STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

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Unitil Energy Systems, Inc.
Docket DE 10-055

Direct Testimony
of
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November 5, 2010

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1   **I.   QUALIFICATIONS**

2   **Q.   PLEASE STATE YOUR NAME, OCCUPATION, AND ADDRESS.**

3   A.   My name is John W. Wilson. I am President of J.W. Wilson & Associates,

4   Inc. Our offices are at 1601 North Kent Street, Suite 1104, Arlington,

5   Virginia, 22209.

6   **Q.   PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND.**

7   A.   I hold a B.S. degree with senior honors and a Masters Degree in Economics

8   from the University of Wisconsin. I have also received a Ph.D. in

9   Economics from Cornell University. My major fields of study were

10   industrial organization and public regulation of business, and my doctoral

11   dissertation was a study of utility pricing and regulation.

12   **Q.   HOW HAVE YOU BEEN EMPLOYED SINCE THAT TIME?**

13   A.   After completing my graduate education I was an assistant professor of

14   economics at the United States Military Academy, West Point, New York.

15   In that capacity, I taught courses in both economics and government.

16   While at West Point, I also served as an economic consultant to the

17   Antitrust Division of the United States Department of Justice.

18   After leaving West Point, I was employed by the Federal Power

19   Commission, first as a staff economist and then as Chief of FPC's Division

1   of Economic Studies. In that capacity, I was involved in regulatory matters

2   involving most phases of FPC regulation of electric utilities and the natural

3   gas industry. Since 1973 I have been employed as an economic consultant

4   by various clients, including federal, state, provincial and local

5   governments, private enterprise and nonprofit organizations. This work has

6   pertained to a wide range of issues concerning public utility regulation,

7   insurance rate regulation, antitrust matters and economic and financial

8   analysis. In 1975 I formed J.W. Wilson & Associates, Inc., a Washington,

9   D.C. corporation.

10   Q.   **WOULD YOU PLEASE DESCRIBE SOME OF YOUR**

11   **ADDITIONAL PROFESSIONAL ACTIVITIES?**

12   A.   I have authored a variety of articles and monographs, including a number of

13   studies dealing with utility regulation and economic policy. I have

14   consulted on regulatory, financial and competitive market matters with the

15   Federal Communications Commission, the National Academy of Sciences,

16   the Ford Foundation, the National Regulatory Research Institute, the

17   Electric Power Research Institute, the U.S. Department of Justice Antitrust

18   Division, the Federal Trade Commission Bureau of Competition, the

19   Commerce Department, the Department of the Interior, the Department of

20   Energy, the Small Business Administration, the Department of Defense, the

21   Tennessee Valley Authority, the Federal Energy Administration, and

1   numerous state and provincial agencies and legislative bodies in the United

2   States and Canada.

3   Previously, I was a member of the Economics Committee of the U.S. Water

4   Resources Council, the FPC Coordinating Representative for the Task

5   Force on Future Financial Requirements for the National Power Survey, the

6   Advisory Committee to the National Association of Insurance

7   Commissioners (NAIC) Task Force on Profitability and Investment

8   Income, and the NAIC's Advisory Committee on Nuclear Risks.

9   In addition, I have testified as an expert witness in court proceedings

10   dealing with competition in the electric power industry and on regulatory

11   matters, including the cost of capital and rate of return, before more than 50

12   Federal and State regulatory bodies throughout the United States and

13   Canada. I have also appeared on numerous occasions as an expert witness

14   at the invitation of U.S. Senate and Congressional Committees dealing with

15   antitrust and regulatory legislation. In addition, I have been retained as an

16   expert on regulatory matters by more than 25 State and Federal regulatory

17   agencies. I have also participated as a speaker, panelist, or moderator in

18   many professional conferences and programs dealing with business

19   regulation, financial issues, economic policy and antitrust matters. I am a

20   member of the American Economic Association and an associate member

21   of the American Bar Association and the ABA's Antitrust, Insurance and

1   Regulatory Law Sections.

2   **II.   OVERVIEW OF TESTIMONY**

3   **Q.   ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS**

4   **PROCEEDING?**

5   A. I am presenting testimony in this proceeding on behalf of the Commission

6   Staff.

7   **Q.   PLEASE SUMMARIZE YOUR TESTIMONY?**

8   A. My testimony in this case deals with Unitil Energy Systems, Inc.'s

9   ("Unitil" or "the Company") requested rate of return.   My analysis

10   concerning Unitil's rate of return focuses primarily on the Company's cost

11   of common equity capital.   I also discuss the Company's cost of debt and

12   proposed pro forma capital structure.

13   While Unitil is requesting a common equity return allowance of 10.7

14   percent, the evidence that I present shows that a more reasonable equity

15   return allowance, under present financial circumstances, would be in the 9.0

16   percent range. Especially in view of the decline in interest rates and other

17   money costs that has occurred in recent years, a 10.7 percent equity return

18   allowance would not be just and reasonable in this case. Also, while I do

19   recommend recognizing the Company's new post-test-year equity and long

1   term debt financing, I do not recommend eliminating all short term debt

2   from the ratemaking capital structure.

3   **Q.   WHAT IS RATE OF RETURN?**

4   A.   Rate of return is often described as the profit, expressed as a percentage of

5   the utility's invested capital (measured as rate base), that the utility is

6   allowed to include in its rates. From an economist's perspective it is not

7   precisely right to call this allowed "profit" because it includes both the cost

8   of debt capital (interest expense) as well as the allowed return on

9   stockholders' equity investment in the company.

10   For example, if a utility has $100 million invested in rate base and this is

11   funded with $50 million of debt, with an average interest of 6%, and $50

12   million of equity, which the Commission has determined requires a return

13   of 10% (cost of equity or "ROE"), the allowed rate of return would be 8%

14   or $8 million annually. This amount, along with all expenses and taxes,

15   would be the capital cost portion of the revenue requirement reflected in the

16   utility's rates.

17   **Q.   IS THE DETERMINATION OF A UTILITY'S RATE OF RETURN**

18   **ALLOWANCE A CONTROVERSIAL ASPECT IN MOST RATE**

19   **CASES?**

1   A.   Yes. Rate of return accounts for a substantial portion of a utility's rates.

2   While the debt component of rate of return is usually a straightforward

3   reflection of the Company's actual interest costs as stated on its books, the

4   equity return component is largely a matter of judgment and is typically

5   hotly contested. Disputes about required rate of return allowances in rate

6   cases often center on the use of particular cost of capital estimation models

7   used by the various parties.

