



FERC's New Process for 'Return on Equity' Methodology for Public Utilities

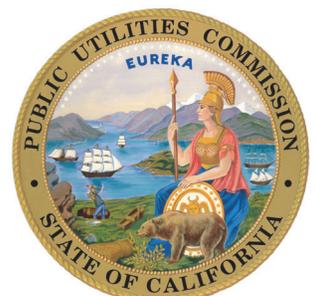
*Replacing One-Step with Two- Step Discounted Cash Flow Model and
Other Changes Pursuant to Opinion 531*

California Public Utilities Commission
Policy & Planning Division

Manisha Lakhanpal
Principal Author
**POLICY AND PLANNING
DIVISION**

Marzia Zafar
Director
**POLICY AND PLANNING
DIVISION**

April 23, 2015



Disclaimer

This White Paper was prepared by California Public Utilities Commission (CPUC) staff. It does not necessarily represent the views of the CPUC, its Commissioners, or the State of California. The CPUC, the State of California, its employees, contractors, and subcontractors make no warrants, express or imply, and assume no legal liability for the information in this White Paper. This White Paper has not been approved or disapproved by the CPUC, nor has the CPUC passed upon the accuracy or adequacy of the information in this White Paper.

Acknowledgements

Daniel Burapavong - GDS Associates, Inc.

Trong Bui, Lee Terry, John Yarborough - Department of Water Resources

Gregory Heiden, Traci Bone, Nicholas Sher - Legal Division, California Public Utilities Commission

Gurbux Kahlon, Jonathan Tom, Louis Torres and Alan Meck – Energy Division,

California Public Utilities Commission

Table of Contents

.....	1
Disclaimer.....	2
Acknowledgements.....	2
I. Introduction	4
II. Background	5
A. Return on Equity (ROE) - its relation to Rate of Return (ROR), Revenue Requirement and Rates... 5	
B. Chronology of the Massachusetts State Attorney General’s Complaint Case leading to FERC Opinion 531.....	6
C. FERC’s determination on the change in ROE methodology – why did FERC adopt the two-step DCF model for electric utilities now and not earlier?	7
III. The Process of Determining ROE and Other Changes Pursuant to Opinion 531.....	8
A. Discounted Cash Flow (DCF) Methodology.....	8
B. Applying DCF Model to the FERC’s ROE Methodology	9
C. The Process of Determining ROE at FERC	10
1. Composition of a Proxy Group.....	10
2. FERC’s DCF model	11
3. Fundamental tests of reasonableness and economic logic – excluding outliers.....	13
4. Placement of the Base ROE within the Zone of Reasonableness	13
D. FERC’s Decision to Now Consider Other Models Besides the DCF	14
E. Elimination of the Treasury-Bond Update	15
F. Impact of the DCF Methodology Change on Existing ROE Transmission Incentive Adders	15
IV. Example Study.....	16
1. Establishing a proxy group of companies of comparable risk	16
2. DCF Models establishing a range of reasonableness.....	17
3. Establishing a just and reasonable ROE at a single point within the DCF zone of reasonableness	18
V. Analysis and Conclusion.....	19
VI. Appendix 1	21
VII. Appendix 2	23

I. Introduction

The purpose of this document is to give the reader an overview of changes in the Federal Energy Regulatory Commission's (FERC or Commission) Discounted Cash Flow (DCF) methodology for calculating the Return on Equity (ROE) for a public utility¹, highlight uncertainties surrounding these changes vis-a-vis California utilities and compare results from the old and new methodology using a sample study.

The changes in the ROE methodology were issued on June 19, 2014, under FERC *Opinion 531* concerning the complaint case filed by Massachusetts Attorney General's office and referred to as - *Martha Coakley, et al. v. Bangor Hydro Electric Company, et al.*, 147 FERC ¶ 61,234 (2014).² Pursuant to Opinion 531, FERC adopted the two-step DCF methodology for the electric utilities, which it has long used for natural gas and oil pipelines that incorporates long-term growth rates. Since Opinion 531 was issued in the New England Independent System Operator's wholesale market, where transmission owners (TOs) file for ROE as a group, its complete effect on California's electric utilities is yet to be seen, because California TOs seek individual ROE in their rate case proceedings at the FERC. Specifically, FERC uses "midpoint" results of the DCF methodology to set base ROE for a diverse group of TOs within the same Regional Transmission Organization (RTO) or independent System Operator (ISO), such as the New England Transmission Owners (NETOs). In California, TOs apply individually for an authorized ROE and FERC sets the ROE using "median" result of the DCF methodology.

With Opinion 531, FERC adopted the following changes to its DCF methodology for calculating base ROE:

- a. Replaced one-step Discounted Cash Flow (DCF) model with two-step DCF model to estimate the base ROE for public utilities;
- b. Discontinued the use of post-record adjustment of ROE;
- c. Considered other ROE models besides the DCF in determining a just and reasonable ROE;
- d. Made an upward adjustment of the base ROE to account for capital market conditions. In the Martha Coakley complaint case FERC set the ROE at halfway point between the midpoint and the upper end of the range of reasonableness instead of setting it at the midpoint.

It is the upward adjustment of the midpoint as in (d) above, which lends ambiguity to the analyses of the DCF model for California TOs. As discussed in this paper it is unclear how Opinion 531 will impact the analysis FERC does in proceedings involving single utilities. FERC's decision to use the halfway point

¹ A "public utility" is defined by the statute as "any person who owns or operates facilities subject to the jurisdiction of the Commission," i.e., "any person who owns or operates" facilities for "the transmission of electric energy in interstate commerce and to the sale of electric energy at wholesale in interstate commerce" (16 USC 824(e)).

² FERC Docket EL11-66

between the midpoint and upper-end of the range of reasonableness³ was based on the following reasons - unusual capital market conditions in the case and record evidence of state commission approved ROEs that were higher than FERC's midpoint of the zone of reasonableness. Another important point to note is that the two-step DCF model resulted in a lower midpoint for the range of reasonableness compared to the midpoint of the range of reasonableness under the one-step DCF analysis.⁴

Based on the results of a sample study an initial review indicates that certainly the two-step DCF model results in a narrow range of reasonableness, which has been appropriately noted by FERC. Therefore as the range of reasonableness narrows it yields a lower midpoint, but a higher median than the one-step DCF model. Unlike FERC's upward adjustment to the midpoint there is ambiguity in justifying the same for the median of the range of reasonableness in the two-step DCF analysis for a single utility. Thus FERC's order on allowing an upward adjustment lends uncertainty to the two-step DCF analyses for the base ROE of California TOs that use median and not midpoint. This means that filings under the two-step DCF methodology will result in higher ROEs leading to higher cost of capital and eventually higher rates over time.

