepaper’s criticisms do not warrant any changes to the Commission’s existing two-step DCF model.

### 1. Contrary to the Whitepaper’s Contention, the DCF Model is Fundamentally Sound

The Whitepaper acknowledges that “the DCF model is theoretically sound . . . .”<sup>21</sup> This will not be news to the Commission,

<sup>14</sup> Energy Information Administration, “Electricity Prices Reflect Rising Delivery Costs, Declining Power Production Costs” at 2 (Sept. 7, 2017), available at: <https://www.eia.gov/todayinenergy/detail.php?id=32812>.

<sup>15</sup> See Attachment 1.

<sup>16</sup> *FPC v. Texaco*, 417 U.S. 380, 399 (1974) (interpreting Natural Gas Act).

<sup>17</sup> *Id.*

<sup>18</sup> Whitepaper at 6.

<sup>19</sup> *Bluefield*, 262 U.S. at 693 (explaining that a “rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.”).

<sup>20</sup> See *Martha Coakley, Mass. Attorney Gen. v. Bangor Hydro-Elec. Co.*, Op. No. 531, 147 FERC ¶ 61,234 at PP 35-36, *order on paper hearing*, Op. No. 531-A, 149 FERC ¶ 61,032 (2014), *order on reh’g*, Op. No. 531-B, 150 FERC ¶ 61,165 (2015), *vacated and remanded on other grounds, Emera Maine v. FERC*, 854 F.3d 9 (D.C. Cir. 2017).

<sup>21</sup> Whitepaper at 8.

which has used some form of DCF model to set public utility and natural gas pipeline ROEs for decades. The Commission adopted the two-step DCF model for natural gas pipelines in 1994,<sup>22</sup> and the Commission's method has been upheld in court.<sup>23</sup> Application of the two-step DCF model has been developed in more than 20 years of pipeline rate cases and other proceedings, in which many of the issues raised by the Whitepaper have been fully considered.

The DCF model, to be sure, relies on certain underlying assumptions, but this is true of all methods for inferring the cost of equity. The Whitepaper provides no basis for concluding that the assumptions underlying the Commission's preferred DCF model are any more problematic than those that underlie any alternative approach.<sup>24</sup>

While the Whitepaper warns that there are circumstances in which DCF results should be viewed with particular caution<sup>25</sup> due to alleged "inherent limitations,"<sup>26</sup> it never establishes that these purported limitations are causing the DCF model to produce results below the real cost of equity.<sup>27</sup>

On the contrary, the Whitepaper's claim that the Commission's DCF model produces unreasonably low ROEs primarily relies on simplistic and flawed comparisons to other ROE methods and market indicators, as discussed below.

## 2. The Whitepaper's References to the Results of Alternative ROE Models and Other Market Indicators Do Not Support Changes to the Two-Step DCF Method.

The Whitepaper claims that the results of the two-step DCF method are: (1) inconsistent with the results of other methods; and (2) "not adequate to establish just and reasonable rates."<sup>28</sup> Those are, of course, two very different points. Any inconsistency with other methods does not imply inadequacy, and, as discussed above, the Whitepaper provides no evidence that the two-step DCF methodology is actually producing unjust and unreasonable results, and no evidence that investment capital for electric transmission projects is being withheld due to inadequate returns.<sup>29</sup>

In any case, none of the alternative methods or other market indicators cited by the Whitepaper provides a reasonable or

reliable basis to question the validity of the Commission's two-step DCF model or to make significant changes to the model. In particular:

- The Whitepaper charts historical DCF model results compared to the results of certain versions of the capital asset pricing model (CAPM), the Risk Premium method, and the Expected Earnings approach.<sup>30</sup> Although the Commission has at times relied on these alternative methods for limited purposes in setting ROEs, such as treating them as relevant evidence in fixing the ROE within the range of returns, the Commission in the past has cited sound reasons for preferring the DCF method to these

24 The Whitepaper's description of the DCF model overstates the degree to which it is dependent on market assumptions. As the Whitepaper notes, the DCF model presumes that earnings per share (EPS), dividends per share (DPS), and stock price all approximately grow at the same constant rate. See Whitepaper at 8. This assumption is sound, since growth in EPS, DPS, and stock price all are ultimately derived from earnings growth. The Whitepaper states that the DCF model also assumes that the dividend payout ratio and the price-to-earnings ratio remain constant in perpetuity, *see id.*, but these are not separate assumptions; they are subsumed in the assumption that earnings, dividends, and stock price all grow at the same rate.

25 Among the circumstances cited in the Whitepaper are: (1) "when investor expectations are not consistent with the DCF model's assumption that current market conditions will persist in perpetuity;" (2) "when there is a breakdown in the relationship between stock prices and dividends;" (3) when "the market price of a stock diverges from investors' estimates of its intrinsic value (i.e., the calculated net present value of an investment based on its expected risk and return characteristics);" or (4) "when the growth rates used in the model fail to reflect the investor growth expectations embodied in observable stock prices." Whitepaper at 8-9.

26 *Id.* at 2; *see also id.* at 8-9.

27 Claims of systematic distortions in the DCF model results are fundamentally at odds with the Efficient Market Hypothesis, the "cornerstone of modern investment theory," *Tennessee Gas Pipeline Co. v. FERC*, 926 F.2d 1206, 1210 (D.C. Cir. 1991), and would, if true, mean that there are unlimited, yet unexploited, opportunities for arbitrage in capital markets.

