UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Inquiry Regarding the Commission's Return on Equity Policy	Docket No. PL19-4-000

COMMENTS OF THE CALIFORNIA DEPARTMENT OF WATER RESOURCES STATE WATER PROJECT

The California Department of Water Resources (CDWR) State Water Project (SWP) appreciates the opportunity to comment on the March 21, 2019 Notice of Inquiry regarding the Federal Energy Regulatory Commission's (the Commission) return on equity (ROE) policy.[1] As the largest single ratepayer in California, transmission and its costs and development are of crucial importance to SWP. SWP urges the Commission to consider these comments as it undertakes review of its ROE policy.

I. COMMUNICATIONS

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[1] *Inquiry Regarding the Commission's Electric Transmission Incentives Policy*, Notice of Inquiry, 166 FERC ¶ 61,207 (2019).

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II. CDWR

CDWR is an agency of the State of California headquartered in Sacramento. It is responsible for monitoring, conserving, and developing California's water resources, providing public safety, and preventing property damage related to water resources. A primary responsibility of CDWR is the construction, operation, and maintenance of SWP.

SWP is the largest state-owned, multi-purpose water project in the country. Its operations are critical to the resources and economy of the state. SWP's system spans nearly the entire state, from Lake Oroville in Northern California to the Pyramid, Castaic, Silverwood, and Perris reservoirs in Southern California. SWP delivers an average of 3.3 million acre-feet of water per year to twenty-nine public agency water contractors throughout California. Approximately 40% of the deliveries are used to irrigate some 750,000 acres of farmland. The rest of the deliveries serve the water needs of more than 24 million Californians.

SWP's water conveyance system includes twenty-nine water storage facilities, approximately 675 miles of aqueducts and pipelines, twenty-one pumping plants, three pumping-generating plants, and five hydroelectric power plants. SWP's power generating sources have capacity of over 1,900 megawatts, and generate an average of 5 billion kilowatt-hours of energy per year. SWP's pumping facilities have a combined

demand of approximately 2,600 megawatts and consume an average of 9 billion kilowatt-hours of energy per year. In addition to the output from SWP's hydroelectric facilities, SWP receives power under long-term contracts. SWP manages its power operation through self-generation, load management including demand response, power exchanges, purchase and sales transactions with other entities, and participation in the power markets administered by California Independent System Operator Inc. (CAISO).

SWP's aqueducts and reservoirs are designed to provide water storage that enhances SWP's ability to choose (within the constraints of water delivery, environmental, and other obligations) the hours and locations in which specific generators and pumps will run. SWP has some ability to operate its pumps to provide demand response services that respond to price signals in the CAISO market and enhance the reliability of the grid. SWP is the largest individual demand response provider in California.

Nonetheless, SWP is able to use its demand-side resources to provide reliability support to the power grid only when water management conditions so permit. For example, California frequently experiences drought conditions and environmental restrictions on operating SWP pumps that increase SWP's need for reliable transmission service for its pumping load, particularly when that load is not bid into CAISO markets for reliability services. Thus, it is essential that SWP retain its ability to pump as much as possible whenever environmental and other conditions allow. If involuntary transmission interruptions preclude pumping, irretrievable water resources will be lost.

III. COMMENTS

The purpose of a rate of return, also commonly called the "cost of capital," or "opportunity cost of capital," is to compensate investors who have committed capital

used to finance necessary plant and equipment for utility service to customers. Investors commit these funds in anticipation of earning a return on their investment that is on par with the returns offered by other investment alternatives with comparable risks. A major component of the cost of capital is the ROE. An ROE is deemed just and reasonable where it provides the utility an opportunity to earn an ROE sufficient to: (1) fairly compensate equity capital currently invested in the utility; (2) enable the utility to attract new equity capital on reasonable terms; and (3) maintain the utility's financial integrity. *See Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679 (1923); *FPC v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