II. Background

A. Return on Equity (ROE) - its relation to Rate of Return (ROR), Revenue Requirement and Rates

A public utility is a "natural monopoly" and therefore government regulation helps design rates that allow the utility to recover its prudently incurred costs, earn a competitive market return on investments and protect consumers from unjust and unreasonable costs. The U.S. Supreme Court has established that utility shareholders are entitled to a fair return on prudently invested capital for assets that are "used and useful" in providing service to customers. The returns allowed to the utility should: (1) maintain the financial integrity of the utility, (2) enable the company to attract new capital, and (3) provide a return to common equity that is commensurate with returns on investments in other utilities of corresponding risk.⁵ The two primary cases that established these principles are *Bluefield Water Works vs. the Public Service Commission of West Virginia* ("Bluefield") (1923)⁶, and the *Federal Power Commission vs. Hope Natural Gas Company* (1944).⁷

The FERC regulates public utilities under the cost-of-service principle allowing them to earn a revenue requirement, which is used to determine rates that adequately cover the cost of providing service to customers. The revenue requirement can be expressed as:

³ Range is the minimum to the maximum value resulting from the DCF model

⁴ <http://www.troutmansanders.com/ferc-adopts-new-dcf-methodology-to-calculate-roe-tentatively-sets-new-england-iso-base-roe-at-1057-percent-06-19-2014/>

⁵ See Wooldridge initial testimony filed 10/01/2012, FERC Docket EL11-66-001

⁶ *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923)

⁷ *FPC v. Hope Natural Gas Co.*, 320 U.S. 591 (1944)

$$\text{Revenue Requirement}^8 = [\text{Rate Base} \times \text{Rate of Return (ROR)}] + \text{operating expenses}$$

In the above expression, "Rate Base" refers to the net value of the utility's investment in facilities (original cost less accumulated depreciation) and its other long term or continuing outlays of (or holding of) funds needed for operations, e.g. working capital. Multiplying Rate Base times ROR, yields a measure of return on investment.⁹

The allowed rate of return or the cost of capital provides public utilities the opportunity to operate profitably and attract capital for future growth and investment. The overall rate of return allowed is calculated using three components – the capital structure, the cost of debt, and the allowed Return on Equity (ROE). Detailed analysis of methods used in determining the overall rate of return or different ROE methodologies is beyond the scope of this paper. It is one of the most contentious part of a ratemaking proceeding, open to discretion and much disagreement.

Once the revenue requirement is finalized the next step is to determine rates. Since FERC oversees electric wholesale and transmission markets, it falls under the purview of California Independent System Operator (CAISO) to collect the allowed transmission revenue requirement on behalf of its Participating Transmission Owners (PTOs). Approved transmission revenue requirement is collected under CAISO's wholesale Transmission Access Charge (TAC) tariff¹⁰ from transmission owners' customers, which are load serving entities that in turn collect these charges as rates at the retail level from the ratepayers.¹¹

B. Chronology of the Massachusetts State Attorney General's Complaint Case leading to FERC Opinion 531

On September 30, 2011, Massachusetts state attorney general, Martha Coakley's office along with other Complainants¹² filed a complaint at the FERC, pursuant to section 206 of the Federal Power Act, challenging the base ROE of 11.14 percent earned by New England Transmission Owners (NETOs)¹³, which was established in 2006. They alleged it was unjust and unreasonable since the market conditions

⁸ http://www.naruc.org/international/Documents/Calculating%20Revenue%20Requirement_Davis.pdf

⁹ <http://www.consultbai.com/rate-case-support/revenue-requirements.html>

¹⁰ CASIO TARIFF Section 26 - https://www.caiso.com/Documents/Section26_TransmissionRates-Charges_Apr1_2014.pdf

¹¹ Staff's preliminary analysis for residential customer class shows that transmission charges are approximately 10%- 12% of total electric bill.

¹² Complainants include Martha Coakley, Massachusetts Attorney General; Connecticut Public Utilities Regulatory Authority; Massachusetts Department of Public Utilities; New Hampshire Public Utilities Commission; Connecticut Office of Consumer Counsel; Maine Office of the Public Advocate; George Jepsen, Connecticut Attorney General; New Hampshire Office of Consumer Advocate; Rhode Island Division of Public Utilities and Carriers; Vermont Department of Public Service; Massachusetts Municipal Wholesale Electric Co.; Associated Industries of Massachusetts; the Energy Consortium; Power Options, Inc.; and the Industrial Energy Consumer Group.

¹³ The NETOs that participate in the New England Independent System Operator ("NE-ISO") regional transmission organization (RTO) include Bangor Hydro-Elec. Co.; Central Maine Power Co.; New England Power Co.; New Hampshire Transmission LLC; NSTAR Electric & Gas Corp.; Northeast Utilities Service Co.; United Illuminating Co.; Unitil Energy Systems, Inc. and Fitchburg Gas & Electric Light Co.; and Vermont Transco, LLC.

related to the 2008 financial crisis did not warrant continuation of such high returns. The Complainants contended that market conditions had lowered bond yields and, as a result, capital costs for utilities.¹⁴

On August 6, 2013, the Presiding Judge issued an Initial Decision, adopting NETOs DCF methodology and proposed two different ROEs based on the midpoint of the zone of reasonableness – one was an ROE of 10.6 percent for the refund period (October 1, 2011 through December 2012) and the other an ROE of 9.7 percent for the future period.¹⁵

On June 19, 2014, the Commission issued Opinion 531, accepting in part and revising in part the initial decision. The Commission changed the DCF methodology, from a one-step to a two-step methodology, and set the new base ROE for NETOs at 10.57 percent, lower than the original 11.14 percent, but still higher than 9.7 percent.¹⁶ The Commission tentatively allowed projected GDP growth rate to be used as a proxy for the long-term growth rate data used in the two-step DCF model, which is used in natural gas and oil pipeline cases. In doing so the Commission also set this matter up for a paper hearing, because the parties in the proceeding had not litigated the appropriateness of using this proxy data point.¹⁷

On October 16, 2014, the Commission issued Opinion 531-A, determining that Gross Domestic Product (GDP) is the appropriate long-term growth rate to use.¹⁸

On March 3, 2015, the Commission issued Opinion 531-B, in which it denied rehearing requests on the Commission's June 19, 2014 Initial Decision and the NETOs request for rehearing of Opinion 531-A.¹⁹ The Commission also upheld its use of non-DCF methodologies to justify an upward adjustment from the median.