28 Whitepaper at 11.

29 While the Whitepaper purports to compare the results produced by the Commission's DCF model to other methodologies, the Whitepaper departs from the Commission's methodology by relying on analyst growth rate projections published by Bloomberg rather than Institutional Brokers' Estimate System (IBES). See Whitepaper at 11, n.31.

30 *Id.* at 13, Charts 1a and 1b.

31 See, e.g., *ITC Holdings Corp.*, 121 FERC ¶ 61,229 at P 43 (2007) (declining to rely on the CAPM method to determine individual utility's ROE); *Consumers Energy Co.*, Op. No. 429, 85 FERC ¶ 61,100, at 61,360-61,362 (1998), *reh'g granted on other grounds*, Op. No. 429-A, 89 FERC ¶ 61,138 (1999), *reh'g denied*, Op. No. 429-B, 95 FERC ¶ 61,084 (2001) (affirming rejection of reliance on risk premium, CAPM, and comparable earnings approaches); *Generic Determination of Rate of Return on Common Equity for Public Utilities*, Order No. 420, FERC Stats. & Regs. ¶ 30,644, at 31,367 (1985).

22 *Ozark Gas Transmission System*, 68 FERC ¶ 61,032 (1994).

23 See, e.g., *Canadian Ass'n of Petrol. Producers v. FERC*, 254 F.3d 289 (D.C. Cir. 2001) (describing the Commission's DCF method, affirming the Commission's relative weighting of short-term and long-term growth, but remanding for further explanation of the Commission's use and calculation of the median of proxy group returns); *Williston Basin Interstate Pipeline Co. v. FERC*, 165 F.3d 54 (D.C. Cir. 1999) (affirming the Commission's use of an economy-wide long-term growth factor in the DCF method, but remanding for the Commission to address its then-recent change in policy on weighting the growth factors and to implement further proceedings regarding the precise long-term growth estimate to be used).

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alternatives.<sup>31</sup> Given the inherent flaws in these alternative methods, as well as the Whitepaper's application of them, the results produced by these alternative methods certainly cannot support the fundamental changes to the two-step DCF method the Whitepaper proposes.<sup>32</sup>

- CAPM results are sensitive to three inputs, particularly beta, and can produce a wide range of results. The Commission has found that beta alone does not appropriately measure risk.<sup>33</sup> Further, the CAPM version referenced in the Whitepaper assumes that the long-term return on a broad stock portfolio will exceed 13%<sup>34</sup> — an assumption that unreasonably extrapolates from near-term analyst projections and is unsustainable in an economy with long-term growth well under 5%.<sup>35</sup>
- The Risk Premium version referenced in the Whitepaper assumes that the equity risk premium varies in direct proportion to changes in interest rates and that this relationship is not confounded by any other relevant factors. This assumption is highly problematic; indeed, the Commission eliminated its past practice of updating ROEs based on post-record trends in ten-year U.S. Treasury yields because it found that the cost of equity and interest rates do not move in lockstep.<sup>36</sup> The Risk Premium version referenced in the Whitepaper uses nominally allowed ROEs that appear to have been inflated by including numerous false data points, treating decisions as to incentive adders and geographic expansions of Regional Transmission Organization (RTO)-wide ROEs as if they were fresh findings as to the base cost of equity.
- Moreover, the Whitepaper's Risk Premium regression analysis ignores the tenets of *Hope* — that allowed ROE

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32 The Whitepaper also argues that the Commission should use these alternative ROE-estimation tools as “benchmarks” in determining ROE for public utilities. See Whitepaper at 31-37.

33 See, e.g., *ITC Holdings Corp.*, 121 FERC ¶ 61,229 at P 43 & n.37 (2007).

34 See Whitepaper at Appendix B.

35 See *ISO New England, Inc.*, 109 FERC ¶ 61,147 at P 205 (2004), *reh'g denied*, 110 FERC ¶ 61,111 (2005) (“We believe a 13.3 percent growth rate is not a sustainable growth rate over time and therefore does not meet threshold tests of economic logic”).

36 Op. No. 531 at P 159.

37 Generally, the market price/book value ratio (P/B ratio) illustrates the relationship between expected earnings and required returns. When the P/B ratio is greater than one, as it is now, expected earnings exceed required earnings. During the 1980's, P/B ratios were less than one, which indicated that expected earnings were less than required returns. Only when P/B ratios are equal or close to one can it be said that expected earnings resemble required returns.

is a function of comparable business and financial risk. The regression analysis assumes that the equity risk premium is the same for all utilities, regardless of business and financial risk.

- Expected earnings on book-priced equity are simply unrelated to investors' actual opportunities (which are limited to investing in market-priced equities) and to the market cost of equity.<sup>37</sup> And to the extent that publicly-traded proxy holding companies are more highly leveraged than are operating public utilities, the earnings at the proxy (holding company) level generally would be spread over less book-priced equity than is true at the operating public utility level.
- The Whitepaper's comparison of DCF results to state-level ROEs authorized during July-December of 2016 is fundamentally flawed.<sup>38</sup> Although the text of the Whitepaper implies that it is comparing FERC DCF results for transmission assets to state-allowed ROEs on distribution assets,<sup>39</sup> the state ROEs depicted in the charts are “all state electric ROEs.”<sup>40</sup> These state-authorized ROEs may reflect any number of factors, which make the Whitepaper's simplistic comparison highly misleading. For example:
  - The state-authorized ROEs of vertically integrated utilities generally include assessment of generation investment risks, such as volatile returns from competitive wholesale markets, carbon and other emissions regulations, and fuel price volatility that can, in some instances, put capital investment at risk.
  - State-authorized ROEs may reflect settlements and re-authorizations of prior rates without updated analyses.
  - State-level ROE awards may include upward adjustments to address the regulatory lag that exists in many state commission proceedings.
  - State-awarded ROEs likely reflect other factors unrelated to the risks of investing in transmission assets, such as thinner equity ratios in the capital structures used for ratemaking, the fact that some state commissions do not allow the recovery of financing costs on plant investment until the plant is in service, the use of historical test years, and allowances for uncollectible retail bills.
- Even if state-authorized ROEs were an appropriate

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38 See Whitepaper at 14-15.