"[P]ublic utility regulation typically assumes that the private firm is a natural monopoly and that public controls are necessary to protect the consumer from exploitation." *Cantor v. Detroit Edison Co.*, 428 U.S. 579, 595-96 (1976). It is assumed that, if left unregulated, companies in the utility industry have every incentive to charge customers prices higher than the price level of a perfectly competitive industry in order to maximize profits. Accordingly, regulatory authorities engage "price control to take the place of price competition," *Otter Tail Power Co. v. U.S.*, 410 U.S. 366, 389 (1973) (Stewart, J., dissenting), and ensure that customers will be able to obtain essential utility services at reasonable rates. Under this approach, regulators setting a rate of return "ask[] 'what is the minimum amount that one must pay new investors . . . to offer the utility the money that it needs for investment?' This amount is the minimum cost of equity capital; it pays investors a 'fair return,' but no more, while obtaining for the company the capital that it needs." *Boston Edison Co. v. FERC*, 885 F.2d 962, 965 (1st Cir. 1989). Two principles form the foundation of this inquiry:

1. The most important factor in determining the required ROE of a utility is risk. As utilities face smaller degree of risks compared to most of other businesses, a utility's return therefore should be lower than other riskier businesses.
2. A utility should earn comparable returns to other businesses with similar degree of risk in order to maintain its financial soundness including maintain its credit standing, attract capital for investment and so on.

These guidelines ensure that utility customers receive adequate service at a reasonable price and utilities and their investors have the opportunity to earn a fair return on their investments.

The Commission has most recently employed a two-step discounted cash flow (DCF) model, corroborated by the results of several other models, to determine the ROE of a utility. The DCF methodology has been tested in practice for many years and SWP believes it generates a fair ROE for utilities. The DCF methodology as implemented by the Commission relies on market information to determine the fair compensation to utility investors. In Opinion No. 531 and subsequent cases, the Commission recognized anomalous capital market conditions as a reason to consider additional record evidence and adjust the midpoint to correct for possible downward bias in ROE.[2] In the newly proposed methodology as described in the *Coakley* and MISO Briefing Orders,[3] however, the Commission has discarded this approach. We applaud this Commission proposal. It can be shown that the counter-cyclical monetary policy of the Federal Reserve influences mainly the short-term interest rate and short-term inflation expectations, not the long-term real return that investors are relying on to make investment decisions in the utility

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[2] *Coakley v. Bangor Hydro-Electric Co.*, Op. No. 531, 147 FERC ¶ 61,234, P 145, *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 sub nom. Emera Me. v. FERC*, 854 F.3d 9 (2017).

[3] *Coakley v. Bangor Hydro-Electric Co.*, 165 FERC ¶ 61,030 (2018) (*Coakley Briefing Order*); *Assn'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc*., 165 FERC ¶ 61,118 (2018) (MISO Briefing Order).

industry. These investment decisions are long term in nature and only the long-term real returns matter to investors. It is also not clear how the low short-term interest rate environment affects the components of DCF ROE calculation (through either the expected earnings growth and/or dividend yield). In addition, the two-step DCF methodology correctly incorporates the long-term growth rate (GDP growth rate) which serves as a measurement of perpetual growth rate in the DCF model. For these reasons, we believe the two-step DCF methodology should continue to serve as the cornerstone in setting a just and reasonable ROE.

The Commission proposes to formally incorporate other models into setting ROE for utilities including Expected Earnings, Capital Asset Pricing Model (CAPM) and Risk Premium models. While these models have theoretical underpinnings to be included in estimating required ROE, incorrect implementation of these models could result in erroneous ROE values that could over- or under-compensate the utility equity investors, thus leading to unjust and unreasonable ROEs. Specifically, the Expected Earnings model relies on expected earnings on the book value of equity, rather than the market value of equity. In times when the market/book ratio exceeds one as is currently the case, the Expected Earnings model produces a much higher ROE than required by the market. Due to the fact that expected earnings information is only available on book value, we suggest that the Commission discard the Expected Earnings method completely from the list of the considered models. If the Expected Earnings methodology is to be retained, the book-value based ROE values should be adjusted by the market/book ratio to make it consistent with the market-required return.

The CAPM model explicitly accounts for the risk a utility faces and it takes a relatively long-term perspective. In addition, the model only considers market risk, not any individual or idiosyncratic risk. A key issue in implementing the methodology is the measure of the equity risk premium or market risk premium (MRP). As the CAPM model estimates the expected ROE, the MRP should be the expected equity market return over the risk-free rate. The estimate of the market equity risk premium is perhaps the most contentious issue in setting ROE through the CAPM methodology. Currently, the Commission's methodology requires the use of DCF methodology applied to stocks included in a broad market index such as S&P 500. We suggest that the market returns be calculated by the Commission's two-step DCF methodology applied to the firms in the S&P 500 group of companies along with other generally accepted ways to estimate the equity risk premium. One method is to resort to the historical market performance to set an upper bound on MRP. The second method obtains the expected MRP from the survey of financial market professionals. A third method is to calculate the implied equity risk premium as embedded in the current market prices. These measurements would provide a better and more balanced perspective of what the expected MRP is and avoid deriving it from a single source which could be biased.

