

**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 080317-EI**

**IN RE: TAMPA ELECTRIC COMPANY'S
PETITION FOR AN INCREASE IN BASE RATES
AND MISCELLANEOUS SERVICE CHARGES**

**DIRECT TESTIMONY AND EXHIBIT
OF
DR. DONALD A. MURRY, PH.D.
ON BEHALF OF TAMPA ELECTRIC COMPANY**

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1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **PREPARED DIRECT TESTIMONY**

3 **OF**

4 **DR. DONALD A. MURRY, PH.D.**

5 **ON BEHALF OF TAMPA ELECTRIC COMPANY**

6
7 **Q.** Please state your name, position and business address.

8
9 **A.** My name is Donald A. Murry. My business address is 5555
10 North Grand Blvd., Oklahoma City, Oklahoma 73112.

11
12 **Q.** By whom are you employed and in what position?

13
14 **A.** I am a Vice President and Economist with C. H. Guernsey &
15 Company, working primarily out of the offices in Oklahoma
16 City and Tallahassee. I am also a Professor Emeritus of
17 Economics on the faculty of the University of Oklahoma.

18
19 **Q.** What is your educational background?

20
21 **A.** I have a Bachelor of Science degree in Business
22 Administration and a Masters Degree and a Doctorate in
23 Economics from the University of Missouri - Columbia.

24
25 **Q.** Please describe your professional background.

1 **A.** From 1964 to 1974, I was an Assistant and Associate
2 Professor and Director of Research on the faculty of the
3 University of Missouri - St. Louis. For the period 1974
4 to 1998, I was a Professor of Economics at the University
5 of Oklahoma, and since 1998, I have been Professor
6 Emeritus at the University of Oklahoma. Until 1978, I
7 also served as Director of the Center for Economic and
8 Management Research. In each of these positions, I
9 directed and performed academic and applied research
10 projects related to energy and regulatory policy. During
11 this time, I also served on several state and national
12 committees associated with energy policy and regulatory
13 matters and published and presented a number of papers in
14 the field of regulatory economics in the energy
15 industries.

16
17 **Q.** Please describe your regulatory experience.

18
19 **A.** Since 1964, I have consulted for a number of private and
20 public utilities, state and federal agencies, and other
21 industrial clients regarding energy and regulatory
22 matters in the United States, Canada and other countries.
23 In 1971-72, I served as Chief of the Economic Studies
24 Division, Office of Economics of the Federal Power
25 Commission. From 1978 to early 1981, I was Vice

1 President and Corporate Economist for Stone & Webster
2 Management Consultants, Inc. I am now a Vice President
3 with C. H. Guernsey & Company. In all of these positions
4 I have directed and performed a wide variety of applied
5 research projects and conducted other projects related to
6 regulatory matters. Recently, I have assisted both
7 private and public companies and government officials in
8 areas related to the regulatory, financial and
9 competitive issues associated with the restructuring of
10 the utility industry in the United States and other
11 countries.

12
13 **Q.** Have you previously testified before or been an expert
14 witness in proceedings before regulatory bodies?

15
16 **A.** Yes, I have appeared before the U.S. District Court-
17 Western District of Louisiana, U.S. District Court-
18 Western District of Oklahoma, District Court-Fourth
19 Judicial District of Texas, U.S. Senate Select Committee
20 on Small Business, Federal Power Commission, Federal
21 Energy Regulatory Commission, Interstate Commerce
22 Commission, Alabama Public Service Commission, Regulatory
23 Commission of Alaska, Arkansas Public Service Commission,
24 Colorado Public Utilities Commission, Florida Public
25 Service Commission, Georgia Public Service Commission,

1 Illinois Commerce Commission, Iowa Commerce Commission,
2 Kansas Corporation Commission, Kentucky Public Service
3 Commission, Louisiana Public Service Commission, Maryland
4 Public Service Commission, Mississippi Public Service
5 Commission, Missouri Public Service Commission, Nebraska
6 Public Service Commission, New Mexico Public Service
7 Commission, New York Public Service Commission, Power
8 Authority of the State of New York, Nevada Public Service
9 Commission, North Carolina Utilities Commission, Oklahoma
10 Corporation Commission, South Carolina Public Service
11 Commission, Tennessee Public Service Commission,
12 Tennessee Regulatory Authority, The Public Utility
13 Commission of Texas, the Railroad Commission of Texas,
14 the State Corporation Commission of Virginia and the
15 Public Service Commission of Wyoming.

16
17 **Q.** What is the purpose of your testimony in this case?
18

19 **A.** Tampa Electric ("Tampa Electric" or "company") has
20 retained me to analyze its current cost of capital and to
21 recommend a rate of return that is appropriate in this
22 proceeding. Tampa Electric, an electric utility company
23 serving retail electric customers in Florida, is a
24 division of Tampa Electric Company, which is, in turn, a
25 wholly owned subsidiary of TECO Energy, Inc. ("TECO

1 Energy").

2

3 **Q.** How did Tampa Electric's affiliate relationship with TECO
4 Energy affect your analysis of the cost of capital in
5 this proceeding?

6

7 **A.** I selected a group of electric utilities to serve as
8 proxy companies for Tampa Electric in my analysis because
9 Tampa Electric is not publicly traded and it is only a
10 small component of TECO Energy. Although for comparative
11 purposes, I did review some of the market-based costs of
12 TECO Energy; however, because of the differences, the
13 TECO Energy financial information was not useful for
14 determining the cost of capital of the electric utility.
15 Instead, I focused my analysis on the market-based
16 financial information of the group of comparable electric
17 companies.

18

19 **Q.** Methodologically, how did you use these electric
20 utilities?

21

22 **A.** The comparable companies are the primary focus of my
23 analysis of the cost of capital of Tampa Electric, and I
24 used them as proxies for Tampa Electric.
25 Methodologically, I selected these companies for my

1 analysis because they were comparable to Tampa Electric
2 in key financial statistics. I also analyzed the
3 relative financial and business risks of Tampa Electric
4 and the electric utilities.

5
6 **Q.** Are you sponsoring any exhibits with your direct
7 testimony?

8
9 **A.** Yes. I am sponsoring Exhibit No. ____ (DAM-1) entitled
10 "Exhibit of Dr. Donald A. Murry, Ph.D. on Behalf of Tampa
11 Electric Company", which consists of 24 documents.

- 12 Document No. 1 Real GDP Consensus Forecast
- 13 Document No. 2 Comparison Of Selected Bond
14 Yields
- 15 Document No. 3 *Blue Chip* Treasury Forecasts
- 16 Document No. 4 *Value Line* Interest Rates And
17 Forecasts 2003 - 2013
- 18 Document No. 5 Proposed Capital Structure As Of
19 December 31, 2009
- 20 Document No. 6 Comparison Of Common Equity Ratios
- 21 Document No. 7 Comparison Of Financial Strength And
22 Bond Ratings
- 23 Document No. 8 Comparison Of *Value Line's* Safety And
24 Timeliness Rank
- 25 Document No. 9 Comparison Of Returns On Common

1		Equity
2	Document No. 10	Comparison Of Declared Dividends
3	Document No. 11	Comparison Of Dividend Payout
4		Ratios
5	Document No. 12	Comparison Of Average Annual
6		Price-Earnings Ratios
7	Document No. 13	Discounted Cash Flow Growth Rate
8		Summary
9	Document No. 14	Dividend Growth Rate DCF Using
10		Current Share Prices
11	Document No. 15	Dividend Growth Rate DCF Using
12		52-Week Share Prices
13	Document No. 16	Earnings Growth Rate DCF Using
14		Current Share Prices
15	Document No. 17	Earnings Growth Rate DCF Using
16		52-Week Share Prices
17	Document No. 18	Projected Growth Rate DCF Using
18		Current Share Prices
19	Document No. 19	Projected Growth Rate DCF Using
20		52-Week Share Prices
21	Document No. 20	Size Adjusted Capital Asset
22		Pricing Model
23	Document No. 21	Historical Capital Asset Pricing
24		Model
25	Document No. 22	Summary Of Financial Analysis

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Document No. 23 Proposed Cost Of Capital As Of
December 31, 2009
Document No. 24 Comparison Of After-Tax Times
Interest Earned Ratios

Q. Did you or someone under your direct supervision prepare this exhibit?

A. Yes.

UTILITY REGULATION

Q. Please explain how regulatory policies may have affected your analysis and recommendation of the cost of capita in this proceeding.

A. I structured my analysis based on prevailing regulatory policies regarding the electric industry. Economies of scale at the distribution level of utility service indicate that duplicative facilities can be economically inefficient. For this reason, analysts have long recognized the potential for market power to exist in franchised utility markets, and this is the principal economic rationale for utility regulation.

Q. How did this rational for utility regulation influence

1 your analysis and recommendations concerning the
2 appropriate allowed return for Tampa Electric in this
3 proceeding?

4
5 **A.** I recognized that a utility market structure and the
6 associated economic rationale implied that an allowed
7 return for Tampa Electric should be sufficient to recover
8 its costs of providing service, but at the same time, not
9 be higher than necessary to attract and maintain capital.
10 This was the objective of my analysis. I also believe
11 this analytical objective is consistent with my
12 understanding of the legal standard of a fair rate of
13 return in regulation.

14
15 **Q.** Please explain the term "fair rate of return" as you
16 understand it.

17
18 **A.** When I used the term "fair rate of return", I was
19 referring to a return that meets the standards set by the
20 United States Supreme Court decision in *Bluefield Water*
21 *Works and Improvement Company vs. Public Service*
22 *Commission, 262 U.S. 679 (1923) ("Bluefield")*, as further
23 modified in *Federal Power Commission vs. Hope Natural Gas*
24 *Company, 320 U.S. 591 (1944) ("Hope")*. As an economist,
25 I believe that a rate of return is "fair" if it provides

1 earnings to investors similar to returns on alternative
2 investments in companies of equivalent risk. Such a
3 return will be sufficient to enable the company to
4 compensate investors for assumed risk, attract capital,
5 operate successfully and maintain its financial
6 integrity. As an economist, I believe one should
7 recognize that this standard implies that utilities
8 typically do not face the same market influences as more
9 competitive markets, and a single supplier is likely to
10 exist in a market because of economies of scale and scope
11 in providing retail service. This market structure is
12 the common economic rationale for regulation

13
14 **ECONOMIC ENVIRONMENT**

15 **Q.** What economic factors are important to your analysis of
16 Tampa Electric's cost of capital in this proceeding?

17
18 **A.** Expectations regarding inflation and interest rates are
19 major economic factors that influence investors'
20 decisions. Generally, inflation expectations cause
21 investors to require returns sufficient to compensate for
22 any loss of purchasing power over the life of a security.
23 In many cases, increasing inflation leads to higher long-
24 term interest rates. Higher interest rates, in turn,
25 lead to higher overall costs of capital. In the case of

1 a regulated utility such as Tampa Electric, the
2 regulatory environment is also a critical component of
3 the business environment. Anticipated regulatory
4 actions, as well as forecasts of inflation and interest
5 rates, affect investors' expectations of utility returns
6 and their evaluations of the risks and returns of
7 alternative investments.

8
9 **Q.** How would you describe the current economic environment?

10
11 **A.** Entering the third quarter of 2008, the U.S. economy is
12 facing record oil prices, increasing inflation, a
13 continuation of the housing market contraction, further
14 credit-market write-downs, increasing unemployment, and
15 falling consumer confidence. On July 11, the price of a
16 barrel of crude oil on the New York Mercantile Exchange
17 traded for over \$148—the highest price ever recorded and
18 more than double the price from a year earlier. Strong
19 worldwide demand for crude and the low value of the U.S.
20 dollar have some market analysts estimating the price of
21 a barrel of oil could reach \$170. On July 2, 2008, the
22 Dow Industrial average closed down 20 percent from
23 October 2007. In May 2008, consumer prices rose at an
24 annual rate of 4.2 percent while the labor department
25 reported that wholesale prices rose 7.2 percent.

1 According to the Reuters/Jeffries CRB Index of raw
2 materials prices, commodity prices rose to a record on
3 June 26, 2008 and are up 29 percent in 2008.

4
5 Financial institution asset write-downs and credit losses
6 have totaled approximately \$400 billion since 2007 and an
7 estimated additional \$170 billion may have to be written
8 off by the end of 2009. In June 2008, Moody's downgraded
9 bond insurers MBIA and Ambac to A2 and Aa3 respectively,
10 from AAA. This could lead to further downgrades by
11 financial institutions for structured product hedges.
12 These bond insurers play important roles in financial
13 markets and their downgrading could have serious
14 ramifications. Consequently, it is possible the ongoing
15 crises in the credit and capital markets could re-
16 intensify.

17
18 The housing market continues in a severe slump that
19 threatens the prospects for a second-half economic
20 recovery in 2008. Rising mortgage rates, stricter
21 borrowing rules, and a glut of unsold homes indicate the
22 housing market still faces a period of adjustment. New
23 home sales fell to an annual rate of 512,000 in May 2008
24 and are at their lowest rate since 1991. Housing starts
25 and building permits suggest the slump in housing may

1 intensify. Housing starts in March 2008 of 947,000 stand
2 in stark contrast to the 2.3 million housing starts at
3 the peak of the housing cycle in January 2006. Sales of
4 previously owned homes increased 2 percent in May 2008 to
5 a 4.99 percent annual rate from a record low in April
6 2008, indicating depressed prices are attracting buyers.
7 The May 2008 sales were down 16 percent from May 2007.

8
9 First quarter Gross Domestic Product ("GDP") rose at a
10 revised 1.0 percent annual rate as a result of strong
11 U.S. export activity, an increase in government spending,
12 and an increase in inventories. Continued strength in
13 exports, the government's stimulus program and the lagged
14 effect of the Federal Reserve Board's ("Fed") seven rate
15 cuts since September 2007 are expected to counter the
16 overall general economic malaise and result in a low
17 increase in economic activity in the second half of 2008
18 continuing into 2009. I have shown the *Blue Chip*
19 *Financial Forecasts'* ("*Blue Chip's*") consensus forecast
20 for GDP in Document No. 1 of my exhibit.