39 See *id.* at 14.

40 *Id.* at 15, n.36.

benchmark to challenge the validity of the DCF method, the charts included in the Whitepaper do not show a material difference from ROE results under the Commission's DCF model.<sup>41</sup> In fact, Charts 2a and 2b in the Whitepaper (using data up to year 2016) show that ROEs produced under FERC's DCF model and state-authorized ROEs have both trended downward over the nine-year period depicted. The latest Regulatory Research Associates (RRA) Report, dated January 2018, shows that the median of state-authorized ROEs decided in 2017 is 9.68% for all-electric and 9.43% for electric distribution utilities.<sup>42</sup>

- The Whitepaper contends that there is no discernible downward trend in the FERC-authorized returns for natural gas pipelines.<sup>43</sup> However, the Whitepaper fails to acknowledge that most pipeline rate cases are resolved in settlement proceedings with black-box numbers where the ROE is not specified.<sup>44</sup> The last litigated pipeline case that specified an ROE was in 2013.<sup>45</sup> In fact, the Whitepaper's chart purporting to show authorized ROEs for natural gas pipelines appears to include authorized ROEs for new projects granted under section 7 of the NGA, ignoring the fact that rates established under NGA section 7 are not subject to the just and reasonable standard that NGA sections 4 and 5 share with FPA sections 205 and 206.<sup>46</sup> The Whitepaper also fails to acknowledge the clear downward trend in state-authorized ROEs for gas utilities, from an average of 10.4% ROE in 2006 to an average of 9.72% in 2017, as reported by the RRA.<sup>47</sup>
- The Whitepaper relies on S&P recent-year equity returns but does not cite a data source, and its analysis appears to reflect total return (including share values) rather than dividend yields.<sup>48</sup>
- The Whitepaper also discusses use of a multi-stage DCF model for ROE benchmarking purposes.<sup>49</sup> The Commission has rejected use of a multi-stage DCF model as overly complex and reliant on subjective assumptions, particularly as to the length of different stages of growth.<sup>50</sup> FERC's current model is a simpler two-stage growth model, which includes a one-third weight for long-term GDP growth.

41 Such a difference is essentially non-existent once RTO participation and transmission incentive adders are factored into the ROE levels.

42 RRA Regulatory Focus - Major Rate Case Decisions in 2017, S&P Global Market Intelligence at 1 (January 30, 2018) (2018 RRA Report).

43 Whitepaper at 16.

At bottom, the Whitepaper's argument is that the results produced by the two-step DCF model are flawed simply because they are lower than the results produced by alternative ROE models and other market indicators.<sup>51</sup> But, as noted above, the Whitepaper fails to support this allegation with any proof that FERC-allowed ROEs have been inadequate to attract capital investment or that they are below returns available from other investments of comparable risk. The Whitepaper's flawed comparisons to other ROE methodologies and indicators fall far short of proving the point.

## The Whitepaper Provides No Basis to Adjust the Assumptions or the Inputs of the DCF Model

Although it fails to show that the Commission's two-step DCF model is producing inadequate returns, the Whitepaper nonetheless offers a number of unreasonable and unnecessary "solutions."<sup>52</sup> The Whitepaper does not explain how these adjustments address any particular problem with the DCF model; instead they appear to comprise a miscellaneous "wish list" of changes geared toward increasing ROE results. There is no valid reason to implement any of these adjustments to the Commission's DCF model.

44 See *Interstate and Intrastate Natural Gas Pipelines; Rate Changes Relating to the Federal Income Tax Rate*, Docket No. RM18-11-000, 83 Fed. Reg. 12888, 12891 at P 13 (Mar. 26, 2018) ("NGA sections 4 and 5 proceedings are routinely resolved through a settlement agreement between the pipeline and its customers. Most of the agreements are 'black box' settlements that do not provide detailed cost-of-service information.").

45 See *id.* at 12894, P 34 (citing *El Paso Natural Gas Co.*, Op. No. 528, 145 FERC ¶ 61,040 (2013), *reh'g denied*, Op. No. 528-A, 154 FERC ¶ 61,120 (2016)).

46 Reliance on ROEs approved in NGA section 7 certificate proceedings is particularly inappropriate because the Commission's general policy is to approve a standard 14% ROE for new greenfield pipeline projects that utilize a 50% equity ratio for ratemaking purposes. See, e.g., *Atlantic Coast Pipeline, LLC*, 161 FERC ¶ 61,042 at P 102 (2017), *reh'g pending*. Chart 3 in the Whitepaper appears to include many such projects.

47 See 2018 RRA Report at 8.

48 See Whitepaper at 17.

49 *Id.* at 35-36.

50 See, e.g., *El Paso Nat. Gas Co.*, Op. No. 528-A, 154 FERC ¶ 61,120 at P 276.

51 See Whitepaper at 11-18.

52 *Id.* at 7.