The Risk Premium model as implemented based on the Commission's current practice suffers from several drawbacks including that it only provides a single number and it is not firm specific. The Expected Earnings method should be discarded based on the fact it is not market-based.

In short, SWP urges the Commission to continue to employ the two-step DCF to set ROE for jurisdictional utilities, along with correctly implemented other methods such as the CAPM. SWP's responses to specific questions are provided below.

A1. To what extent would the ROE methodology described in the Coakley and MISO Briefing Orders impact the predictability of ROE determinations and the costs for market participants of making or intervening in such proceedings?

As the largest single electric load in the State of California, SWP actively participates in proceedings that impact California transmission rates, namely the transmission rate cases of California's investor-owned utilities in which ROE is a significant issue.

SWP urges the Commission to adopt a methodology that (1) is demonstrated in theory and practice to reasonably approximate a utility's actual cost of equity; (2) produces consistent, predictable results. The DCF methodology, which the Commission has long used, meets those objectives. The CAPM methodology, if the Commission establishes appropriate and detailed guidance on calculation of the MRP (as discussed below in response to Q H.2.b.2), also meets those objectives. The Expected Earnings methodology, however, does not.

If adopted as proposed in the Briefing Orders, the Commission's methodology will use more inputs, which tends to create more opportunity to dispute inputs and less predictability of ROE determinations. The result will be more, rather than less, protracted litigation. Accordingly, SWP believes the DCF methodology—which is tried and true—is the *most* appropriate methodology for determining ROE and also promotes administrative efficiency. To the extent that the Commission nonetheless adopts a new

approach relying on methodologies other than the DCF, SWP suggests that the Commission on limit the use of other methodologies as proposed in these comments.

A2. How would using the ROE methodology described in the Coakley and MISO Briefing Orders affect an investor's ability to forecast the ROE the Commission would establish in a litigated proceeding and the ability of participants to propose, contest, and settle base ROEs as compared to using only the DCF methodology?

As discussed in response to Question A1, the proposed methodology will reduce predictability of ROE determinations, thus increasing the risk of protracted and costly litigation. If, however, the Commission uses only theoretically sound methodologies for calculating the market cost of equity—i.e., the DCF and CAPM—and the Commission provides appropriate guidance on how to conduct each step of the methodologies, predictability—and therefore litigation certainty—would be increased. All things equal, a more predictable system is preferential.

A3. Currently, public utilities in different Independent System Operators (ISOs) or RTOs may receive different ROEs, despite all using national proxy groups, due primarily to differences in when FPA section 205 or 206 proceedings were initiated. Are such variations justified, and, if not, should the Commission consider applying the same ROE to all utilities in RTOs/ISOs based on the most recent proceeding?

The market cost of equity, and thus the appropriate ROE for a utility, varies over time. But if utilities of similar risk establish their ROEs at similar times, the ROE determinations should be roughly commensurate, regardless of geographical location. While there may be justification for a variance in ROE between utilities, any such variation should be based on differing levels of risk, rather than on the basis of a utility's

operation in a particular ISO or RTO. To the extent that a utility asserts that circumstances specific to its particular project or location justify an ROE other than the result calculated based on prevailing capital market circumstances, the burden to justify such adjustment should rest with the utility.

In the past, the Commission has had different policies for setting RTO-wide ROEs versus setting the ROE of individual utilities. SWP does not believe this is justified and additionally believes that RTO-wide ROEs should be viewed with suspicion, as the characteristics of the individual utility are most salient to determining ROEs.

C1. The DCF model assumes stock prices are equal to the present value of projected future cash flows. Is there evidence of situations when these assumptions are inaccurate?

Whether stock prices are equal to the present value of the projected future cash flows depends on the answer to the question whether the equity market is efficient or not. If the Commission accepts the Efficient Market Hypothesis, then it must accept that the assumptions underlying the DCF methodology hold true in all market conditions.

C3.a. What specific assumptions of the DCF model, if any, do not work well in low or high interest rate environments?