21
22 **Q.** Why did you use *Blue Chip* information and forecasts in
23 your analysis?

24
25 **A.** *Blue Chip* is a respected publication that reports the

1 consensus forecasts of forty-six leading financial
2 forecasters. These consensus forecasts, which embody the
3 expectations of the leading forecasters of major
4 financial institutions, will influence the market. In
5 this analysis, it is the overall opinion of investors
6 that we are trying to determine and this is a very likely
7 source of information upon which investors will rely.

8
9 **Q.** Have the Federal Reserve interest rate cuts lowered
10 relevant long-term interest rates?

11
12 **A.** Unfortunately, they have not. The Federal Open Market
13 Committee ("FOMC") has reduced the target federal funds
14 rate seven times since September 2007, a reduction from
15 5.25 percent to 2.00 percent. However, the aggressive
16 cutting of the federal funds and discount rates by the
17 Fed has not resulted in lower long-term rates to
18 consumers or businesses similar to the reduction in
19 short-term rates. Although the Fed's actions directly
20 affect short-term borrowing rates between banks, long-
21 term rates are set competitively in the marketplace and
22 only are indirectly affected, if at all. As shown on
23 Document No. 2 of my exhibit, rates for long-term Baa/BBB
24 utility bonds are virtually unchanged from a year ago-
25 6.53 percent then to 6.48 percent today. Rates for A-

1 rated industrial bonds also are virtually unchanged at
2 6.21 percent one year ago and 6.19 percent today.
3

4 **Q.** Has the Federal Reserve Board undertaken any exceptional
5 policies in responding to these market conditions?
6

7 **A.** Yes. In December 2007, the Fed announced it would inject
8 emergency short-term funds into the market through a
9 never before used Term Auction Facility ("TAF") to
10 address "heightened liquidity pressures in term funding
11 markets". On May 2, 2008, the Fed announced it would
12 boost the TAF to \$150 billion per month from \$100 billion
13 per month, the third increase since the program began in
14 December 2007. The TAF's began as a coordinated effort
15 with the central banks of the United Kingdom, Canada,
16 Switzerland and the European Union to increase short-term
17 funds after losses on subprime mortgages unhinged normal
18 bank lending practices.
19

20 On March 11, 2008, the Fed announced another new vehicle,
21 the Term Securities Lending Facility ("TSLF"), to address
22 the deepening crisis in the credit markets. Under this
23 new program, the Federal Reserve Board will lend up to
24 \$200 billion of Treasury securities to primary dealers to
25 promote liquidity and to foster the functioning of the

1 financial markets generally. The TSLF program
2 subsequently expanded the list of acceptable collateral
3 for loans. The Fed also established the Primary Credit
4 Dealer Facility that made the Fed the lender of last
5 resort to brokers as well as banks. This marked the
6 first time since the 1930's the Fed lent money directly
7 to non-depository institutions.

8
9 On March 16, 2008, the Fed arranged a \$30 billion bail
10 out of investment bank Bear Stearns Cos. using J.P.
11 Morgan, another investment bank, as a conduit. The
12 extraordinary measures needed to be taken by the Fed
13 highlight how the crises in the credit and capital
14 markets have increased risks to investors.

15
16 **Q.** What are some of the consequences of the current economic
17 situation?

18
19 **A.** Forecasts for economic growth have decreased over the
20 last several months while forecasts of inflation have
21 gone up. Blue Chip predicts 0.8 percent real GDP growth
22 for the second quarter of 2008, 1.2 percent real GDP
23 growth for the third quarter, and 0.9 percent growth for
24 the fourth quarter. *Blue Chip* forecasts a 4.2 percent
25 increase in the Consumer Price Index ("CPI") in the third

1 quarter of 2008 and increasing interest rates through the
2 fourth quarter of 2009.

3
4 **Q.** You mentioned the inflation rate as an important factor
5 to examine. What are the current inflation
6 considerations?

7
8 **A.** The forecast for core inflation, which excludes food and
9 energy prices, is 2.4 percent for 2008, which is above
10 the Fed "comfort zone" of 1 percent to 2 percent. In its
11 June 25, 2008 press release, the FOMC stated, "Although
12 downside risks to growth remain, they appear to have
13 diminished somewhat, and the upside risks to inflation
14 and inflation expectations have increased."

15
16 Increasing energy prices and the developing economies
17 continue to exert pressure on world commodity prices and
18 hence, U.S. inflation. Prices paid to factories, farmers
19 and other producers were up 6.5 percent in April. Steel-
20 mill products increased 5.5 percent in April and
21 agricultural chemicals were up 5.6 percent. Scrap steel
22 and iron increased 32 percent, the most since July 2004,
23 and scrap copper was up 5.3 percent. The
24 Reuters/University of Michigan Survey of households
25 showed inflation expectations of 5.1 percent for the

1 coming 12 months--the largest increase since 1982.

2

3 **Q.** What is the forecasted level of bond interest rates?

4

5 **A.** Generally, analysts expect long-term bond rates to
6 increase despite the Federal Reserve's efforts to lower
7 short-term rates. For example, in the near-term, *Blue*
8 *Chip* forecasts show increases from 4.75 percent today to
9 5.1 percent for the 30-year Treasury through the fourth
10 quarter of 2009. I have shown the forecasts for the 10-
11 year and 30-year Treasuries in Document No. 3 of my
12 exhibit. As an example of longer-term forecasts, *Value*
13 *Line* recently predicted the AAA corporate bond yield
14 would increase from 5.6 percent today to 6.5 percent over
15 the 2011-2013 period. As a benchmark for the rates of
16 return set in this proceeding, the long-term corporate
17 interest rates are the most relevant for utility returns.
18 I have shown the longer-term forecasts for long-term
19 corporate yields and some Treasury securities in Document
20 No. 4 of my exhibit.

21

22 **Q.** Can you summarize how the economic environment was
23 important to your analysis and recommendations in this
24 proceeding?

25

1 **A.** The risks facing the credit and capital markets are
2 significant. Energy prices are at all-time highs and
3 inflation is accelerating. At the same time, utilities
4 are facing record high energy prices, increasing
5 infrastructure and environmental requirements, and
6 increasing operating costs. The challenges facing the
7 credit and capital markets compound the risks to capital-
8 intensive utility companies. Rising inflation and rising
9 interest rates erode earnings and adversely affect the
10 cost of a utility's debt and equity, eroding utility
11 margins. That is, despite the lowering of short-term
12 rates, the expected increase in long-term interest rates
13 increases the cost of utility securities.

14

15 **METHODOLOGY**

16 **Q.** How did you conduct your analysis and determine your
17 recommendation?

18

19 **A.** I studied the current economic environment to provide a
20 perspective for my analysis. The current and forecasted
21 long-term interest rates and investors' fears of
22 inflation are the backdrop for electric utility rates of
23 return at this time. I also noted the current return on
24 common stock equity earned by the comparable companies
25 and Tampa Electric. I reviewed published financial

1 information for Tampa Electric, TECO Energy, the parent
2 company of Tampa Electric and the comparable electric
3 utilities. Because of the recent and prospective
4 volatility of the equities markets, I took special note
5 of the financial and business risks faced by Tampa
6 Electric.

7
8 Because Tampa Electric does not have publicly traded
9 common stock, I applied the generally accepted Discounted
10 Cash Flow ("DCF") and Capital Asset Pricing Model
11 ("CAPM") methods to the comparable companies to develop a
12 market-based measure of the cost of common equity of
13 Tampa Electric. The comparable companies are electric
14 utilities that are similar in many respects to Tampa
15 Electric so, as representative, proxy electric utilities;
16 their costs of common equity are also relevant to Tampa
17 Electric.

18
19 As an important measure of adequacy in determining a
20 sufficient but not higher than necessary return, I tested
21 my recommended return by evaluating the After-Tax
22 Interest Coverage ratio at my recommended return. Then I
23 compared this coverage to similar coverages for the
24 comparable electric utilities.

25

1 Q. What criteria did you use to select the comparable
2 companies in your analysis?

3
4 A. I identified criteria that were similar in many respects
5 to Tampa Electric and which would provide a good
6 representative sample of financially healthy regulated
7 electric utilities. First, I identified electric utility
8 companies that have publicly traded common stock. I used
9 the electric utilities identified by *Value Line* as the
10 primary sampling frame from which to select companies
11 comparable to Tampa Electric. Then I excluded all
12 companies actively involved in a merger. A company
13 involved in a merger will have its common stock value
14 affected by investors' evaluation of the merger rather
15 than just utility operations, and it would not be a good
16 proxy for Tampa Electric. Next, I selected firms that
17 have not reduced or eliminated their dividend in the past
18 five years. Companies that have failed to maintain
19 dividends are likely to be under some financial stress,
20 and this means that they would not be a good standard for
21 determining the cost of capital of a financially healthy
22 utility in current markets. I removed those utilities
23 for which *Value Line* is forecasting zero or negative
24 earnings growth. Again, this criterion will help assure
25 that my analysis focuses on healthy utilities. I further

1 narrowed the group by focusing on companies that have
2 market capitalization greater than \$2 billion and less
3 than \$8 billion. The size of a company may affect its
4 costs of operations and the market cost of capital, and
5 this criterion identifies companies with similar
6 characteristics to Tampa Electric. Finally, companies
7 may have investments in non-electric utility enterprises.
8 In order to assure that the companies identified as
9 electric utilities are principally in the electric
10 utility business, I excluded any company that earned less
11 than 60 percent of their operating income from electric
12 utility operations. Using these criteria, I selected a
13 group of electric utilities that provided a sample that
14 was similar to Tampa Electric in key respects. Notably,
15 TECO Energy does not meet these criteria because it cut
16 its dividend during the period. This points out the
17 methodological importance of using the comparable
18 companies as the standard for ratemaking in this
19 proceeding.

20
21 **Q.** You said that you used TECO Energy market data. How did
22 your use of these data to develop the cost of capital of
23 Tampa Electric affect your analysis?

24
25 **A.** I recognized TECO Energy as the source of the common

1 equity funds for Tampa Electric and the cost of capital
2 of the two are obviously somewhat related, I did not use
3 the TECO Energy market data in my determination of the
4 appropriate cost of capital for Tampa Electric. The
5 financial information and the cost of capital of the
6 comparable companies are more relevant and the
7 determinant information for establishing an allowed rate
8 of return for Tampa Electric in this proceeding. These
9 companies provide a representative sample of the
10 financial and cost of capital information for a
11 financially healthy electric utility such as Tampa
12 Electric.

13
14 **Q.** Why did you not use the TECO Energy information in your
15 analysis?

16
17 **A.** The risks associated with the recent financial
18 difficulties of TECO Energy are not relevant to measuring
19 the cost of capital of Tampa Electric. Consequently, I
20 did not use the market-based calculations of the cost of
21 capital of TECO Energy and the financial information of
22 TECO Energy had little bearing on my analysis.

23
24 **Q.** Can you explain in more detail why you used *Value Line* as
25 the source for choosing comparable electric utilities for

1 your analysis?

2

3 **A.** *Value Line* is a respected financial information source.
4 It is readily available to investors and often found in
5 most libraries, so it is a source that is likely to
6 influence investors' decisions. A second important
7 consideration for selecting *Value Line* is that it is
8 independent from the investment community. *Value Line*
9 does not underwrite securities. In the past, critics
10 have justifiably condemned organizations that publish
11 financial data while benefiting directly from a
12 relationship with the company under review. In contrast,
13 but *Value Line* just sells financial information and does
14 not have this conflict of interest.

15

16 **Q.** What utilities did you choose as comparable to Tampa
17 Electric?

18

19 **A.** The utilities that I selected are DPL, Inc., Northeast
20 Utilities, NStar, OGE Energy, Pepco Holdings, Pinnacle
21 West, SCANA Corp and Wisconsin Energy.

22

23 **CAPITAL STRUCTURE**

24 **Q.** What capital structure did you use in estimating Tampa
25 Electric's cost of capital in this proceeding?

1 **A.** For ratemaking purposes in this proceeding, Tampa
2 Electric's capital structure in the projected test year
3 consists of long-term debt of \$1,397,566,000 (38.22
4 percent), short-term debt of \$8,002,000 (0.22 percent),
5 customer deposits of \$103,724,000 (2.84 percent), tax
6 credits of \$8,780,000 (0.24 percent), deferred income
7 taxes of \$302,744,000 (8.28 percent) and common equity of
8 \$1,835,985,000 (50.21 percent). This capital structure
9 is illustrated in Document No. 5 of my exhibit.

10
11 **Q.** How does the capital structure projected by Tampa
12 Electric for ratemaking purposes compare to the capital
13 structures of the comparable electric utilities you have
14 used as proxy companies in your analysis?

15
16 **A.** I compared the common equity ratio proposed by Tampa
17 Electric for ratemaking purposes to the common equity
18 ratios of the group of comparable companies. Tampa
19 Electric's common equity ratio for ratemaking purposes is
20 50.21 percent. However, this equity ratio includes
21 components that analysts typically do not consider as
22 capital structure items, such as customer deposits,
23 deferred taxes and investment tax credits. By removing
24 these items and focusing on the investor sources of
25 capital results in a 55.3 percent equity ratio for Tampa

1 Electric's 2009 test year.

2

3 **Q.** How does the 55.3 percent equity ratio compare to the
4 proxy group?

5

6 **A.** As shown on my Document No. 6, the 2007 average equity
7 ratio for the proxy group is 47.3 percent. However, this
8 equity ratio represents the capital structures of the
9 consolidated holding companies. The equity ratios of the
10 regulated company subsidiaries within this proxy group
11 averaged 53.3 percent in 2007 with two utility capital
12 structures in excess of 60 percent. Comparing the equity
13 ratios for the regulated companies within the proxy group
14 to Tampa Electric's 55.3 percent equity ratio in the 2009
15 test year suggests that Tampa Electric's capital
16 structure is consistent with the proxy group.

