# BEFORE THE

# PENNSYLVANIA PUBLIC UTILITY COMMISSION

## Docket No. R-00072155

## PPL Electric Utilities Corporation

## Statement No. 8

## Direct Testimony of Timothy R. Dahl

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1

2 Q. Please state your full name and business address.

3 A. My name is Timothy R. Dahl and my business address is PPL Electric Utilities

4 Corporation, 827 Hausman Road, Allentown, PA 18104.

5

6 Q. What is your position at PPL Electric Utilities Corporation ("PPL Electric" or the

7 "Company")?

8 A. I am the Manager - Regulatory Programs & Business Services. I report directly

9 to the Vice President - Customer Services.

10

11 Q. How long have you worked at PPL Electric?

12 A. I have worked at PPL Electric for nearly 29 years.

13

14 Q. What are your current areas of responsibility?

15 A. I manage the Company's universal service, regulatory compliance and quality

16 assurance programs and activities. I oversee the budget, staffing, operations,

17 processes, and Pennsylvania Public Utility Commission ("PUC" or the

18 "Commission") reporting requirements for the following universal service

19 programs: OnTrack, WRAP, Operation HELP and CARES. I am responsible for

20 compliance and quality assurance to ensure adherence to PUC regulations,

21 timely responses to customer complaints filed with the Commission, training and

22 improvements in procedures to strengthen overall performance. I serve as the

23 liaison between PPL Electric and the PUC's Bureau of Consumer Services,

1    Pennsylvania Department of Public Welfare ("DPW"), and the Pennsylvania

2    Office of Consumer Advocate regarding low-income programs, compliance with

3    consumer regulations (e.g., 52 Pa. Code Chapter 56), and policy issues

4    regarding residential customers. I act as the Company's advocate regarding

5    federal funding and state administration of the Low Income Home Energy

6    Assistance Program ("LIHEAP"). I oversee and direct PPL Electric's customer

7    outreach efforts during storm emergencies.

8

9  Q.    What is your work experience, professional associations and education

10    background?

11  A.    During my nearly 29-year career at PPL Electric, I have held various staff and

12    supervisory positions in Marketing & Economic Development, Public Affairs and

13    Customer Services. In my current position as Manager - Regulatory Programs &

14    Business Services, I direct a work group of 19 people, including staff

15    professionals and administrative support. I have participated in various

16    organizations such as the Edison Electric Institute ("EEI"), Energy Association of

17    Pennsylvania ("EAP"), National Low Income Energy Consortium, National Fuel

18    Fund Network, Campaign for Home Energy Assistance, and the PA Natural Gas

19    Universal Service Task Force. Over the years, I have chaired committees at

20    both EEI and EAP and have served on various Commission-sponsored working

21    groups. I have made presentations at numerous conferences and workshops. I

22    hold BA and MA degrees in Political Science.

23

1 Q. What is the purpose of your testimony regarding PPL Electric's request for

2 increased rates?

3 A. My testimony describes and explains the Company's proposals regarding the

4 funding and implementation of its universal service programs, especially OnTrack

5 and the Winter Relief Assistance Program ("WRAP"). OnTrack, which is PPL

6 Electric's Customer Assistance Program ("CAP"), provides affordable payments,

7 arrearage forgiveness and referrals to other assistance programs. WRAP offers

8 free weatherization services for both homeowners and renters and energy

9 conservation education, and is the Company's PUC-required Low Income Usage

10 Reduction Program ("LIURP").

11 I also will discuss PPL Electric's proposed Sustainable Development

12 Program ("SDP"), which will focus on promoting the construction of "green"

13 buildings and supporting development efforts in downtowns. PPL Electric has a

14 long history of providing leadership to a number of critical elements of

15 sustainable economic development programs. The SDP is a three-pronged effort

16 that will provide grants for LEED ("Leadership in Energy and Environmental

17 Design") certification (i.e., "green" buildings), downtown improvements in

18 communities with viable economic development plans, and matching grants to

19 regional economic development groups that obtain state funding for regional

20 marketing initiatives.

21

22 Q. Are you sponsoring any exhibits as part of your direct testimony?

23 A. Yes, I am sponsoring the following exhibits in this proceeding:

| Exhibit Number | Description |
|---|---|
| TRD 1 | Fact Sheets on Universal Service Programs |
| TRD 2 | List of Agencies that Administer PPL Electric's Programs |
| TRD 3 | Universal Service & Energy Conservation Plan |

1

2                 I. Universal Service Programs

3    Q.    What types of programs does PPL Electric offer to its low-income customers?

4    A.    PPL Electric has over 20 years of experience in developing and implementing

5        programs and services for low-income households. The Company's current

6        family of programs includes the following: OnTrack, WRAP, Operation HELP and

7        CARES. In general terms, OnTrack offers a reduced payment plan and

8        arrearage forgiveness; WRAP provides free weatherization measures and

9        energy conservation education; Operation HELP pays for any type of home

10       heating bill; and CARES is an evaluation and referral service for customers with

11       temporary hardships. PPL Electric also promotes the availability of LIHEAP,

12       which provides energy assistance grants to low-income households (i.e., at or

13       below 150 percent of the federal poverty level). Exhibit TRD 1 provides a more

14       detailed explanation of the Company's four universal service programs and

15       LIHEAP.

16

17    Q.    When did PPL Electric begin its universal service programs?

18    A.    The Company implemented CARES in 1980, Operation HELP in 1983, WRAP in

19       1985 and OnTrack in 1994. PPL Electric began promoting LIHEAP when the

20       program started in the early 1980s.

21

1  Q.  How does PPL Electric implement and administer the four universal service

2     programs?

3  A.  For many years, the Company has worked closely with a variety of community-

4     based organizations ("CBOs" or "social agencies") throughout its 29-county

5     service area in central and eastern Pennsylvania.  These CBOs have extensive

6     experience in serving low-income households, in coordinating with other

7     community resources, and in providing other benefits to customers.  This

8     collaboration between PPL Electric and the CBOs is essential to the effective

9     delivery of program services to income eligible households.  Exhibit TRD 2

10    provides a list of the various CBOs that administer PPL Electric's universal

11    service programs.

12

13  Q.  What are the current annual budgeted funding levels for PPL Electric's universal

14    service programs?

15  A.  The estimated annual budgeted funding levels for 2007 for the four major

16    programs appear in the following table.

17

| Program | Annual Funding Level |
|---|---|
| OnTrack | $19,000,000 |
| WRAP | 6,800,000 |
| Operation HELP | 1,125,000 |
| CARES | 80,000 |
| Total | $27,005,000 |

18

19    Current funding for OnTrack and WRAP comes from rates paid by all residential

20    customers.  Donations from PPL Electric, its customers and employees provide

21    all of the funding for Operation HELP (i.e., $700,000 from PPL Corporation and

1    an estimated $425,000 in donations from customers and employees).  There is

2    no specific operation and maintenance budget for CARES.  Rather, the

3    estimated expenditure of $80,000 covers wages for PPL Electric employees who

4    administer the program ($50,000) and CARES Credits ($30,000).  PPL Electric

5    provides CARES with $30,000 in funding from its corporate contribution to

6    Operation HELP.  This funding provides CARES Credits, which the Company's

7    Customer Programs Directors use to pay electric bills for customers who need

8    additional assistance or do not qualify for existing programs.

9

10   Q.   How does PPL Electric promote the availability of LIHEAP?

11   A.   LIHEAP is an important statewide energy assistance program that serves

12        hundreds of thousands of low-income households in the Commonwealth.

13        LIHEAP, when used in combination with other universal service programs, helps

14        to provide additional assistance.  The Company promotes LIHEAP by sending a

15        bill insert to all customers, conducting special mailings, implementing outbound

16        telephone campaigns, providing information to its Customer Service

17        Representatives, and working closely with local Department of Public Welfare

18        County Assistance Offices.

19

20   Q.   What are the primary benefits of these universal service programs?

21   A.   PPL Electric believes that its universal service programs offer a variety of

22        benefits.  For example, the following table shows the number of customers

23        assisted by the major programs over the past four years.

| Program | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|
| OnTrack | 12,420 | 15,801 | 14,033 | 20,721 |
| WRAP | 2,890 | 2,356 | 2,626 | 2,418 |
| Operation HELP | 2,660 | 2,597 | 3,103 | 3,869 |
| Total | 17,970 | 20,754 | 19,762 | 27,008 |

The above totals are somewhat understated because the numbers for OnTrack (i.e., PPL Electric's CAP) reflect enrollment as of December 31. The actual number of low-income customers receiving OnTrack benefits is higher because some customers may receive benefits for less than 12 months. For example, a customer may enroll in OnTrack in January and leave the program in July. Although the customer received six months of benefits (i.e., CAP Credits and arrearage forgiveness), he or she would not show up in the year-end customer number. In 2006, just over 29,000 residential customers received CAP benefits through participation in OnTrack.

As noted above, PPL Electric takes various steps to inform income-eligible customers about LIHEAP. The following table shows the number of customers assisted and the grant amounts for the past four program years.

| LIHEAP | 2002-2003 | 2003-2004 | 2004-2005 | 2005-2006 |
|---|---|---|---|---|
| Customers | 13,906 | 14,695 | 18,815 | 22,780 |
| Grants | $3,924,007 | $3,818,886 | $4,844,825 | $6,170,485 |

From a customer's perspective, key benefits of the various universal service programs include: avoiding utility shut-offs, receiving an affordable electric bill, lowering energy bills through weatherization measures and energy education, acquiring assistance from other programs and improving living comfort. From PPL Electric's perspective, important benefits include: improving

1  customer satisfaction, avoiding collection expenses, reducing PUC complaints,

2  managing overdue receivables and strengthening partnerships with local

3  community organizations.

4

5  Q.  Does PPL Electric intend to deliver these programs in the same manner in 2008

6  and beyond?

7  A.  Yes, the Company will continue to work closely with CBOs and other contractors

8  that have administered the various programs for years.  This cooperation and

9  coordination is important to the delivery of programs and services to low-income

10  customers.  Although this delivery model has been effective, PPL Electric will

11  continue its efforts to streamline processes and use technology enhancements to

12  improve program delivery.  Examples of these efforts include re-certifying

13  LIHEAP recipients who are CAP customers every two years and implementing

14  an electronic work order for LIURP contractors.

15

16  Q.  What levels of annual funding does PPL Electric propose for its universal service

17  programs?

18  A.  If approved by the Commission, PPL Electric proposes to increase annual

19  funding for OnTrack and WRAP by $5,800,000 and $1,000,000, respectively,

20  from the levels approved by the Commission in the Company's most recent

21  distribution rate case at Docket No. R-00049255.  The Company intends to

22  increase its annual corporate contribution to Operation HELP by 43 percent --

23  from $700,000 to $1,000,000.  Donations from customers and employees may

1   rise modestly because of annual solicitation efforts.  Funding for CARES will

2   increase slightly to reflect changes in wages for PPL Electric personnel who

3   support the program.  The following table shows the proposed funding for the

4   universal service programs in 2008.

5

| Program | 2005 | 2008 | % Increase |
|---|---|---|---|
| OnTrack | $13,200,000 | $19,000,000 | 43.9% |
| WRAP | 6,250,000 | 7,250,000 | 16.0% |
| Operation HELP | 912,000 | 1,425,000 | 57.3% |
| CARES | 80,000 | 82,000 | 2.5% |
|  |  |  |  |
| Total | $20,442,000 | $27,757,000 | 35.8% |

6

7       In PPL Electric's most recent base rate proceeding, the Commission

8   approved annual funding levels of $13.2 million for OnTrack and $6.25 million for

9   WRAP.  All of the funding for these two programs comes from the residential

10   class.  From these 2004 Commission-approved funding levels, PPL Electric

11   proposes to increase funding by 44 percent for OnTrack ($13.2 million to $19

12   million) and by 16 percent for WRAP ($6.25 million to $7.25 million).  The

13   Commission's regulations at 52 Pa. Code § 58.4 require electric utilities to

14   expend 0.2 percent of jurisdictional revenues on LIURP (i.e., WRAP).  The

15   Company's proposed funding level for WRAP represents nearly 0.25 percent of

16   jurisdictional revenues as of December 31, 2006.

17

18  Q.   Does PPL Electric intend to continue recovery of funding for its universal service

19       programs through the base rates charged to the residential customer class?

1    A.    No, PPL Electric proposes to recover all costs associated with its universal

2       service programs through a reconcilable surcharge that applies only to residential

3       customers. On page 13 of its *Final Investigatory Order* at Docket No. M-

4       00051923, the Commission indicated that, "Requiring recovery of universal

5       service costs through base rates cannot be reconciled with the statutory mandate

6       of full cost recovery." As such, the Commission will allow cost recovery for these

7       programs through a reconcilable surcharge rather than a base rate charge.

8       Regarding the frequency of reconciliation, the Commission indicated that it will

9       address this issue on a case-by-case basis as utilities establish their surcharges.

10      The Commission noted that utilities may propose a quarterly or an annual

11      reconciliation; PPL Electric proposes to reconcile its Universal Service Rider

12      ("USR") annually.

13

14    Q.    In general terms, how does PPL Electric intend to implement its reconcilable

15      USR?

16    A.    As stated above, the Company proposes to establish a tariff rider that would be

17      reconciled annually. PPL Electric intends to include all CAP ("OnTrack") and

18      LIURP ("WRAP") charges in the USR (i.e., the $19.45 million currently in base

19      rates and the $6.8 million in additional expenditures). The following table shows

20      a breakdown of the proposed expenditures.

21

| Program | Existing Amounts | Proposed Amounts | Total |
|---|---|---|---|
| OnTrack | $13,200,000 | $5,800,000 | $19,000,000 |
| WRAP | 6,250,000 | 1,000,000 | 7,250,000 |
| | | | |
| Total | $19,450,000 | $6,800,000 | $26,250,000 |

| 1 | | PPL Electric proposes generally to base its USR on the design of the |
| 2 | | former Energy Cost Rate ("ECR"). Until 1997, all major electric utilities in |
| 3 | | Pennsylvania included the ECR (or one of the predecessor clauses) in rates. |
| 4 | | The ECR permitted full recovery of costs, was understandable and easy to |
| 5 | | administer, and worked well for many years. The Company recommends |
| 6 | | applying the USR to the distribution charges of residential customers' bills on a |
| 7 | | percentage basis. Mr. Joseph M. Kleha discusses the details of the design and |
| 8 | | implementation of the USR in his testimony. |
| 9 | | |
| 10 | Q. | What universal service costs should be included in the USR? |
| 11 | A. | PPL Electric believes that the Commission should reflect all prudently incurred |
| 12 | | CAP and LIURP costs in the USR. The three major costs for CAP include |
| 13 | | administration, CAP credits (i.e., the difference between the actual bill and the |
| 14 | | reduced CAP bill) and arrearage forgiveness. In its December 16, 2006 *Final* |
| 15 | | *Investigatory Order*, the Commission stated that there was merit in determining if |
| 16 | | utilities should recover arrearage forgiveness separately for CAP participants. |
| 17 | | The rationale being that if there were no CAP, this amount already would be |
| 18 | | included in a utility's claim for uncollectible expenses. This is not the case for |
| 19 | | PPL Electric because the write-offs for OnTrack (i.e., arrearage forgiveness) are |
| 20 | | over and above the Company's provision for uncollectible accounts and are |
| 21 | | tracked separately. The three major costs for LIURP include administration, |
| 22 | | installed measures and services and field support (e.g., promotion of the |
| 23 | | program, energy education materials, training and computer enhancements). |

1    The Company believes that it would be proper to recover all of these costs

2    through the USR.