The DCF model includes, but is not limited to, the following assumptions:

1. ***Investors are rational.*** This assumption may be violated, but this does not have anything to do with the low- or high-interest rate environment.
2. ***All equities in the proxy group share the same discount rate—i.e., the yield curve is flat.*** Even though high or low interest rate could potentially affect the discount rate, the practical implementation of the model estimation does not measure discount rate directly.
3. ***Dividends, rather than earnings, constitute the source of value.*** Companies' dividend policy does not change much dependent on the interest rate environment.

4. ***Dividends grow at a constant rate.*** While this assumption can be violated and more complicated growth rate calculations may be needed (such as the Commission's two-step procedure), it does not necessarily correlate with any particular interest rate environment.

There are several other assumptions that have been pointed out by Roger Morin in *New Regulatory Finance* (Public Utilities Reports, Inc. 2006). The validity of these assumptions is not contingent on the interest rate environment, however. In terms of the implementation of the DCF model, two components would determine the ROE value: (1) dividend yield, and (2) expected earnings growth rate. Dividend yield is the ratio of dividend to price. Companies rarely change dividend policy based on interest rate environment. Stock prices can be related to low interest rate environment but arguments can be made for either the positive or negative impact of the low/high interest rate. Expected earnings growth can be cyclical. But that would place more emphasis on the long-term growth rate (such as long-term GDP growth rate) in forming expected earnings growth rate.

D1. Should proxy groups for electric utilities, as well as natural gas and oil pipelines, consist only of companies with corresponding regulated businesses?

Yes, proxy groups should consist only of companies with corresponding regulated businesses. The reason is that the goal of a proxy group is to find publicly-traded stocks that face a similar level of risk to that faced by the target company. Using entities operating in the same regulated line of business increases the similarity of business risks between the target company and the proxy companies.

D1.a. For companies with a combination of regulated and unregulated businesses, should a company be required to derive a certain percentage of its revenues from the

applicable regulated business in order for that company to be included in the proxy group that is used to determine an ROE for a company in that regulated business?

While using a bright line rule of the type proposed could increase similarity of risks between the target company and the proxy group, if the Commission were to adopt such a requirement it should also define specific screening criteria (e.g., what percentage will be required, how that percentage will be calculated) to avoid unnecessary disputes in litigated proceedings.

D2. Should risk be considered both in the proxy group selection and in the placement within the zone of reasonableness?

No. Setting a proxy group based on criteria such as bond ratings serves to place the company in the comparable group. Current Commission practice is to include companies with ratings one notch above and one notch below the rating, which ensures the utility being placed in the middle of comparable groups. That should be retained. In the event that, using regular screening criteria, the resulting proxy group has fewer than four members, it is reasonable to relax the screening criteria to compile an expanded proxy group, and to place the ROE either above or below the median based on the relative risk of the expanded proxy group compared to the target company.

D2.a. Should the Commission's approach to proxy group selection change depending on which financial models it considers when determining the just and reasonable ROE and, if so, how?

As discussed in response to Q H.2.c.1. the Commission should not adopt the use of an Expected Earnings model. But if the Commission does, it would be particularly important to select a proxy group that ensures compatibility and that companies with

similar risks receive similar compensations. In contrast, the proxy group selection is less important for the CAPM model, as differences in companies' risk are accounted for by the beta of the company.

D3. Should the Commission consider non-energy companies when selecting proxy groups?

As discussed in response to Q D1, proxy groups should consist only of companies with corresponding regulated businesses in recognition of the purpose of a proxy group, which is to find publicly-traded stocks that face a similar level of risk compared to the target company.

D6. What would be the impact of the Commission modifying the credit rating screen to include all investment-grade utilities in the proxy group?

This method has pros and cons. In terms of downsides, including all investment-grade utilities in the proxy group would make it harder to recognize the degree of risks of a particular utility. While credit rating is not a perfect measure of the utility's risk profile, it does recognize the risks the investors of a utility face, and the set of factors considered by debt investors and equity investors are essentially the same when bond ratings are made. On the up side, including all investment grade utilities in the proxy group helps to increase the power and accuracy of the estimation of the ROE.

If all investment grade utilities are considered in a proxy group, then the mean ROE could be considered as the ROE of a utility whose bond rating is right in the middle of all those utilities in the group. A utility that has different bond rating than the average could be entitled to a ROE corresponding to the position of its bond rating in the whole group.