8   **Q.**   **IS STRICT ADHERENCE TO THE RESULTS OF MODELS**

9   **ESSENTIAL TO GETTING THE RATE OF RETURN "RIGHT" IN**

10   **A REGULATORY PROCEEDING LIKE THIS?**

11   A.   No. Models can be either helpful or confusing, and their results are highly

12   dependent on implementation. Ultimately, the "right" ROE determination

13   in this (and any) rate case is very largely a matter of informed judgment.

14   While "experts" may be able to offer the Commission facts, analyses and

15   insights that will help to inform a reasonable range within which that

16   essential judgment can be exercised, it is ultimately a determination that

17   must depend on the Commission's priorities, objectives and exercise of

18   discretion, which no model, set of "expert" calculations, or sworn opinions

19   can replace.

1   **III.   THE DCF MODEL**

2   **Q.   DO YOU DISAGREE WITH THE DESCRIPTION OF THE**

3   **DISCOUNTED CASH FLOW (DCF) MODEL THAT UNITIL'S**

4   **EXPERT, DR. HADAWAY HAS PRESENTED IN HIS DIRECT**

5   **TESTIMONY?**

6   A.   Dr. Hadaway's basic description of the DCF model conforms with my own.

7   However, I disagree with some of his applications such as his use of

8   projected GDP growth as a proxy for long term growth in DCF analysis.

9   Discounted cash flow (or DCF) models are frequently used as a method for

10   measuring the cost or required return on a firm's common equity capital.

11   The DCF model is based upon two fundamental principles. First, it is

12   based on the principle that rational investors evaluate the risks and expected

13   returns of securities in capital markets and establish prices for particular

14   securities which adequately compensate them for the risks they perceive.

15   Second, the model is based on the proposition that the total equity returns

16   received by shareholders consists of dividends and capital gains, and these

17   returns are measured in terms of the current dividend yield plus the

18   expected rate of dividend growth. The DCF model, which combines yield

19   and growth information to produce an estimated total return expected by

20   stock investors, is the following:

	Total Return to Investor	=	Current Dividend Yield	+	Expected Dividend Growth Rate

3   The model makes no separate provision for capital gains because they are

4   fully accounted for in the dividend growth component. That is, capital

5   gains are a consequence of price appreciation which, in turn, is a

6   consequence of rising dividends and expected dividend growth.

7   Since an individual investor cannot control either the current dividend rate

8   or the dividend growth rate, his decision about the adequacy of returns is

9   reflected by his buy, sell, and hold decisions. If the expected return

10   exceeds the required return, the price of common stock will be greater than

11   the stock's book value. If the expected return is lower than investor

12   requirements, the market price will fall below book value. If investor

13   expectations and requirements are the same, the stock will trade at a price

14   equal to book value.

15   In other words, the DCF procedure for estimating the cost of equity capital

16   reflects the fact that the maximum price a logical investor will pay for a

17   security is an amount equal to the present value of the dividends that he or

18   she expects to receive over the years during which the security is held plus

19   its resale price, including capital gains, when the security is sold.

20   Algebraically, this principle can be represented by the following equation:

1

$$P_0 \ = \ \frac{D_1}{1+R} \ + \ \frac{D_2}{(1+R)^2} \ + \dots + \ \frac{D_t}{(1+R)^t} \ + \ \frac{P_t}{(1+R)^t}$$

2

3

4

5   where Po is the price of a company's common stock today; D_1, D_2 ... D_t are

6   expected dividends in subsequent periods; P_t is the expected resale price of

7   the stock at some time in the future; and R is the discount rate or required

8   return (sometimes referred to as the opportunity cost of capital). This

9   algebraic statement becomes an infinite geometric progression (because P_t

10   and all subsequent resale values depend on expected dividends and resale

11   prices at that point in the future, and dividends are assumed to grow at a

12   constant annual rate) which reduces algebraically to the familiar DCF

13   formula:

14   $$R = D/P + g$$

15   where g is the expected annual rate of dividend growth.

16   The market price is the present value of all cash flows expected in the

17   future, discounted at a rate equal to the rate of return investors require on

18   the investment.   Present value is the current worth of expected future

19   returns – that is, what an investor would be willing to pay today in order to

20   obtain the expected cash flows in the future. Today's price is the present

21   value of these expected cash flows, discounted at a rate that reflects the cost

1   of capital, including the risk perceived by investors that their expectations

2   will not be met.

3   The most controversial aspect of DCF analysis is usually estimating the

4   growth component of the model, rather than the underlying model or

5   theory, itself. Thus, while Dr. Hadaway and I disagree on the calculated

6   DCF outcome in this case, we have little fundamental disagreement about

7   the basic model itself.

8 **Q.**   **WHAT EXPECTATIONS ARE IMPORTANT IN DCF ANALYSIS?**

9 A.   Investors' collective expectations regarding dividend growth are central to

10   the discounted cash flow approach and are the key to estimating the cost of

11   common equity capital. While analysts may opine on what they think

12   investors' dividend growth expectations may be, the only way in which

13   investors reveal their collective expectations is in the market prices that

14   they establish for common stock. Investors establish prices for common

15   stocks on the basis of their collective expectations of future income streams

16   (dividends and capital gains) relative to their return requirements for the

17   level of perceived risk. It is the consensus of investor expectations that

18   establishes the price of common equities, and those expectations are

19   ultimately concerned with investors' expected future income streams (i.e.,

20   dividends). This means that it is the expected growth in dividends which is

1   most important in estimating "g" in the DCF calculation.

2   Although dividend yields are easy to estimate with published data, the

3   expected dividend growth component, "g", is not as easy. While analysts

4   often publish their earnings expectations, which, overall, tend to be

5   somewhat bullish, there is no published consensus value for the dividend

6   expectations that investors hold. That analysts' forecasts are somewhat

7   more bullish than investors' actual expectations is evident from stock

8   market prices, which are typically lower than analysts' price forecasts. This

9   differential may be consistent with the notion that really valuable analysts

10   are those who know something that the market does not already know. In

11   any event, in estimating an equity cost rate one must determine, on the

12   basis of factual information, what the most reasonable estimate of dividend

13   growth expectations held by investors is at any point in time. If investors

14   accept analysts' earnings growth forecasts at face value and without any

15   discounting, and if they expect that firms will increase their dividend

16   payouts in lock-step with earnings growth, then analysts' earnings forecasts

17   may serve as a proxy for the investor dividend growth expectations that are

18   central to the DCF model.