C. FERC's determination on the change in ROE methodology – why did FERC adopt the two-step DCF model for electric utilities now and not earlier?

The FERC has historically applied one-step DCF model in determining the ROE for public utilities and a two-step DCF model for natural gas and oil pipelines. In determining the changes ordered under Opinion 531 FERC stated that “Based on a review of those methodologies and changes to the electric utility industry since the Commission last considered its electric industry DCF policy, we conclude that it is now appropriate to use the same model for the electric industry as the Commission has used for the natural gas and oil pipeline industries—i.e., use the two-step DCF methodology.”

The issue of adopting a two-step DCF model for electric utilities was addressed in the past after the Commission adopted it for natural gas and oil pipeline companies.²⁰ In 1999 an Initial Decision was issued for Southern California Edison (SCE) in which the Presiding Judge adopted a two-step DCF model

¹⁴ Complaint, Ex. C-1 at 5-12.

¹⁵ See Initial Decision, FERC Docket EL11-66-001, Summary Of Findings, Page 134-135

¹⁶ See Opinion 531, FERC Docket EL11-66-001, Section II- Overview of the Commission's Rulings in this Order, Page 6-7

¹⁷ See Opinion 531, FERC Docket EL11-66-001, Commission Orders on Page 81.

¹⁸ See Opinion 531-A, FERC Docket EL11-66-001, Page 2

¹⁹ See Opinion 531-B, FERC Docket EL11-66-001, Commission Orders on page 82-83.

²⁰ Ozark Gas Transmission System, FERC ¶ 61,032 (1994) (Ozark)

with a long-term growth projection.²¹ However, the Commission issued Opinion 445, which reversed the Initial Decision and found that the time was not ripe to switch from one-step model to a two-step DCF model. At that time the Commission stated that the electric industry and SCE in particular was in midst of a transition moving away from vertically integrated set up. Given all the uncertainties it seemed too speculative to assume that investors were reflecting long-term growth estimates in their investment decisions.²²

In Opinion 531, the Commission stated that regulatory change is an inevitable part of any regulated industry and the investor uncertainty due to the type of changes anticipated in 2000 has diminished. Furthermore, the Commission also states that by including a long-term estimate of dividend growth in the constant growth DCF model, as is done in natural gas/oil pipeline cases, it will now bring the public utility ROE approach into full alignment with the underlying theory of the DCF model.²³

The following sections explain FERC's DCF methodology in detail - one-step and the two-step DCF models, gives a brief overview of the FERC's discontinuation of post record adjustment of ROE, the impact of the change in methodology to incentive adders and finally analyses and concludes the results of a sample study using both one-step and two-step DCF models.

III. The Process of Determining ROE and Other Changes Pursuant to Opinion 531

A. Discounted Cash Flow (DCF) Methodology

Discounted Cash Flow (DCF) is a method of valuing equity. The oldest discounted cash flow models in practice tend to be *dividend discount models* with an underlying principle that when investors buy stock in publicly traded companies they generally expect to get two types of cash flow - dividends during the holding period and an expected price at the end of the holding period. Since this expected price is itself determined by future dividends, the value of a stock is the present value of dividends through infinity.²⁴ The rationale for the model lies in the present value rule - the value of any asset is the present value of expected future cash flows discounted at a rate appropriate to the riskiness of the cash flows.²⁵

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + \dots + \frac{D_\infty}{(1+k)^\infty}$$

Where P_0 is the value of the stock's current price,

D_i = Expected dividends per share in future period t , and

²¹ S. Cal. Edison Co., 86 FERC ¶ 63,014 (1999).

²² Opinion 531 at P 39

²³ See Opinion 531 at P 36.

²⁴ See Aswath Damodaran - <http://pages.stern.nyu.edu/~adamodar/pdfiles/damodaran2ed/ch5.pdf>

²⁵ Id.

k = Cost of equity or the opportunity cost of investing in the stock or return on equity.

The equation can be rearranged to calculate the return on equity. Since projections of dollar dividends cannot be made through infinity several versions of the dividend discount model have been developed based upon different assumptions about future growth.²⁶ One such version, preferred by FERC, is the constant-growth DCF model. The constant-growth DCF model assumes that dividends grow at a constant rate in to the future time period.

Constant- growth DCF model and public utilities – the model is considered appropriate for public utilities because the economics include the relative stability of the utility business, the maturity of the demand for public utility services, and the regulated status of public utilities (especially the fact that their returns on investment are effectively set through the ratemaking process).²⁷ The model can be expressed as a relation of the value of a stock to its expected dividends in the future time period, the cost of equity and the constant growth rate in dividends –

$$\text{Value of stock } P = D_t / (k - g)$$

Where D_t = Expected Dividend in period 1

k = required rate of return for equity investors

g = Growth rate in dividends

Solving for k :

$$k = (D_t/p) + g$$

Both D_t and P are observable data points and their ratio is simply the utility's dividend yield, however it's the estimation of the growth rate in the model that leads to much controversy as analysts may have different assumptions.

B. Applying DCF Model to the FERC's ROE Methodology

Since dividend yields are paid on a quarterly basis the Commission multiplies the expected dividend over the coming quarter by 4 and then divides the result by the current stock price to determine the dividend yield of the utility.²⁸ Multiplying the dividend yield by $(1+.5g)$ increases the dividend yield by one half of the growth rate, which reflects growth over the coming year and produces what the Commission refers to as the "adjusted dividend yield", this method was adopted in Opinion 414-A.²⁹ The resulting formula is the constant-growth DCF model and can be expressed as:

²⁶ Id.

²⁷ See Wooldridge, initial testimony filed on 10/01/2012 under FERC Docket ER11-66-001, at Page 19.

²⁸ *Petition for Modification of Prescribed Rate of Return*, Federal Communications Commission, Docket No. 79-05, Direct Testimony of Myron J. Gordon and Lawrence I. Gould at 62 (April 1980).