D8. The Commission excludes from the proxy group companies with merger activity during the six-month study period that is significant enough to distort study inputs. Should the Commission continue using our existing merger screen?

Yes. Mergers and acquisitions (M&A) can cause some short-term or temporary distortions to the earnings/stock price variations that differ from those when a utility is under normal business conditions. However, the key is to define "significant enough." In addition, the detection of the significant impact requires a development of a specific methodology rather than eyeballing of the stock prices at the time of the merger announcement.

D9. What circumstances or factors, if any, warrant an adjustment from the midpoint/median to other points within the zone of reasonableness (e.g., lower or upper midpoint/median)?

As long as the utility's bond rating is right in the middle of the chosen proxy group, an adjustment should not be warranted. However, if the company's bond rating is on the lower or higher side of all companies in the proxy group, then some adjustments can be made. For example, a proxy group is selected based on bond ratings and one notch above and below its current ratings. However, there may be too few companies in the group whose bond rating is one notch below its bond rating – if there is an uneven distribution of the companies based on the credit rating, say ten in the group with ratings one notch above and two in the group with ratings one notch below, then an adjustment can be made to correct for that.

D10. The Commission currently uses midpoints to determine the central tendency of the zone of reasonableness when determining RTO-wide ROEs. Should the Commission adopt a policy of using medians for this purpose?

We are not aware of any reason why midpoints should be used instead of medians or means. Conversely, there is a reason for using median as it avoids the impact of extreme values. A median as compared to a midpoint should be used whether the proceeding is for a single utility or a group of utilities. Sample mean should be used if adequate measures can be developed to eliminate the impact of outliers.

D10.b. Should the size of the proxy group be considered in this decision?

Median should be used when sample size is small because in small samples mean value can be influenced by extreme values easily.

E6. To the extent that investors use multiple models, should the Commission combine them in its analysis or use the "best" one that would apply in all market conditions?

SWP believes that the DCF model is theoretically sound and works across all market conditions, and therefore there is no reason to use any model other than the DCF. If, however, the Commission does choose to use multiple models, it should use only theoretically sound methodologies for calculating the market cost of equity—i.e., the DCF and CAPM.

E7. If the Commission were to consider multiple models, how should it weigh them?

For practicality, an equal weight should be used. Or in light of the fact that the DCF method has been used in Commission proceedings for a long time and it is

relatively more defined that any other methods, it would make sense for it to receive at least a half weight.

E9. How, if at all, should the Commission consider state ROEs?

The Commission could check against the state ROEs to make sure the Commission ROE is not grossly at odds with the state ROEs. However, state ROEs may be affected by other factors than capital market conditions and therefore should not be determinative.

E9.a. How and why do state ROEs vary by state?

Factors other than capital market conditions could affect state ROEs. Among them, variables such as whether commissioners are appointed or elected, party affiliations of the commissioners, and local political conditions could have a bearing on the final ROE ruling. In addition, so could the vigorousness with which those issues were litigated at the State Commission.

F1. Does the mismatch between market-based ROE determinations and a book value rate base support current market values? Is this mismatch a problem?

In a transmission rate case, the Commission's goal must be to set the ROE at the market cost of equity for investments of similar risk to the transmission assets. The ability of a utility to attract capital to its transmission assets depends on the market opportunities of the publicly traded holding company: The holding company will invest in transmission where the return on the transmission investment exceeds the risk-adjusted return it can earn from its other businesses. If the ROE for transmission assets is set based on the market-based estimate of the cost of equity, then there is no problem associated with applying a market-based ROE to a utility's book value rate base.

F2. Why have most or all utility market-to-book ratios consistently exceeded one?

One of the underlying reasons could be that the prospect of utility capital investment is good—there are growth opportunities. Another reason is due to the conventional accounting treatment of certain costs such as research and development (R&D) expense. R&D expense will reduce book value, but it may raise the growth prospect of the company thus increasing the market price of the utility.

F3. How should the ROE level be set relative to the cost of equity?

ROEs must be set at the best estimate of the market cost of equity. As discussed above, the DCF model provides a very good estimate of the market cost of equity, and could be relied on exclusively.

G2. Is the quartile approach that the Commission proposed in the Coakley and MISO Briefing Orders appropriate? If not, how should the Commission revise this methodology?