19   In this regard, it is important to emphasize that the task of the rate of return

20   analyst is to determine what dividend growth rate investors are expecting,

21   and not to forecast a growth rate that analysts expect. Nor does it matter

1   whether investors' expectations turn out to be right or wrong. Today's

2   common stock prices, which enter the DCF calculation through the

3   dividend yield term, depend upon today's expectations for future growth.

4   Of course, expectations and requirements may be different at different

5   times, and, therefore, the cost of common equity is likely to change over

6   time.

7   For example, when interest rates are very high, it is likely that required

8   equity returns are higher than when interest rates are low. Similarly, when

9   expected long-term inflation rates are high, it is likely that the cost of

10   common equity will be higher than when long-term inflation expectations

11   are low. A cost of common equity established at one point in time may be

12   quite different from that established previously, or different than that found

13   to be true in the future. Also, while tomorrow's hindsight may prove that

14   today's expectations were wrong, that does not and cannot possibly affect

15   today's cost of capital. That is why it is necessary only for the rate of return

16   analyst to estimate, as accurately as possible, what investor expectations

17   actually are, and not whether they are correct.

18   **Q.   DO YOU AGREE WITH DR. HADAWAY'S DCF CALCULATIONS?**

19   A.   I have some disagreements with his specific calculations. First, the

20   calculations should be updated to reflect current known and measurable

1   financial circumstances. Second, Dr. Hadaway's projected gross domestic

2   product ("GDP") growth is not a proper proxy for expected growth in

3   earnings per share of common stock. Third, in addition to earnings per

4   share growth, consideration should also be given to growth in book value

5   per share and growth in dividends per share. Expected dividend growth is

6   particularly important because dividend yield and dividend growth are the

7   expected payouts relevant to investors and, therefore, the cornerstones of

8   the DCF model. Expected earnings growth and expected book value

9   growth are relevant as determinants of, and therefore proxies for, expected

10   dividend growth.

11 **Q.   WHAT OTHER SPECIFIC DISAGREEMENTS DO YOU HAVE**

12 **WITH DR. HADAWAY'S COST OF EQUITY ANALYSIS THAT**

13 **SHOULD BE NOTED?**

14 A.   As I explain in more detail below I disagree with Dr. Hadaway's reliance

15   on historic authorized ROE allowances by various regulatory commissions

16   in other states as the controlling factor determining the estimated cost of

17   equity in his risk premium analysis. Also, his "current" utility debt cost

18   and his interest rate adjustment (again based on the historic ROE

19   allowances by other commissions) are excessive. Fundamentally, Dr.

20   Hadaway's "risk premium analysis" is not a reasonable substitute for the

21   conventional Capital Asset Pricing Model ("CAPM") as a check on DCF

1   results. Also, I disagree with Dr. Hadaway's conclusions regarding the

2   electric utility industry's relative risks.

3 **Q.**   **DO YOU AGREE WITH DR. HADAWAY'S SELECTED**

4   **COMPARABLE COMPANY GROUP?**

5 A.   I have elected to use the same group that was chosen by Dr. Hadaway.

6   This will eliminate what could be extended subjective arguments about

7   which companies are more or less comparable to Unitil and allow the

8   Commission to more productively direct its attention to the more critical

9   issues. While one could argue that a number of Dr. Hadaway's comparable

10   companies are not electric utilities and/or exhibit unsustainable dividend

11   yields or forecasted growth rates that distort average capital cost indicators,

12   that potential problem is overcome in this case by including median values

13   as well as averages in the DCF results. This reveals the extent to which an

14   average may be affected by an extreme value. As shown in the DCF

15   exhibits, arguments about which observations to retain or discard don't

16   make much difference to the end result in this case. Here, essentially the

17   same information and issues for resolution can be placed before the

18   Commission without putting primary reliance on the makeup of the

19   comparable utility group.

20 **Q.**   **PLEASE DESCRIBE YOUR DCF COST OF EQUITY ESTIMATES.**

1 A.   I begin by examining the same group of electric and gas utilities ("the

2   comparable group") that Dr. Hadaway uses in his DCF analysis.   While

3   cases like this often begin with a dispute about what group of companies to

4   use for comparison purposes, that is not a necessary argument here.

5   Exhibits ___ (JW-1) through (JW-5) are similar to Dr. Hadaway's Schedule

6   SCH-4. The differences are that (1) I do not use historic GDP growth as an

7   indicator of expected dividend growth per share; (2) I have updated the

8   analysis to reflect more current information; (3) I consider projected

9   dividend and book value growth as well as earnings growth in my analysis

10   and (4) I use sustainable "fundamental" earnings growth (instead of historic

11   GDP growth) in the two stage earnings growth DCF model.

12 **Q.   WHAT IS SHOWN IN EXHIBIT___ (JW-1)?**

13 A.   In Exhibit___ (JW-1) I present constant growth DCF results based on

14   projected earnings per share growth for the comparable utility group using

15   30 day, 90 day and 180 day pricing periods (Dr. Hadaway used a 90 day

16   pricing period).

17 **Q.   WHAT ARE THE DCF RESULTS SHOWN IN EXHIBIT___ (JW-1)?**

18 A.   The results indicate a DCF cost of equity in the range of 10.0 to 10.2

19   percent based on analyst's earnings growth forecasts.   These results are

20   somewhat lower than Dr. Hadaway's comparable results shown on page 2

1   of Schedule SCH-4 largely because of updating. I should note that I

2   performed this earnings growth DCF calculation on the same basis as Dr.

3   Hadaway, using the average of Value Line's projected dividend per share

4   for 2010 and 2011 as "next year's dividend". An alternative dividend

5   projection would be the more common practice of using the most recent

6   declared quarterly dividend times four. This alternative produces very

7   similar but slightly lower results (0.1% lower) than those shown in Exhibit

8   ___ (JW-1)

9 **Q.   HAVE YOU PERFORMED ANY ADDITIONAL CONSTANT**

10   **GROWTH DCF CALCULATIONS?**

11 A.   Yes. I performed the same "constant growth" DCF calculations using

12   projected dividends and book value growth, rather than projected earnings

13   growth, and I have also made a fundamental DCF analysis.

14   Despite the fact that the DCF model is explicitly designed to estimate

15   common equity cost based on stock prices and investors' dividend

16   expectations (dividend yield plus dividend growth), Dr. Hadaway elected to

17   consider only earnings forecasts (as a proxy for dividend growth) rather

18   than considering dividend growth forecasts directly.

19   While I do not contend that dividend or book value growth results are

20   necessarily superior in this case to the earnings growth indications in

1   Exhibit __ (JW-1), I present them here for the Commission's consideration

2   in Exhibits ___ (JW-2) and (JW-3), again using 30, 90 and 180 day pricing

3   periods and the Value Line "next year's dividend" as computed by Dr.