²⁹ Opinion No. 414-A, *Transcontinental Gas Pipe Line Corp.*, 84 FERC ¶61,084 (1998)

$$k = \frac{D1}{P} (1 + .5g) + g$$

C. The Process of Determining ROE at FERC

FERC's DCF methodology requires that we start with a "proxy group", which includes a set of electric utility companies' with comparable risk³⁰ to the target utility and analyze their DCF model results to establish a "range of reasonableness". Using the range of reasonableness we then arrive at the target utility's required rate of return on equity. Determining a just and reasonable ROE of a public utility using FERC's guiding principles is set forth -

1. Composition of a Proxy Group

FERC's guidelines on selecting a proxy group are as follows:

1. Companies that are included in the Electric Utility Industry groups compiled by Value Line.³¹ Both in the Initial Decision³² and Opinion 531³³, the Commission found it appropriate to use a national proxy group versus selecting electric utility companies from a regional group, because it found that in determining comparability of financial and business risks, financial data is much more probative than geographical proximity.
2. Electric utilities covered by at least two industry analysts (where possible – S&P and Moody's). Opinion 531 states that it is appropriate to use both the S&P corporate credit ratings and the Moody's issuer ratings when both are available.³⁴
3. Electric utilities that are in "comparable risk band", which means assigned an S&P corporate credit rating that is a notch higher and lower including the rating that has been given to the specific utility; and has an investment- grade rating by Moody's;
4. Electric utilities that paid common dividends over the last six months and have not announced a dividend cut since that time;³⁵
5. Electric utilities with no ongoing involvement in a major merger or acquisition;³⁶
6. Electric utilities with a published 5-year consensus earnings growth forecast from Institutional Brokers Estimate System (IBES); Opinion 531 states that since the discontinuation of the IBES

³⁰ *Potomac-Appalachian Transmission Highline, LLC*, 133 FERC ¶ 61,152 at P 63 (2010)

³¹ See Opinion 531; Pages 48-49

³² See Initial Decision for FERC Docket EL11-66, Pages 139-142

³³ See Opinion 531; Pages 47-48.

³⁴ See Opinion 531; Pages 50-53.

³⁵ See Opinion 531; Pages 53-54.

³⁶ See Opinion 531; Pages 54-55.

Monthly Summary Data Book in 2008, the Commission has consistently used IBES growth rate estimates published by *Yahoo! Finance* as the source of analysts' consensus growth rates.³⁷

2. FERC's DCF model

a) *Two-step DCF model*³⁸

Under two-step methodology, the Commission determines:

- A single cost of equity estimate for each member of the proxy group.
- For the dividend yield component of the DCF model, the Commission derives a single, average dividend yield based on the indicated dividend and the average of the monthly high and low stock prices over a six-month period.
- The Commission uses a two-step procedure for determining the constant dividend growth component of the model, averaging short-term and long-term growth estimates. Security analysts' five-year forecasts for each company in the proxy group, as published by the Institutional Brokers Estimate System (IBES), are used for determining growth for the short term; earnings forecasts made by investment analysts are considered to be the best available estimates of short-term dividend growth because they are likely relied on by investors when making their investment decisions. This data is derived from Yahoo Finance.
- Long-term growth is based on forecasts of long-term growth of the economy as a whole, as reflected in GDP.
- The short-term forecast receives a two-thirds weighting and the long-term forecast receives a one-third weighting in calculating the growth rate in the DCF model.
- After the Commission derives a single cost of equity estimate for each member of a proxy group, the zone of reasonableness is defined by the low and high estimates of the market cost of equity for the members of the proxy group.

b) *One-step model*

Before FERC adopted the two-step model it relied on the one-step model to determine just and reasonable ROE for public utilities and the process can be listed in the following steps:

- First, calculate two dividend yields $\left(\frac{D_1}{P}\right)$ – a low average dividend yield and a high average dividend yield, with both averages based on high and low stock prices for each of the six months in the study period.
- Next, the Commission makes two estimates of dividend growth (g) -

³⁷ See Opinion 531; Pages 38-44.

³⁸ See Opinion 531; Page 13.

- One is based on the same IBES³⁹ analyst five-year growth forecasts used for the short-term growth projection in the two-step DCF methodology.
 - The other is based on the “br + sv” sustainable growth formula, where “b” represents the percentage of earnings expected to be retained (after the payment of dividends), “r” represents the expected rate of return on book equity, “s” represents the percent of common equity expected to be issued annually as new common stock, and “v” is the equity accretion rate. The “br” component of this formula projects a utility’s growth from the investment of retained earnings, and the “sv” component estimates growth from external capital raised by the sale of additional stock.
 - For each input in the “br + sv” formula, the Commission uses an average of the estimates published in *Value Line* for the current year, the next year, and three- to five-years in the future.
- The low cost of equity estimate for each proxy company is determined by adding the lower of the two growth projections for that company to the low dividend yield. The high cost of equity estimate for each company is determined by adding the higher of the two growth estimates for that company to the high dividend yield.
 - If the proceeding involves a group of electric utilities, the Commission uses the lowest of the proxy company low estimates to determine the bottom of the range of reasonable returns and the highest of the proxy company high estimates to determine the top of the range and then generally sets the base ROE for the group at the midpoint of the range. However, in Opinion 531, this process was changed as the base ROE was set at a halfway point between the midpoint and the upper-end of the range of the two-step DCF model results.
 - If the proceeding involves a single company, the Commission averages the high and low cost of equity estimates of each proxy company, and sets the ROE for the electric utility at the median value of the range of reasonable returns.

The most significant difference between the one-step and two-step methodology is – the one-step DCF methodology is based only on short-term growth projections, while the two-step DCF methodology considers both short-term and long-term growth projections.

³⁹ **Institutional Brokers' Estimate System** (I/B/E/S) is a service founded by the New York brokerage firm Lynch, Jones & Ryan and Technometrics, Inc.; the database is currently owned by Thomson Reuters.

3. Fundamental tests of reasonableness and economic logic – excluding outliers

The next step in the process is to evaluate the range of reasonableness for outliers.

FERC's Initial Decision under EL11-66, notes that past Commission precedent has excluded DCF results from the proxy group where such cost of equity estimates fail "fundamental tests of reasonableness and economic logic."⁴⁰ It further notes that the Commission has applied the same high end outlier test since 2004, holding that a company's results should be excluded from the range of reasonableness if its cost of equity estimate (i.e., its DCF result) is at or above 17.7% and its growth rate is at or above 13.3%. With regards to evaluation of low-end outliers it states that in recent years, the Commission has held that "it is reasonable to exclude any company whose low-end ROE fails to exceed the average bond yield by about 100 basis points or more".⁴¹

However, in Opinion 531 the Commission determined that under the two-step DCF methodology, it is unnecessary to screen the proxy group for unsustainable growth rates because the methodology assumes that the long-term growth rate for each company is equal to GDP.⁴² FERC did not provide any new guidelines on high-end outlier test and affirmed the Initial Decision on the low-end outlier test.