3

4    Q.    What is the basis for PPL Electric's proposal to increase funding for OnTrack?

5    A.    As of February 28, 2007, there were nearly 20,000 customers enrolled in

6          OnTrack, and the Company projects a year-end enrollment number of

7          approximately 22,000 customers.  PPL Electric's proposal to increase annual

8          funding to $19 million would allow the Company to maintain enrollment between

9          22,000 to 24,000 customers in OnTrack.  PPL Electric believes that this level of

10         enrollment would provide CAP benefits to those customers most in need -- low-

11         income customers who are struggling, but are unable to make all of their utility

12         payments.  The Company is not recommending a cap of 24,000 customers;

13         rather, it is an estimate of need for existing customers.  The Commission should

14         consider the amount of funding required and the number of customers enrolled in

15         CAP during the annual reconciliation of the USR.

16         PPL Electric suggests offering a meaningful level of CAP benefits to low-

17         income customers who have a demonstrated need (i.e., broken payment

18         agreements).  Identifying and serving a core group of customers who would

19         benefit from CAP assistance also helps to define a reasonable spending

20         boundary.  As the Commission noted in its *Final Investigatory Order* (page 10):

21
22              "Because we will continue to determine appropriate funding
23              and enrollment levels on a case-by-case basis, we will give
24              due consideration to the effects of CAP program costs on
25              both non-CAP residential customers – particularly low-

1    income customers who are not eligible for CAP – and
2    non-residential customers as part of our deliberation."
3

4    PPL Electric also is sensitive to the effect of CAP and LIURP expenditures on

5    ineligible customers.  The Company urges the Commission to consider the ability

6    of existing residential customers to absorb additional costs.  Costs of these

7    programs should not be increased to the point where previously good-paying

8    customers can no longer pay their current bills.  PPL Electric believes that the

9    best approach is to identify a target population of customers who will benefit most

10   from participation in a CAP.

11

12   Q.   What is the basis for the Company's proposal to increase funding for WRAP?

13   A.   PPL Electric has been working with community-based organizations since 1985

14   to provide weatherization measures and services to low-income households

15   through WRAP.  From 1985 through 2006, WRAP has assisted over 55,000 low-

16   income customers, both homeowners and renters.  Based on household income

17   data from the U.S. Census, the Company believes that there still are thousands

18   of customers who may qualify for WRAP.  However, PPL Electric's long

19   experience with WRAP reveals various reasons why many of these customers

20   either do not apply or are ineligible for the program.

21         The key reasons include: (1) customers not following through on referrals

22   to WRAP, (2) property owners refusing to give permission for WRAP measures,

23   (3) customers using less than 6,000 kWh annually and (4) the premise having

24   received WRAP service within the past seven years.  Other factors include the

1  customer having less than nine months occupancy at the premise, and

2  customers deciding not to follow through with WRAP when they learn that they

3  are not eligible for specific measures (e.g., storm windows). Approximately 40

4  percent of WRAP applicants are renters and some of them close their accounts

5  and/or move before PPL Electric has the opportunity to process and complete

6  WRAP jobs.

7      The proposed increase in annual funding for LIURP ($6.25 million to $7.25

8  million) would allow PPL Electric, based on historical costs, types of WRAP jobs

9  (i.e., full cost, low cost and baseload) and previous outreach results, to assist an

10  average of 3,100 customers annually. From 2000 through 2006, approximately

11  2,600 customers annually received WRAP benefits. The proposed increase in

12  funding would allow PPL Electric to serve an estimated 500 more customers

13  annually -- an increase of 19 percent.

14

15  Q.  Does PPL Electric plan to offer any new features for either OnTrack or WRAP in

16      2008?

17  A.  Yes. If approved by the Commission, PPL Electric proposes several changes to

18      both OnTrack and WRAP in 2008. On February 9, 2005, the Commission

19      approved a two-year CAP pilot at Docket No. M-00051864 for PPL Electric. The

20      primary purpose of the pilot was to reduce energy usage for high-use OnTrack

21      participants. The Company submitted its final report to the Commission on

22      February 1, 2007. As a result of the findings from the pilot, PPL Electric

23      proposes the following changes to OnTrack:

1      1. Provide energy education for OnTrack customers who are ineligible for

2         WRAP measures;

3      2. Increase the maximum CAP Credits to $1,800 for electric heat and to

4         $700 for non-heating accounts[1];

5      3. Remove customers from CAP when they exceed their annual CAP Credits

6         limit and evaluate their re-enrollment in the program at the time of their

7         normal re-certification; and

8      4. Limit enrollment to six months for customers whose mortgage or rent

9         exceeds their reported income.

10        As noted above, 40 percent of WRAP applicants are renters, and PPL

11   Electric requires approval from the landlord before installing weatherization

12   measures. Because approximately six (6) percent of property owners do not give

13   their permission, the Company proposes to offer baseload WRAP measures to

14   applicants who do not receive landlord approval. Baseload measures include

15   energy education, compact fluorescent lights and appliance replacement (i.e., if

16   the renter owns his or her refrigerator). PPL Electric would like to offer energy-

17   saving kits and/or energy education to low-income customers who are ineligible

18   for WRAP because their annual usage is less than 6,000 kWh. Due to the higher

19   percentage of baseload applicants each year (i.e., customers who do not have

20   electric heat or water heating), the Company suggests offering a maximum of

21   $200 in low-cost comfort and safety measures, such as window

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[1] In its Final Investigatory Order, at Docket No. M-00051923, the Commission recommended that utilities revise their maximum CAP Credits as follows: $1,800 for electric heat, $700 for non-heat and $1,000 for natural gas heat.

1   caulking, for these customers.  Finally, PPL Electric proposes to integrate

2   OnTrack education (i.e., guidelines and benefits) with WRAP's energy education

3   process.  This proposal is based on findings in the pilot in that: (1) some

4   customers do not fully understand OnTrack and (2) some customers do not know

5   how their energy consumption affects their electric bill.

6

7  Q.   Does PPL Electric plan to offer any other changes to its universal service

8       programs?

9  A.   Yes, it does.  In the *Final Investigatory Order* regarding Customer Assistance

10      Programs at Docket No. M-00051923, the Commission indicated that the most

11      appropriate course of action regarding funding for CAP is to continue its case-by-

12      case review as part of each utility's three-year universal service plan under 52

13      Pa. Code § 54.74.  The Order, on page 19, also directs ". . . that Commission

14      regulations be amended so that (1) a utility's CAP rules are placed in its tariff, (2)

15      the triennial update filing take the form of a tariff filing and (3) adjustments to the

16      CAP surcharge be addressed in the same tariff filing."  Because PPL Electric's

17      three-year plan is due to the Commission on June 1, 2007, the Company

18      proposes to include a review and approval of the plan as part of this filing for

19      increased distribution service rates.  The plan, which follows the organizational

20      format established by the Commission, includes a description of OnTrack,

21      WRAP, Operation HELP and CARES.  Exhibit TRD 3 provides a copy of the

22      proposed three-year universal service plan.  The Company will include the plan

23      as an appendix to its retail tariff in the tariff supplement it will file in compliance

1    with the final order issued by the Commission at the conclusion of this

2    proceeding.

3

4                        II. Sustainable Development Program

5    Q.    What has been PPL Electric's involvement and approach to community and

6          economic development efforts?

7    A.    Promoting community and economic development has been an important

8          objective for PPL Electric for decades.  The Company believes that the health

9          and vitality of local communities and cities contributes to the long-term success

10         of PPL Electric.  As economic development agencies in PPL Electric's service

11         area matured, the Company changed its approach to providing occasional

12         financial contributions.  The Company has continued to provide leadership

13         resources and guidance so that local economic development groups can

14         effectively execute their strategies and plans.  PPL Electric's eight (8) Regional

15         Community Relations Directors work closely with community leaders and serve in

16         key leadership roles in various organizations in central and eastern

17         Pennsylvania.

18              PPL Electric encourages quality planning to make the most efficient use of

19         existing infrastructure, and promotes the merits of regional cooperation for

20         community and economic development.  Companies or their agents looking to

21         locate a new facility or to expand an existing operation expect cooperation and

22         coordination, rather than a piecemeal, parochial approach to development.  A

23         critical complement to regionalism is developing comprehensive approaches that

1  combine elements of traditional economic development (e.g., proactive

2  infrastructure and land development) with smart growth efforts to plan and focus

3  the resulting development intelligently to minimize unnecessary sprawl. There

4  must be accompanying strategies that look at communities as a whole and map

5  out ways to improve the overall quality of life in existing, older communities.

6  People are interested in genuine communities that preserve and build on their

7  unique heritage, provide quality open space and recreation and improve their

8  environment, both physically and socially.

9

10  Q.  What types of programs and services does PPL Electric offer?

11  A.  PPL Electric supports a variety of efforts ranging from databases to professional

12  development to underwriting interest payments. The Company maintains a

13  searchable database of available properties on a web site, which it promotes

14  nationally. Local organizations can use this database as their own and have their

15  local part of the overall file extracted and provided to interested parties. In a

16  related matter, the Company provides funding for studies to identify new

17  industrial sites or to determine the suitability and development cost of a specific

18  industrial site, including the reuse of "Brownfield" sites.

19      PPL Electric helps to underwrite fees for the Accredited Economic

20  Development Organization Program of the International Economic Development

21  Council. This program also supports professional development and training for

22  economic development staff in local communities.

1     The Company underwrites 50 percent of interest charges on funds

2     borrowed by an eligible economic development organization to construct or

3     acquire speculative industrial buildings.  The interest subsidy, up to a maximum

4     of $30,000 annually, continues until the organization sells or leases the building,

5     up to a maximum of three years.  PPL Electric uses its land acquisition program

6     to stimulate the purchase and development of land by eligible nonprofit economic

7     development organizations.  PPL Electric reviews proposals and makes

8     selections on a competitive basis.  The Company's Blue Ribbon Marketing

9     Program offers financial and technical assistance for prospect development and

10    marketing activities.  Organizations can receive up to 75 percent of the cost of

11    each marketing initiative, up to a maximum of $7,500 per project.  Eligible

12    activities include: regional marketing campaigns, web site design, and marketing

13    studies and plans.

14

15  Q.  Does PPL Electric plan to offer any new community and economic development

16      programs in 2008?

17  A.  Yes, PPL Electric proposes to implement a new program called the Sustainable

18      Development Program ("SDP").

19

20  Q.  What is the primary purpose of the SDP?

21  A.  The purpose of the SDP is to assist community development organizations in

22      addressing local needs by providing grant funds to encourage the construction of

23      "green" buildings, enhancing smart development by promoting various downtown

1 improvements, and leveraging state funding for regional marketing initiatives that

2 will improve regional cooperation. The program would capture the best of

3 sustainable development themes and benefits, such as:

4    ■ Economic enhancement of communities with underutilized assets; and

5    ■ Multifaceted environmental benefits gained by refocusing at least some

6       development in downtowns and by reducing the environmental and energy

7       inefficiency tolls that sprawl causes through the growing consumption of

8       raw land and the spread of development over ever greater distances.

9

10 Q. What is the proposed level of funding for the SDP?

11 A. PPL Electric recommends funding of $1.25 million annually for a period of three

12 years (2008 through 2010). As shown in the following table, the funding would

13 cover the three program elements associated with the SDP.

14

| Program Element | Proposed Annual Funding |
| --- | --- |
| LEED Certification | $ 150,000 |
| Downtown Development | 1,000,000 |
| DCED Regional Marketing | 100,000 |
| Total | $1,250,000 |

15 LEED = Leadership in Energy and Environmental Design
16 DCED = PA Department of Community & Economic Development
17
18 PPL Electric would revisit the SDP in mid-2010 to determine if the program

19 should continue beyond the initial three-year commitment.

20

21 Q. How does PPL Electric propose to recover the costs of the SDP?

22 A. The Company proposes to reflect the costs as an expense in base rates, which

23 would be allocated to all customer classes.

1

2   Q.   Would the Company still implement the SDP if the Commission decides to

3          disallow some or all of the proposed funding by customers?

4   A.   If the Commission were to disallow all funding for the SPD, PPL Electric would

5          not implement the program. Similarly, if the Commission were to reduce by

6          some amount the proposed funding level for the program, the Company would

7          modify the SPD to reflect the funding amount approved by the PUC.

8

9   Q.   What are the key features of the Sustainable Development Program?

10   A.   As noted above, the SDP would have three primary components: LEED

11         certification, Downtown Development and DCED partnership for regional

12         marketing initiatives. Rather than building sprawling new systems, PPL Electric

13         has encouraged quality planning to make the most efficient use of existing

14         infrastructure, including the Company's electric infrastructure. To help address

15         what the Brookings Institute called the "spreading out and hollowing out effect,"

16         the Company has steadily increased its leadership and financial support for local

17         organizations that combine economic development and environmental

18         awareness. The proposed LEED certification initiative dovetails with PPL

19         Electric's approach, which the Company clearly demonstrated when it worked

20         with Liberty Property Trust to obtain LEED Gold level certification for the PPL

21         Plaza building in downtown Allentown.

22             Regarding the downtown development initiative, PPL Electric would

23         identify local entities that meet a threshold of organization designed to plan

1   effectively for their future. The threshold criteria would include evidence of a

2   robust Business Improvement District, a Main Street Program or, at a minimum,

3   a comprehensive and adopted downtown development and preservation plan.

4       The Pennsylvania Department of Community and Economic Development

5   intends to launch a major new program during the first quarter of 2007. The

6   purpose of the new program is to fund regional cooperative marketing efforts that

7   effectively follow up on the IBM Consulting plan for Pennsylvania economic

8   development marketing. For the state to move to the next level of sustainable

9   economic development, it must promote cooperation and coordination and

10  reduce parochialism. By providing matching grants (i.e., "hard money") for this

11  initiative, PPL Electric will enable local economic development organizations to

12  enhance the quality of their proposed regional marketing funding requests to

13  DCED and, ultimately, to strengthen the effectiveness of their cooperative efforts

14  to bring new jobs to Pennsylvania.

15

16  Q.  What are some of the specific elements associated with the SDP?

17  A.  The LEED certification program, which the U.S. Green Building Council

18     administers, is growing steadily throughout the nation. As noted above, the

19     Company proposes to provide grants of $150,000 annually to encourage building

20     developers to enter the certification process. PPL Electric would offer grants up

21     to $15,000 for LEED Gold certification and lesser amounts for lower-level

22     certifications. In addition, the Company would provide $3,500 per application to

23     cover the cost of pre-certification of the building core and shell.

1       Viable organizations that meet the funding requirements for the Downtown

2       Development initiative would be eligible to receive grants, awarded on a

3       competitive basis, for the following activities:

4           ▪ Comprehensive management of a downtown organization

5           ▪ Architectural and construction management services

6           ▪ Streetscape improvements

7           ▪ Marketing materials or refinement of an existing downtown plan

8       Out of total proposed budget of $1 million, PPL Electric would set a maximum

9       grant award of $100,000 per municipality.  This initiative would focus on

10      downtown management organizations in municipalities with a population of at

11      7,500, or are members of a multi-municipality Main Street consortium.

12          PPL Electric proposes to offer matching grants up to a total of $100,000

13      annually for DCED's new program.  Participation in the regional marketing

14      program will require cooperation between counties that have a well-conceived

15      plan and strategy that must coordinate with DCED and IBM Consulting.  The

16      purpose is to identify industry clusters and regional economic development

17      advantages relative to those clusters.  PPL Electric believes that regional

18      approaches to economic development, which rely on sound research and

19      planning, will provide greater benefits to local communities.

20

21  Q.  What would be the timing for the SDP?

22  A.  If approved for implementation by the Commission, PPL Electric would begin the

23      LEED certification initiative in January 2008.  The Company, through its

1    extensive network of economic and community development organizations,

2    would begin to identify projects and meet with building developers and other

3    economic develop professionals to explain the grant program.  Similarly, PPL

4    Electric would identify organizations in municipalities that would qualify for

5    Downtown Development grants and conduct meetings by the end of March 2008

6    to discuss this new initiative.  The Company proposes to evaluate funding

7    proposals and select grantees by May 2008 and release funding by June of the

8    same year.  Finally, PPL Electric would complete meetings by April 2008 with

9    local economic development organizations to explain DCED's regional marketing

10   initiative and the Company's initiative to provide matching grants to support this

11   statewide program.