17

18 **COST OF DEBT AND OTHER CAPITAL COMPONENTS**

19 **Q.** What has Tampa Electric projected as its cost of short-
20 term debt?

21

22 **A.** Tampa Electric has projected a cost of short-term debt in
23 the projected test year of 4.63 percent.

24

25 **Q.** What is Tampa Electric's cost of long-term debt?

1 **A.** The embedded cost of long-term debt in the projected test
2 tear is 6.80 percent.

3

4 **Q.** What are the costs of the other capital structure
5 components in the projected test year?

6

7 **A.** The costs for the remaining capital structure components,
8 except common equity, are 6.07 percent for customer
9 deposits, 9.75 percent for weighted tax credits and zero
10 for deferred income taxes.

11

12 **FINANCIAL RISK**

13 **Q.** You said you considered "financial risks". What do you
14 mean by the term financial risk?

15

16 **A.** Financial risk is the risk to a company's common
17 stockholders resulting from the company's use of
18 financial leverage. This risk results from using fixed
19 income securities, or debt, to finance the company. Any
20 return to common stockholders is a residual return
21 because it is available only after a company pays its
22 debt-holders. This means the return on common stock is
23 less certain than the contracted return to debt-holders.
24 Consequently, the common stock equity ratio is a measure
25 of financial risk. The lower the common equity ratio,

1 the greater the relative prior obligation owed to debt-
2 holders and the greater the risk faced by common
3 stockholders.

4
5 **Q.** You indicated that a low common equity ratio was a
6 measure of financial risk. Are there other measures of
7 financial risk that you think are important?

8
9 **A.** As I stated, a direct measure of financial risk is the
10 common equity ratio. Financial analysts assess other
11 measures of financial risk, but because of the
12 underpinning of the common equity ratio, most of these
13 measures, in one way or another, tie back to this ratio.
14 For example, other measures of financial risk are bond
15 ratings and *Value Line's* financial strength rating. In
16 my analysis, I reviewed Standard & Poor's ("S&P's") bond
17 ratings and *Value Line's* "Financial Strength" measures
18 for the comparable companies. *Value Line* ranks all of
19 the comparable electric utilities between A and B in
20 Financial Strength. The comparable companies all have
21 S&P bond ratings between BBB- and A+. As I illustrate in
22 Document No. 7 of my exhibit. As a measure of risk,
23 Tampa Electric has a BBB- bond rating, which is equal to
24 the lowest of the bond ratings of the comparable electric
25 utilities.

1 **BUSINESS RISK**

2 **Q.** You referred to business risk. What do you mean by the
3 term "business risk"?

4
5 **A.** Business risk is the exposure of investors' anticipated
6 returns to the uncertainties of a company's day-to-day
7 business activities. Examples of important business
8 risks for electric utilities include such factors as the
9 risk of recovering fuel costs, increasing costs of
10 investment in infrastructure, storm damage expenses, and
11 increasing operating and maintenance expenses.

12
13 **Q.** How did business risk affect your analysis?

14
15 **A.** In order to determine how business risk might affect the
16 cost of capital of Tampa Electric, I compared measures of
17 business risk for Tampa Electric and the comparable
18 companies. For the publicly traded companies, financial
19 publications address risks of the industry and individual
20 companies such as Tampa Electric and the comparable
21 companies. Tampa Electric has the usual business risks
22 that many utilities face, such as timely recovery of
23 proposed capital expenditure and increased fuel costs.
24 Additionally, Tampa Electric has the unique risk exposure
25 of timely recovery of hurricane expenses.

1 Q. What published measures of business risk did you review
2 in your analysis?

3
4 A. I reviewed the *Value Line* rankings of "Safety" and
5 "Timeliness". Although these two measures are both
6 broader than just business risk, they both are influenced
7 significantly by business risks. *Value Line* defines its
8 "Safety" ranking as a measurement of the potential risk
9 associated with individual common stocks; it defines
10 "Timeliness" as a measure of a stock's probable
11 performance in the forthcoming year relative to the
12 overall market. The comparable companies have an average
13 Safety rank of 2.4 and average Timeliness rank of 2.8.
14 Both are slightly better than the average for the
15 securities in the entire market, which is 3. I show this
16 comparison in Document No. 8 of my exhibit.

17
18 Q. Have you reviewed any financial information concerning
19 the business risks facing Tampa Electric?

20
21 A. Yes. I reviewed analysts' reports that noted the
22 business risks facing Tampa Electric and the effect of
23 these factors on investor expectations. Analysts have
24 generally noted the housing slowdown in Tampa Electric's
25 service territory and higher operating costs. Analysts

1 also have recognized the threats to future returns from
2 potentially large capital expenditure programs.

3

4 **FINANCIAL STATISTICS**

5 **Q.** What financial statistics did you review of the companies
6 that you studied?

7

8 **A.** I reviewed some key financial statistics for the
9 comparable companies. These statistics include recent
10 and expected common stock earnings, dividends paid and
11 payout ratios, and price to earnings ("P/E") ratios.

12

13 **Q.** What are the current common stock earnings for the
14 comparable electric utilities?

15

16 **A.** *Value Line's* average for the current returns on common
17 stock equity for 2008 for the comparable companies is
18 12.2 percent. However, this estimate for the comparable
19 companies is undoubtedly influenced by some extreme
20 values. On the one hand, Pinnacle West has a very low
21 7.0 percent estimated return on common stock equity for
22 2008, and Northeast Utilities' estimated return on common
23 stock equity is 9.0 percent, for example. At the same
24 time, DPL, Inc. has an inordinately high estimated return
25 of 24.0 percent on common stock equity in 2008. Although

1 these extreme values are not single-year anomalies, their
2 values as benchmarks for an allowed return in this
3 proceeding are probably limited. I show this comparison
4 of common equity returns in Document No. 9 of my exhibit.

5

6 **Q.** You reviewed the dividend payments of the comparable
7 companies. What did your review show?

8

9 **A.** Document No. 10 of my exhibit shows that the declared
10 dividends of the comparable companies were generally
11 stable, with modest increases in some cases.

12

13 **Q.** What were your findings when you reviewed the dividend
14 payout of common stock earnings of the comparable
15 companies?

16

17 **A.** The average dividend payout of the comparable electric
18 utilities has declined in recent years, and this is
19 consistent with my observations of the industry
20 generally. Document No. 11 of my exhibit shows that
21 *Value Line* estimates the average payout ratio of the
22 comparable electric utilities at 58.3 percent in 2008.

23

24 **Q.** What did your review of the price-earnings ratios of the
25 comparable companies show?

1 **A.** The P/E ratio of the comparable electric utilities
2 according to *Value Line* is currently an average of 13.7.
3 This is consistent with my review of P/E ratios of other
4 companies in the electric utility industry. Document No.
5 12 of my exhibit compares these ratios.

6

7 **COST OF COMMON STOCK**

8 **Q.** You stated previously that you calculated the cost of
9 common stock equity for Tampa Electric. What methods did
10 you use?

11

12 **A.** I used the two generally accepted market-based methods,
13 the DCF and the CAPM, to estimate the cost of common
14 stock in my analysis. I applied each of these methods to
15 estimate the costs of common stock equity for Tampa
16 Electric by estimating the cost of common equity of each
17 of the comparable electric utilities, and I compared the
18 results among these various companies. For each of these
19 two methods, I assessed their underlying assumptions and
20 their analytical strengths and weaknesses. Subsequently,
21 I evaluated the results from these analyses in the
22 context of current market conditions and the relative
23 risks.

24

25 **DISCOUNTED CASH FLOW METHOD**

1 Q. Can you define the Discounted Cash Flow, or "DCF"
2 methodology for measuring the cost of common equity?

3
4 A. The following formula expresses the DCF calculation of an
5 investor's required rate of return:

6
$$K = D/P + g$$

7
8 Where: K = cost of common equity

9 D = dividend per share

10 P = price per share and

11 g = rate of growth of dividends, or

12 alternatively, common stock earnings.

13
14 In this expression, K is the capitalization rate required
15 to convert the stream of future returns into a current
16 value. "D" is the current level of dividends paid to the
17 common stock holders. "P" is the valuation of the common
18 stock by the investors reflected by recent market prices.
19 Consequently, the ratio "D/P" is the current dividend
20 yield on an investment in the company's common stock.
21 The "g" is the growth rate anticipated by the investor.

22
23 Q. What assumptions underlying the DCF method are important
24 when estimating the cost of common equity in practice?

25

- 1 **A.** I believe one can identify the following important
2 underlying assumptions associated with the basic annually
3 compounded DCF model:
- 4 1. Investors are risk averse. That is, for a given
5 return, investors will seek the alternative with the
6 lowest amount of risk. In other words, the greater
7 the risk that investors attribute to a given
8 investment, the greater the return they require from
9 that investment.
 - 10 2. The discount rate must exceed the growth rate, i.e.
11 K , in the stated expression, must exceed g . The
12 mathematics associated with the derivation of the
13 basic annually compounded DCF model requires this
14 assumption.
 - 15 3. The payout and the price earnings ratios remain
16 constant.
 - 17 4. Expected cash flows consist of dividends and the
18 future sale price of the stock. The sales price in
19 any period will equal the present value of the
20 dividends and the sales price expected after that
21 period including any liquidating dividend.
22 Consequently, the sales price in any period is equal
23 to the present value of all expected future
24 dividends.
 - 25 5. Dividends are paid annually.

1 6. There is no external financing.

2

3 As noted in these assumptions, expected cash flows
4 consist of dividends and the future sale price of common
5 stock. Common stock earnings are the critical common
6 denominator because earnings make paying dividends
7 possible, while retained earnings provide for future
8 growth in stock value.

9

10 **STRENGTHS OF THE DCF**

11 **Q.** What are the key strengths of the DCF method that you
12 think are important to your analysis?

13

14 **A.** The DCF method is theoretically sound and this is its
15 greatest strength. It relates an investor's expected
16 return in the form of dividends and capital gains to the
17 value that an investor is willing to pay for those
18 returns. The DCF implies that an investor is willing to
19 pay a market price that is equal to the present value of
20 an anticipated stream of earnings. This relationship
21 theoretically reveals the opportunity cost of investors'
22 funds. In this way, the DCF relates known market price
23 information and the company's dividend and earnings
24 performance to determine the value that investors place
25 on anticipated returns. A practical advantage of the

1 DCF, as a cost of capital tool in a ratemaking
2 proceeding, is that regulatory analysts commonly use it,
3 and participants in proceedings generally understand it.

4
5 **Q.** Is this estimate of the cost of common equity consistent
6 with the regulatory objective of setting an allowed
7 return equal to the returns of equivalent risk?

8
9 **A.** Yes. The DCF develops an estimate of the marginal cost
10 of investing in a given utility, but this may not be
11 sufficient to attract capital in subsequent markets. It
12 is consistent with the principle of setting a return
13 equal to returns of equivalent risk at the margin, but
14 this cost of capital is not necessarily sufficient to
15 assure that a return at this level will attract and
16 maintain capital even in the near term.

17
18 **WEAKNESSES OF THE DCF**

19 **Q.** What weaknesses of the DCF may be important when used in
20 a ratemaking proceeding?

21
22 **A.** A DCF analysis may have either conceptual or data
23 problems or both. As to the conceptual problems,
24 analysts may misinterpret and consequently misapply the
25 DCF because they do not understand the limits of the

1 analysis. For example, a common conceptual problem is
2 the use of historical growth rates in DCF calculations,
3 when these rates are not accurate estimates of investors'
4 expectations of the future returns. Likewise, using
5 dividend growth rates mechanically in a DCF formulation
6 will be misleading if investors are purchasing and
7 selling a stock because of anticipated changes in
8 earnings and potential capital gains. That is, if an
9 assumption (such as dividends being the sole source of
10 value expectations of an investor) is not accurate, then
11 analysts will err if they do not recognize this.

12
13 In addition, as I stated previously, the DCF method
14 calculates the marginal, or incremental, cost of common
15 stock equity of a company. If analysts do not recognize
16 the theoretical significance of this calculation, they
17 may misapply the results of their calculations. As a
18 marginal cost estimate, the DCF produces an estimate of
19 the minimal return necessary to attract or maintain
20 investments in a company's common stock.

21
22 **Q.** From a practical standpoint, why is the marginal cost
23 nature of the DCF significant in a regulatory setting?

24
25 **A.** If a DCF-based cost of common equity, even if

1 realistically developed, becomes the allowed return for a
2 regulated utility, this will not provide enough cushion
3 so the realized return will be sufficient to attract and
4 maintain capital. Analysts, interpreting the results of
5 the DCF calculations, may not recognize this.
6 Consequently, the DCF-based calculations may be
7 misleading. In fact, this misunderstanding of the DCF
8 results can virtually assure that a regulated company
9 will not have the opportunity to earn its allowed return.
10

11 **Q.** Do you know whether regulatory commissions have
12 recognized these limitations of the DCF?
13

14 **A.** Yes. Regulatory commissions have recognized the
15 difficulties of relying on the raw, unadjusted DCF
16 calculations. In one such example, a regulatory
17 commission recognized that the assumptions underlying the
18 DCF model rarely, if ever, hold true.¹ This commission
19 stated that an "...unadjusted DCF result is almost always
20 well below what any informed financial analyst would
21 regard as defensible and therefore requires an upward
22 adjustment based largely on the expert witness'
23 judgment".²
24

25 **Q.** In addition to an adjustment based on "expert" judgment,

¹ Phillips, Charles F., Jr. and Robert G. Brown, *Chapter 9: The Rate of Return, The Regulation of Public Utilities: Theory and Practice*, (1993: Public Utility Reports, Arlington, VA) p. 423.