4. Placement of the Base ROE within the Zone of Reasonableness

Once the proxy group's DCF results are available and the zone of reasonable ROEs has been established the next step is to determine where to place the just and reasonable ROE within that zone of reasonableness. In the past the Commission has used the median for a single utility and the midpoint of the zone of reasonableness as an appropriate measure of central tendency for determining the base ROE for a diverse group of utilities.⁴³ In changing its longstanding policy FERC concluded that a mechanical application of the DCF methodology with the use of the midpoint would result in an ROE that does not satisfy the requirements of *Hope* and *Bluefield*. Therefore, based on the record in the complaint case, including the unusual capital market conditions present, FERC concluded that the just and reasonable base ROE for the NETOs should be set halfway between the midpoint of the zone of reasonableness and the top of the zone of reasonableness.⁴⁴ FERC further stated that in this proceeding, we are faced with circumstances under which the midpoint of the zone of reasonableness established in this proceeding has fallen below state commission approved ROEs, even though transmission entails unique risks that state-regulated electric distribution does not.⁴⁵ In Opinion 531-B, FERC denied rehearing on the issue of where to place the NETOs' base ROE within the zone of reasonableness produced by the Commission's DCF analysis.⁴⁶ The Commission further stated

⁴⁰ See Initial Decision, FERC EL11-66; Page 146.

⁴¹ Initial Decision, FERC EL11-66; Page 146

⁴² See Opinion 531; Pages 56-60.

⁴³ S. Cal. Edison Co., 131 FERC ¶ 61,020 at P 91, remanded on other grounds sub nom. S. Cal. Edison Co. v. FERC, 717 F.3d 177.

⁴⁴ Opinion No. 531 at P 142

⁴⁵ Opinion 531 at P. 148.

⁴⁶ Opinion 531-B; Page 22

that based on the presence of anomalous capital market conditions, the Commission considered additional record evidence that supported an upward adjustment.⁴⁷

D. FERC's Decision to Now Consider Other Models Besides the DCF

FERC's longstanding policy has been to rely exclusively on the DCF model when determining a transmission company's ROE. For instance, in a 2006 proceeding, FERC affirmed its reliance on the DCF model: "We also reject requests to cease our utilization of the DCF method. In as much as the DCF method yields just and reasonable rates, the Commission has recognized in numerous proceedings, we see no basis to require other methods for the evaluation of incentive applications."⁴⁸ However, in Opinion 531, while FERC used the DCF method to set a zone of reasonable returns, it used other financial models to support its finding that the midpoint DCF result would not produce just and reasonable results. The Commission explained that it relied on NETOs Capital Asset Pricing Model (CAPM) that informed the just and reasonable placement of the ROE within the zone of reasonableness established in the record by the DCF methodology and in doing so they did not depart from the DCF methodology.⁴⁹ The Plaintiffs presented five alternative models and methodologies: risk premium analysis, the CAPM, comparison of electric ROEs with natural gas pipeline ROEs, comparison of electric utility DCF results with non-utility DCF results, and expected earnings analysis. FERC considered the results of the risk premium analysis, the CAPM, and expected earnings analyses in determining that the midpoint DCF result would not result in a just and reasonable cost of capital.⁵⁰ Therefore, while FERC still will be using the DCF model in its primary establishment of a zone of reasonableness, it may consider other financial models in future cases to set the ROE.

Where does this leave California's public utilities in regards to the decision of placing the base ROE within the zone of reasonableness?

At the outset the paper stated that the impact of changes in DCF methodology on California's TOs are yet to be seen, because Opinion 531 was issued specifically for NETOs - a group of diverse utilities using upwardly adjusted midpoint results. Whereas California TOs that file as single utilities are permitted the use of median for setting base ROE. In the past the Commission has selected median as the just and reasonable placement of the ROE within the zone of reasonableness established in the record by the DCF methodology for single electric utility.⁵¹ In 2007 Southern California Edison (SCE) filed an application with the Commission to revise its transmission tariffs; it used midpoint to set the ROE instead of the median. However, FERC supported CPUC staff and disallowed SCE's use of the midpoint. The events during that that time were such that FERC issued an order in 2008, in the Golden Spread case, wherein it made a determination that for a single utility with an average amount of risk using median is more appropriate as it takes in to account all of the companies in the proxy group and

⁴⁷ Opinion 531-B; Page 30

⁴⁸ Order No. 679-A, FERC Stats. & Regs. ¶ 31,236 (2007). *ITC Holding*, 121 FERC ¶ 61,229 at P 43

⁴⁹ Opinion 531-B; Page 58.

⁵⁰ Opinion 531, P 146.

⁵¹ *Golden Spread Elec. Coop., Inc.*, 123 FERC ¶ 61,047 (2008).

averages out the result and avoids extreme outliers that could skew the results of a proxy group. SCE filed a case in the DC Circuit Court of Appeals against FERC challenging FERC's determination on using median.⁵² The CPUC intervened on behalf of FERC. The Court affirmed FERC's determination to use median instead of midpoint in setting the required returns on equity ("ROE") for single utilities.⁵³ Therefore, because of Court precedent on this issue, it may be unlikely that FERC will change its practice from authorizing the median DCF result for the large California Transmission Owners.

If setting ROEs at the median is a yardstick set by FERC, then filings made by California utilities, which are single utilities, should be made using ROE set at the median. However, Pacific Gas & Electric Company filed a case last year in which the company used a base ROE of 10.76%, which is equal to the point halfway between the median and the upper end of the DCF range resulting from the Commission's two-stage DCF method and since the case is in settlement talks we don't know what the final outcome will be.⁵⁴ The other case to follow in the near future may be SCE's next formula rate case filing at FERC, as the moratorium on revising its ROE expires in June 2015 and the company may apply to revise its rates. There are independent transmission owners such as Trans-Bay Cable, DATC Path 15 and others that may not consider themselves as a utility of average risk and may therefore file at FERC using midpoint and not the median as their just and reasonable ROE.

E. Elimination of the Treasury-Bond Update

In Opinion 531 the Commission also eliminated its use of U.S. Treasury bond yields to make a final ROE adjustment to account for changes in capital market conditions after the close of the record in a rate hearing. The Commission will now base its decision on the latest financial data available in the hearing record.