4   Hadaway.   The results for these additional constant growth DCF

5   calculations are in the 8.0 percent to 9.0 percent range for the dividend

6   growth model and in the 8.8 percent to 9.0 percent range for the book value

7   growth model as shown in Exhibits ___ (JW-2) and (JW-3), respectively.

8   Note that while earnings per share growth estimates have three sources

9   (Value Line, Zacks and First Call), the dividend and book value estimates

10   are made only by Value Line.

11 **Q.   HAVE YOU ALSO PERFORMED A FUNDAMENTAL DCF**

12 **ANALYSIS?**

13 **A.**   Yes, I have.

14 **Q.   WHAT IS A FUNDAMENTAL DCF CALCULATION?**

15   A.   A fundamental DCF calculation uses retained earnings as the measure of

16   expected growth. This alternative DCF approach has the advantage of

17   avoiding analysts' forecasts of growth that often exceed actual investor

18   expectations. Because retained earnings provide for growth in equity and

19   growth in equity provides for business growth, the rate of earnings plow-

20   back (i.e., those earnings not paid out in dividends) serves as a basis for

1   estimating future dividend growth. If the funds that are retained and

2   reinvested earn the allowed return and the allowed return is equal to the

3   cost of capital, retained earnings provide a good estimate of future growth.

4   For example, if a company with a stock price and book value of $50 per

5   share earns $5.00 (10%) and pays out a dividend of $2.50, its dividend

6   yield is 5% (i.e., 2.50/50). Expected growth will also be 5% because, if the

7   10% earnings rate is maintained, the $2.50 that is retained will permit

8   earnings to increase by that amount (i.e., $2.50 x 10% = $0.25 which is 5%

9   of $5.00).   Likewise, the retention of $2.50 of earnings within the

10   corporation will cause the book value of its stock to increase by 5% (i.e.,

11   $2.50 is 5% of $50.00).   In this case, the dividend yield of 5% plus

12   expected growth of 5% equals 10%, which is the cost of capital.

13   **Q.   PLEASE   SUMMARIZE   THE   RESULTS   OF   YOUR**

14   **FUNDAMENTAL DCF CALCULATION.**

15   A.   My fundamental DCF results are presented in Exhibit ___ (JW-4). Once

16   again, I have used the same group of thirty-five comparable electric and gas

17   utilities, and I have used dividend and retained earnings projections from

18   The Value Line Investment Survey for each company. As shown in Exhibit

19   ___ (JW-4), this fundamental DCF approach indicates an average cost of

20   common equity for the comparable utility group in the range of 8.8 to 9.2

1 percent.

2 **Q.** **HAVE YOU PREPARED MULTI-STAGE DCF CALCULATIONS?**

3 A. Yes; I have prepared multi-stage DCF analysis in the same format as

4   presented by Dr. Hadaway. These are presented in Exhibit ___ (JW-5).

5 **Q.** **WHAT ARE THE DIFFERENCES BETWEEN YOUR MULTI-**

6   **STAGE DCF ANALYSIS AND THOSE PRESENTED BY DR.**

7   **HADAWAY?**

8 A. There are two significant differences. First, as in the constant growth DCF

9   models discussed above, I have updated the underlying data for known and

10   measurable changes. Second, I strongly disagree with Dr. Hadaway's use

11   of projected gross domestic product (GDP) as a measure of expected long

12   term growth in earnings per share for the comparable utility group.

13   Therefore, instead of GDP growth, I have used the estimate for sustainable

14   or "fundamental" growth as an appropriate measure of expected long term

15   earnings growth.

16 **Q.** **WHY DO YOU DISAGREE WITH DR. HADAWAY'S USE OF**

17   **PROJECTED GDP AS A MEASURE OF THE EXPECTED LONG**

18   **TERM GROWTH IN EARNINGS PER SHARE FOR THE**

19   **COMPARABLE UTILITY GROUP?**

1   A.   The growth rate that is relevant in the DCF cost of capital model is the rate

2   of growth in dividends ***per share*** of stock – not total economic growth.

3   The two measures are substantially different because a large part of total

4   economic growth reflects growth in the number of shares, not just growth

5   per share. Thus, if a company's earnings and dividends double over 10

6   years, and the number of shares outstanding remains the same, the value of

7   each share doubles. However, if growth in the company's earnings and

8   dividends is financed by selling additional shares, the resulting per share

9   growth value is less than double. Likewise, if GDP or total corporate

10   earnings double over 10 years, and this reflects the development and

11   growth of new businesses as well as the growth in the number of shares

12   issued by existing businesses, then total growth is spread over more shares,

13   and growth per share is less than double.

14   **Q.   PLEASE EXPLAIN WHY THAT IS SO.**

15   A.   Whether in terms of earnings or GDP, the economy grows over time for

16   two distinct reasons:

17   1) Individual business enterprises grow,

18   and

19   2) The number of business enterprises grows.

20   Furthermore, when individual business enterprises grow:

1   1) New equity capital is raised from new equity issues, and

2   2) Existing equity investments grow over time due to retained earnings

3   and other accumulations to existing shares.

4   Earnings growth per share will be the same as total earnings growth only if

5   all growth is attributable to existing shares -- i.e. if there are no new firms

6   and existing firms issue no new shares of stock.

7   If a company's earnings and the market value of its equity capital doubles

8   over ten years, and it still has the same number of shares outstanding, the

9   value of each share doubles, reflecting a 7.18% annual rate of growth over

10   the ten years:

11                           $(1.0718)^{10} = 2.0$

12   If, on the other hand, a company's earnings and market value double, but

13   this growth is financed by selling additional shares, the resulting per share

14   value is less than double and the annual per share growth rate is less than

15   7.18%:

16   Likewise, if GDP or total corporate earnings double over 10 years and this

17   reflects growth in the number of corporations as well as growth in the

18   number of shares issued by each corporation, growth per share is less than

19   double.

1   In short, it is obvious that total growth measures, like growth in GDP, total

2   corporate earnings or total dividends over a long period of time will not

3   provide a good proxy for earnings or dividend growth <u>per share</u>. Over any

4   long period of time there will also be substantial growth in population,

5   households, number of investors, number of corporations, and corporate

6   shares outstanding.