² *Ibid*, *In re Indiana Michigan Power Company*, 116 PUR4th 1, 17 (Ind. 1990).

1 in your experience, are you aware of any attempts by
2 regulators and analysts to compensate for the marginal
3 cost nature of the DCF?
4

5 **A.** Yes. Both regulators and analysts have often applied
6 compensating adjustments for the marginal cost nature of
7 the DCF method, and they do so in a variety of ways.
8 Although these various adjustments may differ greatly in
9 their approaches, each addresses the inadequacy of the
10 marginal cost estimates of the cost of capital in some
11 manner. For example, I have observed such practices as
12 applying a "flotation" adjustment, a "market pressure"
13 adjustment or an adjustment to common equity to reflect
14 the market values of debt and common equity.
15

16 **Q.** What is a flotation adjustment?
17

18 **A.** It is a calculation adjustment applied to the DCF to
19 compensate for costs associated with the issuance of new
20 securities.
21

22 **Q.** Why do analysts use a flotation adjustment as one way of
23 addressing the marginal cost nature of the DCF?
24

25 **A.** Analysts apply a flotation adjustment because the market-

1 based DCF estimate of the cost of capital does not
2 account for the costs of issuing common stock. That is,
3 the market-based DCF does not incorporate the unavoidable
4 costs incurred when issuing securities, such as legal
5 fees, investment banker fees and the publication costs of
6 a prospectus. The flotation adjustment attempts to raise
7 the market-measured cost of capital, which is the return
8 required to attract the marginal investor, to the same
9 level as the true cost of capital of the utility.

10
11 **Q.** Did you apply a flotation adjustment in your DCF
12 analysis?

13
14 **A.** No, I did not. I believe that recognizing the high end
15 results of the DCF method is usually sufficient
16 compensation for the price impact of flotation costs on a
17 common stock.

18
19 **Q.** If a utility incurs flotation costs that reduce the level
20 of funds received from a stock issuance, why did you not
21 apply such an adjustment?

22
23 **A.** Although the costs of flotation are inescapable and real,
24 I believe it is an adequate recognition of the marginal
25 cost nature of the DCF, which also recognizes the

1 potential impact of flotation costs, to focus on the
2 higher end of the various DCF results. In my opinion,
3 this normally provides appropriate compensation to
4 attract and maintain investment in a utility's common
5 stock, and it also avoids trying to exact a level of
6 implied precision from the DCF methodology that is not
7 realistic.

8
9 **Q.** What is a "market pressure" adjustment?

10
11 **A.** A market pressure adjustment is compensation for the
12 impact of a common stock issuance on the prices of that
13 common stock. Analysts apply this adjustment because the
14 DCF measured cost of common stock cannot account for the
15 prospective price impact of additional, newly issued
16 shares. This is another instance when the marginal cost
17 of common stock measured prior to this issuance will fail
18 to capture the true cost of capital necessary to attract
19 investors.

20
21 **Q.** Are you recommending that an analyst should add a market
22 pressure adjustment to a DCF result when determining a
23 recommended allowed return?

24
25 **A.** No. Normally, the higher end of the DCF market-based

1 results will provide an adequate return on common stock
2 for a regulated utility, which is sufficient under most
3 market circumstances. Such a return should be adequate
4 to compensate for the impact of newly issued securities
5 and to attract investors to newly issued common stock.

6
7 **Q.** Why would an adjustment to the cost of equity to reflect
8 market values for debt and equity be appropriate?

9
10 **A.** Regulatory convention dictates that an analyst should use
11 the book values of securities when establishing the
12 capital structure of a utility for ratemaking. However,
13 some analysts adjust the cost of equity for ratemaking to
14 compensate for the difference between market value and
15 book value. Of course, investors must measure the
16 marginal cost returns against the market values of their
17 investment. Some analysts recognize the difference
18 between market valuation and book valuation of common
19 stock to recognize the marginal cost nature of the DCF
20 method.

21
22 **Q.** Did you adjust Tampa Electric's capital structure for the
23 differential in market value and book value?

24
25 **A.** No, I did not. As in the cases of the other adjustments

1 that analysts and regulators develop largely to
2 compensate in ratemaking for the marginal cost nature of
3 the DCF technique, I believe that recognizing the high
4 end of the DCF results is adequate.

5
6 **DATA USED IN DCF ANALYSIS**

7 **Q.** You defined the variables used in the DCF analysis. What
8 growth rate data did you use in your DCF analysis?

9
10 **A.** I used forecasted earnings growth estimates as the
11 primary measure in my DCF analysis. Forecasts of common
12 stock earnings capture investors' expectations about
13 future returns, and these are the expectations that
14 affect their decisions to invest. The financial academic
15 literature is replete with findings that analysts'
16 forecasts are superior to historical performance for
17 determining expected growth.

18
19 **Q.** •You mentioned findings in the academic literature. Have
20 analysts performed studies regarding which data used in a
21 DCF analysis are most likely to capture investors'
22 expectations about future returns?

23
24 **A.** Yes. As early as 1982, academic studies showed that
25 analysts' forecasts were superior to historical, trended

1 growth rates for DCF analyses.

2
3 **Q.** Please explain some of those studies.

4
5 **A.** A number of authors have addressed the merits of
6 analysts' forecasts in a DCF analysis of the cost of
7 capital. For example, a well-known financial textbook by
8 Brigham and Gapenski explains why analysts' growth rate
9 forecasts are the best source for growth measures in a
10 DCF analysis. They state:

11 "Analysts' growth rate forecasts are usually
12 for five years into the future, and the rates
13 provided represent the average growth rate over
14 the five-year horizon. Studies have shown that
15 analysts' forecasts represent the best source
16 for growth for DCF cost of capital estimates."³

17
18 Research reported in the academic literature supports
19 this position. For example, Gordon, Gordon and Gould
20 found:

21 "...the superior performance by KFRG (forecasts
22 of growth by security analysts) should come as
23 no surprise. All four estimates of growth rely
24 upon past data, but in the case of KFRG a
25 larger body of past data is used, filtered

³ Brigham, Eugene F., Louis C. Gapenski, and Michael C. Ehrhardt, "Chapter 10: The Cost of Capital," Financial Management Theory and Practice, Ninth Edition (1999: Harcourt Asia, Singapore), p. 381.

1 through a group of security analysts who adjust
2 for abnormalities that are not considered
3 relevant for future growth."⁴
4

5 **Q.** Are you familiar with academic articles that apply
6 specifically to the DCF growth rates used in regulatory
7 proceedings?
8

9 **A.** Yes. Timme and Eisemann examined the effectiveness of
10 using analysts' forecasts rather than historical growth
11 rates for determining investors' expectations in rate
12 proceedings. They concluded:

13 "The results show that all financial analysts'
14 forecasts contain a significant amount of
15 information used by investors in the
16 determination of share prices not found in the
17 historical growth rate...The results provide
18 additional evidence that the historical growth
19 rates are poor proxies for investor
20 expectations; hence they should not be used to
21 estimate utilities' cost of capital."⁵
22

23 **Q.** Do you find these statements by these authors credible?
24

25 **A.** Yes. These results are not surprising because investors,

⁴ Gordon, David A., Myron J. Gordon, and Lawrence I. Gould, "Choice among methods of estimating share yield," *Journal of Portfolio Management*; Spring 1989, Volume 15, Number 3, pages 50-55.

⁵ Timme, Stephen G. and Peter C. Eisemann, "On the Use of Consensus Forecasts of Growth in the Constant Growth Model: The Case of Electric Utilities," *Financial Management*, Winter 1989, pp. 23-35.

1 when contemplating an investment in a common stock, very
2 frequently review reputable analysts' forecasts. Such
3 information, available to them at the time they
4 contemplate investing, will influence their decision to
5 invest.

6
7 **Q.** In developing your DCF analysis, did you also review
8 historical common stock earnings and dividend
9 information?

10
11 **A.** Yes. For a historical perspective, I also reviewed the
12 common stock earnings and dividend history of the
13 companies studied. As I stated previously, for
14 analytical purposes and to enhance the reliability of my
15 DCF analysis, I relied principally on forecasted common
16 stock earnings in my DCF analysis.

17
18 **Q.** What did your review of the growth rates of common stock
19 earnings and dividend histories show?

20
21 **A.** The most significant observation was that TECO Energy's
22 dividends and earnings both declined significantly, i.e.,
23 11 percent, over the previous five years. Also, the
24 financial decline of TECO Energy reinforced my
25 methodological decision to use the comparable companies

1 as proxies for Tampa Electric in this analysis.
2 Consequently, I focused my analysis to determine a
3 recommended allowed return for Tampa Electric primarily
4 on the results of the analysis of the comparable
5 companies. Also, in general, for these utilities the
6 earnings per share growth rates are higher than the
7 dividend growth rates, probably because of other factors
8 influencing the dividend decisions. I have shown these
9 comparative dividend and earnings per share growth rates
10 in Document No. 13 of my exhibit.

11
12 **Q.** Why did you state that other factors probably affected
13 the relationship between the earnings per share and the
14 dividend growth rates?

15
16 **A.** Earnings must be sufficient to support the dividend
17 policies of the companies over time, and many factors
18 influence boards of directors in determining common
19 dividend policies. In the industry generally, the
20 relatively stable dividend growth rates, as compared to
21 common stock earnings, have been observable for many
22 electric utilities for a number of years. As shown
23 previously, the declared dividends of the comparable
24 companies have been relatively stable. Moreover, the
25 relatively stable dividend policies have evolved despite

1 a reduction in the dividend tax rate in 2003. For TECO
2 Energy, the declines in earnings and dividends are
3 especially important, because this means that its market-
4 measured cost of capital may not be a reliable estimate
5 of the cost of capital of Tampa Electric. Again, this
6 confirms my methodological decision to use the comparable
7 electric utilities as proxies for Tampa Electric in my
8 analysis.

9
10 **Q.** What was the source of the common stock price data that
11 you used in your DCF analysis?

12
13 **A.** I used *YAHOO! Finance* as the source of market price
14 information. I obtained current prices for a recent
15 two-week period and the high and low share prices for a
16 52-week period. *YAHOO! Finance* is a widely used internet
17 portal that provides electronic financial information
18 including daily prices. The current market prices
19 reflect current market valuations. The longer time
20 period recognizes the changing market conditions over
21 time and helps determine a reasonable allowed return to
22 be used to develop rates expected to be in place for a
23 period.

24
25 **DCF CALCULATIONS**

1 Q. Please explain the results of your DCF calculations.

2

3 A. In one DCF analysis, I took a relatively long-term
4 outlook by reviewing the combined historical and
5 forecasted dividend growth rates and the common stock
6 prices for the past year. Looking at more current DCF
7 results, I used these longer-term growth rates and market
8 prices from a recent two-week period. The estimate of
9 the cost of common stock equity of TECO Energy is
10 absurdly low in this analysis, and it is an example of
11 the unreliability of the DCF methodology and its
12 potential for misrepresenting the cost of capital, as I
13 discussed previously. The estimated cost of common
14 equity in this instance is less than the current low-risk
15 30-year Treasury Bond rate, which is unrealistic. Even
16 the high DCF results for the comparable companies of 9.73
17 percent and 10.21 percent in current markets are probably
18 not representative of the current market conditions. I
19 illustrate the results of these DCF calculations using
20 the two different price series in Document No. 14 and
21 Document No. 15 of my exhibit).

22

23 Q. You mentioned that earnings per share growth is likely to
24 be a more reliable estimate of the cost of common equity
25 for Tampa Electric. What were the results of your

1 analysis using earnings per share growth rates?

2

3 **A.** To take a longer-term view of the earnings per share
4 growth, I combined the historical earnings per share
5 growth and the forecasted earnings per share growth.
6 These DCF results are somewhat higher although the very
7 low historical growth has affected the longer period
8 growth rates. For the current prices, these DCF
9 estimates are 10.64 percent for the average of the
10 comparable companies. The average high-end estimate for
11 the comparable companies is 11.12 percent using the
12 longer price time series. I have illustrated these
13 results in Document No. 16 and Document No. 17 of my
14 exhibit.

15

16 **Q.** When you discussed the problems with the DCF analysis and
17 findings reported in the academic literature you pointed
18 out the reliance of investors on analysts' forecasts.
19 What were the results of your DCF analysis using
20 financial analysts' forecasted growth rates?

21

22 **A.** Recognizing that the comparable companies are proxies for
23 Tampa Electric and are representative of the returns on
24 common equity over time, I noted the wide range of DCF
25 results using forecasted earnings. Using the current

1 price series, the higher end of the cost of capital was
2 12.80, which is in the middle of the current expected
3 earnings of the group of comparable companies. Using
4 prices over a longer period, the higher end of the DCF
5 results for the comparable companies was 13.27 percent.
6 Document No. 18 and Document No. 19 of my exhibit show
7 these results.

8
9 **CAPITAL ASSET PRICING MODEL**

10 **Q.** You said you also used the Capital Asset Pricing Model in
11 your analysis. What is the Capital Asset Pricing Model?