The quartile approach is arbitrary and fails to meet the Commission's statutory requirement to ensure just and reasonable. By way of illustration, even a few basis points for a utility with over a billion dollar transmission revenue requirement—Pacific Gas and Electric Company, for example—increases costs to ratepayers by millions of dollars a year. Because the quartile approach creates a zone of immunity for a utility's base ROE, this approach would permit—and indeed, protect—the recovery of excess rates even when the cost of capital declines. Any base ROE above the market cost of equity is *per se* unjust and unreasonable, and the quartile approach's zone of immunity is not compatible with protecting ratepayers from unjust and unreasonable rates.

G4.a. Would it be reasonable to determine the central tendencies of the upper and lower halves of the zone of reasonableness for single utilities based on a midpoint analysis, so as to produce approximately equal ranges of presumptively just and reasonable ROEs for below average, average, and above average risk utilities?

The Commission's current policy (which, as discussed above, is sound and need not change) is that *any* ROE above the one calculated using the Commission's preferred methodology is unjust and unreasonable. Conversely, the *Coakley* and MISO Briefing Orders' quartile approach will allow a utility to continue earning an ROE that is higher than what it would be allowed to recover if it requested a new ROE. To the extent quartiles are used at all, it is appropriate to use medians to calculate quartiles for single utilities and, for that matter, all utilities. That methodology would produce "relatively narrow" quartiles and is a more desirable policy outcome than use of the midpoint. There is no policy reason to make that quartile range, in which a utility is allowed to recover higher-than-justified ROEs, any wider than is justified by the study results.

Furthermore, the fact that proxy company ROEs tend to cluster near the center of the zone of reasonableness is indicative that the true cost of equity is within that cluster. If a quarter of the proxy companies have ROEs within a few basis points of each other, any statistician would agree that there is a high degree of confidence that the market cost of equity—which is the unobservable value that the model is attempting to estimate—is within that interval. The narrower the interval, the higher the degree of confidence. Thus, the relative narrowness of the quartiles as measured by medians is evidence that the models are working.

There are no countervailing reasons to use the midpoint to calculate quartiles. There is no policy reason that the quartile ranges should be approximately equal. And using midpoints to calculate quartiles, while using medians to set the base ROE, could produce illogical results. In some cases, the median of the upper half of the range (i.e., where the Commission would set the base ROE for an above-average risk utility) could be entirely outside the presumptively reasonable quartile as established the midpoints. The Commission should therefore not mix-and-match medians and midpoints for different parts of its analysis; the better solution is to rely on the most statistically valid measure of central tendency: the median.

H.1.1. Are IBES data a good proxy for "investor consensus?"

H.1.1.a. If not, are there better alternatives, such as Bloomberg, Zacks, S&P Capital, Morningstar, and Value Line?

H.1.1.b. Should the Commission combine data from multiple sources?

While IBES data has been well-regarded as reflecting investor consensus in the past, the typical number of analysts surveyed today is rather small. Accordingly, IBES data may no longer be the best proxy for investor consensus.

SWP is not aware of any empirical studies that demonstrated that other alternatives to IBES are better. Rather than rely on a single source, the Commission could consider aggregating alternatives to improve the accuracy, but any such approach should be careful not to double count surveys of the same analysts. In light of these difficulties, the Commission should take special care to screen out any outliers that do not reflect "investor consensus" earnings growth rate estimates.

H.1.3. The DCF model incorporates data at the parent/holding company level (e.g., stock price). The Commission adjudicates cases at the operating company level, for which there is no public data like stock prices, growth rates, and betas. What impact does this disparity have on the results of the DCF and other models?

See response to F1.

H.1.4.a. If yes, should the Commission continue to employ outlier screens, M&A screens, etc., for the DCF and CAPM models since these models need to incorporate all relevant information?

Regardless of whether the Commission continues to rely on the efficient market hypothesis, the Commission should still employ outlier screens. The efficient market hypothesis suggests that stock prices reflect all available data. All of the models proposed by the Commission use inputs other than stock price, so those inputs could produce outlier results. For example, the three-to-five year earnings growth estimates published on *Yahoo Finance* are not subject to the efficient market hypothesis, yet those growth estimates play a significant role in determining the ROE result for a proxy company in the DCF methodology. Thus, consistent with the principles of sound statistical sampling, outlier screens should continue to be applied.

H.1.5. Should growth rates be based on Value Line, IBES, or alternative estimates?

See response to H.1.1.a and H.1.1.b.

H.1.6. Should the same growth rate sources be used across models, if more than one model is used to determine the ROE?