## 1. Expanding the Proxy Group

Asserting that “[t]he lack of a large, representative comparison group has become an increasing concern in recent years,”<sup>53</sup> the Whitepaper suggests several ways that the Commission could expand the universe of potential proxy companies for use in the DCF analysis.<sup>54</sup>

There is no need to consider expanding the proxy group for the simple reason that there remains a sufficient number of proxy companies to produce reasonable and reliable ROE estimates. The Whitepaper contends that the universe of potential proxy companies has narrowed in recent years from 52 companies to 40 companies, and argues that this may be insufficient “to provide a robust sample size.”<sup>55</sup> While the Whitepaper never defines “robust,” the universe of potential proxy companies for setting transmission ROEs remains relatively large, and can comfortably produce dozens of risk-comparable proxies. By comparison, the Commission has routinely relied on proxy groups with six or fewer members when setting gas pipeline rates.<sup>56</sup>

The Whitepaper opines that the Commission could loosen its screening of proxies’ credit ratings to include all investment grade utilities, arguing that this would increase the number of eligible proxy companies “while maintaining a sufficient degree of comparability.”<sup>57</sup> But, in the absence of evidence that applying the credit rating screen produces an inadequate pool of proxy companies, there is no reason to expand the proxy group to include companies that are less risk-comparable to the subject utility based on credit ratings.

The Whitepaper cites an analysis that it contends shows there is no demonstrated relationship between the DCF results for a company and its credit rating and, thus, “present credit rating criteria do not serve as an appropriate basis to fine-tune ROE estimates based on relative risk.”<sup>58</sup> While it is impossible to determine from the Whitepaper how the analysis it cites was performed, the results shown in Table 2 of the Whitepaper do not square with financial theory. As such theory predicts (and contrary to the Whitepaper’s assertions), the riskier the credit rating, the higher the DCF result, as is shown in Attachment 2.

The Whitepaper’s suggestion that the Commission should benchmark its DCF model with a secondary DCF analysis using companies from other industries suffers from even greater risk-comparability problems.<sup>59</sup> Relying on non-utility proxy companies to establish a public utility ROE would likely exceed even the Commission’s significant discretion in rate matters.<sup>60</sup> And it would hardly foster more regulatory certainty.

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53 *Id.* at 19. The Whitepaper does not identify who exactly has this “concern.”

54 *See id.* at 19-23.

55 *Id.* at 19.

The universe of potential proxy companies in the electric utility sector remains large enough to produce adequate proxy groups for the DCF analysis. Should there be specific problems with the ability to form a proxy group in a particular case, the Commission has the ability to consider adjustments, accompanied by comparison of the resulting proxy group’s riskiness to that of the subject utility. But the exception should not form the basis for the rule.

## 2. Using Multiple Analyst Growth Rate Projections

Challenging the Commission’s longstanding reliance on IBES five-year analyst earnings growth estimates for the DCF model’s short-term growth rate estimate, the Whitepaper asserts that “restricting growth rate estimates to a single source, such as IBES, fails to account for the range of growth rate assumptions likely used by investors.”<sup>61</sup>

The Commission has repeatedly ruled, based on well-developed record evidence, that it prefers IBES consensus rates.<sup>62</sup> While the Commission has stated that it would consider sources of growth rate data other than IBES under certain circumstances, it has required such sources to be comparable to IBES. That is, sources must represent the consensus of analysts and must be updated frequently.<sup>63</sup> The Whitepaper does not show that the other analyst growth rate projections upon which it relies (Zacks, Value Line, and Bloomberg) satisfy these criteria, and, in fact, the Commission has expressly found that Value Line does not.<sup>64</sup> Opening the door to multiple sources increases the opportunities for data-shopping, and, because proprietary sources like Bloomberg require expensive subscriptions, would

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56 *See, e.g., El Paso Nat. Gas Co.*, Op. No. 528, 145 FERC ¶ 61,040 at PP 621-636, *order on reh’g*, Op. No. 528-A, 154 FERC ¶ 61,120 at PP 232-247 (approving five-company proxy group); *Portland Nat. Gas Transmission Sys.*, Op. No. 510, 134 FERC ¶ 61,129 at P 169 (2011), *order on reh’g*, Op. No. 510-A, 142 FERC 61,198 (2013) (approving six-company proxy group); *Kern River Gas Transmission Co.*, Op. No. 486-B, 126 FERC ¶ 61,034 at PP 102-105, *order on reh’g*, Op. No. 486-C, 129 FERC ¶ 61,240 at PP 30-92 (2009) (approving five-company proxy group).

57 Whitepaper at 20.

58 *Id.* at 22.

59 *See id.* at 22-23.

60 *See, e.g., Petal Gas Storage v. FERC*, 496 F.3d 695 (D.C. Cir. 2007).

61 Whitepaper at 24.

62 *See generally, Association of Businesses Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Op. No. 551, 156 FERC ¶ 61,234 at P 62 (2016).

63 *See id.* at P 64.