12
13 **A.** The Capital Asset Pricing Model ("CAPM") is a risk
14 premium method, which means that it is a method for
15 measuring the risk differential, or premium, between a
16 given investment and the market as a whole. It
17 recognizes an investor's ability to diversify his
18 portfolio by combining securities of various risks into
19 that portfolio, and through diversification of
20 investments, reducing the investor's total risk.
21 However, some risk is non-diversifiable, e.g., market
22 risk, and investors remain exposed to that risk. The
23 theoretical expression of the CAPM is:

24
$$K = R_F + \beta (R_M - R_F)$$

25

1 Where: K = the required return.
2 R_F = the risk-free rate.
3 R_M = the required overall market return; and
4 β = beta, a measure of a given security's risk
5 relative to that of the overall market.
6

7 To elaborate on these definitions, the risk free rate is
8 the known benchmark rate of a particular security.
9 Analysts may use a variety of rates, such as rates of
10 Treasury securities and corporate bonds, for this
11 benchmark rate. The overall market return is the return
12 on all of the investment alternatives available to the
13 investor that investors may combine into a portfolio.
14 The beta represents the relative volatility of the
15 analyzed security to the market return. In this above
16 expression, the value of market risk is the differential
17 between the market return and the "risk-free" rate. By
18 estimating the risk differential between an individual
19 security and the market as a whole, an analyst can
20 measure the relative cost of that security compared to
21 the market as a whole.
22

23 **Q.** What are the notable strengths of the CAPM method?
24

25 **A.** The CAPM is a risk premium based method that typically

1 provides a longer-term perspective of capital costs than
2 more market sensitive methods such as the DCF. The CAPM
3 relates current debt costs to the cost of common stock by
4 linking the incremental cost of capital of an individual
5 company with the risk differential between that company
6 and the market as a whole. Although it is a more general
7 calculation than the DCF, it is a valuable tool for
8 assessing the general level of the cost of a security.
9 Since, the DCF estimates are more sensitive to changes in
10 market prices and earnings, and hence, are more volatile
11 than the CAPM estimates, I have used the CAPM as a stable
12 benchmark of the reasonable cost of common stock of the
13 studied companies. The CAPM will also typically produce
14 relatively similar results for companies in the same
15 industry, whereas the DCF method may produce wide-ranging
16 calculations even among companies in the same industry.

17
18 **Q.** Does the CAPM have problems that may be important when
19 applying it in a ratemaking proceeding?

20
21 **A.** Yes. The CAPM results are very sensitive to a company's
22 beta. The beta is a single-dimension, market-volatility-
23 over-time, measure of risk. For this reason, the CAPM
24 cannot account for any risks not included as measures of
25 market volatility, and may not identify significant

1 market risks to investors. It may also understate or
2 overstate the cost of capital. Most utilities have betas
3 less than one, and a number of analysts have shown that
4 the CAPM underestimates the cost of capital of companies
5 with betas less than one. This is obviously important
6 when one uses the CAPM to estimate the cost of capital in
7 a rate proceeding because utilities generally have betas
8 less than one. The *Value Line* betas for the comparable
9 electric utilities range between 0.75 and 0.90.
10 Consequently, the CAPM results in this analysis are
11 likely to underestimate the cost of common stock equity
12 of each of the comparable electric utilities. In
13 addition, the academic literature has shown that the
14 standard CAPM underestimates the cost of capital of
15 smaller companies, and this underestimation of capital
16 costs may require an adjustment.

17
18 **Q.** Can you cite sources in the academic literature that
19 recognize that the CAPM method underestimates the cost of
20 capital of smaller companies?

21
22 **A.** Yes. For at least two decades, various authors have
23 reached this conclusion and together they reveal the
24 empirical consistency of this finding. For example, R.
25 W. Banz⁶ and M. R. Reinganum⁷, in the 1980s, pointed out

⁶ Banz, R.W., "The Relationship Between Return and Market Value of Common Stock," *Journal of Financial Economics*, March 1981, pp. 3-18.

1 the size bias resulting in an under estimate of the cost
2 of capital of smaller firms. Reinganum examined the
3 relationship between the size of the firm and its price-
4 earnings ratio. He found that small firms experienced
5 average returns greater than those of large firms that
6 had equivalent risk as measured by the beta. Of course,
7 the beta is the distinguishing measure of risk in the
8 CAPM. Banz confirmed that beta does not explain all of
9 the returns associated with smaller companies; hence, the
10 CAPM would understate their costs of common equity. In
11 the same time frame, Fama and French confirmed that the
12 Banz analysis consistently rejected the central CAPM
13 hypothesis that beta sufficed to explain the expected
14 return of investors.⁸

15
16 **Q.** What did you mean when you said that the CAPM method
17 requires an adjustment?

18
19 **A.** Although repeated studies showed that the CAPM method
20 possesses a bias that understates the expected returns of
21 small companies, this remained only an empirical
22 observation without a clear remedy. However, Ibbotson
23 Associates, which is the common source of data for the
24 risk premium used in CAPM analyses, has developed an
25 adjustment for this bias. Ibbotson Associates discusses

⁷ Reinganum, M. R., "Misspecification of Capital Asset Pricing: Empirical Anomalies Based on Earnings, Yields, and Market Values," *Journal of Financial Economics*, March 1981, pp. 19-46.

⁸ Fama, Eugene F., and Kenneth R. French, "The CAPM is Wanted, Dead or Alive," *The Journal of Finance*, Vol. LI, No. 5, pp. 1947-1958.

1 the problem as follows:

2 "One of the most remarkable discoveries of
3 modern finance is that of the relationship
4 between firm size and return. The relationship
5 cuts across the entire size spectrum but is
6 most evident among smaller companies, which
7 have higher returns on average than larger
8 ones. Many studies have looked at the effect
9 of firm size on return."⁹

10

11 To account for this empirical bias against smaller
12 companies, Ibbotson Associates has prescribed
13 quantitative adjustments to the CAPM. It publishes this
14 in the same data source used by many analysts to estimate
15 the risk premium in their CAPM analyses.

16

17 **Q.** Did you apply the adjustment recommended by Ibbotson
18 Associates in your analysis?

19

20 **A.** Yes. In my CAPM analysis, I followed the method
21 recommended by Ibbotson Associates to compensate for this
22 inherent data bias.

23

24 **Q.** Does this size bias of the CAPM apply to the companies in
25 your analysis?

⁹ Chapter 7: Firm Size and Return, "Ibbotson Associates' Stocks, Bonds, Bills, and Inflation: 2008 Yearbook Valuation Edition," edited by James Harrington, p. 129.

1 **A.** Yes. Using the size criteria recommended by Ibbotson all
2 of the comparable companies in my analysis were subject
3 to the CAPM size bias.

4
5 **Q.** Does the size bias adjustment for the CAPM measured by
6 Ibbotson apply to regulated utilities?

7
8 **A.** Yes. Ibbotson calculated a measured adjustment
9 specifically for traditional regulated utilities. In
10 fact, the illustrative, example calculation presented by
11 Ibbotson used an electric utility to demonstrate the
12 correct manner to apply the size adjustment.

13
14 **Q.** To your knowledge, have any regulatory commissions
15 accepted this size adjustment to the CAPM in rate
16 proceedings when determining the cost of common equity?

17
18 **A.** Yes. I know of at least one instance where a commission
19 recognized the adjustment to the CAPM proposed by
20 Ibbotson. The Minnesota Public Utilities Commission has
21 done so in an Interstate Power and Light Company case.

22 The Commission observed:

23 "...the Commission concurs with the
24 Administrative Law Judge in his conclusion
25 that, whatever the merits and applicability of

1 the Ibbotson study, for purposes of this case,
2 it is reasonable to accept its principal
3 conclusion - that size of a firm is a factor in
4 determining risk and return".¹⁰
5

6 **Q.** Can you explain more fully the CAPM methodology that you
7 used in your analysis?
8

9 **A.** I applied two different, but complimentary, approaches to
10 estimate a CAPM cost of capital of Tampa Electric. One
11 of these methods examines the historical risk premium of
12 common stock over high grade corporate bonds. The other
13 integrates the risk premium of common stocks to long-term
14 government bonds in recent markets. This second method
15 requires an adjustment for the bias due to company size
16 that I mentioned previously. The financial literature
17 has recognized this bias as an empirical problem for a
18 long time, but correcting for this bias is a recent
19 analytical development.
20

21 **Q.** One of the CAPM methods that you developed used high
22 grade government bonds as representative of the market
23 rates. Why did you use this method?
24

25 **A.** The Federal Reserve uses short-term Treasuries as a

¹⁰ In the Matter of the Petition of Interstate Power and Light Company for Authority to Increase its Electric Rates in Minnesota, Docket No. E-001/GR-03-767, p. 12.

1 monetary policy vehicle, and the government market
2 actions preclude an accurate, unbiased measurement of
3 market valuations. The government securities are subject
4 to the risk of changing Fed policies. The government
5 securities also have been directly influenced by the
6 "flight-to-quality" in the current volatile markets.
7 Corporate bonds are a step removed from these direct
8 federal policy influences and more representative of
9 market-measured, benchmark measures for a risk premium
10 analysis.

11
12 **Q.** Does the decline in earnings per share and declared
13 dividends that you noted previously affect the CAPM in
14 the same way that it affects the DCF analysis?

15
16 **A.** No. The decline in earnings and dividends directly
17 influence the mathematical DCF of the cost of capital.
18 The decrease in common stock earnings and dividends will
19 not affect the CAPM calculations in the same direct way.
20 The CAPM has longer-term, risk premium perspective.

21
22 **Q.** What approaches to the CAPM did you use?

23
24 **A.** As I stated previously, I used two different CAPM
25 analyses based on slightly different assumptions. These

1 two methods provide comparative long-term calculations.
2 They provide complementary CAPM analyses and stable
3 benchmarks for comparison with the more volatile DCF
4 analysis. One of these methods recognized the risk
5 associated with size of company in a rather traditional
6 CAPM methodology, and I applied the compensation method
7 recommended by Ibbotson Associates. The other method
8 uses historical market relationships to reveal a risk
9 premium that I use in another CAPM analysis.
10

11 **Q.** How did you calculate the estimated cost of common equity
12 using the more traditional CAPM method?
13

14 **A.** In this more traditional method, I used the risk premium
15 of common stocks and the "risk free rate" of 20-year
16 Treasury bonds in current markets as reported by the
17 Federal Reserve. I used the company betas reported by
18 *Value Line* to calculate the "Adjusted Equity Risk
19 Premium". As this method requires an adjustment for the
20 size bias that I described earlier, I applied the
21 appropriate adjustment recommended by Ibbotson and
22 Associates. The sum of these results is the estimated
23 cost of common equity for the comparable electric
24 utilities. Using this method produced an average CAPM
25 result of 11.24 percent for the comparable electric

1 utilities. I have illustrated these results in Document
2 No. 20 of my exhibit.

3
4 **Q.** You said that you also developed a CAPM analysis that was
5 based on historical market relationships. What did this
6 method show?

7
8 **A.** The second CAPM method is a method that does not require
9 a separate recognition of the size bias because it
10 embodies the historical relationship between common
11 equity and debt. In this analysis, I used the long-term
12 Aaa corporate bond rates as reported by the Federal
13 Reserve and an arithmetic mean of the returns on Ibbotson
14 Associates' small and large company stocks to estimate
15 the historical market returns. From this relationship, I
16 calculated the differential as the historical market risk
17 premium. Again, I used the betas for the respective
18 companies as reported by *Value Line* to estimate the
19 "Adjusted Risk Premium". Applying this method, the
20 average CAPM estimate for the comparable electric
21 utilities was 12.42 percent. I calculate and illustrate
22 these results in Document No. 21 of my exhibit.

23
24 **Q.** Please summarize the results from your DCF and CAPM
25 analyses.

1 **A.** As I noted, the comparable companies' DCF results are
2 very relevant, and those cover a wide range from 11.12
3 percent to 13.27 percent. The CAPM results are 11.24
4 percent and 12.42 percent for the comparable electric
5 utilities. I show a summary of the relevant DCF and CAPM
6 results in Document No. 22 of my exhibit.

7

8 **RECOMMENDED ALLOWED RETURN**

9 **Q.** Please identify some of the more significant factors to
10 consider in recommending an allowed return for Tampa
11 Electric in this proceeding.

12

13 **A.** The turmoil in the debt and equity markets, especially in
14 recent months, is a significant influence on the current
15 cost of common equity. Although the Federal Reserve has
16 moved aggressively to make credit available to avoid a
17 more serious economic slow down and a financial collapse,
18 the threat of inflation has kept long-term rates from
19 declining, and most forecasters expect long-term rates to
20 increase. Of course, long-term interest rates are the
21 most relevant competitive rates for allowed returns of
22 any regulated utility, including Tampa Electric. Rising
23 long-term corporate rates are an important background for
24 setting an allowed return in this proceeding.

25

1 As representative of current market returns, the
2 comparable companies have current expected returns on
3 common equity of 12.2 percent, and this is an important
4 standard in the current, volatile markets. The most
5 relevant DCF and CAPM results range from 11.12 percent to
6 13.27 percent in these markets. The inflationary and
7 increasing interest rate expectations and the market
8 volatility suggest that a return toward the center of
9 these wide-ranging results is appropriate. The current,
10 competitive market returns on common equity of the
11 comparable companies also indicate this is prudent.

12
13 **Q.** What rate of return on common equity are you recommending
14 for Tampa Electric in this proceeding?

15
16 **A.** For ratemaking purposes, I am recommending an allowed
17 return on common equity for Tampa Electric of 12.00
18 percent.

19
20 **Q.** What return on total capital are you recommending for
21 Tampa Electric in this proceeding?

22
23 **A.** Based on the relevant capital structure, the cost of
24 long-term and short-term debt, and my recommended allowed
25 return, the total cost of capital appropriate for this

1 proceeding is 8.82 percent. I have illustrated the
2 calculation of this recommended allowed total return on
3 Document No. 23 of my exhibit.
4

5 **INTEREST COVERAGE RATIOS**

6 **Q.** How did you verify that your recommended allowed return
7 on common equity for Tampa Electric is sufficient?
8

9 **A.** I calculated the After-Tax Interest Coverage ratio at my
10 recommended allowed return and compared that coverage to
11 the after tax coverages of the comparable companies. In
12 this way, I could determine if my recommended allowed
13 return is reasonable.
14

15 **Q.** What was the result of your analysis of the after-tax
16 interest coverage ratios of Tampa Electric and the
17 comparable electric utilities?
18

19 **A.** As Document No. 24 of my exhibit, shows Tampa Electric's
20 After-Tax Interest coverage is 3.14 times at my
21 recommended allowed return. By comparison, the average
22 coverages of the comparable electric utilities range from
23 2.27 times to 4.04 times in the current markets. This
24 coverage similarity confirms that my recommended allowed
25 return of 12.00 percent is reasonable in the current

1 volatile markets.