7 **Q.** **ARE THERE ADDITIONAL REASONS FOR REJECTING GDP**

8   **GROWTH AS A MEASURE OF PER SHARE EARNINGS**

9   **GROWTH IN DR. HADAWAY'S MULTI-STAGE DCF**

10   **CALCULATION?**

11 A. Yes. The GDP growth percentage in Dr. Hadaway's analysis exceeds the

12   Congressional Budget Office's official long term GDP growth forecast by a

13   wide margin. This alone makes his GDP-based analysis suspect. Whereas

14   Dr. Hadaway uses 6.0% as projected GDP growth, the CBO's published

15   forecast (2009-2020) is for 4.3% growth, trending downward to 4.2% for

16   the 2015-2020 period. Had Dr. Hadaway used the 4.3% CBO forecast

17   rather than his own 6.0% figure, his constant growth DCF result using GDP

18   would have been 9.2% rather than 10.9% (page 1 of Schedule SCH-4) and

19   his two stage growth DCF result would have been 9.0% based on the group

20   average, and 9.1% based on the group median (page 4 of Schedule SCH-4).

1 **Q. WHAT ARE THE RESULTS OF YOUR MULTI-STAGE DCF**

2 **ANALYSIS?**

3 A. Following Dr. Hadaway's computational procedure, but updating the data

4 and using sustainable growth per share rather than GDP growth as the long

5 term earnings growth estimate, the multi-stage DCF results are as follows:

6

	30 day price	90 day price	180 day price
Group Average	9.0%	9.1%	9.2%
Group Median	8.8%	8.9%	8.9%

7 These results are summarized in Exhibit ___ (JW-5).

8 <u>**IV. CAPITAL ASSET PRICING MODEL**</u>

9 **Q. HAVE YOU ALSO PERFORMED CAPITAL ASSET PRICING**

10 **MODEL CALCULATIONS TO AS A CHECK ON YOUR DCF**

11 **ESTIMATES OF UNITIL'S COST OF EQUITY CAPITAL?**

12 A. Yes, I have.

13 **Q. PLEASE DESCRIBE THE CAPITAL ASSET PRICING MODEL**

14 **("CAPM").**

15 A. The CAPM is, like the DCF model, one of the most widely used techniques

16 to estimate the cost of equity capital. The fundamental principle underlying

1 the CAPM is that investors require compensation for risk when making an

2 investment – that is, a higher return than is required for a riskless

3 investment. While the DCF model estimates the cost of equity capital

4 directly by examining expected dividend flows and market prices, the

5 CAPM estimates required returns by evaluating the relative risk of

6 alternative investments.

7 In comparison with the expected return on a risk-free investment, a risky

8 investment must provide investors with a risk premium – an expected

9 return higher than the riskless rate. The most commonly used measure of a

10 risk-free asset is a short term (e.g., 90 day) U.S. Treasury security, which

11 has little or no default or inflation price risk. It should be emphasized that

12 only very short term Treasury debt can be assumed to be risk-free. Long

13 term debt, even long term U.S. Treasury debt, which locks investors into

14 U.S. dollar denominated assets for many years, can be very risky, as

15 inflation or international currency fluctuations can significantly impair

16 investment value.

17 For example, investors who locked their investments into long term

18 treasuries in 2000 saw the purchasing value of their investment decline

19 substantially in terms of buying power in relation to other world currencies.

20 Likewise, long term bond values fell dramatically during periods of high

21 inflation in the 1980s. Only very short term treasury debt is substantially

1   free of these currency and inflation risks. Just as these risks caused the real

2   asset value of long term Treasury bonds to decline in the past, they could

3   do so again in the next decade. Utility equity investments, on the other

4   hand, are far more protected from these risks by the regulatory process

5   itself, which adjusts allowed returns as money costs change.

6 **Q.   HOW DOES THE CAPM MODEL WORK?**

7 A.   CAPM separates the total risk of an investment into two parts: systematic

8   risk and unsystematic risk. Systematic risk is unavoidable; it affects all

9   assets to a greater or lesser degree. For example, a sharp rise in inflation

10   would affect all stocks to a greater or lesser degree. The size of the risk

11   premium for each stock is determined in proportion to the stock's co-

12   movement with the market for all stocks. A stock that is twice as volatile

13   as the average requires a risk premium that is double the average risk

14   premium. A stock that is half as volatile as the average requires a risk

15   premium that is half the average, etc. All systematic risk is rewarded with a

16   risk premium that is above the risk-free rate of return, and that varies in

17   direct proportion to the stock's relative volatility. The relative risk of each

18   stock is measured by a value known as beta ("B"), which is a measure of

19   the stock's relative volatility in comparison with the volatility of the entire

20   market.

1   In contrast, unsystematic risk is that portion of total risk that can be avoided

2   by diversifying. Unsystematic risk is not rewarded with a risk premium.

3   The CAPM defines the cost of equity for each company's stock as equaling

4   the riskless rate plus an increment equal to the amount of systematic risk

5   that goes with the investment:

6    $$K_n = R_f + B_n (R_m - R_f)$$

7   where,

8   K_n = the cost of equity for company n

9   R_f = the riskless rate of return

10   B_n = the beta for the stock of company n

11   $R_m - R_f$ = the expected market risk premium

12   (i.e., the average difference between the expected returns for the

13   diversified market portfolio and the riskless return).

14   **Q.   WHAT ARE THE APPROPRIATE VALUES FOR THESE**

15   **VARIABLES IN THIS CASE?**

16   A.   At the present time, riskless treasury bills are yielding less than 1%, and the

17   highest value in recent years has been about 5%. Thus, R_f = 1.0 to 5.0%.

18   With regard to risk premium, surveys and academic analyses indicate that

1   the expected market risk premium R_m is in the range of 3% to 6%. For

2   example, according to Dinson, March and Staunton ("Risks and Returns in

3   the 20th and 21st Centuries," Business Strategy Review, Volume 11, Issue

4   2):

5   "It has become clear that the current level of the equity risk premium
6   is unlikely to be as high as was considered reasonable in the mid-
7   1990s. The arithmetic mean of 8½% recommended by Ross,
8   Westerfield and Jaffe (1993), the 8-9% suggested (with caveats) by
9   Bealey and Myers (2000), and the 7½% recommended by Wetson,
10   Chung and Sui (1997), and a similar figure inferred from the
11   Copeland, Koller and Murrin (1995) geometric mean of 5-6%, all
12   look excessive. The market is almost certainly building lower risk
13   premia than this into stock prices….The cost of capital has thus
14   fallen substantially in recent years."