12

13   Q.    Why is PPL Electric proposing the Sustainable Development Program?

14   A.    In addition to providing reliable and competitively priced-electricity, organizations

15         throughout PPL Electric' service area believe that the Company is a vital and

16         necessary partner in addressing their needs and concerns.  PPL Electric does

17         not operate in a vacuum.  Social, economic and political factors affecting local

18         communities also affect PPL Electric.  The Company and its employees are an

19         important part of the fabric of society in central and eastern Pennsylvania.  There

20         is a clear link between the prosperity of PPL Electric and its service area.  More

21         jobs, a sounder economy, environmental improvements and infrastructure

22         enhancements provide benefits to many.  Collaborating with local community

1      organizations and state government creates synergies that improve the reach

2      and effectiveness of programs.

3          The Sustainable Development Program is simply a logical extension of

4      PPL Electric's well-established efforts to improve the quality of life in local

5      communities. The focus on sustainable development themes provides the

6      unique opportunity to achieve hand-in-hand improvement in environmental, as

7      well as economic development areas. Helping to refocus development in

8      downtowns provides benefits in both areas.

9

10    Q.    Does this conclude your direct testimony?

11    A.    Yes, it does.

# BEFORE THE

# PENNSYLVANIA PUBLIC UTILITY COMMISSION

Docket No. R-00072155

## PPL Electric Utilities Corporation

## Statement No. 9

## Direct Testimony of Robert T. Homa

| 1 | Q. | Please state your full name and business address. |
| 2 | A. | My name is Robert T. Homa. My business address is Two North Ninth Street, |
| 3 | | Allentown, Pennsylvania, 18101. |
| 4 | | |
| 5 | Q. | By whom are you employed and in what capacity? |
| 6 | A. | I am employed by PPL Electric Utilities Corporation ("PPL Electric" or "the |
| 7 | | Company"), a subsidiary of PPL Corporation. I work in the Asset Management |
| 8 | | Department and my title is Program Manager. |
| 9 | | |
| 10 | Q. | Please describe your primary responsibilities in that position. |
| 11 | A. | As Program Manager, I am responsible for developing and implementing |
| 12 | | Demand-Side Management Programs. Demand-Side Management ("DSM") |
| 13 | | includes energy efficiency and conservation programs that permit customers to |
| 14 | | reduce their energy consumption and demand response programs that permit |
| 15 | | customers to reduce their peak electric demand. |
| 16 | | |
| 17 | Q. | What is your educational background? |
| 18 | A. | I graduated from the University of Delaware in Newark, Delaware in 1985 with a |
| 19 | | Bachelor of Engineering degree in Electrical Engineering. In 2004, I earned a |
| 20 | | Master of Science degree in Engineering Management from Drexel University in |
| 21 | | Philadelphia, Pennsylvania. |
| 22 | | |
| 23 | Q. | Are you a registered Professional Engineer? |

1   A.   Yes. I have been a registered Professional Engineer in the Commonwealth of

2          Pennsylvania since 1993. My registration number is PE-044305-E.

3

4   Q.   Please describe your professional experience.

5   A.   I joined the Marketing and Economic Development department of PPL Electric's

6          predecessor, Pennsylvania Power and Light Company ("PP&L"), in 1986 as an

7          Engineer-Level I, working with small to mid-size Industrial and Commercial

8          ("I&C") customers to address electric service issues and to promote the efficient

9          use of electric energy. I was heavily involved with helping new and existing

10         customers select the most energy efficient heating, ventilating, air conditioning

11         ("HVAC"), and lighting systems.

12              During the 1989 through 1995 time period, I was promoted through

13        positions involving increasing responsibility for assisting large customers with

14         energy use decisions. As a Power Engineer within that department, I worked

15         with mid to large-size I&C customers. As a Key Account Manager, I was

16         responsible for strategic account management of a segment of PPL Electric's

17         largest I&C customers. In both of these positions, a significant portion of my

18         duties involved working with new and existing customers on selecting HVAC

19         systems, improving industrial process efficiency, and conducting comparative

20         rate analyses.

21             In 1996, I was promoted to the position of Market Segment Manager for

22         PPL Electric's Commercial Services group. In this position, I was responsible for

23         the development of strategy, business plans, and program plans for PPL

1     Electric's Commercial Services customer segment. Additionally, I co-developed

2     1-year and 5-year marketing plans, and developed plans for electric demand

3     management and lighting retrofit programs.

4        In 1998, I transferred to a newly formed unregulated retail marketing group

5     (which became PPL EnergyPlus, LLC) and assumed the role of Program

6     Manager for Affinity Marketing. In this role, I was responsible for the

7     development and implementation of PPL EnergyPlus' affinity-marketing program

8     for the sale of commodity electricity to small non-residential retail electric

9     customers.

10        In 1999, I transferred to PPL EnergyPlus' field sales organization. I was

11     responsible for developing and executing account strategies related to the sale of

12     commodity electricity and natural gas to customers in numerous Pennsylvania

13     utility service territories. During this time, I also expanded and managed PPL

14     EnergyPlus' retail natural gas marketing program.

15        In 2000, I returned to PPL Electric and assumed the role of internal

16     consultant in its newly formed Business Consulting Group. In that role, I led

17     numerous strategy development and process improvement projects. Specific

18     project assignments included the development of the Company's regulatory and

19     rate structure strategies, a plan to establish an internal project management

20     office, and an improvement in the Company's methodology for forecasting

21     quantities of physical work.

22        In 2004, I transferred to PPL Services and assumed the role of Information

23     Technology Account Manager. The primary responsibilities of that role were to

1      manage the relationship between PPL Electric and the Information Services

2      Department. During this time, I was responsible for the integration of business

3      and information technology strategies and the proactive identification of PPL

4      Electric's future technology requirements.

5      In 2007, I returned to PPL Electric to assume my current role as Program

6      Manager where I am developing DSM programs.

7

8 Q. Have you previously testified as a witness before the Pennsylvania Public Utility

9      Commission ("PUC")?

10 A. No, I have not.

11

12 Q. What is the purpose of your testimony in this proceeding?

13 A. The purpose of my testimony is to discuss the Company's proposed DSM

14      program portfolio and its proposed mechanism for the recovery of costs

15      associated with those programs.

16

17 **Demand Side Management**

18 Q. What DSM programs is PPL Electric proposing in this rate proceeding?

19 A. There are five (5) programs included in the Company's proposed DSM portfolio.

20      They are:

21      • Demand-Side Management Education Program

22      • Energy Efficient Equipment Rebate Program

23      • Energy Alerts Program

1 • Time-of-Use Pricing Program

2 • Time-of-Use Pricing for Residential Thermal Storage Customers Program

3

4 Q. Provide a brief description of each program.

5 A. Demand-Side Management Education Program – This is a multi-faceted

6 consumer-based energy education program. Target audiences include

7 residential and small business customers. The objectives of the program are: (1)

8 to create awareness among customers of factors that influence their

9 consumption of electricity, and (2) to provide customers with information on

10 specific opportunities to reduce their energy consumption through energy

11 efficiency and conservation measures, if they should desire to do so. The

12 Company expects to deliver educational material and messages through a

13 number of channels, including the Company's Connect newsletter, bill inserts,

14 on-line messaging via the Company's Internet site, school partnerships, and

15 presentations via the Company's Speakers Bureau.

16 To maximize program effectiveness, the Company will look to collaborate

17 with others in the industry known to be respected and effective in this area. For

18 example, the Company currently is considering a partnership with U.S.

19 Environmental Protection Agency's ("EPA") ENERGYSTAR program as a key

20 component of this education program. As a partner, the Company will be able to

21 leverage ENERGYSTAR's brand identity and collateral materials.

22

1    Energy Efficient Equipment Rebate Program – This is a two-phase energy

2    efficient product rebate program designed to lower the purchase cost of specific

3    consumer items for the Company's customers.  Phase 1 involves compact

4    fluorescent lights and Phase 2 involves programmable thermostats.  Target

5    audiences include residential and small business customers.  The objective of

6    the program is to encourage retailer stocking and promotion of such equipment

7    through increased consumer demand in the Company's franchised service

8    territory.  Although preliminary consideration is given to point of purchase

9    rebates, other channels also are under consideration, including fundraisers via

10   schools/civic organizations and giveaways at Company-sponsored Energy

11   Efficiency events.  *This is a defined duration program with a specific number of*

12   *rebates/product to be provided through 2010.*

13   Energy Alerts Program – As described in Mr. Krall's testimony, the

14   Company is in the process of implementing a new Meter Data Management

15   System ("MDMS") to augment the capabilities of its Automated Meter Reading

16   ("AMR") system.  The MDMS will give all customers, among other capabilities,

17   tools for energy usage analysis.

18   The proposed Energy Alerts Program will lever these tools to provide

19   eligible customers with the ability to elect proactive alerts customized to their

20   energy-use characteristics.  Customers wishing to participate will need to

21   complete a comprehensive home or business energy profile and to subscribe to

22   the proactive energy alerts offering.  The objective of the program is to help

1     participating customers reduce their energy costs by stimulating energy-

2     conscious behaviors and decisions through tailored information.

3          Initially, participating customers will receive periodic alerts offering energy

4     efficiency/conservation information. The alerts will be based on the information

5     customers enter as part of their comprehensive energy profile. As it accumulates

6     hourly electric consumption details for program participants through the

7     integration of its AMR and MDMS, the Company anticipates increasing its ability

8     to communicate with customers regarding their specific energy consumption

9     trends and potential savings available through other Company-offered DSM

10     programs.

11          *Time of Use Pricing Program* – This is a demand-side response ("DSR")

12     program, which will provide information and a market-based pricing structure to

13     participating customers to encourage the reduction of electric demand in

14     response to price signals. The Company may find that a financial incentive is

15     required to attract customer participation. Target audiences include residential

16     and small business customers. Objectives of this program are to: (1) make

17     customers aware of market price volatility and how they can participate in

18     competitive markets through demand response, (2) educate the Company about

19     demand response behaviors exhibited by customers, and (3) identify technology

20     and business process issues associated with facilitating demand response

21     programs.

22          Currently, the Company offers two DSR programs; they are: (1) the

23     Demand Side Initiative Rider for eligible large I&C customers and (2) the

| | |
|---|---|
| 1 | Demand Side Response Rider – Residential. Both programs are pilots with |
| 2 | capped enrollment. The I&C pilot allows eligible customers to designate a |
| 3 | portion of their electric load for market pricing and is a yearly program. The |
| 4 | residential pilot provides for fixed on-peak and off-peak prices, thereby enabling |
| 5 | customers to save on electric costs by shifting electricity use to off-peak hours. |
| 6 | The I&C program is year-round and prices are based on day-ahead hourly |
| 7 | pricing. The residential program presently is summertime only; however, the |
| 8 | Company intends to provide year-round prices for interested customers in 2010. |
| 9 | The proposed Time-of-Use Pricing program also is a demand response |
| 10 | program. However, this program will provide price signals to residential and |
| 11 | small business customers that are reflective of on-going market conditions and |
| 12 | will vary regularly throughout the entire year. Pricing options under consideration |
| 13 | include Day Ahead, Real Time, and Critical Peak Prices. The Company will |
| 14 | choose price signal(s) based on customer input and the availability of |
| 15 | communication technology. |
| 16 | Time-of-Use Pricing for Residential Thermal Storage ("RTS") customers – |
| 17 | Rate Schedule RTS was established in the early 1980s. There are |
| 18 | approximately 13,000 customers on the rate schedule today. It is a time-of-day |
| 19 | residential service rate schedule for customers with load management |
| 20 | capabilities. The rate schedule was designed to offer a rate incentive to |
| 21 | customers who chose to install electric space and water heating with thermal |
| 22 | storage capability. RTS systems enable customers to charge their heating |

1      systems during a self-selected off-peak period. Off-peak time period options are

2      5 PM–7 AM, 6 PM–8 AM, and 7 PM–9 AM.

3      The rate schedule is closed. The Company is interested in working with

4      customers currently served on Rate Schedule RTS to explore options for dealing

5      with the rate schedule and associated RTS heating systems. There are a

6      number of related issues:

7      • Because the rate schedule was established in the early 1980s, existing

8      customer heating equipment tends to be nearing the end of its useful life.

9      This is compounded by the fact that there are a variety of technologies in use,

10      some of which are prone to unique problems, and some of which have

11      become obsolete and expensive or impossible to maintain.

12      • Many RTS systems exist in homes that have been sold at least one time

13      since the original owners installed them. Current owners may be unfamiliar

14      with the systems.

15      • Almost all existing customers have selected the 5 PM–7 AM off-peak period.

16      The systems begin to charge, and register their highest demand, at the time

17      when wintertime hourly prices in the PJM market are at their highest.

18      The proposed initiative is a demand-side response program that will begin with

19      an investigation of customer options for dealing with these and other issues. The

20      Company anticipates, at a minimum, offering eligible participants relevant

21      information and a market-based pricing structure to encourage system charging

22      outside PJM's highest price periods. The Company may find that a financial

23      incentive is required to attract customer participation. Rate Schedule RTS

1     customers are the intended target audience. The objectives of this program are

2     to: (1) make customers aware of market price volatility and how they can

3     participate in competitive markets, while making use of the functionality already

4     available in their RTS systems, (2) help the Company understand the

5     opportunities and problems associated with thermal storage systems in a

6     competitive energy market, and (3) identify technology and business process

7     issues related to a broader roll-out of this proposed pilot program.

8

9   Q.     What is the basis for selecting programs to be included in the DSM portfolio?

10   A.     There are three key factors that led to the selection of the proposed DSM

11     initiatives. They are: (1) Market Transformation Strategy, (2) Customer

12     Research, and (3) Impact Criteria.

13     Market Transformation Strategy – The Company's DSM portfolio is based

14     on a market transformation strategy to accomplish program goals. Strictly

15     speaking, market transformation is a strategy that promotes the manufacture and

16     purchase of certain products and services. As applied to the implementation of

17     DSM programs, market transformation is a strategy to induce lasting structural

18     changes in the marketplace, resulting in increased adoption of energy-efficient

19     technologies and behaviors. Market players, such as the EPA and the

20     Department of Energy, are working up-stream of consumers and affecting

21     general changes in energy efficiency. Other initiatives such as EPA's

22     ENERGYSTAR program are focused mid-stream on helping partners (including

23     electric utilities) promote energy efficiency messages. PPL Electric's program

1    focuses down-stream directly on consumers. The Company's strategy is

2    intended to promote energy-conscious behavioral changes by consumers.

3        There are a number of important market barriers related to DSM

4    initiatives, including lack of consumer awareness of energy efficient products and

5    their benefits, resistance to new products in general, and over-emphasis on first

6    cost over lifecycle costs/benefits. The Company's strategy is focused on

7    overcoming these market barriers through education and consumer awareness

8    initiatives at the consumer level. Incentives (such as rebates) will be used to

9    jumpstart sales and to raise awareness of new energy efficient products.

10       Customer Research – The Company conducted preliminary customer

11    research in February and March of 2007 to identify, among other things,

12    customer preferences regarding DSM program offerings. Preliminary findings

13    indicate that there may be broad customer interest in energy efficiency and

14    conservation education; energy efficient equipment rebates, such as compact

15    fluorescent lights; and the use of e-mail for communicating energy efficiency

16    information. The Company's research also indicates that there are groups of

17    customers interested in time-of-use pricing programs. This finding is consistent

18    with research done earlier for the Residential DSR pilot. The Company's

19    secondary research looked at DSM programs in other states and at other electric

20    utilities. The Company's proposed DSM offerings also are consistent with this

21    research.

22       Impact Criteria – The Company's proposed DSM initiatives were selected

23    to meet the following criteria: (1) potential to effectively reduce consumer energy

1    costs, (2) cost effective to deploy and manage, and (3) the Company's ability to

2    deliver and support.