2

3 **Q.** Please summarize your findings and recommendations in
4 this matter.

5

6 **A.** After recognizing a wide divergence of returns of
7 electric utilities comparable to Tampa Electric plus
8 measures of the estimated cost of capital, I concluded
9 that an allowed return of 12.00 percent is appropriate
10 for Tampa Electric at this time. To determine this
11 return I studied the recent volatile credit and equities
12 markets, a number of current financial statistics,
13 current electric utilities earnings and market-based
14 measures of capital costs.

15

16 For my analysis of the cost of capital of Tampa Electric,
17 I considered the appropriate capital structure for this
18 proceeding. The critically important common equity ratio
19 as used for ratemaking purposes is 50.21 percent. The
20 long-term debt ratio is 38.22 percent. Tampa Electric
21 has estimated that its cost of long term debt is 6.80
22 percent, the cost of short-term debt is 4.63 percent, the
23 cost for customer deposits is 6.07 percent and for tax
24 credits 9.75 percent.

25

1 The volatile debt and equity markets are important
2 factors affecting the market currently, and some of the
3 market consequences are yet unclear. For example, the
4 Federal Reserve has aggressively enhanced credit
5 availability, forcing down short-term interest rates, but
6 the relevant long-term rates continue to increase.

7
8 The comparable companies, as representative of healthy
9 electric utilities, are significant standards for Tampa
10 Electric in this proceeding. On average, the comparable
11 companies have expected common equity returns of 12.2
12 percent in 2008. For market-based measures of the cost
13 of common stock, I used Discounted Cash Flow and Capital
14 Asset Pricing Model analyses and applied them to the
15 common stock of each of the comparable companies. The
16 most relevant DCF results for the comparable companies
17 are 11.12 percent and 13.27 percent. Even the more
18 stable CAPM estimates covered a wide range from 11.24
19 percent to 12.42 percent for the average of the
20 comparable companies. The inflationary and increasing
21 interest rate expectations and the market volatility
22 suggest that a return close to center of these market-
23 based results is appropriate at this time. The current,
24 competitive market returns on common equity of the
25 comparable companies also indicate this is prudent. I

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concluded that an allowed return on common equity of 12.00 percent is appropriate for Tampa Electric in this proceeding. The associated total cost of capital is 8.82 percent.

Finally, I verified that my recommended allowed return is appropriate by comparing Tampa Electric's After-Tax Interest Coverage at my recommended range to the coverages of the comparable companies. This comparison verifies that my recommended allowed return is reasonable in current markets.

Q. Does this conclude your direct testimony?

A. Yes, it does.

DOCKET NO. 080317-EI

WITNESS: MURRY

EXHIBIT

OF

DR. DONALD A. MURRY, PH.D.

ON BEHALF OF TAMPA ELECTRIC COMPANY

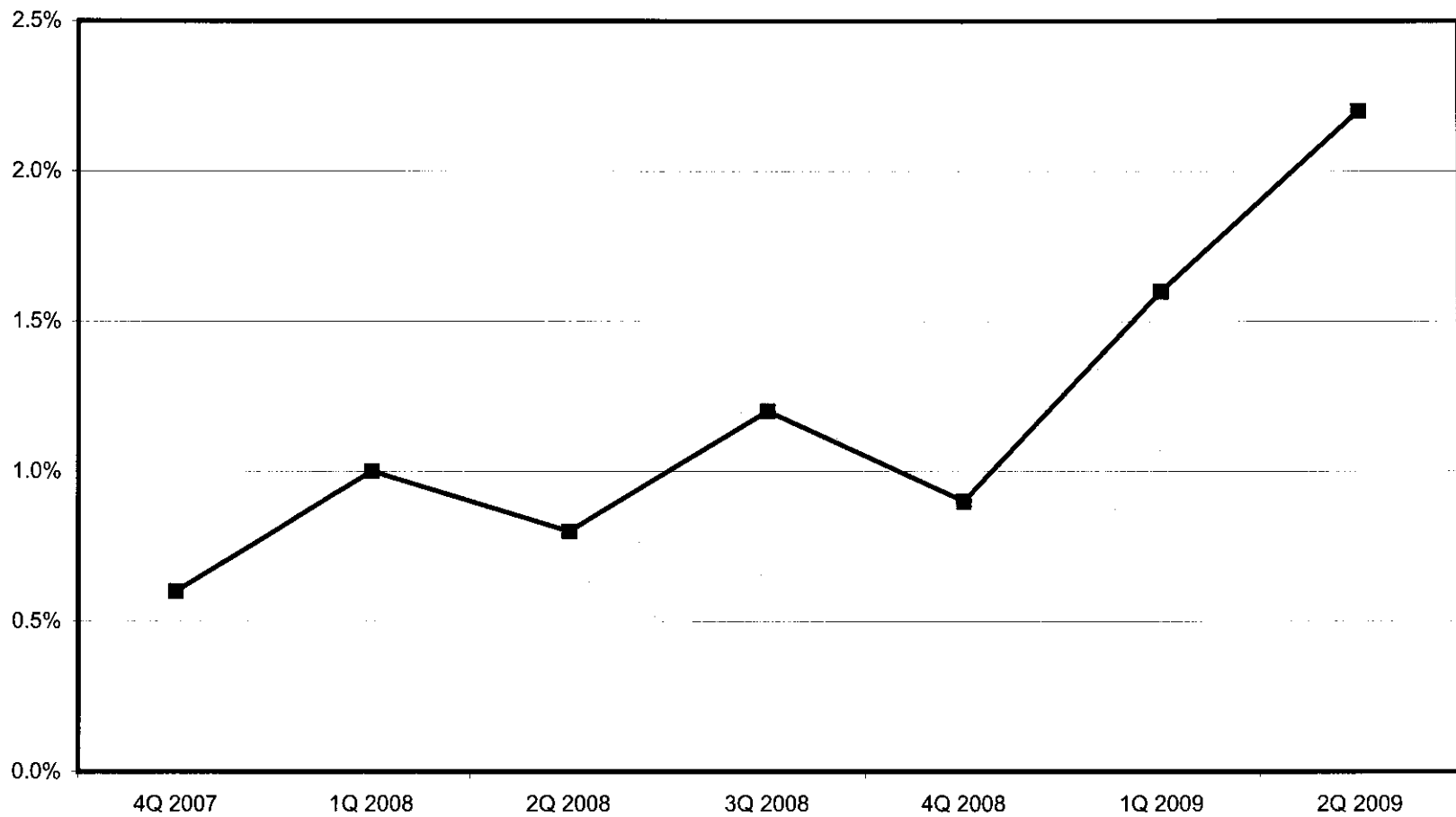
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**Tampa Electric Company
Real GDP Consensus Forecast**

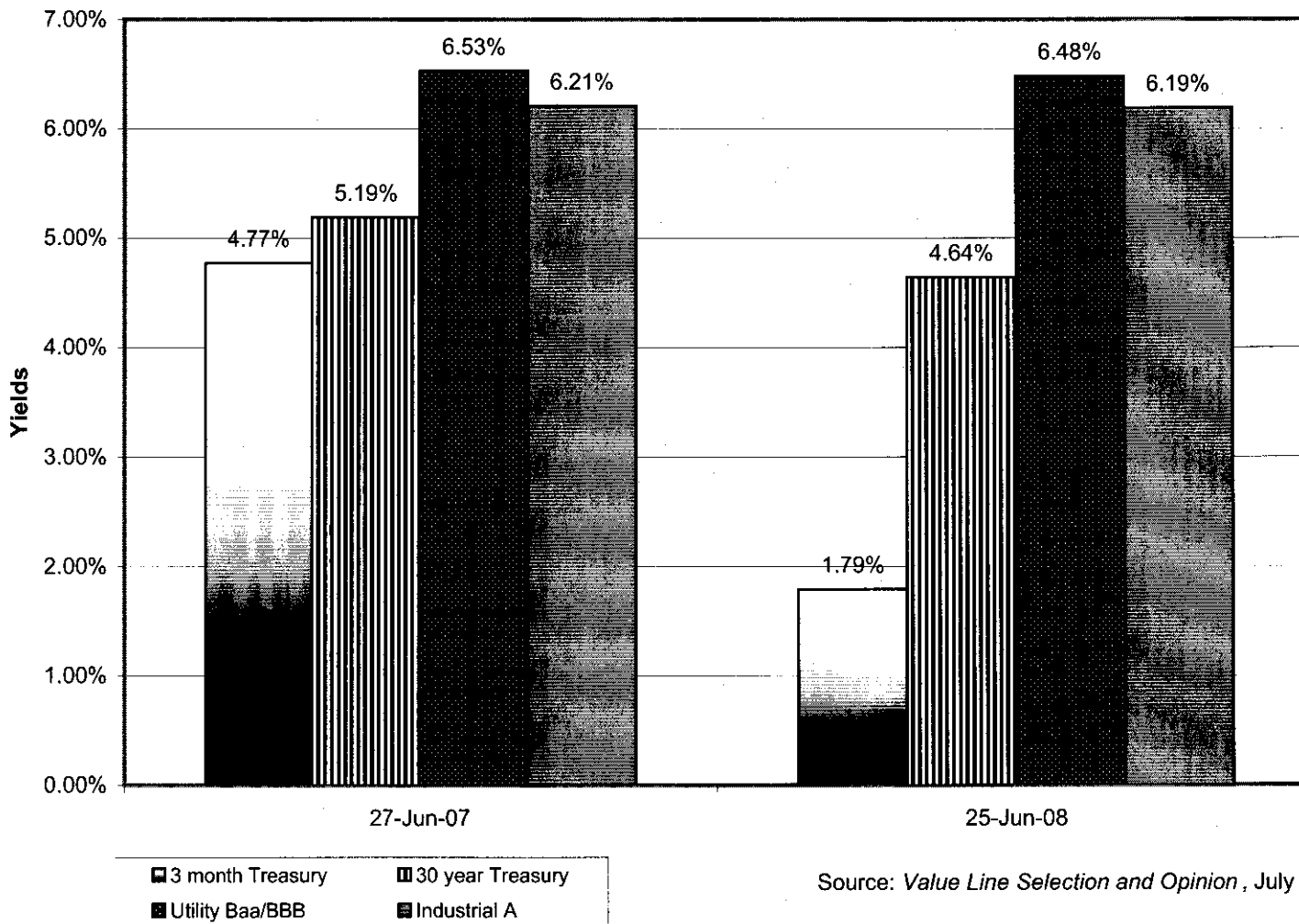
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Source: Blue Chip Financial Forecasts, July 1, 2008

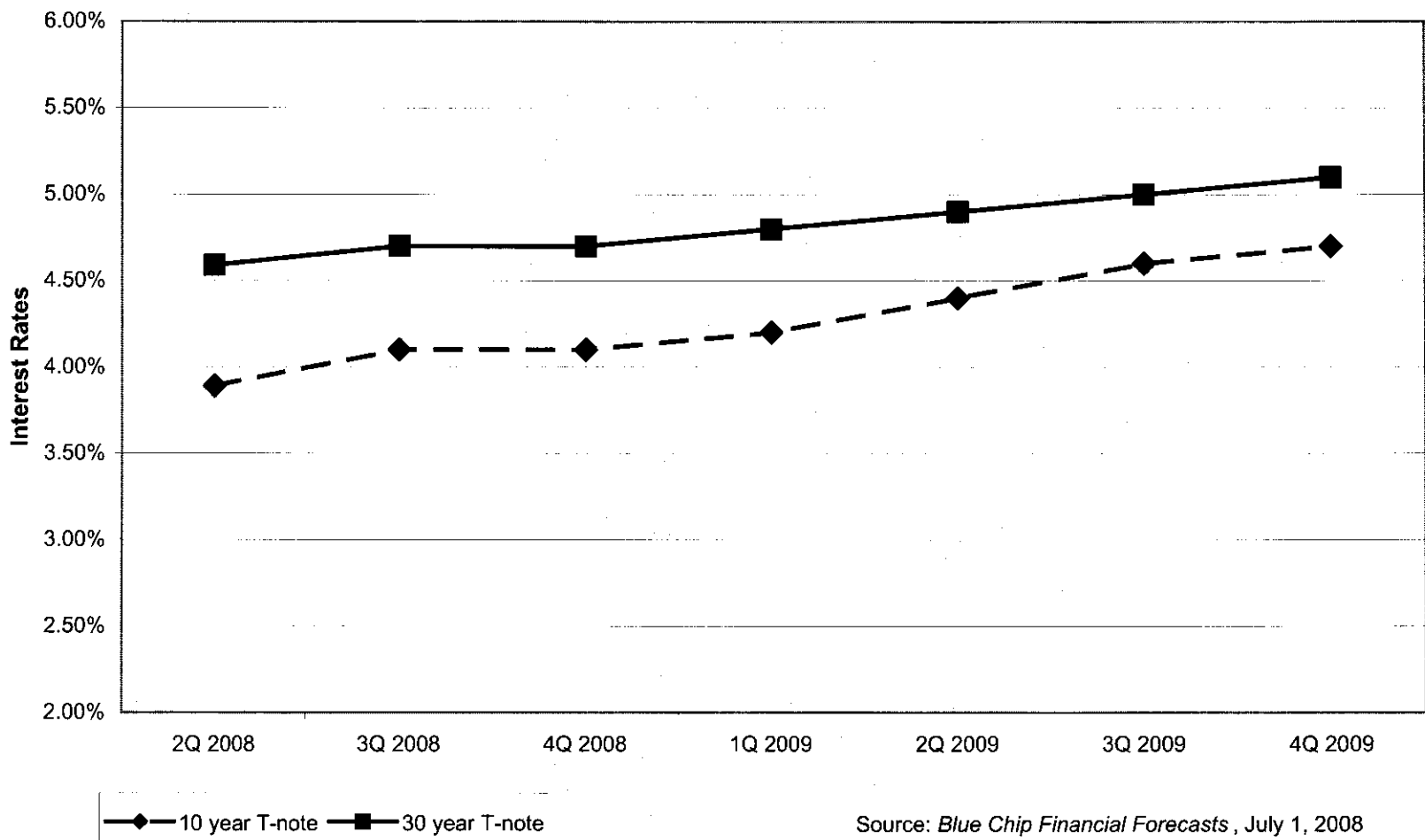
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**Tampa Electric Company
Comparison of Selected Bond Yields**