In, *Southern Cal Edison v. FERC*,⁵⁵ the Court rejected FERC's use of Treasury bond yields to adjust the ROE results. FERC's longstanding practice had been to take official notice of the change in U.S. Treasury bond yields as a proxy for its private cost of capital after the record had closed in a proceeding. SCE successfully challenged FERC's treasury bond adjustment arguing that the company did not have an opportunity to show the adjustment was inappropriate and thus granted SCE relief under §556(e).⁵⁶ Based on the Court order and further analysis in Opinion 531 FERC has eliminated post record adjustment. The post hearing adjustment process could either allow for an upward or downward adjustment based on Treasury bond yields; therefore, ratepayers were sometimes helped and sometimes hurt by this practice so the change does not necessarily affect ratepayers negatively.

F. Impact of the DCF Methodology Change on Existing ROE Transmission Incentive Adders

The Congress directed the Commission to incentivize transmission investment, which resulted in FERC Order 679 – Promoting Transmission Investment through Pricing Reform. The Commission in Order 679

⁵² SoCal Edison v. FERC, U.S. Court of Appeals for the D.C. Circuit, No. 11-1471

⁵³ 131 FERC ¶ 61,020

⁵⁴ ER14-2529

⁵⁵ No. 11-1471,

⁵⁶ [http://www.cadc.uscourts.gov/internet/opinions.nsf/6A8D6C7ED8B254D185257B67004D87E7/\\$file/11-1471-1435509.pdf](http://www.cadc.uscourts.gov/internet/opinions.nsf/6A8D6C7ED8B254D185257B67004D87E7/$file/11-1471-1435509.pdf)

stated, “an incentive rate of return sought by an applicant must be within a range of reasonable returns and the rate proposal as a whole must be within the zone of reasonableness before it will be approved.”⁵⁷ In Opinion 531, the Commission states that “Nothing in this order changes this Commission policy.”⁵⁸ It further notes, accordingly, when a public utility’s ROE is changed, either under section 205 or section 206 of the Federal Power Act (FPA), that utility’s total ROE, inclusive of transmission incentive ROE adders, should not exceed the top of the zone of reasonableness produced by the two-step DCF methodology. The plaintiffs in the Complaint case brought this matter up for rehearing but FERC denied the request stating in Opinion 531-B that the Commission has applied the policy of limiting incentive adders in rate cases initiated after an ROE adder was approved, for example in establishing a hearing on a section 205 rate filing by Pacific Gas and Electric Co. (PG&E), the Commission held that a 200 basis point adder originally granted to PG&E ten years earlier and a 50 basis point ROE adder for RTO participation granted two years earlier would be limited to within the new zone of reasonableness determined at the hearing.⁵⁹

IV. Example Study

This paper evaluates the DCF methodology results using a model California utility for the example study. Assuming that S&P has assigned the utility a credit rating of “BBB” and Moody’s rate it at “A3” (criteria for these ratings can be accessed on the rating agency website), the study followed FERC’s guidelines on composing a proxy group. The study selected electric utility companies from the Value Line database that were within the range of S&P credit rating of “BBB-” to “BBB+” and Moody’s rating of “Baa1” to “A2”.

1. Establishing a proxy group of companies of comparable risk

The example follows FERC guideline on developing a proxy group and calculating the zone of reasonableness: (1) the use of a national group of companies considered electric utilities by Value Line; (2) the inclusion of companies with credit ratings no more than one notch above or below the utility or utilities whose rate is at issue; (3) the inclusion of companies that pay dividends and have neither made nor announced a dividend cut during the six-month study period; (4) the inclusion of companies with no major merger activity during the six-month study period; and (5) companies whose DCF results pass threshold tests of economic logic.

Once the companies were selected that were within the accepted ratings band, the next step was to analyze them for exclusion on the bases of any announced dividend cuts, mergers and acquisition (M&A) and passing the threshold test of economic logic as stated above. Four companies were excluded from the group because they had been in M&A talks during the six-month study period. The excluded companies were – Cleco Corp, Hawaiian Electric Industries Inc, Northwestern Corporation and TECO

⁵⁷ Order 679 at P2 and P93.

⁵⁸ Opinion 531 at P164.

⁵⁹ Opinion 531-B at P139.

Energy. Out of 47 Value Line Electric Utility Companies only 14 companies were selected for the final Proxy Group.

NATIONAL PROXY GROUP -

No.	Company Name	Ticker	Value Line Financial Strength Rating	Value Line Safety Ranking	S&P Rating	Moody's Rating
1	Allete Inc	ALE	A	2	BBB+	A3
2	American Electric Power Company Inc	AEP	A	2	BBB	Baa1
3	Avista Corp	AVA	A	2	BBB	Baa1
4	Black Hills Corp	BKH	B+	3	BBB	Baa1
5	DTE Energy Company	DTE	B++	2	BBB+	A3
6	Duke Energy Corp New	DUK	A	2	BBB+	A3
7	Edison International	EIX	A	2	BBB+	A3
8	El Paso Electric Co	EE	B++	2	BBB	Baa1
9	Empire District Electric Co	EDE	B++	2	BBB	Baa1
10	IDACORP Inc	IDA	B++	2	BBB	Baa1
11	Pacific Gas and Electric Corporation	PCG	B+	3	BBB	Baa1
12	Portland General Electric Company	POR	B++	2	BBB	A3
13	Sempra Energy	SRE	A	2	BBB+	Baa1
14	Westar Energy Inc	WR	B++	2	BBB+	Baa1

2. DCF Models establishing a range of reasonableness

Following the process listed in the Sections above, the two-step and one-step DCF methodology was followed for each electric utility in the proxy group.

- Period of study: six months ending February 28, 2015.
- Data Source: Value Line and Yahoo Finance. Initial companies were downloaded from Value Line on February 10, 2015, Yahoo Finance data was extracted on March 24, 2015 and Value Line PDF reports were downloaded on March 24, 2015 and April 1, 2015.
- For certain data inputs the study relied on the updated testimony filed by FERC Trial Staff and Dr. Wooldridge in Docket ER12-2708. The updated testimony was submitted on March 6, 2015 with the same study period ending February 2015 and therefore we referred to their GDP growth estimate of 4.39% and the 6-month Average Public Utility Yield by Moody's (Baa), which is 4.66% and therefore the low-end ROE outlier was set at 5.66%.
- Outliers: No outliers were selected from the proxy group, because all companies were within range.