3

4  Q.  What approach will PPL Electric take in implementing its DSM programs?

5  A.  The Company's approach to DSM program implementation is to include a mix of

6    energy conservation, energy efficiency, and demand response programs for its

7    residential and small business customers.  The Company will ramp-up program

8    deployment, participation, and complexity over time.  Education is the foundation

9    of all proposed DSM programs.  In addition, the Company will lever information

10    technology investments, such as its AMR and MDMS and its enhanced Internet

11    website capabilities.

     DSM program deployment will be sequenced to optimize the use of

12

13    Company resources, including personnel and budgets.  Further, proper

14    sequencing will help to maximize customer receptivity and acceptance through

15    an increasing level of customer awareness.  The Company believes that its

16    program deployment schedule is appropriate given the approaching end of rate

17    caps and the emergence of statewide energy efficiency and demand-side

18    response efforts.  Accordingly, the proposed DSM portfolio of programs is

19    grouped into two categories as follows:

20    Category 1 – Programs in this category can be developed and deployed in

21    the near term (2007 - 2008) and will be a priority due to their relevance to market

22    transformation.  Additionally, they are critical for increasing awareness so that

23    other more complex messages can be effective.  Although these programs must

1    be carefully developed, they require the least amount of technical and process

2    sophistication within the proposed DSM portfolio. Category 1 programs are:

3    • Demand-Side Management Education Program

4    • Energy Efficient Equipment Rebate Program

5    • Energy Alerts Program

6        Category 2 – Programs in this category also are highly desirable;

7    however, they require greater technical sophistication and, as such, require more

8    time for development. Additionally, these programs are more constrained

9    because of the availability of capped below-market generation rates to

10   customers. The Company intends to develop and deploy the following programs

11   in the 2008–2009 time frame. Category 2 programs are:

12   • Time-of-Use Pricing Program

13   • Time-of-Use Pricing for Residential Thermal Storage Customers

14   An overarching design consideration relates to managing technology and

15   process risks. Therefore, the Company will employ rigorous development

16   practices for all programs and will control implementation of the more technically

17   complex programs with pilots. Pilots will provide the Company with an

18   opportunity to test implementation details and customer acceptance. Further,

19   because the Company will assess customer demand response, control groups

20   will need to be studied along with program participants, thereby increasing the

21   magnitude of effort related to measuring and evaluating the programs.

22

23  Q.   What are the expected benefits of the proposed DSM programs?

1   A.   The Company expects to improve consumer awareness of energy and non-

2   energy benefits of energy efficiency and conservation measures, increase the

3   demand for energy efficient products, and increase the willingness of customers

4   to engage in changed behaviors. The Company believes that the proposed DSM

5   initiatives will enable both residential and small business customers to exercise

6   control over their energy costs, understand how their usage and electric prices

7   vary, and how to manage electric consumption for their own economic benefit.

8   Further, the Company expects to learn about customer behaviors and

9   preferences related to time-of-use pricing structures. The Company also expects

10   to identify ways to lever its technology investments to deliver increased value to

11   customers in the future.

13   Q.   Are PPL Electric's DSM programs ready for implementation?

14   A.   No, they are not. The list of programs in the proposed DSM portfolio is based on

15   the Company's research findings. The Company currently is working on the

16   design and development of these programs. As described in Mr. Krall's

17   testimony, the Company is seeking approval to pursue development of these

18   programs and to recover in rates the $2.7 million these programs are expected to

19   cost annually. The development phase is critical to ensuring cost-effective

20   program characteristics, such as quantity and value of equipment rebates and

21   program participation limits. The Company also will identify and develop

22   processes required for effective implementation.

23

1   Q.   Can all residential and small business customers participate in these programs?

2   A.   Although the Company believes that all customers benefit from effective DSM

3         efforts, this group of proposed programs is intended for specific, and in most

4         cases, limited target audiences. The Company believes that success for all DSM

5         programs can be defined in terms of customer acceptance, demand

6         management performance, and cost effectiveness. The Company also believes

7         that restricting participation is essential during the development process so that it

8         can learn how to optimize these factors. This does not mean that the Company

9         is ignoring the needs of its broad customer base. Mr. Krall describes the

10        consumer education program that the Company proposes to deliver broadly to all

11        customers.

12

13   Q.   How does PPL Electric plan to determine eligibility for each of the proposed

14        programs?

15   A.   The approach for determining eligibility for each program will be different and

16        based on the program's intent and the technical complexity of the offering.

17        •  Demand-Side Management Education Program – This program will be

18            designed around specific delivery channels so that there is maximum

19            opportunity for the target audiences to learn about the benefits of changing

20            energy-related behaviors.

21        •  Energy Efficient Equipment Rebate Program – This program will provide a

22            generous, but limited, quantity of rebates/product consistent with the tenets of

23            market transformation. As mentioned earlier, program development findings

1    will be used to establish the final details on quantity and value of the

2    proposed incentives.

3    • Energy Alerts, Time-of-Use Pricing, and Time-of-Use Pricing for Rate

4    Schedule RTS Customers – These programs are more technically complex

5    than the others. The Company intends to run these programs as pilots to

6    ensure that implementation details and customer acceptance can be tested

7    thoroughly. Although the level of participation for each of these programs has

8    not been established, it will be similar to the Company's DSR initiative, which

9    started with 200 customers.

10

11   Q.   What initiatives is PPL Electric proposing for large Industrial and Commercial

12   customers?

13   A.   As the Company has demonstrated over the years, it is very responsive to the

14   needs of all customer classes. Although this proposed portfolio of programs is

15   targeted to residential and small business customers, the Company continues to

16   support all other rate classes through other efforts and initiatives. For example,

17   and as detailed in Mr. Krall's testimony, the implementation of the Company's

18   MDMS will help:

19   • All customers participate in the new market environment by providing new

20   tools to understand and manage their electric bills;

21   • Support generation purchases at the end of the rate cap period for all

22   customers whether they are shopping or not; and

1    •  Provide suppliers with enough detail to enable them to offer customers a

2      variety of other demand-side programs.

3   The Company also believes that the residential and small business customer

4   classes will require the most support to benefit from existing market alternatives.

5   For example, mid to large-size I&C customers can benefit directly through

6   existing PJM initiatives, industry organizations, consultants, and lobbying

7   organizations.

8      Additionally, consistent with the fact that programs are targeted at small

9   customers, the Company is proposing that estimated costs be recovered only

10   from residential customers on Rate Schedules RS, RTS, and RTD and small

11   business customers on Rate Schedule GS-1.

12

13   Q.   What level of annual DSM funding is PPL Electric proposing to recover in rates?

14   A.   The Company proposes to recover, through rates, annual funding of $2,688,000

15   for the five programs described above.  This is a preliminary estimate of costs

16   based on an initial assessment and prior program experience.  These estimates

17   are subject to change based on insights resulting from program development

18   activities and other developments, such as finalized regulations regarding (1) the

19   role of default service providers in the post-generation cap environment and (2)

20   the scope of efforts that are to be taken to mitigate the impacts of potential price

21   increases.

22      Program costs reflect typical categories of expense, such as; labor and

23   expenses for developing and managing the initiatives, market research,

1   marketing communications, back office support, customer incentives,

2   promotional activities, training, and information technology.  The Company does

3   not anticipate any capital expenditures associated with the five programs

4   proposed in this filing.

5       Because the Company is committed to delivering effective programs that

6   appeal to its customers, it will employ various customer surveys through the

7   lifecycles of the initiatives.  Doing so will help the Company deploy effective

8   programs that customers want, help the Company improve the initiatives while

9   they are underway, and will help the Company learn of future opportunities to

10  assist customers with energy-related tools and choices.  It is likely that this

11  customer input will affect program expenses in the 2009-2011 period.

12

13  Q.  How does PPL Electric intend to recover funding of its DSM programs?

14  A.  The Company proposes to recover all costs associated with its proposed DSM

15      programs through a reconcilable surcharge that would become effective on

16      January 1, 2008.  Due to variability and uncertainty of costs associated with

17      deploying and managing programs, the Company proposes that a new Energy

18      Efficiency Rider ("EER") be established as an efficient and effective mechanism

19      to reconcile actual program expenses on an annual basis for the applicable rate

20      schedules.

21      The DSM programs proposed in this filing are targeted to residential and

22      small business customers.  As such, the Company proposes to recover program

23      costs from customers served on Rate Schedules RS, RTS, RTD, and GS-1 on a

1    percentage basis consistent with the revenue contribution of each of these rate

2    schedules.  Mr. Kleha discusses the details of the design and implementation of

3    the EER in his direct testimony.

4

5  Q.   Does this conclude your direct testimony?

6  A.   Yes, it does.

# BEFORE THE
# PENNSYLVANIA PUBLIC UTILITY COMMISSION

## Docket No. R-00072155

## PPL Electric Utilities Corporation

## Statement No. 10

### Direct Testimony of John J. Spanos

# DIRECT TESTIMONY OF JOHN J. SPANOS

1  Q.  Please state your name and address.

2  A.  John J. Spanos. My business address is 207 Senate Avenue, Camp Hill,

3      Pennsylvania.

4  Q.  With what firm are you associated?

5  A.  I am associated with the firm of Gannett Fleming, Inc.

6  Q  How long have you been associated with Gannett Fleming, Inc.?

7  A.  I have been associated with the firm since June 1986, following graduation from

8      college.

9  Q.  What is your position in the firm?

10  A.  I am a Vice President.

11  Q.  What is your educational background?

12  A.  I have Bachelor of Science degrees in Industrial Management and Mathematics

13      from Carnegie-Mellon University and a Master of Business Administration from

14      York College of Pennsylvania.

15  Q.  Are you a member of any professional societies?

16  A.  Yes. I am a member of the Society of Depreciation Professionals and the

17      American Gas Association/Edison Electric Institute Industry Accounting

18      Committee.

19  Q.  Have you taken the certification examination for depreciation professionals?

20  A.  Yes, I passed the certification examination of the Society of Depreciation

21      Professionals in September 1997 and was recertified in August 2003.

22  Q.  Will you outline your experience in the field of depreciation?

A. In June 1986, I was employed by Gannett Fleming Valuation and Rate Consultants, Inc. as a Depreciation Analyst. During the period from June 1986 to December 1995, I took part in the preparation of numerous depreciation and original cost studies for utility companies in various industries. Depreciation studies of telephone companies were performed for United Telephone of Pennsylvania, United Telephone of New Jersey and Anchorage Telephone Utility. My work in the railroad industry included depreciation studies for Union Pacific Railroad, Burlington Northern Railroad and Wisconsin Central Transportation Corporation.

Assignments in the electric industry included depreciation studies for Chugach Electric Association, The Cincinnati Gas and Electric Company, The Union Light, Heat & Power Company, Northwest Territories Power Corporation and the City of Calgary - Electric System. Pipeline industry assignments included studies for TransCanada Pipelines Limited, Trans Mountain Pipe Line Company Ltd., Interprovincial Pipe Line Inc., Nova Gas Transmission Limited and Lakehead Pipeline Company.

My work for the gas industry included depreciation studies for Columbia Gas of Pennsylvania, Columbia Gas of Maryland, The Peoples Natural Gas Company, T. W. Phillips Gas & Oil Company, The Cincinnati Gas and Electric Company, The Union Light, Heat & Power Company, Lawrenceburg Gas Company and Penn Fuel Gas, Inc. Assignments in the water industry included depreciation studies for Indiana-American Water Company, Consumers Pennsylvania Water Company and The York Water Company; and depreciation

1    and original cost studies for Philadelphia Suburban Water Company and

2    Pennsylvania-American Water Company.

3          My participation in each of the above studies included assembly and

4    analysis of historical and simulated data, field reviews, the development of

5    preliminary estimates of service life and net salvage, calculations of annual

6    depreciation, and the preparation of reports for submission to state or provincial

7    public utility commissions or federal regulatory agencies.  I performed these

8    studies under the general direction of William M. Stout, P.E., the President of

9    Gannett Fleming Valuation and Rate Consultants, Inc.

10         In January 1996, I was assigned to the position of Supervisor of

11   Depreciation Studies.  In July 1999, I was promoted to the position of Manager,

12   Depreciation and Valuation Studies.  In December 2000, I was promoted to my

13   current position as Vice President of Gannett Fleming Valuation and Rate

14   Consultants, Inc.  I am responsible for all depreciation, valuation and original

15   cost studies, including the preparation of final exhibits and responses to data

16   requests and interrogatories for submission to the appropriate regulatory body.

17         Since January 1996, I have conducted depreciation studies similar to

18   those previously listed, including assignments for Hampton Water Works

19   Company, Omaha Public Power District, Enbridge Pipe Line Company, Inc.,

20   Columbia Gas of Virginia, Inc., Virginia Natural Gas Company, National Fuel

21   Gas Distribution Corporation - New York and Pennsylvania Divisions, The City

22   of Bethlehem - Bureau of Water, The City of Coatesville Authority, The City of

23   Lancaster - Bureau of Water, Peoples Energy Corporation, The York Water

24   Company, Public Service Company of Colorado, Reliant Energy-HLP,

1  Massachusetts-American Water Company, St. Louis County Water Company,

2  Missouri-American Water Company, Chugach Electric Association, Alliant

3  Energy, Oklahoma Gas and Electric Company, Nevada Power Company,

4  Dominion Virginia Power, NUI-Virginia Gas Companies, PSI Energy, NUI -

5  Elizabethtown Gas Company, Cinergy Corporation – CG&E, Cinergy

6  Corporation – ULH&P, Columbia Gas of Kentucky, SCANA, Inc., Idaho Power

7  Company, El Paso Electric Company, Central Hudson Gas & Electric,

8  Centennial Pipeline Company, CenterPoint Energy-Arkansas, CenterPoint

9  Energy – Oklahoma, CenterPoint Energy – Entex, CenterPoint Energy -

10  Louisiana, NSTAR – Boston Edison Company, Westar Energy, Inc., South

11  Jersey Gas Company, Duquesne Light Company, MidAmerican Energy

12  Company, Laclede Gas, Duke Energy Company, Bonneville Power

13  Administration, NSTAR Electric and Gas Company, EPCOR Distribution, Inc.

14  and B. C. Gas Utility, Ltd.  My additional duties include determining final life and

15  salvage estimates, conducting field reviews, presenting recommended

16  depreciation rates to management for its consideration and supporting such

17  rates before regulatory bodies.

18  Q.  What is the extent of your formal instruction regarding utility plant depreciation?

19  A.  I have completed the "Techniques of Life Analysis", "Techniques of Salvage

20  and Depreciation Analysis", "Forecasting Life and Salvage", "Modeling and Life

21  Analysis Using Simulation" and "Managing a Depreciation Study" programs

22  conducted by Depreciation Programs, Inc.  I also have completed the

23  "Introduction to Public Utility Accounting" program conducted by the American

24  Gas Association.

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1    Q.    Have you previously testified on public utility ratemaking matters?

2    A.    Yes.    I have submitted testimony to the Pennsylvania Public Utility

3    Commission, the Commonwealth of Kentucky Public Service Commission, the

4    Public Utilities Commission of Ohio, the Nevada Public Utility Commission, the

5    Public Utilities Board of New Jersey, the Missouri Public Service Commission

6    and the Massachusetts Department of Telecommunications and Energy, the

7    Alberta Energy & Utility Board, the Idaho Public Utility Commission, the

8    Louisiana Public Service Commission, the State Corporation Commission of

9    Kansas, the Oklahoma Corporate Commission, The Public Service Commission

10    of South Carolina, Railroad Commission of Texas – Gas Services Division, the

11    New York Public Service Commission, Illinois Commerce Commission, the

12    Indiana Utility Regulatory Commission, the California Public Utilities

13    Commission, The Federal Energy Regulatory Commission (FERC), the

14    Arkansas Public Service Commission, the Public Utility Commission of Texas,

15    the Regulatory Commission of Alaska, and the North Carolina Utilities

16    Commission.

17    Q.    What is the purpose of your testimony?

18    A.    My testimony is in support of the depreciation study conducted under my

19    direction and supervision for the utility plant of PPL Electric Utilities Corporation

20    ("PPL Electric").