Yes, if more than one model is used to determine ROE, the same growth rate sources should be used across models to maintain consistency.

H.2.a.1. Should the Commission continue to use a dividend DCF model or should the Commission use a different DCF model, for example, one based on free cash flow?

The Commission should continue to use a dividend DCF model. The continued use of this model is appropriate as there are some generally good guidelines that have been "perfected" over the years. To the extent that the Commission moves to the use of a free cash flow DCF model, it will need to resolve practical issues such as availability (or lack thereof) of unbiased, widely published data that can be used as inputs to the free cash flow model.

H.2.a.3. Do investment analysts project earnings/dividends growth beyond five years, and if not, why not, and is GDP an appropriate proxy for long-term growth?

SWP is not aware of any widely published and reliable investment analyst projections of earnings dividend growth beyond five years. Projections of GDP growth beyond five years are widely available, and relied upon by investors, and therefore are an appropriate proxy for long-term growth.

H.2.a.4. How should the Commission weight short-term and long-term earnings/dividend growth projections?

Assuming the Commission uses GDP growth as a proxy for long-term growth estimates, the Commission should weight short-term and long-term earnings/dividend growth projections evenly—i.e., 50% and 50%. Short-term and long-term projections together better estimate investors' expectations of dividend growth, which is what the DCF model requires.

H.2.a.5. The Commission uses a constant growth DCF model. Should the Commission consider using a multi-stage DCF model? If so, how would the Commission determine the length of each stage of a proxy company's growth?

Because the utility industry is relatively mature, a two-stage DCF model is a reasonable approximation of dividend growth. While a multi-stage model may seem like it provides a more accurate estimate, the lack of reliable data to populate the additional stages in this model will likely yield less accurate results than the two-stage model.

H.2.a.6. Are six months of average high/low historical monthly stock prices an appropriate measure for the current stock price "P"?

Even though the theoretical answer depends on whether the stock market is treated as efficient, practically, as long as the dividends correspond to the stock prices, using the monthly average or month-end stock prices does not generate material differences in dividend yield in almost all cases.

H.2.b.1 If the market risk premium is determined by applying the DCF methodology to a representative market index, should a long-term growth rate be used, as in the Commission's two-step DCF methodology?

Yes, MRP is a measure of long-term market return subtracting risk. The Commission should do a two-stage or other multi-stage DCF model, using a long-term growth rate, if it uses a DCF model to calculate the MRP in the CAPM model.

H.2.b.2. Beta is a measure of a security's risk relative to the broader market, such as the S&P 500, not of its absolute risk. Do CAPM's assumptions break down if both utility stocks and the broader market become riskier over time on an absolute basis, but the relative increase in risk in utility stocks rises more slowly?

No, the theory still holds as the estimated beta would still capture the utility's stock risk relative to the market risk. However, in order to capture other risk factors that might be behind the differential movement, the CAPM model can be modified to include several additional factors such as the industry return.

The critical element in correctly calculating the ROE using the CAPM model is the estimation of MRP. We suggest that various methodologies be employed to calculate the MRP including the Commission's two-step DCF methodology applied to the firms in the S&P 500 index, market surveys of MRP, and implied MRP methods. Historical MRP can also be used as a check to ensure that the expected MRP is consistent with the current market conditions.

In the latest FERC proceedings, some very high expected MRPs (in the range of 9-11% or higher) have been presented. Even though historical MRP may not be a reliable indication of expected MRP, it is, however, a good check on the reasonableness of the expected MRP calculations as plenty of evidence have suggested that there is a declining trend in the MRP over time. There are sound economic reasons why market risk has declined. Professor Bradford Cornell's blog ("The Most Important Number in Finance," Cornell Capital Group Blog (May 1, 2016) (http://wbcornell.blogspot.com/2016/05/the-most-important-number-in-finance.html) (*see also* his 2013 Journal of Investing paper (Bradford Cornell, *Dividend-Price Ratios and Stock Returns: Another Look at the History*, 22 Journal of Investing 15 (2013))), provided many convincing reasons for this decline. It is also found that market risk premium has declined over time (Lubos Pastor and Robert F. Stambaugh, *The Equity Premium and Structural Breaks*, 56 Journal of Finance 1207 (2001)). In addition, the survivorship bias in the historical market index

makes the historical risk premium more optimistic (Stephen J. Brown, et al., *Survival*, 50 Journal of Finance 853 (1995)). All these points to the historical MRP as an upper bound for the estimate of the Expected MRP.