Range of reasonableness resulting from two-step DCF model is narrower compared to one-step DCF mode:

	Adjusted Results	
Two- Step DCF Results	Low	High
National Proxy Group	6.32%	9.37%

One- Step DCF Results	Adjusted Results	
DCF Results	Low	High
National Proxy Group	5.84%	10.56%

3. Establishing a just and reasonable ROE at a single point within the DCF zone of reasonableness

The results from the two models can be compared as follows:

- Two-step model yields narrower range, a higher median, but a lower midpoint when compared to results from the one-step DCF model
- .
- Change in methodology from one-step to two-step DCF model will result in higher base ROEs for single utilities, because the median is higher. If an upward adjustment is made, then that will further increase the base ROE.

Results of Two- step DCF Model	
Low-end of reasonableness zone	6.32%
High-end of reasonableness zone	9.38%
Median	8.31%
Midpoint	7.85%
Halfway between the midpoint and the upper-end of the range of reasonableness	8.61%
Halfway between the median and the upper-end of the range of reasonableness	8.85%

Results of One-step DCF Model	
Low-end of reasonableness zone	5.84%
High-end of reasonableness zone	10.56%
Median	7.80%
Midpoint	8.20%
Halfway between the midpoint and the upper-end of the range of reasonableness	9.38%

Halfway between the median and the upper-end of the range of reasonableness	9.18%
---	-------

The detailed results are available in Appendix 1 – Table 1 and Table 2 and Appendix 2 lists the work papers and how to navigate through them.

V. Analysis and Conclusion

The range of reasonableness (minimum to maximum value) is narrow in the two- step DCF model, which yields a higher median compared to results from the one-step DCF model, but a lower midpoint. FERC noted in Opinion 531 that in general, the two-step DCF methodology will produce a narrower zone of reasonableness than use of the one-step DCF methodology for two reasons: (1) long-term growth rates are more stable than short-term growth rates, and (2) the two-step DCF methodology does not calculate a high-end estimate and low-end estimate for each proxy group company’s cost of equity, but rather calculates one estimate for each company.⁶⁰

Since the two-step DCF methodology yields a narrower range of reasonableness, it potentially means that just by setting a base ROE at the median it will result in a higher ROE for the single utility, let alone any upward adjustments. Now if FERC grants incentive adders on top of the base ROE, it will further increase the ROE. The only silver lining in the cloud is the narrower range of reasonableness which limits the overall ROE plus incentives to a lower upper-end per the two-step DCF model. This approach, in a way, strikes a balance between investors and consumer interest. However, as stated before there are uncertainties surrounding elements of Opinion 531 vis-a-vis California utilities, because Opinion 531 was issued specifically for NETOs - a group of diverse utilities, using upwardly adjusted midpoint results, while California TOs that file as single utilities are permitted the use of median to set their base ROE. The DC Circuit of Appeals has upheld the use of median for single utilities as the just and reasonable base ROE. Thus, the question is, “Is setting base ROE at the halfway point between the median and the upper-end of the range of reasonableness justified?”

Return on equity is a building block to the final rates that customers pay. Transmission costs have increased and will most likely see an upward trend because – (a) transmission providers have built new infrastructure within the CAISO that expands the rate base over which the utilities earn a rate of return, such as TransBay Cable – an underwater cable in the San Francisco Bay (Trans Bay Cable LLC), and for some projects the FERC granted incentives adders, for example Tehachapi and Devers Palo Verde/Colorado River (SCE) (b) modernized their existing facilities, (c) undertaken network upgrades to support interconnection of new generation and (d) Lower forecasted load growth, which means spreading revenue requirement (numerator) across lower usage (denominator) thus leading to higher rates over time.

⁶⁰ Opinion 531 at P 161.

FERC reviews the siting application for electric transmission projects under limited circumstances. It's the state Commission's that are usually responsible as a citing authority for major construction projects. Investor-owned utilities in California are required to obtain a permit from the CPUC for construction of certain specified infrastructure listed under Public Utilities Code sections 1001. The CPUC reviews permit applications under two concurrent processes: (1) an environmental review pursuant to the California Environmental Quality Act (CEQA), and (2) the review of project need and costs pursuant to Public Utilities Code (PU Code) sections 1001 et seq. and General Order (G.O.) 131-D (Certification of Public Necessity and Convenience (CPCN) or Permit to Construct (PTC)). While the CPUC may apply cost caps on projects approved under these two categories the utilities have the flexibility to exceed these costs and in the past have requested upward cost adjustments.

Similarly, as CAISO approves more projects via its competitive bid solicitation process it will be worth observing whether the winning bids will adhere to cost estimates or if the TOs will file with higher cost estimates in their FERC proceedings. More competitive transmission companies operating within the CAISO markets may be good for the consumers, but if costs are not adhered to or overseen, then the balance shifts to the benefit of the transmission companies.

As we analyzed FERC's ROE methodology we also briefly looked over CPUC's process to review ROEs in the general rate case proceedings. In the CPUC's cost-of-capital proceedings, which takes place every three years the subject utility and Intervenor file testimony with their analysis using a variety of different methods (DCF, risk premium, comparable earnings, etc.). The CPUC relies on the results of these models and staff's advice to determine a just and reasonable ROE.

This paper is a very basic and simple effort to explain the change in FERC's process to calculate ROE. This involved a fairly mechanical, consistent use of the DCF formula. FERC has upheld its use of non-DCF methodologies to justify an upward adjustment from the midpoint, which the paper does not encompass. This means that the ROE determination may now involve a more nuanced, subject analysis by FERC. In Order 531 FERC made an upward adjustment to the midpoint DCF result based on these other financial models. Consumers would benefit if FERC decides to apply this analysis symmetrically, i.e. if FERC were to make a downward adjustment to the DCF midpoint or median when the other financial analysis shows that the DCF result is too high.