21    Q.    Have you prepared exhibits presenting the results of your study?

22    A.    Yes.    Exhibit JJS 1 presents the results of the depreciation study as of

23    December 31, 2006 and JJS 2 sets forth the results of the depreciation study as

24    of December 31, 2007.    In addition, I am responsible for the responses to

1    Questions V-A-2, V-B-1, V-B-2, V-C-1, V-D-1, V-D-2 and V-E-1 of the Exhibit

2    Regs., § 53.53, Part V - Plant and Depreciation Supporting Data, Including

3    Related Depreciation Study Report.

4  Q.  Please describe Exhibits JJS 1 and JJS 2.

5  A.  Exhibit JJS 1, titled "Depreciation Study Related to Electric Plant at December

6    31, 2006," includes the results of the depreciation study as related to the

7    original cost at December 31, 2006. The report also includes the detailed

8    depreciation calculations. Exhibit JJS 2, which is titled, "Depreciation Study

9    Related to Electric Plant at December 31, 2007", includes the results of the

10    depreciation study as related to the estimated original cost at December 31,

11    2007. The report also includes explanatory text, statistics related to the

12    estimation of service life, and the detailed depreciation calculations.

13  Q.  What was the purpose of your depreciation study?

14  A.  The purpose of the depreciation study was to estimate the annual depreciation

15    accruals related to utility plant in service for ratemaking purposes and using

16    Commission-approved procedures to estimate the Company's book reserve at

17    December 31, 2007.

18  Q.  Is the Company's claim for annual depreciation in the current proceeding based

19    on the same methods of depreciation as were used in its most recent electric

20    base rate proceeding in Docket No. R-00049255?

21  A.  Yes, it is. For most plant accounts, the current claim for annual depreciation is

22    based on the straight line remaining life method of depreciation. For Accounts

23    368, 370, 391, 393, 395, 397 and 398, the claim is based on the straight line

24    remaining life method of amortization. The assets in Accounts 392 and 396 are

1    new to plant in service; however, they will be recovered in a similar fashion to

2    the other amortized accounts.   The annual amortization is based on

3    amortization accounting which distributes the unrecovered cost of fixed capital

4    assets over the remaining amortization period selected for each account.

5    Q.   What group procedure is being used in this proceeding for depreciable

6         accounts?

7    A.   The average service life procedure is used in the current proceeding for all

8         depreciable accounts and installation years.  The average service life procedure

9         also was used in this same manner in the Company's most recent base rate

10        proceeding.

11   Q.   Has a service life study of the Company's electric utility property been

12        performed?

13   A.   Yes.  A service life study has been performed through 2006 as a part of this

14        filing.  The service life study is the basis for the service lives I used to calculate

15        annual accruals.

16   Q.   Briefly outline the procedure used in performing the service life study.

17   A.   The service life study consisted of assembling and compiling historical data

18        from the records related to the electric utility plant of the Company; statistically

19        analyzing such data to obtain historical trends of survivor characteristics;

20        obtaining supplementary information from management and operating

21        personnel regarding Company practices and plans as they relate to plant

22        operations; and interpreting the above data to form judgments of service life

23        characteristics.

1    Iowa type survivor curves were used to describe the estimated survivor

2    characteristics of the mass property groups. Individual service lives were used

3    for major individual units of plant, such as large service centers and office

4    buildings, within Account 390.2. The life span concept was recognized by

5    coordinating the lives of associated plant installed in subsequent years with the

6    probable retirement date defined by the life estimated for the major unit.

7  Q.  What statistical data were employed in the historical analyses performed for the

8    purpose of estimating service life characteristics?

9  A.  The data consisted of the entries made to record retirements and other

10   transactions related to the electric plant through 2006. These entries were

11   classified by depreciable group, type of transaction, the year in which the

12   transaction took place, and the year in which the plant was installed. Types of

13   transactions included in the data were plant additions, retirements, transfers,

14   and balances. In the presentation of service life statistics, only the significant

15   exposure points that were utilized in determining survivor curves were plotted.

16   This process is utilized to show my judgment in service life determinations.

17 Q.  What was the source of these data?

18 A.  They were assembled from Company records related to its utility plant in

19   service.

20 Q.  Were the methods used in the service life study the same as those used in

21   other depreciation studies for electric utility plant presented before this Commis-

22   sion?

23 A.  Yes. The methods are the same ones that have been presented previously for

24   PPL Electric and for other electric companies before the Pennsylvania Public

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1   Utility Commission, and that have been accepted by the Commission in its past

2   orders regarding electric utilities.

3   Q.  What approach did you use to estimate the lives of significant structures such

4   as office buildings and service centers?

5   A.  I used the life span technique to estimate the lives of significant structures. In

6   this technique, the survivor characteristics of the structures are described by the

7   use of interim survivor curves and estimated probable retirement dates. The

8   interim survivor curve describes the rate of retirement related to the

9   replacement of elements of the structure, such as plumbing, heating, doors,

10  windows, roofs, etc., that occur during the life of the facility. The probable

11  retirement date provides the rate of final retirement for each year of installation

12  for the structure by truncating the interim survivor curve for each installation

13  year at its attained age at the date of probable retirement. The use of interim

14  survivor curves truncated at the date of probable retirement provides a

15  consistent method for estimating the lives of the several years of installation,

16  inasmuch as concurrent retirement of all years of installation will occur when the

17  structure is retired.

18  Q.  Has your firm used this approach in other proceedings before this Commission?

19  A.  Yes, we have used the life span technique on many occasions before the

20  Pennsylvania Public Utility Commission.

21  Q.  What are the bases for the probable retirement years that you have estimated

22  for each structure?

23  A.  The bases for the estimates of probable retirement years are life spans for each

24  structure that are based on judgment and incorporate consideration of the age,

1    use, size, nature of construction, management outlook and typical life spans

2    experienced and used by other electric utilities for similar structures.  Most of

3    the life spans result in probable retirement years that are many years in the

4    future. As a result, the retirement of these structures is not yet subject to

5    specific management plans.   Such plans would be premature.   At the

6    appropriate time, analysis of the economics of rehabilitation and continued use

7    or retirement of the structure will be performed and the results incorporated in

8    the estimation of the structure's life span.

9  Q.  Are the factors considered in your estimates of service life presented in Exhibit

10     JJS 2?

11 A.  Yes.  A discussion of the factors considered in the estimation of service lives is

12     presented by account on pages II-3 through II-26 of Exhibit JJS 2.

13 Q.  Please outline the contents of Exhibit JJS 2.

14 A.  Exhibit JJS 2 is presented in three parts.  Part I, Executive Summary, sets forth

15     the scope and basis of study.  Part II, Methods Used in Study, includes the

16     estimation of survivor curves, and the calculation of annual depreciation and

17     amortization.

18         Part III, Results of Study, presents a description of the results,

19     summaries of the depreciation calculations, graphs and tables which relate to

20     the service life study, and the detailed depreciation calculations.

21         Table 1 on pages III-4 and III-5 presents the estimated survivor curve,

22     the original cost at December 31, 2007, and the book reserve and calculated

23     annual depreciation for each account or subaccount of utility plant.

1     On pages III-6 and III-7, Table 2 sets forth the "bring forward" of the

2     book reserve from December 31, 2006 to December 31, 2007.  Table 3 on page

3     III-8 presents the net salvage by function and amortization for the period 2002

4     through 2006.

5          The section beginning on page III-9 presents the results of the

6     retirement rate analyses prepared as the historical bases for the service life

7     estimates.  The section beginning on page III-124 presents the depreciation

8     calculations related to original cost.  The tabulations on pages III-125 through

9     III-241 present the calculation of annual depreciation by vintage by account for

10    each depreciable group of utility plant.

11  Q.  Please use an example to illustrate the manner in which the study is presented

12      in Exhibit JJS 2.

13  A.  I will use Account 365, Overhead Conductors and Devices, as my example,

14      inasmuch as it is one of the larger depreciable groups and represents 12

15      percent of the original cost of depreciable utility plant as of December 31, 2007.

16          The retirement rate method was used to analyze the survivor

17      characteristics of this group.  The life table for the 1912 through 2006

18      experience band is presented on pages III-76 through III-78 of Exhibit JJS 2.

19      The life table, or original survivor curve, is plotted along with the estimated

20      smooth survivor curve, the 44-R1, on page III-75.

21          The calculation at December 31 2007, is presented on pages III-168

22      through III-170 of Exhibit JJS2 and is based in part on the bring forward of the

23      book reserve.  The tabulation in Exhibit JJS 2 sets forth the installation year, the

24      original cost, calculated accrued depreciation, allocated book reserve, future

1    accruals, remaining life and annual accrual.  The totals are brought forward to

2    the table on page III-4 in Exhibit JJS 2.

3    Q.  Does this complete your testimony at this time?

4    A.  Yes, it does.

# BEFORE THE

# PENNSYLVANIA PUBLIC UTILITY COMMISSION

## Docket No. R-00072155

## PPL Electric Utilities Corporation

## Statement No. 11

## Direct Testimony of Paul R. Moul

# PPL Electric Utilities Corporation
Direct Testimony of Paul R. Moul
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| GLOSSARY OF ACRONYMS AND DEFINED TERMS | |
|---|---|
| **ACRONYM** | **DEFINED TERM** |
| AFUDC | Allowance for Funds Used During Construction |
| AMT | Alternative Minimum Tax |
| $\beta$ | Beta |
| b | Represents the retention rate that consists of the fraction of earnings that are not paid out as dividends |
| b x r | Represents internal growth |
| CAPM | Capital Asset Pricing Model |
| CCR | Corporate Credit Rating |
| CE | Comparable Earnings |
| CWIP | Construction Work in Progress |
| DCF | Discounted Cash Flow |
| E | Common equity ratio |
| EPACT | National Energy Policy Act |
| FOMC | Federal Open Market Committee |
| g | Growth rate |
| GAAP | Generally accepted accounting principles |
| GDP | Gross Domestic Product |
| IGF | Internally Generated Funds |
| Lev | Leverage modification |
| LT | Long Term |
| M&A | Merger and Acquisition |
| MLP | Master Limited Partnerships |
| MPL | Minimum Pension Liability |
| NUGS | Non-utility generators |
| OCI | Other Comprehensive Income |
| P | Preferred and preference stock |
| PJM | PJM Interconnection, LLC |
| POLR | Provider of last resort |
| PPL | PPL Corporation |

## GLOSSARY OF ACRONYMS AND DEFINED TERMS

| ACRONYM | DEFINED TERM |
|---|---|
| PPL Electric | PPL Electric Utilities Corporation |
| PPUC | Pennsylvania Public Utility Commission |
| PUHCA | Public Utility Holding Company Act |
| r | represents the expected rate of return on common equity |
| Rf | Risk-free rate of return |
| Rm | Return on the market |
| RP | Risk Premium |
| RTO | Regional Transmission Organizations |
| s | Represents the new common shares expected to be issued by a firm |
| s x v | Represents external growth |
| S&P | Standard & Poor's |
| v | Represents the value that accrues to existing shareholders from selling stock at a price different from book value |
| ytm | Yield to maturity |
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# DIRECT TESTIMONY OF PAUL R. MOUL

## INTRODUCTION AND SUMMARY OF RECOMMENDATION

1  Q.  **Please state your name, occupation, and business address.**

2  A.  My name is Paul Ronald Moul. My business address is 251 Hopkins Road,

3  Haddonfield, New Jersey 08033-3062. I am Managing Consultant of the firm P.

4  Moul & Associates, an independent financial and regulatory consulting firm. My

5  educational background, business experience, and qualifications are provided in

6  Appendix A, which follows my direct testimony.

7  Q.  **What is the purpose of your testimony?**

8  A.  My testimony presents evidence, analysis and a recommendation concerning the

9  appropriate rate of return that the Pennsylvania Public Utility Commission

10  ("PPUC" or the "Commission") should allow PPL Electric Utilities Corporation

11  ("PPL Electric" or the "Company"), an opportunity to earn on its jurisdictional rate

12  base devoted to public service. My analysis and recommendation are supported by

13  the detailed financial data contained in Exhibit PRM 1, which is a multi-page

14  document divided into fourteen (14) schedules. Additional evidence, in the form of

15  appendices, follows my direct testimony. The items covered in these appendices

16  provide additional detailed information concerning the explanation and application

17  of the various financial models upon which I rely.

18  Q.  **Based upon your analysis, what is your conclusion concerning the appropriate**

19  **cost of common equity and rate of return for the Company?**

20  A.  Based upon my independent analysis, my conclusion is that the Company should be

21  afforded an opportunity to earn a rate of return on common equity of 11.50%, and an

22  overall rate of return of 8.36%. I reached this determination based upon the range of

1

1    the results of the models/methods I used to measure the cost of equity. As my

2    testimony will demonstrate, an 11.50% cost of equity is warranted in this case for the

3    Company and provides recognition of the exemplary performance of the Company's

4    management.

5    My overall rate of return recommendation is determined by using the

6    weighted average cost of capital. This approach provides a means to apportion the

7    return to each class of investor. The calculation of the weighted average cost of capital

8    requires the selection of appropriate capital structure ratios and a determination of the

9    cost rate for each capital component. The resulting overall fair rate of return, when

10   applied to the Company's rate base, will provide a compensatory level of return for the

11   use of capital and provide the Company with the ability to attract capital.

12 Q. **What background information have you considered in reaching a conclusion**

13   **concerning the Company's cost of capital?**

14 A.  PPL Electric is a wholly-owned subsidiary of PPL Corporation ("PPL" or the

15   "Parent Company"). The Company provides electric delivery service and provider

16   of last resort ("POLR") service to over 1,375,000 customers in twenty-nine central

17   and eastern Pennsylvania counties. Although the Company has traditionally been a

18   winter peaking electric utility, its summer load has closely matched its winter load.

19   In 2005, electric sales in Mwh for PPL Electric were comprised of approximately

20   37% to residential, 34% to commercial, 25% to industrial customers, and 3% to

21   street lighting, public authorities, sales for resale, and other sales.

22   The Company is presently operating under a POLR rate plan that extends

23   through 2009. Under POLR, residential and small commercial customers obtain

2

1    service under capped prices until that time. The Company obtains the energy to

2    meet its POLR obligations through a Commission approved contract with PPL

3    EnergyPlus, LLC that extends through 2009.

4    Q.    How have you determined the cost of common equity in this case?

5    A.    The cost of common equity is established using capital market and financial data

6          relied upon by investors to assess the relative risk, and hence the cost of equity, for

7          an electric utility, such as PPL Electric.  In this regard, I relied on four (4) well-

8          recognized measures of the cost of equity:  The Discounted Cash Flow ("DCF")

9          model, the Risk Premium ("RP") analysis, the Capital Asset Pricing Model

10         ("CAPM"), and the Comparable Earnings ("CE") approach.  The results of a variety

11         of approaches indicate that the Company's rate of return on common equity is

12         within the range of 11.25% to 11.75%.

13   Q.    In your opinion, what factors should the Commission consider when

14         determining the Company's cost of capital in this proceeding?

15   A.    The Commission's rate of return allowance must provide a utility with the

16         opportunity to cover its interest and preferred and preference dividend payments,

17         provide a reasonable level of earnings retention, produce an adequate level of

18         internally generated funds to meet capital requirements, be adequate to attract

19         capital in all market conditions, be commensurate with the risk to which the utility's

20         capital is exposed, and support reasonable credit quality.  I have explained the basis

21         of these ratesetting principles in Appendix B.

22   Q.    What factors have you considered in measuring the cost of equity in this case?

23   A.    The models that I used to measure the cost of common equity for the Company

3

1  were applied with market and financial data developed from my proxy group of

2  eight electric companies. The criteria that I used to assemble this proxy group will

3  be described later in my testimony. The companies in the proxy group are

4  identified on page 2 of Schedule 3. I will refer to these companies as the "Electric

5  Group" throughout my testimony.

6 **Q.** **How have you performed your cost of equity analysis with the market data for**

7  **the Electric Group?**

8 **A.** I have applied the models/methods for estimating the cost of equity using the

9  average data for the Electric Group. I have not measured separately the cost of

10  equity for the individual companies within the Electric Group, because the

11  determination of the cost of equity for an individual company has become

12  increasingly problematic. By employing group average data, rather than individual

13  Company's analysis, I have helped to minimize the effect of extraneous influences

14  on the market data for an individual company.