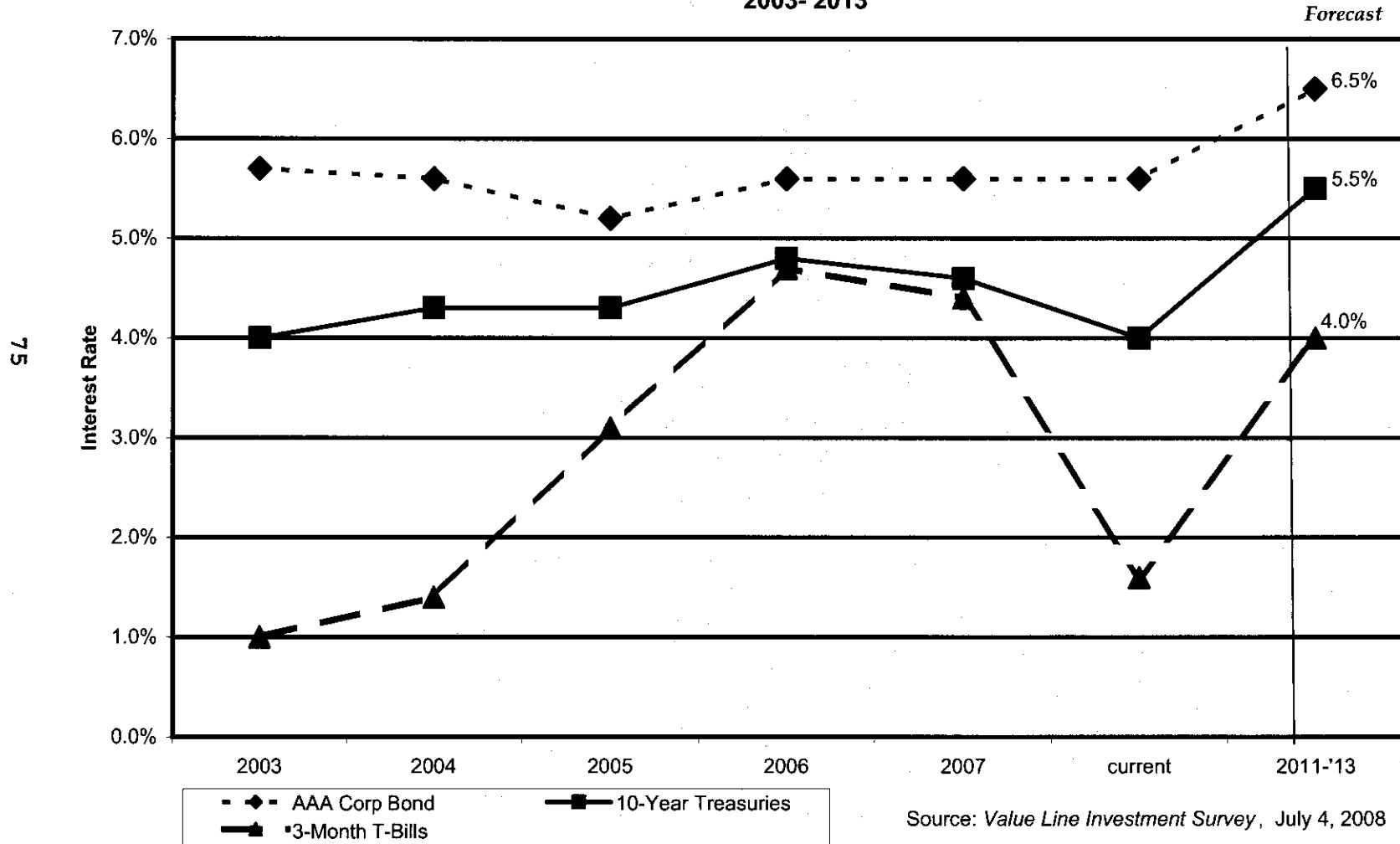
Source: Value Line Selection and Opinion, July 4, 2008

**Tampa Electric Company
Blue Chip Treasury Forecasts**



Source: Blue Chip Financial Forecasts, July 1, 2008

**Tampa Electric Company
Value Line Interest Rates and Forecasts
2003- 2013**



Tampa Electric Company
Proposed Capital Structure
As December 31, 2009

Item	Amount in Thousands	Share
Long-Term Debt	\$1,397,566	38.22%
Short-Term Debt	\$8,002	0.22%
Customer Deposits	\$103,724	2.84%
Tax Credits - Weighted Cost	\$8,780	0.24%
Deferred Income Taxes	\$302,744	8.28%
Common Equity	\$1,835,985	50.21%
Totals	\$3,656,801	100.00%

Source: Tampa Electric Company Work Papers

Tampa Electric Company
 Comparable Electric Companies
 Comparison of Common Equity Ratios

Company	2004	2005	2006	2007	2008E	Five Year Average	Forecast '11-'13
TECO Energy, Inc.	24.9%	30.0%	35.0%	39.0%	38.5%	33.5%	42.0%
DPL, Inc.	32.8%	37.9%	31.1%	35.8%	37.5%	35.0%	46.0%
Northeast Utilities	34.0%	35.1%	39.7%	48.8%	44.0%	40.3%	47.0%
Nstar	40.2%	38.6%	39.7%	40.1%	39.5%	39.6%	49.5%
OGE Energy Corp.	47.4%	50.5%	54.4%	55.6%	51.5%	51.9%	49.5%
Pepco Holdings	39.6%	42.3%	45.1%	45.9%	46.0%	43.8%	47.0%
Pinnacle West	53.3%	56.8%	51.6%	53.0%	51.5%	53.2%	50.0%
SCANA Corp.	42.6%	46.6%	47.2%	49.7%	47.5%	46.7%	45.5%
Wisconsin Energy	43.3%	46.7%	48.2%	49.2%	48.0%	47.1%	51.0%
Comparable Companies' Averages	41.7%	44.3%	44.6%	47.3%	45.7%	44.7%	48.2%

Source: *Value Line Investment Survey*

Tampa Electric Company

Comparable Electric Companies

Comparison of Financial Strength and Bond Ratings

Company	Value Line Financial Strength	S&P Rating
TECO Energy, Inc.	B	BB+
Tampa Electric		BBB-
DPL, Inc.	B	BBB
Northeast Utilities	B+	BBB
Nstar	A	A+
OGE Energy Corp.	A	BBB+
Pepco Holdings	B	BBB
Pinnacle West	A	BBB-
SCANA Corp.	A	A-
Wisconsin Energy	B++	BBB+

Sources: *Value Line Investment Survey*
www.standardandpoors.com

Tampa Electric Company

Comparable Electric Companies

Comparison of Value Line's Safety and Timeliness Rank

	Safety Rank	Timeliness Rank
TECO Energy, Inc.	3	3
DPL, Inc.	3	3
Northeast Utilities	3	3
Nstar	1	3
OGE Energy Corp.	2	3
Peppo Holdings	3	3
Pinnacle West	1	3
SCANA Corp.	2	3
Wisconsin Energy	2	3
Comparable Companies' Average	2.1	3.0

Source: *Value Line Investment Survey*

Tampa Electric Company
 Comparable Electric Companies
 Comparison of Returns on Common Equity

	2004	2005	2006	2007	2008E	Five Year Average
TECO Energy, Inc.	10.7%	13.3%	14.1%	13.2%	10.0%	12.3%
DPL, Inc.	20.7%	11.9%	17.5%	24.2%	24.0%	19.7%
Northeast Utilities	5.1%	5.1%	4.3%	8.4%	9.0%	6.4%
Nstar	13.1%	12.8%	13.1%	13.0%	13.5%	13.1%
OGE Energy Corp.	12.3%	12.1%	14.1%	14.5%	13.0%	13.2%
Pepco Holdings	7.7%	7.7%	7.0%	7.4%	9.5%	7.9%
Pinnacle West	8.0%	6.5%	9.2%	8.5%	7.0%	7.8%
SCANA Corp.	12.2%	11.8%	10.5%	10.8%	11.5%	11.4%
Wisconsin Energy	8.8%	11.3%	10.8%	10.8%	10.0%	10.3%
Comparable Companies' Averages	11.0%	9.9%	10.8%	12.2%	12.2%	11.2%

Source: *Value Line Investment Survey*

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Tampa Electric Company
 Comparable Electric Companies
 Comparison of Declared Dividends

	2004	2005	2006	2007	2008E
TECO Energy, Inc.	0.76	0.76	0.76	0.78	0.80
DPL, Inc.	0.96	0.96	1.00	1.04	1.10
Northeast Utilities	0.63	0.68	0.73	0.78	0.83
Nstar	1.13	0.87	1.54	1.33	1.43
OGE Energy Corp.	1.33	1.33	1.34	1.37	1.40
Pepco Holdings	1.00	1.00	1.04	1.04	1.12
Pinnacle West	1.83	1.93	2.03	2.10	2.12
SCANA Corp.	1.46	1.56	1.68	1.76	1.84
Wisconsin Energy	0.83	0.88	0.92	1.00	1.08
Comparable Companies' Averages	1.15	1.15	1.29	1.30	1.37

Source: *Value Line Investment Survey*

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Tampa Electric Company
 Comparable Electric Companies
 Comparison of Dividend Payout Ratios

	2004	2005	2006	2007	2008E	Five Year Average
TECO Energy, Inc.	106%	75%	65%	61%	82%	77.8%
DPL, Inc.	53%	93%	90%	53%	55%	68.8%
Northeast Utilities	70%	72%	94%	50%	47%	66.6%
Nstar	64%	64%	63%	63%	64%	63.6%
OGE Energy Corp.	73%	72%	53%	51%	56%	61.0%
Pepco Holdings	68%	69%	78%	68%	60%	68.6%
Pinnacle West	71%	85%	63%	70%	85%	74.8%
SCANA Corp.	55%	56%	65%	64%	61%	60.2%
Wisconsin Energy	45%	34%	35%	35%	38%	37.4%
Comparable Companies' Averages	62.4%	68.1%	67.6%	56.8%	58.3%	62.6%

Source: *Value Line Investment Survey*

Tampa Electric Company
 Comparable Electric Companies
 Comparison of Average Annual Price-Earnings Ratios

Company	2004	2005	2006	2007	Current	Five Year Average
TECO Energy, Inc.	19.3	17.1	13.8	13.3	20.5	16.8
DPL, Inc.	11.2	26.9	26.6	16.0	12.7	18.7
Northeast Utilities	20.8	19.8	27.1	18.7	14.6	20.2
Nstar	14.0	15.5	15.9	16.6	14.9	15.4
OGE Energy Corp.	14.1	14.9	13.7	13.8	11.3	13.6
Pepeco Holdings	13.6	14.9	18.1	18.2	12.9	15.5
Pinnacle West	15.8	19.2	13.7	14.9	14.2	15.6
SCANA Corp.	13.6	14.4	15.4	15.0	13.4	14.4
Wisconsin Energy	17.5	14.5	16.0	16.5	15.6	16.0
Comparable Companies' Averages	15.1	17.5	18.3	16.2	13.7	16.2

Source: *Value Line Investment Survey*

Tampa Electric Company

Comparable Electric Companies

Discounted Cash Flow Growth Rate Summary

	Value Line						Projections		Yahoo!
	2003 TO 2012 Estimate			Five Year Historical			Value Line		
	EPS	DPS	Book Value	EPS	DPS	Book Value	EPS	DPS	
TECO Energy Inc.	6.4%	-1.5%	2.0%	-11.0%	-11.0%	-9.0%	4.5%	3.0%	5.9%
DPL Inc.	7.7%	3.9%	6.1%	-1.0%	1.0%	2.5%	11.0%	5.0%	11.2%
Northeast Utilities	9.3%	6.6%	4.3%	8.5%	10.0%	2.5%	13.5%	6.0%	7.8%
Nstar	6.3%	6.0%	5.5%	3.5%	3.5%	4.0%	7.5%	7.0%	5.8%
OGE Energy Corp.	6.9%	1.7%	6.9%	8.5%	0.0%	5.5%	4.5%	2.5%	4.0%
Pepeco Holdings	8.1%	9.3%	3.4%	-4.5%	0.0%	1.0%	13.0%	15.0%	11.0%
Pinnacle West	2.0%	4.5%	2.2%	-2.5%	5.5%	3.5%	1.5%	3.5%	4.4%
Scana Corp.	3.7%	4.8%	5.3%	4.0%	6.5%	4.0%	4.5%	4.0%	5.4%
Wisconsin Energy	7.9%	7.9%	6.8%	8.0%	-6.5%	6.0%	9.0%	9.0%	9.7%
Comparable Companies' Averages	6.50%	5.59%	5.08%	3.06%	2.50%	3.63%	8.06%	6.50%	7.42%

Sources:

Value Line Investment Survey

Yahoo! Finance

Tampa Electric Company

Comparable Electric Companies

Dividend Growth Rate DCF Using Current Share Prices

	Share Prices		Current Dividend	Current Yields		2002-04 DPS	2011-13E DPS	Growth Rate	Cost of Capital	
	Low	High		Low	High				Low	High
TECO Energy Inc.	20.19	20.82	0.80	3.84%	3.96%	1.03	0.90	-1.52%	2.32%	2.44%
DPL Inc.	28.02	28.43	1.10	3.87%	3.93%	0.95	1.34	3.94%	7.81%	7.86%
Northeast Utilities	25.86	26.37	0.83	3.15%	3.21%	0.58	1.03	6.59%	9.74%	9.80%
Nstar	33.39	33.86	1.43	4.22%	4.28%	1.10	1.85	5.98%	10.21%	10.27%
OGE Energy Corp.	33.19	33.69	1.40	4.16%	4.22%	1.33	1.55	1.72%	5.87%	5.93%
Pepco Holdings	26.42	26.95	1.12	4.16%	4.24%	0.81	1.80	9.33%	13.48%	13.57%
Pinnacle West	33.24	33.76	2.12	6.28%	6.38%	1.73	2.58	4.54%	10.82%	10.92%
Scana Corp.	39.84	40.60	1.84	4.53%	4.62%	1.38	2.10	4.78%	9.31%	9.39%
Wisconsin Energy	47.59	48.28	1.08	2.24%	2.27%	0.81	1.60	7.86%	10.09%	10.13%
Comparable Companies' Averages	33.44	33.99	1.37	4.07%	4.14%	1.09	1.73	5.59%	9.67%	9.73%

Sources:

Value Line Investment Survey

Yahoo! FINANCE

Tampa Electric Company

Comparable Electric Companies

Dividend Growth Rate DCF Using 52-Week Share Prices

	Share Prices		2008 Dividend	52 Week Yields		2002-04 DPS	2011-13E DPS	Growth Rate	Cost of Capital	
	Low	High		Low	High				Low	High
TECO Energy Inc.	14.48	21.57	0.80	3.71%	5.52%	1.03	0.90	-1.52%	2.19%	4.00%
DPL Inc.	24.38	31.00	1.10	3.55%	4.51%	0.95	1.34	3.94%	7.48%	8.45%
Northeast Utilities	23.96	33.19	0.83	2.50%	3.46%	0.58	1.03	6.59%	9.09%	10.05%
Nstar	29.36	37.00	1.43	3.86%	4.87%	1.10	1.85	5.98%	9.85%	10.85%
OGE Energy Corp.	29.12	38.30	1.40	3.66%	4.81%	1.33	1.55	1.72%	5.37%	6.52%
Pepco Holdings	23.80	30.10	1.12	3.72%	4.71%	0.81	1.80	9.33%	13.05%	14.03%
Pinnacle West	33.13	44.50	2.12	4.76%	6.40%	1.73	2.58	4.54%	9.30%	10.94%
Scana Corp.	32.93	43.73	1.84	4.21%	5.59%	1.38	2.10	4.78%	8.98%	10.36%
Wisconsin Energy	41.06	50.48	1.08	2.14%	2.63%	0.81	1.60	7.86%	10.00%	10.49%
Comparable Companies' Averages	29.72	38.54	1.37	3.55%	4.62%	1.09	1.73	5.59%	9.14%	10.21%

Sources:

Value Line Investment Survey

Yahoo! FINANCE

Tampa Electric Company

Comparable Electric Companies

Earnings Growth Rate DCF Using Current Share Prices

	Share Prices		Current Dividend	Current Yields		2002-04 EPS	2011-13E EPS	Growth Rate	Cost of Capital	
	Low	High		Low	High				Low	High
TECO Energy Inc.	20.19	20.82	0.80	3.84%	3.96%	0.86	1.50	6.38%	10.22%	10.34%
DPL Inc.	28.02	28.43	1.10	3.87%	3.93%	1.21	2.35	7.69%	11.56%	11.61%
Northeast Utilities	25.86	26.37	0.83	3.15%	3.21%	1.08	2.40	9.32%	12.46%	12.53%
Nstar	33.39	33.86	1.43	4.22%	4.28%	1.73	3.00	6.31%	10.53%	10.59%
OGE Energy Corp.	33.19	33.69	1.40	4.16%	4.22%	1.65	3.00	6.89%	11.05%	11.11%
Pepco Holdings	26.42	26.95	1.12	4.16%	4.24%	1.53	3.10	8.14%	12.29%	12.37%
Pinnacle West	33.24	33.76	2.12	6.28%	6.38%	2.54	3.05	2.04%	8.32%	8.42%
Scana Corp.	39.84	40.60	1.84	4.53%	4.62%	2.52	3.50	3.73%	8.26%	8.35%
Wisconsin Energy	47.59	48.28	1.08	2.24%	2.27%	2.14	4.25	7.90%	10.14%	10.17%
Comparable Companies' Averages	33.44	33.99	1.37	4.07%	4.14%	1.80	3.08	6.50%	10.58%	10.64%

Sources:

Value Line Investment Survey

Yahoo! FINANCE

Tampa Electric Company

Comparable Electric Companies

Earnings Growth Rate DCF Using 52-Week Share Prices

	Share Prices		2008 Dividend	52 Week Yields		2002-04 EPS	2011-13E EPS	Growth Rate	Cost of Capital	
	Low	High		Low	High				Low	High
TECO Energy Inc.	14.48	21.57	0.80	3.71%	5.52%	0.86	1.50	6.38%	10.08%	11.90%
DPL Inc.	24.38	31.00	1.10	3.55%	4.51%	1.21	2.35	7.69%	11.24%	12.20%
Northeast Utilities	23.96	33.19	0.83	2.50%	3.46%	1.08	2.40	9.32%	11.82%	12.78%
Nstar	29.36	37.00	1.43	3.86%	4.87%	1.73	3.00	6.31%	10.17%	11.18%
OGE Energy Corp.	29.12	38.30	1.40	3.66%	4.81%	1.65	3.00	6.89%	10.55%	11.70%
Pepco Holdings	23.80	30.10	1.12	3.72%	4.71%	1.53	3.10	8.14%	11.86%	12.84%
Pinnacle West	33.13	44.50	2.12	4.76%	6.40%	2.54	3.05	2.04%	6.80%	8.44%
Scana Corp.	32.93	43.73	1.84	4.21%	5.59%	2.52	3.50	3.73%	7.94%	9.32%
Wisconsin Energy	41.06	50.48	1.08	2.14%	2.63%	2.14	4.25	7.90%	10.04%	10.53%
Comparable Companies' Averages	29.72	38.54	1.37	3.55%	4.62%	1.80	3.08	6.50%	10.05%	11.12%

Sources:

Value Line Investment Survey
Yahoo! FINANCE

Tampa Electric Company

Comparable Electric Companies

Projected Growth Rate DCF Using Current Share Prices

	Share Prices		Current Dividend	Current Yields		EPS Estimates		Cost of Capital	
	Low	High		Low	High	Value Line	Yahoo!	Low	High
TECO Energy Inc.	20.19	20.82	0.80	3.84%	3.96%	4.50%	5.88%	8.34%	9.84%
DPL Inc.	28.02	28.43	1.10	3.87%	3.93%	11.00%	11.20%	14.87%	15.13%
Northeast Utilities	25.86	26.37	0.83	3.15%	3.21%	13.50%	7.80%	10.95%	16.71%
Nstar	33.39	33.86	1.43	4.22%	4.28%	7.50%	5.80%	10.02%	11.78%
OGE Energy Corp.	33.19	33.69	1.40	4.16%	4.22%	4.50%	4.00%	8.16%	8.72%
Pepeco Holdings	26.42	26.95	1.12	4.16%	4.24%	13.00%	11.00%	15.16%	17.24%
Pinnacle West	33.24	33.76	2.12	6.28%	6.38%	1.50%	4.38%	7.78%	10.76%
Scana Corp.	39.84	40.60	1.84	4.53%	4.62%	4.50%	5.40%	9.03%	10.02%
Wisconsin Energy	47.59	48.28	1.08	2.24%	2.27%	9.00%	9.74%	11.24%	12.01%
Comparable Companies' Averages	33.44	33.99	1.37	4.07%	4.14%	8.06%	7.42%	10.90%	12.80%

Sources:

Value Line Investment Survey

Yahoo! FINANCE

Tampa Electric Company

Comparable Electric Companies

Projected Growth Rate DCF Using 52-Week Share Prices

	Share Prices		2008 Dividend	52 Week Yields		EPS Estimates		Cost of Capital	
	Low	High		Low	High	Value Line	Yahoo!	Low	High
TECO Energy Inc.	14.48	21.57	0.80	3.71%	5.52%	4.50%	5.88%	8.21%	11.40%
DPL Inc.	24.38	31.00	1.10	3.55%	4.51%	11.00%	11.20%	14.55%	15.71%
Northeast Utilities	23.96	33.19	0.83	2.50%	3.46%	13.50%	7.80%	10.30%	16.96%
Nstar	29.36	37.00	1.43	3.86%	4.87%	7.50%	5.80%	9.66%	12.37%
OGE Energy Corp.	29.12	38.30	1.40	3.66%	4.81%	4.50%	4.00%	7.66%	9.31%
Pepeco Holdings	23.80	30.10	1.12	3.72%	4.71%	13.00%	11.00%	14.72%	17.71%
Pinnacle West	33.13	44.50	2.12	4.76%	6.40%	1.50%	4.38%	6.26%	10.78%
Scana Corp.	32.93	43.73	1.84	4.21%	5.59%	4.50%	5.40%	8.71%	10.99%
Wisconsin Energy	41.06	50.48	1.08	2.14%	2.63%	9.00%	9.74%	11.14%	12.37%
Comparable Companies' Averages	29.72	38.54	1.37	3.55%	4.62%	8.06%	7.42%	10.38%	13.27%

Sources:

Value Line Investment Survey

Yahoo! FINANCE

Tampa Electric Company

Comparable Electric Companies

Size Adjusted Capital Asset Pricing Model

	Risk Free Return	Beta	Equity Risk Premium	Adjusted Equity Risk Premium	Size Premium	Cost of Equity
TECO Energy Inc.	4.60%	0.95	7.10%	6.75%	0.92%	12.27%
DPL Inc.	4.60%	0.75	7.10%	5.33%	0.92%	10.85%
Northeast Utilities	4.60%	0.75	7.10%	5.33%	0.92%	10.85%
Nstar	4.60%	0.80	7.10%	5.68%	0.92%	11.20%
OGE Energy Corp.	4.60%	0.80	7.10%	5.68%	0.92%	11.20%
Pepco Holdings	4.60%	0.90	7.10%	6.39%	0.92%	11.91%
Pinnacle West	4.60%	0.80	7.10%	5.68%	0.92%	11.20%
Scana Corp.	4.60%	0.85	7.10%	6.04%	0.92%	11.56%
Wisconsin Energy	4.60%	0.80	7.10%	5.68%	0.92%	11.20%
Comparable Companies' Average	4.60%	0.81	7.10%	5.72%	0.92%	11.24%

Sources :
Value Line Investment Survey
 Ibbotson Associates 2008 SBBI Yearbook: Valuation Edition
 Federal Reserve Statistical Release

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Tampa Electric Company

Comparable Electric Companies

Historical Capital Asset Pricing Model

	Market Total Returns	Long-Term Corporate Bonds Return	Risk Premium	Beta	Adjusted Risk Premium	Aaa Corporate Bonds Return	Cost of Equity
TECO Energy Inc.	14.70%	6.20%	8.50%	0.95	8.08%	5.57%	13.65%
DPL Inc.	14.70%	6.20%	8.50%	0.75	6.38%	5.57%	11.95%
Northeast Utilities	14.70%	6.20%	8.50%	0.75	6.38%	5.57%	11.95%
Nstar	14.70%	6.20%	8.50%	0.80	6.80%	5.57%	12.37%
OGE Energy Corp.	14.70%	6.20%	8.50%	0.80	6.80%	5.57%	12.37%
Pepco Holdings	14.70%	6.20%	8.50%	0.90	7.65%	5.57%	13.22%
Pinnacle West	14.70%	6.20%	8.50%	0.80	6.80%	5.57%	12.37%
Scana Corp.	14.70%	6.20%	8.50%	0.85	7.23%	5.57%	12.80%
Wisconsin Energy	14.70%	6.20%	8.50%	0.80	6.80%	5.57%	12.37%
Comparable Companies' Average	14.70%	6.20%	8.50%	0.81	6.85%	5.57%	12.42%

Sources :

Value Line Investment Survey

Ibbotson Associates 2008 SBBI Yearbook: Valuation Edition

Federal Reserve Statistical Release

Tampa Electric Company
Comparable Electric Companies
Summary of Financial Analysis

Method	TECO Energy, Inc.		Comparable Electric Companies	
	Low	High	Low	High
Capital Asset Pricing Model	12.27%	13.65%	11.24%	12.42%
Earnings Growth DCF Analysis	10.08%	11.90%	10.05%	11.12%
Projected Growth DCF Analysis	8.21%	11.40%	10.38%	13.27%

Tampa Electric Company

Proposed Cost of Capital

As December 31, 2009

Item	Amount	Share	Embedded Cost	Weighted Cost
Long-Term Debt	\$1,397,566	38.22%	6.80%	2.60%
Short-Term Debt	\$8,002	0.22%	4.63%	0.01%
Customer Deposits	\$103,724	2.84%	6.07%	0.17%
Tax Credits - Weighted Cost	\$8,780	0.24%	9.75%	0.02%
Deferred Income Taxes	\$302,744	8.28%	0.00%	0.00%
Common Equity	\$1,835,985	50.21%	12.00%	6.02%
Totals	\$3,656,801	100.00%		8.82%

Source: Tampa Electric Company Work Papers

Tampa Electric Company

Comparable Electric Companies

Comparison of After-Tax Times Interest Earned Ratios

Tampa Electric Company	@12.0% ROE	3.14
DPL Inc.		4.04
Northeast Utilities		2.52
Nstar		2.46
OGE Energy		3.15
Pepco Holdings		2.58
Pinnacle West		2.27
Scana Corp.		2.81
Wisconsin Energy		2.56
Comparable Companies' Average		2.80

Source : *Value Line Investment Survey*