64 *See id.* at P 62 & n.146, n.154.

substantially increase stakeholders' cost of reviewing rate submissions and monitoring the continued reasonableness of existing rates. The data included in Chart 6 of the Whitepaper also indicate that not every prospective proxy company has a growth rate from each source. As the Commission has observed, using different sources of growth rates for different companies can produce skewed results.<sup>65</sup>

The Whitepaper, moreover, does not propose simply to rely on growth forecasts other than IBES; it offers a fundamentally different approach to performing the DCF analysis, one that would almost certainly skew the range higher without improving accuracy. The Whitepaper proposes using growth rate data from multiple sources to "calculate high and low two-step DCF estimates using the highest and lowest growth rate estimates to set the zone of reasonableness."<sup>66</sup> In calculating the DCF range, the growth rate would not be averaged across sources first to derive a multi-source analyst growth rate for each proxy company; rather, the DCF analysis would be "performed for each company using investor service data separately. The lowest DCF result would set the bottom of the range (subject to a low-end threshold screen), and the highest DCF result would set the high end of the range."<sup>67</sup>

Under this approach, it is much more likely that at least one company in any given proxy group will have a high DCF result based on some source's growth rate. Using multiple analysts' growth-rate projections and calculating high and low DCF estimates using the highest and lowest analyst growth-rate estimates would also reduce regulatory certainty by increasing the likelihood of extreme results.<sup>68</sup>

### 3. Estimating and Weighting Long-Term Growth

Seeking to rekindle debate on an issue the Commission has carefully considered and resolved, the Whitepaper argues that the Commission should lower the weight given to long-term GDP growth in the two-step DCF model, or even eliminate reliance on macroeconomic estimates of long-term GDP growth altogether.<sup>69</sup> Alternatively, the Whitepaper suggests that the Commission modify its GDP growth calculation to factor in historical GDP growth rates.<sup>70</sup>

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65 See *id.* at P 63.

66 Whitepaper at 24.

67 *Id.* at 24 n.57.

68 The Whitepaper's proposal is also conceptually unsound. If multiple sources are assumed, and the point of the exercise is to infer what growth rates investors were expecting when they paid study-period stock prices, then averaging across sources first is the conceptually correct approach. See, e.g., *Atl. Grid Operations A LLC*, 135 FERC ¶ 61,144 at P 90 (2011) (in single-utility cases when FERC used both br+sv and IBES as sources for "g," the proper sequence was to find one value per company by averaging the two and then find the median).

The Whitepaper provides no justification for the Commission to modify its one-third weighting of projected nominal GDP growth. Ultimately, as part of a mature industry, electric utilities cannot sustainably grow faster than the U.S. economy. With the existing weighting, the Commission's DCF method already implicitly assumes that higher near-term growth will continue for decades.<sup>71</sup> There is no valid reason to further dilute the weight given to macroeconomic limits on utility growth.

Nor is there any merit to the Whitepaper's criticisms of, and proposed replacements for, the Commission's long-term GDP growth projections. The Whitepaper contends that the Commission's approach is too dependent on current conditions, but it fails to explain why this is a problem given the forward-looking nature of the DCF analysis. In particular, the Whitepaper suggests that current projections of long-term GDP growth used by the Commission are too low because they are lower than the 90-year historical average nominal GDP growth of 6.13% as reported by the U.S. Bureau of Economic Analysis (BEA), covering 1929 to 2016.<sup>72</sup> This is an apples-to-oranges comparison of historical growth to projected growth. It is projected growth that is required for use in the DCF model, as the Commission has previously emphasized.<sup>73</sup> Moreover, the Whitepaper's recommendation to use historic GDP growth rates contradicts its own recommendations for relying on expected market growth rates for its CAPM analyses.

The Whitepaper ignores the clear evidence and well-accepted outlook of market participants that future inflation will be much lower than inflation reflected in historical nominal GDP growth. During the period 1929-2017, inflation reflected in nominal GDP was approximately 3.0 percentage points.<sup>74</sup> Outlooks for future inflation are around 2.0 percentage points. Indeed, this is well recognized by the Federal Reserve

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69 Whitepaper at 26-27.

70 *Id.* at 25, 27.

71 See *Williston Basin Pipeline Co.*, 84 FERC ¶ 61,081 at 61,384-85 (1998), *reh'g denied in pertinent part*, 87 FERC ¶ 61,264, *order on reh'g*, 88 FERC ¶ 61,301 (1999).

72 Whitepaper at 25.

73 See, e.g., *El Paso Nat. Gas Co.*, Op. No. 528, 145 FERC ¶ 61,040 at P 657, *order on reh'g*, Op. No. 528-A, 154 FERC ¶ 61,120 (rejecting long-term GDP growth rate calculation based on 1929-2009 annualized growth, and observing that "it seems reasonable to believe that current expectations are more likely to reflect current GDP forecasts than historical forecasts, particularly those that extend back into the distant past.").

74 Roger G. Ibbotson, *et al.*, 2017 *SBBI Yearbook, Stocks, Bonds, Bills, and Inflation* at 6-17 (2017).

in forming future monetary policy.<sup>75</sup> Using a nominal GDP over a historical period fails to reflect outlooks for future market factors, including inflation factors, which are critical in measuring the current market cost of equity. The Federal Reserve has recognized that the long-term inflation outlook is a major factor that impacts the current and projected long-term interest rate market outlook.<sup>76</sup> Therefore, the Commission's practice of relying on prospective nominal GDP growth, reflecting the outlook for both real GDP growth and inflation growth over time, is consistent with market participants' valuation of securities based on prospective market conditions and capital market costs, and shows that historical market conditions and costs cannot be directly used to measure prospective equity returns.