15 **Q.** **Please summarize your cost of equity analysis.**

16 **A.** My cost of equity determination was derived from the results of the

17  methods/models identified above. In general, the use of more than one method

18  provides a superior foundation to arrive at the cost of equity. At any point in time,

19  reliance on a single method can provide an incomplete measure of the cost of

20  equity. The specific application of these methods/models will be described later in

21  my testimony. The following table provides a summary of the indicated costs of

22  equity using each of these approaches.

|  | Electric Group |
|---|---|
| DCF | 11.01% |
| RP | 11.50% |
| CAPM | 12.29% |
| Comparable Earnings | 15.05% |
| Average | 12.46% |
| Median | 11.90% |
| Mid-point | 13.03% |

1    From the results derived from the market models of the cost of equity (i.e., DCF, Risk

2    Premium and CAPM), the average return is 11.60%. The average return for the DCF

3    and Risk Premium models is 11.26%. In recognition of the uncertainties that are

4    associated with the end of the transition phase of restructuring and in recognition of the

5    exemplary performance of the Company's management, as described in the pre-filed

6    direct testimony of Mr. David G. DeCampli, the rate of return on common equity

7    should be set at 11.50%. I also believe that my recommended cost of equity of 11.50%

8    is appropriate in this case because it makes no provision for the prospect that the rate

9    of return may not be achieved due to unforeseen events that could occur during the

10    effective period of the proposed rates.

11    **ELECTRIC UTILITY RISK FACTORS**

12  Q.  **Please identify some of the factors that make the electric utility industry**

13    **generally different today than it was in the past.**

14  A.  Today, electric utilities generally are faced with meaningful changes in the

15    fundamentals that affect their operations, while cost of service pricing continues to

1    dominate much of their business profile. On the national level, the passage of the

2    National Energy Policy Act ("EPACT") and the issuance of FERC Order Nos. 888

3    and 889 and Order No. 2000 initiated sweeping changes that fundamentally altered

4    the structure of the electric utility business. EPACT removed certain impediments

5    to the construction of non-utility generators ("NUGs") by utility affiliates and by

6    independent developers. Order Nos. 888 and 889 have provided these generators,

7    as well as other utilities, with the ability to sell their energy directly to wholesale

8    customers, as well as to end-use customers in states with retail competition. Order

9    No. 2000 encouraged the formation of Regional Transmission Organizations

10   ("RTO") that offer non-discriminatory transmission service. PPL Electric is part of

11   the PJM Interconnection, LLC. Although generation in some parts of the U.S. has

12   become a non-regulated competitive business, the transmission and distribution of

13   electricity will likely continue under some form of rate regulation. The recent

14   passage of the EPACT further highlights the emphasis being placed upon the

15   reliability and structure of the electric utility industry.

16 Q.  **What changes have occurred in Pennsylvania as a result of a move to more**

17      **competitive markets for electricity?**

18 A.  On January 2, 2000, customer choice was fully available in Pennsylvania for

19      electricity. From that point forward, PPL Electric's responsibility became primarily

20      the provision of delivery service at regulated prices, while it also retained the

21      responsibility for POLR service to customers that do not elect competitive energy

22      suppliers. The restructuring of the electric business in Pennsylvania has been

23      underway for several years.

6

1 Q. **Have these changes brought about increases in the risks facing electric utilities**

2 **generally?**

3 A. Yes. Aside from its traditional responsibility to maintain reliability and comply

4 with the mandates of PJM, a different set of risks are now evolving in a new era for

5 the electric delivery business in Pennsylvania. The risk of distributed generation

6 will continue to be a concern, and could have an increasing influence on the

7 business of electric delivery utilities. With technological advances in micro-

8 turbines, potential commercialization of fuel cells, development of wind and solar

9 power, utilities face the potential for declines in revenue from the transmission and

10 distribution of electricity. In addition, the testimony of Mr. Douglas A. Krall

11 describes the potential risks associated with the Governor's legislative proposal for

12 changes that would apply to electricity service. Among other items in the proposal,

13 the creation of micro-grids could elevate the risk of bypass for the incumbent

14 electric utilities. In addition, an electric utility retains the obligation to provide

15 reliable delivery service and must continue to invest in its rate base to fulfill that

16 obligation.

17 The obligation to serve also represents a key risk factor for the local delivery

18 of electricity. The risks facing the electric utilities are clearly different from those

19 that existed in the past. Investors generally are risk-averse, and with increased

20 uncertainty will require compensation for higher risk.

21 Q. **What are the primary risk factors facing the electric utility industry?**

22 A. In the new environment, competitive issues have or will develop due to the

23 convergence of energy sources and bypass arising from self-generation or

7

1     distributed-generation. Regulatory risks include the overall framework of

2     ratesetting, cost allocation, and rate design issues, and the level of return that will be

3     allowed.

4           The financial structure of the electric business is uncertain due to the

5     structure and term of relationship with end-users, the adequacy of capital recovery,

6     counter-party risk, potential for financial penalties associated with operational

7     problems, and growth in the utilization of the transmission and distribution network

8     by non-affiliated generators and marketers. The August 14, 2003 blackout that

9     affected 50 million people represents a case-in-point regarding some of these issues.

10   **Q.**    **Please discuss further the evolving risks for electric utilities.**

11   **A.**    With increased emphasis on market-determined prices and open access of the

12     transmission network, a new dimension has been opened in the electric utility

13     business. A pricing structure restricted by regulation diminishes management's

14     ability to adjust its business strategy quickly to changing market conditions to

15     respond to broadening competition. Hence, deregulation of certain segments of the

16     electric utility business provides significant downside risk due to loss of revenues,

17     but provides little upside potential due to the limitations placed on returns by

18     regulators.

19   **Q.**    **Are there other specific risk issues facing the Company?**

20   **A.**    Yes. Energy deliveries to non-residential customers which represent 63% of the

21     Company's energy deliveries are usually thought to be of higher risk than to

22     residential customers. Success in this segment of the Company's market is subject

23     to the business cycle and pressures from alternative providers. Moreover, external

1   factors also can influence deliveries to these customers, which face competitive

2   pressure on their own operations from other facilities outside the utility's service

3   territory.

4  Q.  **Please indicate how the Company's risk profile is affected by its construction**

5      **program.**

6  A.  The Company is faced with the requirement to undertake investment to maintain

7      and upgrade existing facilities in its service territory and to meet growth. Over the

8      next four years, the Company's total capital expenditures are expected to be:

| Years | Construction |
|-------|--------------|
| 2007  | $   303,000,000 |
| 2008  | 255,000,000 |
| 2009  | 278,000,000 |
| 2010  | 286,000,000 |
| Total | $  1,122,000,000 |

9

10  These expenditures will represent approximately 37% ($1,122 million ÷ $2,993.8

11  million) of the net utility plant at December 31, 2006. The Company expects that

12  approximately 89% of these expenditures will be financed with internally generated

13  funds. A reasonable opportunity to experience a fair rate of return represents the

14  key to a financial profile that will provide the Company with the ability to raise

15  capital in all market conditions to meet its needs, and to satisfy investor

16  requirements in an evolving industry.

17  Q.  **How should the Commission respond to the evolving business environment**

18      **facing the Company?**

1 A. In the situation where additional capital is required, as shown by the projected

2 construction expenditures indicated above, the regulatory process must establish a

3 return on equity that provides a reasonable opportunity for the Company to actually

4 achieve its cost of capital. Where ongoing capital investment is required to meet

5 the high quality of service that customers demand, supportive regulation is

6 essential.

## FUNDAMENTAL RISK ANALYSIS

8 Q. **Is it necessary to conduct a fundamental risk analysis to provide a framework**

9 **for a determination of a utility's cost of equity?**

10 A. Yes. It is necessary to establish a company's relative risk position within its

11 industry through a fundamental analysis of various quantitative and qualitative

12 factors that bear upon investors' assessment of overall risk. The qualitative factors

13 that bear upon the Company's risk already have been discussed. The quantitative

14 risk analysis follows. The items that influence investors' evaluation of risk and

15 their required returns are described in Appendix C. For this purpose, I compared

16 PPL Electric to the S&P Public Utilities, an industry-wide proxy consisting of

17 various regulated businesses, and to the Electric Group.

18 Q. **What are the components of the S&P Public Utilities?**

19 A. The S&P Public Utilities is a widely recognized index that is comprised of electric

20 power and natural gas companies. These companies are identified on page 3 of

21 Schedule 4.

22 Q. **What criteria did you employ to assemble the Electric Group?**

23 A. The Electric Group companies have the following common characteristics: (i) they

1      are listed in the "Electric Utility (East)" section of <u>The Value Line Investment</u>

2      <u>Survey</u>, (ii) their stock is traded on the New York Stock Exchange, (iii) they operate

3      in the Northeastern and Southeastern regions of the U.S., (iv) they are not currently

4      the target of a publicly-announced merger or acquisition, and (v) they do not have a

5      significant amount of electric generation that is unregulated. It would be

6      inappropriate to include a company that is a target of a takeover in a proxy group,

7      because the stock price of that company usually does not reflect its underlying

8      fundamentals.

9   **Q.**   **Is knowledge of a utility's bond rating an important factor in assessing its risk**

10      **and cost of capital?**

11   **A.**   Yes. Knowledge of a company's credit quality rating is important because the cost

12      of each type of capital is directly related to the associated risk of the firm. So while

13      a company's credit quality risk is shown directly by the rating and yield on its

14      bonds, these relative risk assessments also bear upon the cost of equity. This is

15      because a firm's cost of equity is represented by its borrowing cost plus

16      compensation to recognize the higher risk of an equity investment compared to

17      debt.

18   **Q.**   **How do the bond ratings compare for PPL Electric, the Electric Group, and**

19      **the S&P Public Utilities?**

20   **A.**   Presently, the corporate credit rating ("CCR") for PPL Electric is A- from Standard

21      & Poor's Corporation ("S&P") and long-term ("LT") issuer rating is Baa1 from

22      Moody's Investor Service ("Moody's"). The LT issuer rating by Moody's and the

23      CCR designation by S&P focuses upon the credit quality of the issuer of the debt,

1    rather than upon the debt obligation itself. The Electric Group's average credit

2    quality rating is BBB+ from S&P and Baal from Moody's. For the S&P Public

3    Utilities, the average composite rating is BBB+ by S&P and Baal by Moody's. The

4    Company's credit quality rating by S&P is stronger as compared to the Electric

5    Group and the S&P Public Utilities, while the Moody's credit quality rating is

6    equivalent for PPL Electric and these groups. The stronger credit quality rating by

7    S&P is attributable, in part, to the "ring fencing" undertaken by the Company in

8    2001. Many of the financial indicators that I will subsequently discuss are

9    considered during the rating process.

10    Q.   **How do the financial data compare for PPL Electric, the Electric Group, and**

11         **the S&P Public Utilities?**

12    A.   The broad categories of financial data that I will discuss are shown on Schedules 2,

13         3, and 4. The data cover the five-year period 2001-2005. The important categories

14         of relative risk may be summarized as follows:

15         Size. In terms of capitalization, PPL Electric is smaller than the average

16         size of the Electric Group. The average size of the S&P Public Utilities is larger

17         than the Electric Group and PPL Electric. All other things being equal, a smaller

18         company is riskier than a larger company because a given change in revenue and

19         expense has a proportionately greater impact on a small firm.

20         Market Ratios. Market-based financial ratios provide a partial indication of

21         the investor-required cost of equity. If all other factors are equal, investors will

22         require a higher rate of return on equity for companies that exhibit greater risk, in

23         order to compensate for that risk. That is to say, a firm that investors perceive to

12

1   have higher risks will experience a lower price per share in relation to expected

2   earnings.

3   There are no market ratios available for PPL Electric because its stock is not

4   traded. The five-year average price-earnings multiple for the Electric Group was

5   similar to that of the S&P Public Utilities. The five-year average dividend yield

6   was somewhat higher for the Electric Group, as compared to the S&P Public

7   Utilities. The average market-to-book ratio was somewhat higher for the S&P

8   Public Utilities than the Electric Group.

9   Common Equity Ratio. The level of financial risk is measured by the

10  proportion of long-term debt and other senior capital that is contained in a

11  company's capitalization. Financial risk is also analyzed by comparing common

12  equity ratios (the complement of the ratio of debt and other senior capital). That is

13  to say, a firm with a high common equity ratio has lower financial risk, while a firm

14  with a low common equity ratio has higher financial risk. The five-year average

15  common equity ratios, based on permanent capital, were 42.4% for PPL Electric,

16  45.2% for the Electric Group, and 39.5% for the S&P Public Utilities. The

17  financial risk of PPL Electric was somewhat above that of the Electric Group.

18  Indeed, the Company's financial risk has increased since the time of its last rate

19  case. I will discuss the implications of this change in terms of the Company's new

20  *business profile score.*

21  Return on Book Equity. Greater variability (i.e., uncertainty) of a firm's

22  earned returns signifies relatively greater levels of risk, as shown by the coefficient

23  of variation (standard deviation ÷ mean) of the rate of return on book common

13

1     equity. The higher the coefficients of variation, the greater degree of variability.

2     For the five-year period, the coefficients of variation were 0.603 (4.1% ÷ 6.8%) for

3     PPL Electric, 0.071 (0.6% ÷ 8.4%) for the Electric Group, and 0.231 (2.5% ÷

4     10.8%) for the S&P Public Utilities. The historical earnings variability for PPL

5     Electric was higher than that of the Electric Group and the S&P Public Utilities.

6     Operating Ratios. I have also compared operating ratios (the percentage of

7     revenues consumed by operating expense, depreciation, and taxes other than

8     income taxes). The complement of the operating ratio is the operating margin

9     which provides a measure of profitability. The higher the operating ratio, the lower

10     the operating margin. The five-year average operating ratios were 88.8% for PPL

11     Electric, 88.8% for the Electric Group, and 84.6% for the S&P Public Utilities. The

12     operating risk for PPL Electric is fairly similar to the Electric Group, and somewhat

13     above that of the S&P Public Utilities.

14     Coverage. The level of fixed charge coverage (i.e., the multiple by which

15     available earnings cover fixed charges, such as interest expense) provides an

16     indication of the earnings protection for creditors. Higher levels of coverage, and

17     hence earnings protection for fixed charges, are usually associated with superior

18     grades of creditworthiness. The five-year average interest coverage (excluding

19     Allowance for Funds Used During Construction ("AFUDC")) was 1.61 times for

20     PPL Electric, 2.68 times for the Electric Group, and 2.68 times for the S&P Public

21     Utilities. Coverage for PPL Electric was weaker than that of the Electric Group and

22     the S&P Public Utilities.

23     Quality of Earnings. Measures of earnings quality usually are revealed by

1    the percentage of AFUDC related to income available for common equity, the

2    effective income tax rate, and other cost deferrals.  These measures of earnings

3    quality usually influence a firm's internally generated funds because poor quality of

4    earnings would not generate high levels of cash flow.  Quality of earnings has not

5    been a significant concern for PPL Electric, the Electric Group, and the S&P Public

6    Utilities.

7         Internally Generated Funds.  Internally generated funds ("IGF") provide an

8    important source of new investment capital for a utility and represent a key measure

9    of credit strength.  Historically, the five-year average percentage of IGF to capital

10   expenditures was 236.6% for PPL Electric, 114.6% for the Electric Group, and

11   109.0% for the S&P Public Utilities.  The cash flow for PPL Electric was stronger

12   than that of the Electric Group and the S&P Public Utilities.

13        Betas.  The financial data that I have been discussing relate primarily to

14   company-specific risks.  Market risk for firms with publicly-traded stock is

15   measured by beta coefficients.  Beta coefficients attempt to identify systematic risk,

16   i.e., the risk associated with changes in the overall market for common equities.