VI. Appendix 1

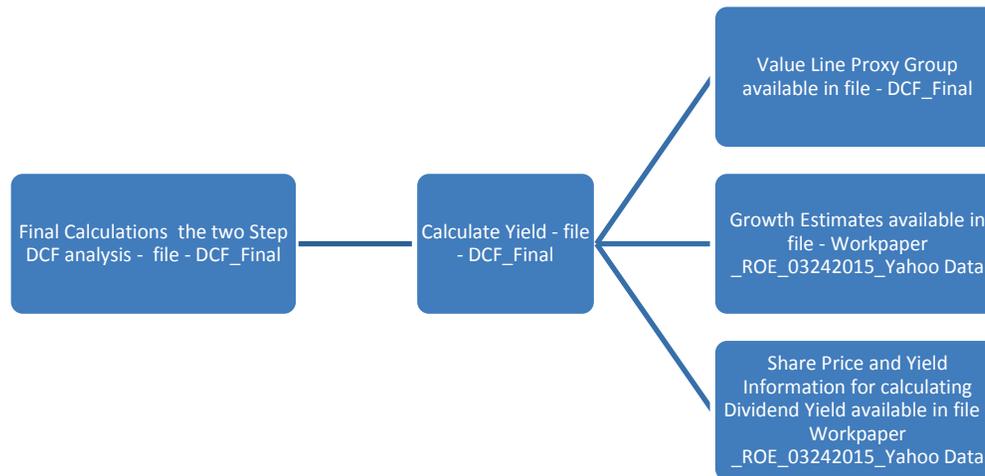
Table 1 -		Two-Step Proxy Group Results							
Company	Ticker	6-month average div yield	IBES Analysts' Proj EPS g	GDP 3	Composite	Adj Div Yield	DCF Result	DCF Result After Screen	
		[a]	[b]	[c]	$[d] = (2/3)*[b] + (1/3)*[c]$	$[e] = [a]*(1 + 0.5*[d])$	$[f] = [d] + [e]$	[g]	
Allete Inc	ALE	3.81%	6.00%	4.39%	5.46%	3.91%	9.38%	9.38%	
American Electric Power Company Inc	AEP	3.59%	5.21%	4.39%	4.94%	3.68%	8.62%	8.62%	
Avista Corp	AVA	3.73%	5.00%	4.39%	4.80%	3.82%	8.62%	8.62%	
Black Hills Corp	BKH	3.04%	7.00%	4.39%	6.13%	3.13%	9.26%	9.26%	
DTE Energy Company	DTE	3.31%	4.51%	4.39%	4.47%	3.38%	7.85%	7.85%	
Duke Energy Company	DTE	3.94%	4.52%	4.39%	4.48%	4.03%	8.50%	8.50%	
Edison International	EIX	2.46%	3.53%	4.39%	3.82%	2.51%	6.32%	6.32%	
El Paso Electric Co	EE	2.91%	7.00%	4.39%	6.13%	3.00%	9.13%	9.13%	
Empire District Electric Co	EDE	3.74%	3.00%	4.39%	3.46%	3.81%	7.27%	7.27%	
IDACORP Inc	IDA	2.95%	3.00%	4.39%	3.46%	3.00%	6.46%	6.46%	
Pacific Gas and Electric Corporation	PCG	3.57%	3.95%	4.39%	4.10%	3.64%	7.74%	7.74%	
Portland General Electric Company	POR	3.07%	5.26%	4.39%	4.97%	3.15%	8.12%	8.12%	
Sempra Energy	SRE	2.43%	7.93%	4.39%	6.75%	2.51%	9.26%	9.26%	
Westar Energy Inc	WR	3.62%	3.07%	4.39%	3.51%	3.68%	7.19%	7.19%	
Low-end of reasonableness zone								6.32%	
High-end of reasonableness zone								9.38%	
Median								8.31%	
Midpoint								7.85%	
Halfway between the midpoint and the upper-end of the range of reasonableness								8.61%	
Halfway between the median and the upper-end of the range of reasonableness								8.85%	

Table 2 - One-Step DCF Model Results –

One-Step Proxy Group Results												
Company	Ticker	6-Month Avg. Dividend Yield		Adjustment Factors		Adjusted Dividends		Growth Rates		DCF Results		
		Low	High	Low	High	Low	High	Low	High	Low	High	Average
Allete Inc	ALE	3.60%	4.03%	1.0207	1.0300	3.67%	4.15%	4.15%	6.00%	7.82%	10.15%	8.98%
American Electric Power Company Inc	AEP	3.43%	3.75%	1.0207	1.0261	3.50%	3.85%	4.15%	5.21%	7.65%	9.06%	8.35%
Avista Corp	AVA	3.53%	3.94%	1.0152	1.0250	3.58%	4.03%	3.04%	5.00%	6.62%	9.03%	7.83%
Black Hills Corp	BKH	2.88%	3.19%	1.0219	1.0350	2.94%	3.30%	4.38%	7.00%	7.32%	10.30%	8.81%
DTE Energy Company	DTE	3.17%	3.45%	1.0207	1.0226	3.23%	3.53%	4.13%	4.51%	7.37%	8.04%	7.70%
Duke Energy Company	DUK	3.78%	4.10%	1.0117	1.0226	3.83%	4.19%	2.35%	4.52%	6.17%	8.71%	7.44%
Edison International	EIX	2.36%	2.56%	1.0177	1.0326	2.40%	2.65%	3.53%	6.52%	5.93%	9.17%	7.55%
El Paso Electric Co	EE	2.79%	3.04%	1.0231	1.0350	2.85%	3.15%	4.62%	7.00%	7.47%	10.15%	8.81%
Empire District Electric Co	EDE	3.50%	3.98%	1.0150	1.0153	3.56%	4.04%	3.00%	3.06%	6.56%	7.10%	6.83%
IDACORP Inc	IDA	2.79%	3.10%	1.0150	1.0213	2.84%	3.17%	3.00%	4.25%	5.84%	7.42%	6.63%
Pacific Gas and Electric Corporation	PCG	3.39%	3.75%	1.0198	1.0215	3.45%	3.83%	3.95%	4.30%	7.40%	8.13%	7.77%
Portland General Electric Company	POR	2.93%	3.22%	1.0220	1.0263	2.99%	3.30%	4.40%	5.26%	7.40%	8.56%	7.98%
Sempra Energy	SRE	2.33%	2.53%	1.0258	1.0397	2.39%	2.63%	5.15%	7.93%	7.54%	10.56%	9.05%
Westar Energy Inc	WR	3.44%	3.80%	1.0154	1.0229	3.50%	3.89%	3.07%	4.57%	6.57%	8.46%	7.51%
Low-end of reasonableness zone												5.84%
High-end of reasonableness zone												10.56%
Median												7.80%
Midpoint												8.20%
Halfway between the midpoint and the upper-end of the range of reasonableness												9.38%
Halfway between the median and the upper-end of the range of reasonableness												9.18%

VII. Appendix 2

Workflow for two-step DCF model



Workpaper flow for one- step DCF model