The Commission's current methodology only allows for one measure of MRP, which could be very much biased. The correct methodology is to consider a broad spectrum of evidence to come up with a reliable measurement of expected MRP. Fortunately for utility rate making, expected MRP is a widely researched area and there are many good resources that are available to provide an estimate of expected MRP.

H.2.b.3. What are appropriate data sources for the beta value?

Value Line is a reputable service, and the Commission should continue to require the use of Value Line beta.

H.2.b.4. Should the Commission employ more sophisticated versions of the CAPM model that consider more variables instead of only beta, such as the Fama-French Model?

A modified model for calculating ROE should be employed only after empirical evidence demonstrating a particular model's appropriateness for the companies in the utility industry.

H.2.c.1. Should the use of utilities in the proxy group for the Expected Earnings model be predicated on the Expected Earnings analysis being forward-looking?

The Expected Earnings model should not be used to calculate ROE, as it is not market-based. Rather, the Expected Earnings model is based on book value, which is not consistent with the notion that cost of capital is a measurement of how investors view the market return on their investment.

As Stewart C. Myers explained in *The Application of Finance Theory to Public Utility Rate Cases*, reference to E/B ratios "ignores capital markets," and is seriously problematic because "the variable of interest," is "'the return to the equity owner.'"[4] Thus,

> [t]he shareholder is not directly interested in the ratio of book earnings to the book value of a company he invests in. He looks at anticipated dividends and capital gains relative to the stock price he has to pay. Thus, it is more relevant to interpret the opportunity cost of capital as the return on securities with risks similar to the stock of the utility in question.[5]

Myers further explained that E/B ratios are circular because utilities' book returns "reflect past regulatory actions and thus do not provide an independent standard."[6]

Alexander A. Robichek, the President of the American Finance Association, explained in detail this circularity problem: "If all regulatory commissions looked merely at each other, no deviations of any magnitude would ever occur even if economic conditions were to warrant a change." [7] As he explained, "[i]nvestments in equity shares are made by the purchase of shares at market prices. Therefore, the fairness of the rate of return to the investor must be judged from the investor's point of view in the market place and not on the basis of book value."[8]

For these reasons, the Commission should reject use of the Expected Earnings model.

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[4] 3 Bell J. Econ. & Mgmt. Sci. 58, 62 (1972) (quoting *FPC v. Hope Nat. Gas Co.*, 320 U.S. at 603).

[5] *Id*.

[6] *Id*. at 77.

[7] Alexander A. Robichek, *Regulation and Modern Finance Theory*, 33 J. Fin. 693, 700 (1978).

[8] *Id*. at 701.

H.2.d.1. Should the analysis be historical or forward-looking?

H.2.d.3. Unlike the financial models discussed above, the Risk Premium analysis produces a single ROE rather than a zone of reasonableness. Does this characteristic require the Commission to use the Risk Premium model differently than the other models?

H.2.d.3.i. Is there a method by which the Risk Premium ROE could be adjusted upward for an above average utility or downward for a below average risk utility? If not, is it reasonable to consider the results of a Risk Premium analysis when determining the ROE of an above or below average risk utility?

H.2.d.3.ii. Is it appropriate to use a Risk Premium analysis when conducting the first prong of the section 206 evaluation?

The Risk Premium model, as it was accepted in Opinion Nos. 531 and 551,[9] suffers from several drawbacks. First, it is not a method widely used by investors to calculate the cost of equity for utilities. Second, it is not a firm-specific model, and thus produces only a single ROE estimate for all utilities, regardless of the relative riskiness of the utility, thereby violating the principle that investors require higher returns for higher risk investments. Third, it relies on a small sample size of ROE cases before this Commission, and thus does not produce a statistically robust estimate of the cost of equity.

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[9] *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Op. No. 551, 156 FERC ¶ 61,234 (2016).

Due to those flaws, the Commission should not adopt the Risk Premium model that has previously been accepted. If it does adopt some version of the Risk Premium model, the Commission should use it only for average-risk utilities or otherwise adjusted for utilities that are not of average risk.

IV. CONCLUSION

SWP respectfully requests that the Commission consider these comments as it reviews its policies concerning the determination of just and reasonable ROE for public utilities.

Respectfully submitted,

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June 26, 2019

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