15

16   Also, according to Eugene F. Fama of the University of Chicago and

17   Kenneth R. French of The Massachusetts Institute of Technology, the risk

18   premium over the past half-century was about 4%. Their calculation is

19   based on going back to the past and analyzing what kinds of returns

20   investors had a reasonable right to expect for the future, given companies'

21   dividend yields and expected growth rates. Risk premiums exceeding 4%

22   were, they say, the result of a series of surprises, such as the end of the

23   Cold War and the development of the computer – windfalls that investors

24   do not count on to repeat themselves. Fama and French expect stocks to

25   outperform risk-free securities by only 3% to 3.5% a year in the long term.

26   (See E.F. Fama and K.R. French, "Dividend Yields and Expected Stock

1 Returns," Journal of Financial Economics, 22 (1), 3-25, and "Business

2 Conditions and Expected Returns on Stocks and Bonds," Journal of

3 Financial Economics, 25 (1), 23-49.)

4 Among the people who have studied the equity premium closely, most

5 think it is probably in the range of 3 to 5 percentage points above treasury

6 bills. On the other hand, rank-and-file finance professors have often

7 continued to peg the long-term premium at about 6 to 7%, according to a

8 comprehensive survey published by Ivo Welch of Yale University. Welch,

9 himself, agrees with the 3-5 percent range. According to his analysis, a 3%

10 geometric equity premium estimate and a 5% arithmetic estimate are more

11 accurate than the 6% to 7% consensus of the profession. (See Ivo Welch,

12 "Views of Financial Economists on the Equity Premium and on

13 Professional Controversies" (University of California, Los Angeles and

14 Yale University, 2001)). More recent surveys indicate that, as of 2007-

15 2008, finance professors estimated equity premiums in a slightly lower 4%

16 to 6% range, centering around 5%. (See Ivo Welsh, "The Consensus

17 Estimate for the Equity Premium by Academic Financial Economists",

18 National Bureau of Economic Research, January 18, 2008 and Pablo

19 Fernandez, "Market Risk Premium Used in 2008", IESE Business School,

20 2009).

21 As shown in Exhibit___(JW-7), the average beta value for the thirty-five

1   comparable electric and gas utilities is 0.697.   Using 0.697 as the beta

2   estimate and the mid point of both the risk free rate and risk premium

3   range, the CAPM cost of equity estimate in this case, using the risk free

4   cost of money before premium, is:

5    $$K = 3.0\% + .697\,(5.0\%) = 6.5\%$$

6   Using the average of the high and low monthly ten year treasury rate over

7   the last five years, the CAPM cost of equity is:

8    $$3.88\% + .697\,(5.0\%) = 7.4\%$$

9   CAPM equity return calculations are summarized in Exhibit____ (JW-6).

10   **Q.   ARE YOU AWARE THAT THE COMMISSION USED THE TEN-**

11   **YEAR TREASURY RATE AS THE RISK FREE RATE IN**

12   **CONSIDERING CAPM EVIDENCE AS A CHECK ON DCF**

13   **RESULTS?**

14   A.   Yes, I am. While I caution that a locked-in return for ten years is not risk

15   free, as discussed above, I do include a CAPM calculation using the ten-

16   year treasury as a proxy for the risk free rate on page 2 of Exhibit ____ (JW-

17   6). At the time of this writing the ten-year treasury rate is about 2.6

18   percent. Over the past five years, the average monthly ten year treasury

19   rate has ranged from 2.65 percent to 5.11 percent. This range is reflected

1   on page 2 of Exhibit ___ (JW-6). As shown there, using ten-year U.S.

2   Treasury rates as a proxy for the risk-free rate, the CAPM approach

3   indicates an equity cost range of 4.7% to 10.0%.

4 **Q.**   **HOW DO YOUR CAPM RESULTS DIFFER FROM THE RISK**

5   **PREMIUM RESULTS PRESENTED BY DR. HADAWAY?**

6 **A.**   Dr. Hadaway does not provide a CAPM analysis. Instead, he presents what

7   he refers to as a "risk premium analysis." Dr. Hadaway's risk premium

8   analysis begins with the annual average yield on newly issued long term

9   (typically 30- year) utility bonds for the last thirty years which, as

10   explained above, are not risk free. He then computes the difference

11   between these long term bond yields and certain reported allowed ROEs by

12   regulators throughout the U.S. in each year. He then takes the average

13   difference between the bond yields and allowed ROEs over the last thirty

14   years (which he says is 3.23%) and adjusts it upward to 4.40 percent

15   because his "current" bond yield (6.21%) is below the average annual bond

16   yield over the past thirty years (9.05%).

17 **Q.**   **IS THIS A VALID RISK-PREMIUM ANALYSIS THAT CAN BE**

18   **RELIED ON IN THIS CASE TO CHECK DCF ROE RESULTS FOR**

19   **UNITIL?**

20 **A.**   No. There are several problems with this analysis that invalidate it as a

1   reliable check on DCF ROE results. First, the end result is largely

2   controlled by an ROE's survey of what other regulatory commissions were

3   reported to have allowed over the past 30 years. This is exactly the type of

4   evidence that the Commission quite correctly rejected in its Order in

5   National Grid's last rate case, Docket DG 08-009 wherein it stated:

6   The Commission addresses the evidentiary significance of ROE
7   survey data in *Public Service Company of New Hampshire*, Order
8   No. 24, 552, 90 NH PUC 542 at 556-557 (December 2, 2005), where
9   a similar argument was advanced by the utility. In that case, the
10   Commission refused to replace the methods used by the expert
11   witnesses in favor of a "bald comparison" of the utility's ROE with
12   that of other companies, in the absence of any evidence as to the
13   differences and similarities in risk. *Id* at 556. Similarly, here, with
14   little or no evidence in the record regarding the circumstances
15   behind the ROEs awarded in other cases, in other states and at other
16   times, including, for example, the risks, market conditions,
17   regulatory factors and reasoning behind the ROE awards, we are
18   unwilling to base our judgment of what constitutes a reasonable
19   ROE for the Company on such survey results. We find that the use
20   of analytical methods is a more reliable way of determining a
21   reasonable ROE than surveys. (*Id* at 54)

22   Second, both long term utility debt and common equity are risk-bearing

23   securities, and the calculated return difference between them has no

24   theoretical under pinning as a "risk premium" comparable to CAPM.

25   Third, there is no indication that the "authorized electric returns" reported

26   by Dr. Hadaway conform with actual returns. Indeed, they appear to be

27   higher than actual earnings over much of this period, suggesting that some

28   commissions included "attrition" adders or other margins that elevated

29   these observations above actual equity capital costs. Fourth, if regulators

1   were to set allowed ROE levels on the basis of what other commissions

2   allowed in the past, the whole regulated return process would become

3   irrationally circular.