The 90-year average nominal GDP growth cited by the Whitepaper is plainly not a reliable predictor of future growth rates. Nominal GDP growth is highly dependent on productivity, demographics, and inflation, and accordingly, has slowed since the historically high U.S. productivity growth from 1870 to 1970 passed, the baby boom ended, and the anomalous inflation of the 1970s was tamed.<sup>77</sup> This is readily apparent from the relevant BEA data, which show that, while the average nominal GDP growth from 1929-2017 was 6.3%, it was 7.0% for 1929-1979.<sup>78</sup> Moreover, for 1980-2017, it was only 5.40%, and for 2001-2017, only 3.80%.<sup>79</sup> Thus, the 90-year average overstates the growth in the last half-century, to say nothing of future growth estimates. From 1929 to 2016, the U.S. population grew by more than 1% per year; from now to 2060, the U.S. Census Bureau projects it will grow only half as fast.<sup>80</sup> The Whitepaper suggests it is reasonable to assume that "over time, real GDP growth is mean-reverting,"<sup>81</sup> but that begs the following questions: what time period should be used to compute the mean, and is there a "new normal" since the exceptional boom that ended in the 1970s? The Whitepaper is correct that "utilizing an unrepresentative growth assumption would lead to distorted ROE estimates,"<sup>82</sup> and that is exactly what would

happen if the Commission were to utilize the 90-year historical growth rate. Investors know that U.S. productivity growth, population growth, and inflation have slowed.

In a similar vein, the Whitepaper points to Morningstar's approach of adding an inflation projection of 2.05% to the historic real GDP growth projection of 3.22%, producing a long-term growth estimate of 5.27%.<sup>83</sup> As shown in the second column of data in Attachment 3, however, real GDP growth since 1980 has averaged only 2.61%; therefore, a more realistic use of that method would produce a long-term growth of 4.66%.

#### 4. Eliminating Low DCF Results

The Commission's standard method for determining the group of proxy companies excludes DCF results that are less than 100 basis points above utility bond yields, reasoning that DCF results that low are illogical outliers, since equity should cost more than debt. After proposing that the Commission enlarge a supposedly shrinking pool of potential proxy companies, the Whitepaper then suggests, without a hint of irony, that the low-end threshold be increased to 240 basis points, an adjustment that would exclude more potential proxy companies.<sup>84</sup>

The Whitepaper cites no valid reason to change the low-end outlier threshold. It simply appears to want to include in the proxy distribution only results that would themselves be just and reasonable if selected as the ROE. By doing so, the Whitepaper confuses the test for whether it is reasonable to include a proxy result in the distribution from which the ROE is selected with the test for whether it is reasonable to select a specific ROE within that range. Contrary to the Whitepaper's attempt to exclude proxy results that are themselves too low to serve as the allowed ROE, *Emera Maine* held that an appropriate DCF range can include individual results that the Commission would not accept as a just and reasonable ROE.<sup>85</sup>

Furthermore, the Whitepaper failed to propose a corresponding and symmetric change in the high-end threshold, although inclusion of high-end outliers in the proxy group could lead to unreasonable results. If the Commission were to explore changing the outlier tests for proxy group formation, it should consider tightening the high-end outlier test. Doing so would mitigate skewed midpoints resulting from the emphasis this approach places on the low and high ends of the

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75 Federal Reserve Monetary Policy Report, February 23, 2018, Statement on Longer-Run Goals and Monetary Strategy.

76 *Id.*

77 See Robert J. Gordon, *The Rise and Fall of American Growth* (2016).

78 See Attachment 3, which contains the BEA figures cited by the Whitepaper (at footnote 60), updated to include 2017.

79 *Id.*

80 The Customer Coalition calculated a projected annual growth rate of 0.5% based on the information in the Census Bureau's 2017 "Projected Population Size and Births, Deaths, and Migration" (Table 1), available at: <https://www.census.gov/data/tables/2017/demo/popproj/2017-summary-tables.html>.

81 Whitepaper at 27.

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82 *Id.*

83 *Id.*

84 *Id.* at 29.

85 *Emera Maine v. FERC*, 854 F.3d 9, 23-24 (D.C. Cir. 2017) (explaining that "[n]either the language of the FPA nor our precedents compel FERC to accept all rates within the discounted cash flow zone of reasonableness as just and reasonable in a section 206 proceeding.").

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proxy range. Because calculating the midpoint uses only the two most extreme data points (the low and the high end of the proxy range), the midpoint is highly susceptible to distortion by unrepresentative proxy outliers. In essence, regardless of the size of the proxy group, all of the DCF estimates between the upper point and lower point are ignored. Further, the use of the midpoint generally leads to more extensive, and unnecessary, litigation on proxy formation issues and on the DCF estimates of just two companies.

A better alternative to the Whitepaper's proposal of changing the outlier test would be to extend to regional ROEs the Commission's judicially affirmed<sup>86</sup> policy of using the median, rather than the midpoint, in determining the base ROE for a single utility. The median represents the full range of proxy results better than the midpoint, and it is not so susceptible to distortion by outliers. The median is a robust statistic, meaning it is far less susceptible to the influence of outliers; the midpoint, in contrast, depends solely on outliers.

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<sup>86</sup> See *Southern Cal. Edison Co. v. FERC*, 717 F.3d 177 (D.C. Cir. 2013).

<sup>87</sup> See *Edison Electric Institute, Transmission Investment: Adequate Returns and Regulatory Certainty Are Key* at 13 (June 2013), eLibrary 20130814-5126.