17   Value Line publishes such a statistical measure of a stock's relative historical

18   volatility to the rest of the market.  A comparison of market risk is shown by the

19   Value Line beta of .85 as the average for the Electric Group (see page 2 of Schedule

20   3), and .95 as the average for the S&P Public Utilities (see page 3 of Schedule 4).

21   Q.  **Please summarize your risk evaluation of the Company and the Electric**

22       **Group.**

23   A.  The risk of PPL Electric parallels that of the Electric Group in certain respects with

15

1    regard to historical financial performance. The size of the Company is smaller than

2    the average size of the Electric Group, although PPL Electric cannot be considered

3    to be a small company. Other factors that distinguish PPL Electric relate to its

4    somewhat highly financial risk, its higher earnings variability, and its weaker

5    interest coverage historically. As such, the cost of equity estimated from the market

6    data for the Electric Group will provide a conservative basis for the rate of return on

7    common equity for PPL Electric.

8                              **CAPITAL STRUCTURE RATIOS**

9    Q.   **Please explain the selection of capital structure ratios for PPL Electric in this**

10        **case.**

11   A.   In the situation where the operating public utility raises its own long-term debt and

12        preferred and preference stock directly in the capital markets, as is the case for PPL

13        Electric, it is proper to employ the capital structure ratios and senior capital cost

14        rates of the regulated public utility for rate of return purposes. Furthermore,

15        consistency requires that the embedded cost rate of the Company's senior securities

16        also be employed. This procedure is consistent with the ratesetting procedures used

17        by the Commission in numerous prior rate cases for PPL Electric.

18   Q.   **Does Schedule 5 provide the capitalization and capital structure ratios you**

19        **have considered?**

20   A.   Yes. Schedule 5 presents PPL Electric's capitalization and related capital structure

21        at December 31, 2006, the end of the historic test year. Also shown on Schedule 5

22        is the PPL Electric's capital structure estimated at December 31, 2007, the end of

23        the future test year. During the future test year, the significant changes in the

1    Company's capital structure are projected to be: (i) the maturity of $254.866 million

2    of 5.875% Senior Secured Bonds on August 15, 2007, (ii) the planned issuance of

3    $240.000 million of 5.70% (estimated) Senior Secured Bonds, and (iii) the

4    Company's projection of retained earnings at December 31, 2007. I also have

5    adjusted the Company's capital structure to recognize several ratesetting

6    adjustments. Those adjustments relate to the treatment of the call premiums on the

7    early redemption of high cost long-term debt and preferred and preference stock,

8    which has been redeemed, the removal of the accumulated other comprehensive

9    income ("OCI"), and the deferred cost associated with a 2005 ice storm. The

10   testimony of Ms. Denise A. Cunningham will discuss the ratesetting treatment of

11   these deferred costs.

12   **Q.  Please describe these adjustments.**

13   A.   I have adjusted the principal amounts of long-term debt and preferred and

14   preference stock to exclude the amounts used to finance premiums on the early

15   redemption of long-term debt and preferred and preference stock. To do otherwise

16   would deny PPL Electric the full return on the premiums paid to redeem this high

17   cost capital since additional amounts of capital were issued to pay the call

18   premiums. The amounts issued to finance the call premiums do not increase the

19   Company's rate base. That is to say, no additional rate base was created through

20   additional debt and preferred and preference stock necessary to finance this

21   transaction, and therefore an adjustment is required to provide the return necessary

22   to service this additional capital. Hence, PPL Electric's long-term debt and

23   preferred and preference stock amounts must be adjusted for this disparity in order

17

1    that the return necessary to service the capitalization is produced from rate base

2    investment times the overall rate of return.

3         This adjustment is equitable because customers receive the cost savings

4    resulting from these refinancing in the form of a lower overall rate of return, and

5    PPL Electric recovers all costs incurred in providing these benefits to the customers.

6    To accomplish these savings, the Company paid the debt and preferred and

7    preference holders a premium for surrendering their securities prior to maturity.

8    These premiums represented an investment made by PPL Electric to reduce its

9    overall cost of capital.   Because the reduced interest costs and preferred and

10   preference stock dividends are reflected in the lower cost of capital to ratepayers, it

11   is appropriate that the Company recover the costs incurred to produce these savings.

12   This includes both a return of and return on the unamortized premiums.  Adjusting

13   the principal amounts in the capital structure provides a return on the premium as a

14   part of the embedded cost rates of capital.

15   Q.  **Are there additional adjustments necessary to reflect the call of high cost**

16       **preferred and preference stock?**

17   A.  Yes.  Unlike the situation where the Company recorded the call premiums on the

18       long-term debt as deferred debits for future recovery in rates, no similar accounting

19       was available to the Company for the call premiums associated with the early

20       redemption of the preferred and preference stock.   Instead, those amounts were

21       charged directly to retained earnings.   Also, the Company financed the call

22       premium with the additional sale of preferred and preference stock.   The

23       Commission has encouraged utilities to refinance high-cost capital and has stated

18

1  that a utility will not be penalized for undertaking a refinancing. Hence, it is

2  necessary to restore the Company's capital structure to the condition which existed

3  prior to the refinancing of the high cost preferred and preference stock. To

4  accomplish this, it is necessary to reduce the preferred and preference stock

5  outstanding by the amount of the call premium and to remove a similar amount for

6  the charge to retained earnings for the call premiums. These adjustments maintain

7  the aggregate amount of total capitalization for the Company. All of my

8  adjustments to the Company's capital structure for call premiums comply with

9  adjustments routinely approved by the Commission and which were adopted by the

10  Commission in the Company's last rate case proceeding.

11  I also have removed the accumulated OCI from the capital structure for

12  ratesetting purposes. OCI arises from a variety of sources, including: minimum

13  pension liability, foreign currency hedges, unrealized gains and losses on securities

14  available for sale, interest rate swaps, and other cash flow hedges. The majority of

15  the accumulated OCI for the Company consists of unrealized gains and losses on

16  Available-for-Sale Securities and other adjustments. These accounting entries to

17  accumulated OCI are unrelated to the Company's rate base determination and must

18  be excluded from the common equity.

19  Q.  **Does Schedule 5 also show the Company's short-term debt outstanding?**

20  A.  Yes. Although there was approximately $42 million short-term debt outstanding at

21  December 31, 2006, and the Company projects approximately $54 million of short-

22  term debt at December 31, 2007, those accounts are used to finance its construction

23  work in progress ("CWIP"). Given the Company's procedure of calculating its

1    AFUDC rate by including short-term interest expense in the calculation, it has been

2    the Commission's policy to exclude short-term debt from the capital structure for

3    ratesetting purposes.

4    Q.    **What capital structure ratios do you recommend be adopted for rate of return**

5         **purposes in this proceeding?**

6    A.    Because ratemaking is prospective, the rate of return should reflect known changes

7         that will occur during the course of the future test year, at a minimum, and should

8         consider conditions that will exist during the period of time that the proposed rates

9         will be effective. As a result, I will adopt the Company's future test year-end capital

10        structure ratios of 46.41% long-term debt, 10.46% preferred and preference stock,

11        and 43.13% common equity.  These capital structure ratios are the best

12        approximation of the mix of capital the Company will employ to finance its rate

13        base during the period that new rates are in effect, and they are appropriate so that

14        the Company can strive to improve its bond ratings.

15                        **COST OF SENIOR CAPITAL**

16   Q.    **What cost rate have you assigned to the debt portion of PPL Electric's capital**

17        **structure?**

18   A.    The determination of the long-term debt cost rate is essentially an arithmetic

19        exercise.  This is due to the fact that the Company has contracted for the use of this

20        capital for a specific period of time at a specified cost rate.  As shown on page 1 of

21        Schedule 6, I have computed the actual embedded cost rate of long-term debt at

22        December 31, 2006.  On page 2 of Schedule 6, I have shown the estimated

23        embedded cost rate of long-term debt at December 31, 2007.  The development of

1    the individual effective cost rates for each series of long-term debt, using the cost

2    rate to maturity technique, is shown on page 3 of Schedule 6. The cost rate, or yield

3    to maturity ("ytm"), is the rate of discount that equates the present value of all

4    future interest and principal payments with the net proceeds of the bond. I should

5    note that in developing the net proceeds ratio for use in the ytm calculation, the

6    current amount outstanding was used along with the unamortized balance of the

7    issuance costs. The resulting net proceeds ratio using the present amount

8    outstanding provides a reasonable estimate of the original net proceeds ratio when

9    the debt series were originally issued.

10   For the new issue of $240 million of Senior Secured Bonds, I have used an

11   estimated cost of 5.70%. No separate recognition of issuance costs has been shown

12   on page 3 of Schedule 6, because the Company believes that the 5.70% rate is

13   reflective of the all-in cost of this issue. After the new debt is sold, the actual

14   coupon rate and issuance costs will be incorporated into the effective cost rate (i.e.,

15   ytm) for this issue.

16   I will adopt the 5.93% embedded cost of long-term debt at December 31,

17   2007, as shown on page 2 of Schedule 6. This rate is related to the amount of long-

18   term debt shown on Schedule 5 which provides the basis for the 46.41% long-term

19   debt ratio. In my calculation of the embedded cost of long-term debt, I have

20   recognized the costs associated with the Company's early redemption of high cost

21   debt. As previously explained, it is necessary to compensate PPL Electric for the

22   costs incurred to lower the embedded debt cost rate, which reduces the cost of

23   capital charged to ratepayers.

1　Q.　**What preferred and preference stock cost rate have you calculated for the**

2　　　**Company?**

3　A.　For the future test year, I have calculated a 6.24% embedded cost of preferred and

4　　　preference stock as shown on page 2 of Schedule 7. I have included in the

5　　　embedded cost rate of preferred and preference stock the unrecovered issuance

6　　　costs and the call premium on the redemption of the preferred and preference stock.

7　　　The unrecovered issuance expenses and the call premium has been amortized over

8　　　the original remaining term of the issue. This procedure was adopted because of the

9　　　difficulty of assigning those costs to a specific replacement issue. These

10　　　adjustments correspond to those which I previously discussed regarding the

11　　　Company's capital structure ratios. I will adopt the 6.24% embedded cost of

12　　　preferred and preference stock, which is related to the 10.46% preferred and

13　　　preference stock ratio shown on Schedule 5. The details regarding the individual

14　　　cost rates for each series of preferred and preference stock are provided on page 3

15　　　of Schedule 7.

16　　　　　　　　　**COST OF EQUITY – GENERAL APPROACH**

17　Q.　**Please describe the process you employed to determine the cost of equity for**

18　　　**PPL Electric.**

19　A.　Although my fundamental financial analysis provides the required framework to

20　　　establish the risk relationships among PPL Electric, the Electric Group, and the

21　　　S&P Public Utilities, the cost of equity must be measured by standard financial

22　　　models that I describe in Appendix D. Differences in risk traits, such as size,

23　　　business diversification, geographical diversity, regulatory policy, financial

1    leverage, and bond ratings must be considered when analyzing the cost of equity

2    indicated by the models.

3        It also is important to reiterate that no one method or model of the cost of

4    equity can be applied in an isolated manner. Rather, informed judgment must be

5    used to take into consideration the relative risk traits of the firm. It is for this reason

6    that I have used more than one method to measure the Company's cost of equity.

7    As noted in Appendix D, and elsewhere in my direct testimony, each of the

8    methods used to measure the cost of equity contains certain incomplete and/or

9    overly restrictive assumptions and constraints that are not optimal. Therefore, I

10   favor considering the results from a variety of methods. In this regard, I applied

11   each of the methods with data taken from the Electric Group and determined that

12   the cost of equity is 11.50%, which provides recognition of the exemplary

13   performance by the Company's management.

14                   **DISCOUNTED CASH FLOW ANALYSIS**

15   Q.  **Please describe your use of the Discounted Cash Flow approach to determine**

16       **the cost of equity.**

17   A.  The details of my use of the DCF approach and the calculations and evidence in

18       support of my conclusions are set forth in Appendix E. I will summarize them here.

19       The DCF model seeks to explain the value of an asset as the present value of future

20       expected cash flows discounted at the appropriate risk-adjusted rate of return. In its

21       simplest form, the DCF return on common stocks consists of a current cash

22       (dividend) yield and future price appreciation (growth) of the investment. The cost

23       of equity based on a combination of these two components represents the total

                                    23

1    return that investors can expect with regard to an equity investment.

2    Among other limitations of the model, there is a certain element of

3    circularity in the DCF method when applied in rate cases. This is because

4    investors' expectations for the future depend upon regulatory decisions. In turn,

5    when regulators depend upon the DCF model to set the cost of equity, they rely

6    upon investor expectations that include an assessment of how regulators will decide

7    rate cases. Due to this circularity, the DCF model may not fully reflect the true risk

8    of a utility.

9    As I describe in Appendix E, the DCF approach has other limitations that

10   diminish its usefulness in the ratesetting process when the market capitalization

11   diverges significantly from book value capitalization. When this situation exists,

12   the DCF method will lead to a misspecified cost of equity when it is applied to a

13   book value capital structure.

14   If regulators rely upon the results of the DCF (which are based on the

15   market price of the stock of the companies analyzed) and apply those results to

16   book value, the resulting earnings will not produce the level of required return

17   specified by the model when market prices vary from book value. This is to say,

18   such distortions tend to produce DCF results that understate the cost of equity to the

19   regulated firm when using book values. This shortcoming of the DCF has

20   persuaded the Commission to adjust the DCF determined cost of equity upward to

21   make the return consistent with the book value capital structure. Provisions for this

22   risk difference were made by the Commission in the following cases:

DIRECT TESTIMONY OF PAUL R. MOUL

1   • January 10, 2002 for Pennsylvania-American Water Company in Docket
2     No. R-00016339 -- 60 basis points adjustment.
3

4   • August 1, 2002 for Philadelphia Suburban Water Company in Docket No.
5     R-00016750 -- 80 basis points adjustment.
6

7   • January 29, 2004 for Pennsylvania-American Water Company in Docket
8     No. R-00038304 (affirmed by the Commonwealth Court on November 8,
9     2004) -- 60 basis points adjustment.
10

11  • August 5, 2004 for Aqua Pennsylvania, Inc. in Docket No. R-00038805 --
12    60 basis points adjustment.
13

14  • December 22, 2004 for PPL Electric Utilities Corporation in Docket No.
15    R-00049255 -- 45 basis points.
16

17  • February 8, 2007 for PPL Gas Utilities Corporation in Docket No. R-
18    00061398 -- 70 basis points adjustment.
19

20  It must be recognized that in order to make the DCF results relevant to the

21  capitalization measured at book value (as is done for rate setting purposes), the

22  market-derived cost rate cannot be used without modification. As I will explain

23  later in my testimony, the DCF model can be modified to account for differences in

24  risk attributed to changes in financial leverage when market prices and book values

25  diverge.

26  Q.  **Please explain the dividend yield component of a DCF analysis.**

27  A.  The DCF methodology requires the use of an expected dividend yield to establish

28  the investor-required cost of equity. For the twelve months ended January 2007, the

29  monthly dividend yields of the Electric Group are shown graphically on Schedule 8.

30  The monthly dividend yields shown on Schedule 8 reflect an adjustment to the

31  month-end prices to reflect the build up of the dividend in the price that has

32  occurred since the last ex-dividend date (i.e., the date by which a shareholder must

25

1   own the shares to be entitled to the dividend payment – usually about two to three

2   weeks prior to the actual payment). An explanation of this adjustment is provided

3   in Appendix E.

4   For the twelve months ending January 2007, the average dividend yield was

5   4.36% for the Electric Group based upon a calculation using annualized dividend

6   payments and adjusted month-end stock prices. The dividend yields for the more

7   recent six- and three- month periods were 4.15% and 4.06%, respectively, for the

8   Electric Group. I have used, for the purpose of my direct testimony, a dividend

9   yield of 4.15% for the Electric Group, which represents the six-month average

10  yield. The use of this dividend yield will reflect current capital costs, while

11  avoiding spot yields.