4   **V.   CAPITAL STRUCTURE**

5   **Q.   WHAT CAPITAL STRUCTURE DOES UNITIL RECOMMEND**

6   **FOR RATEMAKING PURPOSES IN THIS CASE?**

7   A.   The Company is proposing a capital structure for ratemaking purposes

8   comprised of 44.18% common equity, 55.66% long term debt and 0.16 %

9   preferred stocks.

10   **Q.   DOES THIS PROPOSAL REFLECT THE COMPANY'S ACTUAL**

11   **CAPITAL STRUCTURE?**

12   A.   The Company's refers to this as its pro forma capital structure, which is

13   adjusted to add $5 million of common stock as well as $15 million of long

14   term debt, and retire $18.7 million of short term debt after the end of the

15   test year.

16   **Q.   HOW DOES THIS PRO FORMA CAPITAL STRUCTURE**

17   **COMPARE WITH THE COMPANY'S ACTUAL 12/31/09 CAPITAL**

18   **STRUCTURE?**

19   A.   At 12/31/09 the Company's actual capital structure contained $18.7 million

1   of short term debt at a 2.25% debt cost and $65 million of long term debt at

2   an embedded cost of 7.67%. This debt comprised 58.8% of the Company's

3   capital structure at a combined cost of 6.458%, as compared to 55.66% debt

4   at a cost of 7.35% in the pro forma capital structure. At the same time, the

5   pro forma equity ratio of 44.18% compares with the actual 12/31/09 equity

6   ratio of 41.06%. It might also be noted that, as shown in Schedule RevReq-

7   6-7, over the five year period 2004 – 2008, the Company's year-end equity

8   ratio averaged 40.16%, short term debt averaged 6.90% and total debt

9   averaged 59.62%.

10 Q. **WHAT CAN BE CONCLUDED FROM THESE COMPARISONS?**

11 A. As a result of pro forma adjustments to zero-out very low cost short term

12   debt and increase common equity and long term debt, the Company's

13   proposed pro forma common equity ratio is higher than it actually was at

14   12/31/09 or historically, and short term debt, which is currently very low

15   cost, as it was at 12/31/09, has been reduced to zero. These adjustments

16   have the effect of raising the indicated rate of return on rate base. On a

17   gross of tax basis the Company's pro forma adjustments raise the rate of

18   return on rate base by approximately 0.85 percentage points. Given the

19   Company's proposed rate base of $130.678 million, the revenue impact of

20   these pro forma capital structure adjustments is about $1.1 million per year.

1 Q. **DO YOU RECOMMEND THAT THE COMMISSION ACCEPT THE**

2   **COMPANY'S PROPOSED PRO FORMA CAPITAL STRUCTURE?**

3 A.   The Commission approved the new debt issuance in Order No. 25,069

4   issued on January 22, 2010, while taking the Company's planned equity

5   infusion into account. The Order also made it clear that the primary

6   intended purpose of this new financing was to retire existing short term

7   debt. Moreover, although interest rates have continued to fall, it can be

8   argued, as the Company did, that its March 2010 long term debt financing

9   was an opportunity to refinance short term debt at what it viewed as a

10   favorable time. While the short term debt refinancing resulted in a higher

11   current total debt cost, it may prove to be advantageous in the long run.

12   Also, while the pro forma equity ratio is higher than at the end of the test

13   year and higher than in any of the five previous years, it is not, in and of

14   itself, unreasonable or out of step with current industry norms. With these

15   considerations in mind I believe it would be appropriate for the

16   Commission to recognize Company's new 2010 debt and equity financing

17   for ratemaking purposes in this case. However, it is less appropriate to

18   eliminate all short term debt from the ratemaking capital structure.

19 Q **WHY WOULD IT BE INAPPROPRIATE TO REMOVE ALL**

20   **SHORT TERM DEBT FROM THE CAPITAL STRUCTURE FOR**

21   **RATEMAKING PURPOSES IN THIS CASE?**

1   A.   As shown in the company's filing in DE 08-085 (Exhibits MHC-1 and

2   MHC-2), in which Unitil requested authorization to increase its short term

3   debt limit to $24 million, the Company has outstanding short term debt in

4   virtually all months. Thus, in this instance, immediately after using its new

5   long-term debt and equity issuances in March, 2010 to retire short term

6   debt, the Company almost immediately added $6 million of new short term

7   debt the following month (see response to OCA2-22).

8   Q.   **WHAT AMOUNT OF SHORT TERM DEBT DO YOU**

9   **RECOMMEND BE INCLUDED IN THE COMPANY'S**

10   **RATEMAKING CAPITAL STRUCTURE IN THIS CASE, AND AT**

11   **WHAT COST?**

12   A.   Under the old short term debt ceiling in 2007 and in 2008 the Company's

13   average month-end short term debt balance averaged $11.8 million. Also,

14   as shown in Exhibit MHC-6 in DE 08-085, the Company contemplates

15   splitting its new $24 million short term debt authorization approximately

16   half-and-half between "Energy Component" and "Net utility Plant

17   Component." Assuming that, on average, half of the authorized debt

18   balance will be outstanding and that half of this outstanding amount will be

19   rate-base related, it would be appropriate to include $6 million of short term

20   debt in the capital structure for ratemaking purposes in this case. As shown

21   in Attachment 1 to ECA 2-22, the Company's effective short term

1   borrowing rate from 12/09 to 6/10 was about 2.3%. While interest rates

2   have continued to decline even further in recent months, on a going forward

3   basis I would recommend using an interest cost for short term debt of 2.5%.

4   **VI.   COMPARATIVE RISKS**

5   **Q.   DR. HADAWAY HAS SUGGESTED THAT INVESTORS VIEW**

6   **UNITIL AS RISKY BECAUSE ITS REVENUES ARE EXPOSED TO**

7   **FLUCTUATING   ECONOMIC   CONDITIONS   AND   COST**

8   **RECOVERY MAY BE IMPAIRED BY REGULATORY PRUDENCE**

9   **REVIEWS. DO THESE CONSIDERATIONS MAKE UNITIL MORE**

10   **RISKY THAN OTHER BUSINESS ENTERPRISES?**

11   A.   No. While today's economic environment is uncertain, and arguably, even

12   more uncertain than it has been at some other times, I do not know of any

13   time when the economic environment was certain or settled. Moreover, in

14   times of relative economic uncertainty, investments in companies like

15   Unitil, that sell essential services in monopoly franchised markets and that

16   enjoy legal protections permitting price increases in relation to costs, are

17   typically viewed as less risky than companies that are more exposed to the

18   vagaries of competitive markets.