## **The Whitepaper Ignores the Generous Returns Provided When the Commission Assumes “Anomalous Market Conditions” Are Present.**

The Whitepaper, not surprisingly, does not recommend changes to the Commission's generous ROE placement within the DCF proxy results adopted in the past several years, based on an assessment that current capital market conditions are “anomalous.” The Commission has sometimes found anomalous market conditions to be present because the Federal Reserve's quantitative easing policy has exerted influence on both short-term interest rates and, due to quantitative easing, long-term interest rates as well. The Commission has, in some cases, accepted claims that because observable current market interest rates may increase based on projected market conditions, present DCF results could understate the returns that will be fair in the future. Such claims were also made in EEI's prior (June, 2013) ROE whitepaper, which asserted that the “extraordinary financial environment” of 2013, specifically “continuing Federal Reserve actions to stimulate the economy by keeping interest rates low, [and] purchasing bonds” were temporarily producing DCF results below the cost of equity.<sup>87</sup> Had EEI been right in 2013, then the financial environment of 2018—in which the Federal Reserve has already raised interest rates six times in three years, is no longer purchasing bonds, and has begun to unwind its holdings of mortgage-backed securities—would be producing much higher DCF results. EEI's new Whitepaper demonstrates that EEI was wrong then, and thereby provides a powerful indication that EEI's arguments should not be accepted now.

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# CONCLUSION

**T**he Commission's two-step DCF model has been carefully developed over years of agency proceedings and upheld by the courts. In the absence of any direct measure of the equity return required by a prospective investor in a public utility company, the Commission's DCF method produces reasonable estimates that appropriately reflect changing market conditions and expectations. The EEI Whitepaper provides no evidence whatsoever that the DCF method is producing ROE results that are insufficient to attract capital investment in transmission infrastructure. Flawed comparisons to market indicators and alternative models do not constitute such evidence. Having failed to show that there is any problem with the Commission's long-standing DCF model to be addressed, the Whitepaper provides no valid basis for FERC to entertain the result-driven and unreasonable "fixes" that the Whitepaper proposes.

## ATTACHMENT 1

### California ISO

Year	2017	2016	2015	2014	2013	2012
<b>Charges to Market Participants (\$ millions)</b>						
Ancillary Services Capacity	\$266.4	\$153.0	\$73.9	\$85.2	\$104.8	\$82.8
Energy (Real Time and Day Ahead)	\$5,694.9	\$4,696.0	\$5,395.9	\$7,183.4	\$6,028.4	\$4,969.7
Inter Scheduling Coordinator Trades	\$1,324.1	\$822.3	\$929.2	\$1,278.2	\$1,240.1	\$1,149.0
<b>Transmission and Other (T&amp;O)</b>	<b>\$3,077.4</b>	<b>\$2,887.0</b>	<b>\$2,805.5</b>	<b>\$2,456.8</b>	<b>\$2,697.9</b>	<b>\$2,042.8</b>
Grid Management Charge (GMC)	\$206.9	\$199.1	\$201.6	\$200.3	\$196.5	\$196.3
RMR Charges	\$4.2	\$20.9	\$26.4	\$23.5	\$20.0	\$6.0
Total	\$10,573.9	\$8,778.3	\$9,432.5	\$11,227.4	\$10,287.7	\$8,446.6
<b>T&amp;O as % of Total Charges</b>	<b>29.1%</b>	<b>32.9%</b>	<b>29.7%</b>	<b>21.9%</b>	<b>26.2%</b>	<b>24.2%</b>

Source: California ISO 2012-2016 and 2013-2017 Five-Year Financial Summaries

### PJM Interconnection

Year	2017	2016	2015	2014	2013	2012
Transmission Charges per MWH*	\$9.57	\$8.42	\$7.69	\$6.46	\$5.65	\$5.32
Total Price per MWH	\$53.23	\$49.98	\$56.87	\$71.49	\$53.87	\$49.20
<b>% of Total Price</b>	<b>18.0%</b>	<b>16.8%</b>	<b>13.5%</b>	<b>9.0%</b>	<b>10.5%</b>	<b>10.8%</b>

\*Includes Transmission Service Charges, Enhancement Cost Recovery, Schedule 1A and Facility Charges.

Source: 2018 Quarterly State of the Market Report for PJM: January through March, Monitoring Analytics, Table 1-10

ISO New England

Year	2017	2016	2015	2014	2013
Regional Network Load (RNL)*	\$2.2	\$2.1	\$2.0	\$1.8	\$1.8
<b>% of Total Wholesale Cost</b>	<b>25%</b>	<b>28%</b>	<b>21%</b>	<b>15%</b>	<b>16%</b>

\*Billions of dollars. RNL "costs cover the use of transmission facilities, reliability, and certain administrative services."