19   **Q.   WHAT ABOUT DR. HADAWAY'S CONCERN REGARDING THE RISK**

20   **OF REGULATORY COST RECOVERY DISALLOWANCES?**

1 A. Dr. Hadaway's argument that there should be consideration in the rate of

2 return allowance to compensate for the regulatory risk of imprudence cost

3 disallowances is most unique. According to Dr. Hadaway's reasoning,

4 because there is a risk that regulators may ultimately find future cost

5 increases to be imprudent, regulators should allow rates of return now to

6 compensate for the potential risk that the recovery of those imprudent costs

7 may be disallowed. A rate of return allowance to reflect the risks of

8 regulatory disallowance of imprudent costs would raise costs to consumers

9 while, at the same time, assuring that the risk of imprudence disallowances

10 does not impede their incurrence. It may be a clever argument to suggest

11 that regulators should compensate the utility in advance because they may

12 disallow the recovery of imprudently incurred costs down the road, but it is

13 not an entirely persuasive regulatory policy prescription, and certainly not

14 one consistent with the *Bluefield* and *Hope* rate of return standards under

15 which all public utility regulators operate. Moreover, regulatory

16 imprudence disallowances are a far milder risk than corresponding risks in

17 competitive unregulated markets where cost recovery is often denied not

18 only for imprudence, but also for entirely honest mistakes.

19 Q. **ARE REGULATORY DISALLOWANCE RISKS PARTICULARLY**

20 **GREAT IN NEW HAMPSHIRE?**

1   A.   No. I am aware of nothing in the NHPUC's history as it relates to Unitil

2   that would lead to that conclusion. Indeed, in recent cases, where possible

3   disallowances were considered, the NHPUC's resolutions have been

4   notably measured and considered. For example, as part of the

5   Commission's review of utilities' performance in response to the December

6   2008 ice storm, although Unitil was singled out for additional review,

7   Unitil was not found to have acted imprudently nor were any other punitive

8   measures taken. As for Unitil's ice storm costs, Staff has taken a reasoned

9   approach to recovery of those costs, as described in the testimony of Mr.

10   Mullen. Likewise, as regards default power supply cost recovery, when

11   Mirant declared bankruptcy and defaulted on wholesale supply

12   commitments, the Company was allowed to recover all of its related default

13   supply costs.

14   Beyond this history, the potential for the disallowance of imprudent costs

15   applies to all utilities, including the comparable companies used for

16   analytical purposes in this case. To the extent that investors are concerned

17   about this risk, it is reflected in their stock pricing and therefore in the DCF

18   results that have been presented here.

19   **Q.**   **IS THERE EMPIRICAL EVIDENCE DEMONSTRATING THAT**

20   **REGULATED ELECTRIC AND GAS UTILITIES ARE LESS RISKY**

21   **BUSINESSES THAN COMPETITIVE UNREGULATED ENTERPRISES?**

1   A.   Yes. Analyses of stock market indices reflect the comparatively stable and

2   low-risk nature of common stock investments in regulated electric and gas

3   utilities.

4   **Q.   WHAT STOCK MARKET INDICES HAVE YOU REVIEWED?**

5   A.   In addition to the beta coefficients that I have used above in the CAPM cost

6   of equity analyses, Value Line also publishes indices of safety, price

7   stability and earnings predictability for a wide variety of firms in all sectors

8   of the economy. As shown in Exhibit___(JW-7), the comparable electric

9   and gas utility companies used for analytical purposes here have an average

10   safety index of 2.31 on a scale from 1 to 5, where 1 is the highest safety

11   rating. Also, price stability is ranked at 98 for these companies, which is at

12   the upper end of the scale from 5 to 100, where 100 is the highest stability

13   rating. The average earnings predictability index for these companies is 75

14   on a scale from 5 to 100, and average "financial strength" is B++. By all of

15   these measures, the financial risks of these comparable electric and gas

16   utilities are indicated to be below average risk for publicly owned firms in

17   the U.S. economy.

18   **VII.   CONCLUSION**

19 **Q.   PLEASE   SUMMARIZE   YOUR   RECOMMENDATIONS**

20   **CONCERNING THE RATE OF RETURN ON COMMON EQUITY**

1   **CAPITAL AND THE OVERALL RATE OF RETURN**

2   **APPROPRIATE FOR UNITIL'S ELECTRIC UTILITY RATES IN**

3   **THIS CASE.**

4   A.   As I said at the outset of my testimony, the determination of an appropriate

5   rate of return allowance within a zone of reasonableness is a matter of the

6   Commission exercising its discretion in balancing the public interest

7   objectives of consumer protection and incentives for adequate service and

8   capital attraction.

9   As summarized in Exhibit___ (JW-8), there is a substantial range of

10   common equity cost estimates. The average for the constant growth DCF

11   models is 9.2 percent. The multi-stage DCF estimate is 9.0 percent; the

12   fundamental DCF estimate is 9.0 percent; and the CAPM indications center

13   around 7 percent. Overall, these indications suggest a current 8 to 10

14   percent common equity cost range for Unitil.

15 Q.   **WHAT IS YOUR SPECIFIC EQUITY RETURN**

16   **RECOMMENDATION IN THIS CASE?**

17 A.   The empirical evidence and calculations that I have provided define an

18   ROE zone of reasonableness within a range from about 8 percent to 10

19   percent for comparable electric and gas utilities. Within this zone of

20   reasonableness I use 9.0 percent for Unitil, together with the Company's

1   proposed pro forma capital structure, adjusted to include short term debt as

2   discussed above, to calculate a recommended return on rate base.

3   Q.   **WHAT IS THE RETURN ON RATE BASE THAT RESULTS FROM**

4   **THIS ROE ALLOWANCE AND CAPITAL STRUCTURE?**

5   A.   Based on my recommended 9.0% ROE allowance, together with the

6   Company's proposed pro forma capital structure adjusted to include $6

7   million of short term debt, the Company's overall allowed return on its

8   electric utility rate base would be 7.85 percent.

		Amount ($000)	Ratio	Cost	Allowed Return
11	Long Term Debt	80,000	.5343	7.35%	3.93%
12	Common Equity	63,496	.4241	9.00%	3.82%
13	Preferred Stock	225	.0015	6.00%	0.01%
14	Short Term Debt	6,000	.0400	2.50%	0.10%
15			Overall Return		7.85%

16

17   Q.   **DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

18   A.   Yes, it does.