Source: ISO-NE Internal Market Monitor 2017 Annual Markets Report

## ATTACHMENT 2

Company	Op. 531	S&P Rating DCF Result	Moody's Rating	Tranche	Tranche Average DCF Result
Vectren Corp.	9.55%	A-	--	Moody's A3-Baa1	8.89%
Wisconsin Energy Corp.	8.64%	A-	A3		
Otter Tail Corp.	9.51%	BBB-	A3		
Southern Company	9.16%	A	Baa1		
Alliant Energy Corp.	9.63%	A-	Baa1		
Consolidated Edison, Inc.	7.12%	A-	Baa1		
Integrus Energy Group, Inc.	10.39%	A-	Baa1		
NextEra Energy, Inc.	9.42%	A-	Baa1		
Xcel Energy, Inc.	8.87%	A-	Baa1		
ALLETE, Inc.	9.95%	BBB+	Baa1		
DTE Energy Co.	8.46%	BBB+	Baa1		
OGE Energy Corp.	7.43%	BBB+	Baa1		
Sempra Energy	8.82%	BBB+	Baa1		
NorthWestern Corp.	9.08%	BBB	Baa1		
PG&E Corp.	7.94%	BBB	Baa1	Moody's Baa2	9.04%
Dominion Resources, Inc.	10.67%	A-	Baa2		
Northeast Utilities	10.62%	A-	Baa2		
Duke Energy Corp.	8.98%	BBB+	Baa2		
Pinnacle West Capital Corp.	10.56%	BBB+	Baa2		
TECO Energy, Inc.	8.58%	BBB+	Baa2		
American Electric Power Co., Inc.	8.17%	BBB	Baa2		
Avista Corp.	9.07%	BBB	Baa2		
El Paso Electric Co.	7.03%	BBB	Baa2		
Empire District Electric Co.	8.28%	BBB	Baa2		
IDACORP, Inc.	7.59%	BBB	Baa2		
Portland General Electric Co.	9.14%	BBB	Baa2		
Pub. Serv. Enterprise Grp.	Excluded	BBB	Baa2		
Westar Energy, Inc.	10.34%	BBB	Baa2		
Edison International	Excluded	BBB-	Baa2		
Hawaiian Electric Industries, Inc.	8.50%	BBB-	Baa2		

## ATTACHMENT 2

Company	Op. 531	S&P Rating DCF Result	Moody's Rating	Tranche	Tranche Average DCF Result
CenterPoint Energy, Inc.	8.89%	BBB+	Baa3	Moody's Baa3	9.63%
Pepco Holdings, Inc.	9.45%	BBB+	Baa3		
SCANA Corp.	8.77%	BBB+	Baa3		
Ameren Corp.	Excluded	BBB	Baa3		
Cleco Corp.	10.10%	BBB	Baa3		
CMS Energy Corp.	9.60%	BBB	Baa3		
Great Plains Energy Inc.	9.99%	BBB	Baa3		
PPL Corp.	8.31%	BBB	Baa3		
UIL Holdings Corp.	11.74%	BBB	Baa3		
Black Hills Corp.	9.57%	BBB-	Baa3		
FirstEnergy Corp.	9.91%	BBB-	Baa3		



## ATTACHMENT 3

### Gross Domestic Product Percent change from preceding period

Year	GDP in billions of current dollars	GDP in billions of chained 2009 dollars
1930	-11.9	-8.5
1931	-16.0	-6.4
1932	-23.1	-12.9
1933	-4.0	-1.3
1934	16.9	10.8
1935	11.1	8.9
1936	14.3	12.9
1937	9.6	5.1
1938	-6.1	-3.3
1939	7.0	8.0
1940	10.1	8.8
1941	25.7	17.7
1942	28.3	18.9
1943	22.4	17.0
1944	10.5	8.0
1945	1.6	-1.0
1946	-0.2	-11.6
1947	9.7	-1.1
1948	9.9	4.1
1949	-0.7	-0.5
1950	10.0	8.7
1951	15.7	8.1
1952	5.9	4.1
1953	6.0	4.7
1954	0.4	-0.6
1955	9.0	7.1
1956	5.6	2.1
1957	5.5	2.1
1958	1.5	-0.7
1959	8.4	6.9
1960	4.0	2.6
1961	3.7	2.6
1962	7.4	6.1

Year	GDP in billions of current dollars	GDP in billions of chained 2009 dollars
1963	5.5	4.4
1964	7.4	5.8
1965	8.4	6.5
1966	9.6	6.6
1967	5.7	2.7
1968	9.4	4.9
1969	8.2	3.1
1970	5.5	0.2
1971	8.5	3.3
1972	9.8	5.2
1973	11.4	5.6
1974	8.4	-0.5
1975	9.0	-0.2
1976	11.2	5.4
1977	11.1	4.6
1978	13.0	5.6
1979	11.7	3.2
1980	8.8	-0.2
1981	12.2	2.6
1982	4.2	-1.9
1983	8.8	4.6
1984	11.1	7.3
1985	7.6	4.2
1986	5.6	3.5
1987	6.1	3.5
1988	7.9	4.2
1989	7.7	3.7
1990	5.7	1.9
1991	3.3	-0.1
1992	5.9	3.6
1993	5.2	2.7
1994	6.3	4.0
1995	4.9	2.7

Gross Domestic Product Percent change from preceding period

Year	GDP in billions of current dollars	GDP in billions of chained 2009 dollars
1996	5.7	3.8
1997	6.3	4.5
1998	5.6	4.5
1999	6.3	4.7
2000	6.5	4.1
2001	3.3	1.0
2002	3.3	1.8
2003	4.9	2.8
2004	6.6	3.8
2005	6.7	3.3
2006	5.8	2.7
2007	4.5	1.8
2008	1.7	-0.3
2009	-2.0	-2.8
2010	3.8	2.5
2011	3.7	1.6
2012	4.1	2.2
2013	3.3	1.7
2014	4.4	2.6
2015	4.0	2.9
2016	2.8	1.5
2017	4.1	2.3

**Average current-dollar GDP percentage change from prior year**

Average for all years	6.3
Average 1929 to 1979	7.0
Average 1980 to 2017	5.4
Average 2001 to 2017	3.8
Average 2008 to 2017	3.0

Source: <https://www.bea.gov/national/xls/gdpchg.xlsx>