12  For the purpose of a DCF calculation, the average dividend yields must be

13  adjusted to reflect the prospective nature of the dividend payments i.e., the higher

14  expected dividends for the future. Recall that the DCF is an expectational model

15  that must reflect investor anticipated cash flows for the Electric Group. I have

16  adjusted the six-month average dividend yield in three different, but generally

17  accepted manners, and used the average of the three adjusted values as calculated in

18  Appendix E. That adjusted dividend yield is 4.29% for the Electric Group.

19  Q.  **Please explain the underlying factors that influence investor's growth**

20  **expectations.**

21  A.  As noted previously, investors are interested principally in the future growth of their

22  investment (i.e., the price per share of the stock). As I explain in Appendix E,

23  future earnings per share growth represents the primary focus because under the

26

1    constant price-earnings multiple assumption of the DCF model, the price per share

2    of stock will grow at the same rate as earnings per share. In conducting a growth

3    rate analysis, a wide variety of variables can be considered when reaching a

4    consensus of prospective growth. The variables that can be considered include:

5    earnings, dividends, book value, and cash flow stated on a per share basis.

6    Historical values for these variables can be considered, as well as analysts' forecasts

7    that are widely available to investors. A fundamental growth rate analysis also can

8    be formulated, which consists of internal growth ("$b \times r$"), where "$r$" represents the

9    expected rate of return on common equity and "$b$" is the retention rate that consists

10   of the fraction of earnings that are not paid out as dividends. The internal growth

11   rate can be modified to account for sales of new common stock -- this is called

12   external growth ("$s \times v$"), where "$s$" represents the new common shares expected to

13   be issued by a firm and "$v$" represents the value that accrues to existing

14   shareholders from selling stock at a price different from book value. Fundamental

15   growth, which combines internal and external growth, provides an explanation of

16   the factors that cause book value per share to grow over time. Hence, a

17   fundamental growth rate analysis is duplicative of expected book value per share

18   growth.

19          Growth also can be expressed in multiple stages. This expression of growth

20   consists of an initial "growth" stage where a firm enjoys rapidly expanding markets,

21   high profit margins, and abnormally high growth in earnings per share. Thereafter,

22   a firm enters a "transition" stage where fewer technological advances and increased

23   product saturation begin to reduce the growth rate and profit margins come under

27

1    pressure. During the "transition" phase, investment opportunities begin to mature,

2    capital requirements decline, and a firm begins to pay out a larger percentage of

3    earnings to shareholders. Finally, the mature or "steady-state" stage is reached

4    when a firm's earnings growth, payout ratio, and return on equity stabilizes at levels

5    where they remain for the life of a firm. The three stages of growth assume a step-

6    down of high initial growth to lower sustainable growth. Even if these three stages

7    of growth can be envisioned for a firm, the third "steady-state" growth stage, which

8    is assumed to remain fixed in perpetuity, represents an unrealistic expectation

9    because the three stages of growth can be repeated. That is to say, the stages can be

10   repeated where growth for a firm ramps-up and ramps-down in cycles over time.

11   **Q.   What investor-expected growth rate is appropriate in a DCF calculation?**

12   A.   Although some DCF proponents would advocate that mathematical precision

13       should be followed when selecting a growth rate (i.e., precise input variables

14       employed within the confines of fundamental growth described above), the fact is

15       that investors, when establishing the market prices for a firm, do not behave in the

16       same manner assumed by the constant growth rate model using the accounting

17       values necessary to calculate fundamental growth. Rather, investors consider both

18       company-specific variables and overall market sentiment (i.e., level of inflation

19       rates, interest rates, economic conditions, etc.) when balancing their capital gains

20       expectations with their dividend yield requirements. I follow an approach that is

21       not rigidly formatted, because investors are not influenced by a single set of

22       company-specific variables weighted in a formulaic manner. Therefore, in my

23       opinion, all relevant growth rate indicators must be evaluated using a variety of

28

1    techniques, when formulating a judgment of investor expected growth.

2  Q.  **Before presenting your analysis of the growth rates that apply specifically to**

3    **the Electric Group, can you provide an overview of the macroeconomic factors**

4    **that influence investor growth expectations for common stocks?**

5  A.  Yes. As a preliminary matter, it is useful to view macroeconomic forecasts that

6    influence stock prices. Forecast growth of the Gross Domestic Product ("GDP")

7    can represent the starting point for this analysis. The GDP has both "product side"

8    and "income side" components. The product side of the GDP is comprised of: (i)

9    personal consumption expenditures; (ii) gross private domestic investment; (iii) net

10   exports of goods and services; and (iv) government consumption expenditures and

11   gross investment. On the income side of the GDP, the components are: (i)

12   compensation of employees; (ii) proprietors' income; (iii) rental income; (iv)

13   corporate profits; (v) net interest; (vi) business transfer payments; (vii) indirect

14   business taxes; (viii) consumption of fixed capital; (ix) net receipts/payment to the

15   rest of the world; and (x) statistical discrepancy. The "product side," (i.e., demand

16   components) could be used as a long-term representation of revenue growth for

17   public utilities. However, it is well known that revenue growth does not necessarily

18   equal earnings growth. There is no basis to assume that the same growth rate would

19   apply to revenues and all components of the cost of service, especially after the

20   troublesome issues of employees' costs and insurance costs are resolved in the

21   long-term for public utilities. The earnings growth rates for utilities will be

22   substantially affected by changes in operating expenses and capital costs. At

23   present, there is a bearish sentiment for the industry that has arisen from uncertain

1    regulatory policies, and significant cost pressures, especially in the area of

2    employee costs (i.e., pension and health care benefits) and insurance costs. The

3    dilutive impact of recent sales of new common stock also has had a negative effect

4    on the earnings prospects of utilities.

5           The long-term consensus forecast that is published semi-annually by the

6    Blue Chip Economic Indicators ("Blue Chip") should be used as the source of

7    macroeconomic growth. Blue Chip is a monthly publication that provides forecasts

8    incorporating a wide variety of economic variables assembled from a panel of more

9    than 50 noted economists from the banking, investment, industrial, and consulting

10   sectors whose advice affects the investment activities of market participants. It is

11   preferable to use a consensus forecast taken from a large panel of contributors,

12   rather than to rely upon one source that may not be representative of the types of

13   information that have an impact on investor expectations. Indeed, Blue Chip is

14   frequently quoted in "The Wall Street Journal," "The New York Times," "Fortune,"

15   "Forbes," and "Business Week." Twice annually, Blue Chip provides long-range

16   consensus forecasts. Based upon the October 10, 2006 issue of Blue Chip, those

17   forecasts are:

| Blue Chip Economic Indicators | | |
| --- | --- | --- |
| Averages | Nominal GDP | Corporate Profits, Pretax |
| 2008-12 | 5.2% | 5.4% |
| 2013-17 | 5.1% | 5.8% |

18   These forecasts show that growth in corporate profits generally will exceed growth

19   in overall GDP. It also is indicated historically that the percentage change in

30

1    corporate profits has been higher than the percentage change in GDP.[1]

2    **Q.    What data have you considered in your growth rate analysis?**

3    A.    I have considered the growth in the financial variables shown on Schedules 9 and

4    10. The bar graph provided on Schedule 9 shows the historical growth rates

5    covering 5-year and 10-year periods in earnings per share, dividends per share,

6    book value per share, and cash flow per share for the Electric Group. The historical

7    growth rates were taken from the Value Line publication that provides these data.

8    The historical average earnings per share growth have been negative for the Electric

9    Group and, hence, no growth rates for earnings per share are shown on Schedule 9.

10    Schedule 10 provides projected earnings per share growth rates taken from

11    analysts' forecasts compiled by IBES/First Call, Zacks, Reuters/MarketGuide, and

12    from the Value Line publication. The forecasts generally are based upon analysts'

13    projections for a 5-year period. IBES/First Call, Zacks, and Reuters/MarketGuide

14    represent reliable authorities of projected growth upon which investors rely.

15    Thomson Financial has acquired the entity that published the IBES consensus

16    forecasts, and Reuters/MarketGuide is the entity that provides the Multex data. The

17    IBES/First Call, Zacks, and Reuters/MarketGuide forecasts are limited to earnings

18    per share growth, while Value Line makes projections of other financial variables.

19    The Value Line forecasts of dividends per share, book value per share, and cash

20    flow per share also have been included on Schedule 10 for the Electric Group.

21    **Q.    What specific evidence have you considered in the DCF growth analysis?**

---

[1]    Obviously, growth in corporate profits is negatively impacted during recessionary periods, but on average corporate profits have grown historically over two percentage points faster than GDP since 1934.

1    A.    As to the five-year forecast growth rates, Schedule 10 indicates that the projected

2          earnings per share growth rates for the Electric Group are 6.89% by IBES/First

3          Call, 6.20% by Zacks, 5.77% by Reuters/MarketGuide, and 5.81% by Value Line.

4          The Value Line projections indicate that earnings per share for the Electric Group

5          will grow prospectively at a more rapid rate (i.e., 5.81%) than the dividends per

6          share (i.e., 3.92%), which indicates a declining dividend payout ratio for the future.

7          As indicated earlier, and in Appendix E, with the constant price-earnings multiple

8          assumption of the DCF model, growth for these companies will occur at the higher

9          earnings per share growth rate, thus producing the capital gains yield expected by

10         investors.

11   Q.    **Is the five-year investment horizon associated with the analysts' forecasts**

12         **consistent with the assumptions implicit in the DCF model?**

13   A.    Yes.  Investors do not view their expected returns as the product of an endless

14         stream of growing dividends (e.g., a century of cash flows).  Instead, it is the

15         growth in the share value (i.e., capital appreciation, or capital gains yield), as

16         represented by the analysts' forecast, that is most relevant to investors' total return

17         expectations.  Hence, the future appreciation in the price of a stock can be viewed

18         as a "liquidating dividend" (i.e., the final cash flow associated with the ultimate sale

19         of stock) that can be discounted along with the annual dividend receipts during the

20         investment-holding period to arrive at the investor expected return.  The growth in

21         the price per share will equal the growth in earnings per share absent any change in

22         price-earnings (P-E) multiple -- a necessary assumption of the DCF.  As such, my

23         company-specific growth analysis, which focuses principally upon five-year

1      forecasts of earnings per share growth, conforms to the type of analysis that

2      influences the total return expectation of investors.

3  **Q. What conclusion have you drawn from these data?**

4  A.   Ideally, historical and projected earnings per share and dividends per share growth

5      indicators could be used to provide an assessment of investor growth expectations

6      for a firm, however, the circumstances of the Electric Group mandate that the

7      greater emphasis be placed upon projected earnings per share growth. The massive

8      restructuring of the utility industry suggests that historical evidence alone does not

9      represent a complete measure of growth for these companies. Rather, projections of

10     future earnings growth provide the principal focus of investor expectations. In this

11     regard, it is worthwhile to note that Professor Myron Gordon, the foremost

12     proponent of the DCF model in rate cases, established that the best measure of

13     growth in the DCF model is forecasts of earnings per share growth.[2] Hence, to

14     follow Professor Gordon's findings, projections of earnings per share growth, such

15     as those published by IBES/First Call, Zacks, Reuters/MarketGuide, and Value

16     Line, represent a reasonable assessment of investor expectations.

17         It is appropriate to consider all forecasts of earnings growth rates that are

18     available to investors. In this regard, I have considered the forecasts from

19     IBES/First Call, Zacks, Reuters/MarketGuide and Value Line. The IBES/First Call,

20     Zacks, and Reuters/MarketGuide growth rates are consensus forecasts taken from a

21     survey of analysts that make projections of growth for these companies. The

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[2]      "Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management, spring 1989 by Gordon, Gordon & Gould.

1       IBES/First Call, Zacks, and Reuters/MarketGuide estimates are obtained from the

2       Internet and are widely available to investors free-of-charge.  IBES/First Call is

3       probably quoted most frequently in the financial press when reporting on earnings

4       forecasts, while Reuters/MarketGuide is a leading provider of financial data on the

5       Internet.  The Value Line forecasts also are widely available to investors and can be

6       obtained by subscription or free of charge at most public and collegiate libraries.

7       The forecasts of earnings per share growth, as shown on Schedule 10,

8       provide a range of growth rates of 5.77% to 6.89%.  To those company-specific

9       growth rates, consideration also must be given to long-term growth in corporate

10      profits.  Although the DCF growth rates cannot be established solely with a

11      mathematical formulation, it is my opinion that an investor-expected growth rate of

12      6.25% is within the array of earnings per share growth rates shown by the analysts'

13      forecasts and the forecast growth in overall corporate profits.  The Value Line

14      forecast of dividend per share growth is inadequate in this regard due to the forecast

15      decline in the dividend payout that I previously described.  As I previously

16      indicated, the consolidation now taking place in the utility industry creates

17      additional opportunities as the utility industry successfully adapts to the new

18      business environment.  These changes in growth fundamentals will undoubtedly

19      develop beyond the next five years typically considered in the analysts' forecasts

20      and will enhance the growth prospects for the future.  As such, a 6.25% growth rate

21      will accommodate all of these factors.

22  Q.  **Please explain why the sum of the dividend yield and growth rate does not**

23      **provide a complete representation of the cost of equity.**

1   A.   With the repeal of the 1935 Public Utility Holding Company Act ("PUHCA"),

2   merger and acquisition ("M&A") activity, which already has been prevalent in the

3   utility industry, is expected to accelerate.  Indeed, since the last case for PPL

4   Electric, two of the proxy group companies (i.e., Duquesne Light Holdings and

5   Green Mountain Power) have become targets for acquisition.  Acquisitions usually

6   are accomplished at premiums offered to induce stockholders to sell their shares.

7   These premiums create a ripple effect on the stock prices of all utilities, just like a

8   rising tide lifts all boats.  Due to M&A activity, there has been a run-up of the stock

9   prices for some utility companies.  With these elevated stock prices, dividend yields

10   fall, and without some adjustment to the growth component of the DCF model, the

11   results become unduly depressed by reference to alternative investment

12   opportunities – such as public utility bonds.  With stock prices being influenced by

13   M&A activity, the DCF model of the cost of equity becomes less reflective of the

14   risks associated with the underlying fundamentals of a company.  There are

15   remedies available to deal with potentially anomalous DCF results, which include

16   an adjustment to the DCF model to reflect the divergence of market capitalization

17   and the book value capitalization and supplementing the DCF results with other

18   measures of the cost of equity.

19        As demonstrated in Appendix E, the divergence of stock prices from book

20   values creates a conflict when the results of a market-derived cost of equity are

21   applied to the common equity ratio measured at book value, which is the measure

22   used in calculating the weighted average cost of capital.  This is the situation today,

23   where the market price of stock exceeds its book value for the companies in my

1    proxy group. This divergence of price and book value creates a financial risk

2    difference, whereby the capitalization of a utility measured at its market value

3    contains relatively less debt and more equity than the capitalization measured at its

4    book value.

5  Q.  **What are the implications of a DCF derived return that is related to market**

6      **value when the results are applied to the book value of a utility's**

7      **capitalization?**

8  A.  The capital structure ratios measured at the utility's book value show more financial

9      leverage, and higher risk, than the capitalization measured at its market values.

10     Please refer to Appendix E for the comparison. This means that a market-derived

11     cost of equity, using models such as DCF and CAPM, reflects a level of financial

12     risk that is different from that shown by the book value capitalization. Hence, it is

13     necessary to adjust the market-determined cost of equity upward to reflect the

14     higher financial risk related to the book value capitalization used for ratesetting

15     purposes. Failure to make this modification would result in a mismatch of the

16     lower financial risk related to market value used to measure the cost of equity and

17     the higher financial risk of the book value capital structure used in the ratesetting

18     process. Because the ratesetting process utilizes the book value capitalization when

19     computing the weighted average cost of capital, it is necessary to adjust the market-

20     determined cost of equity for the higher financial risk related to the book value of

21     the capitalization.

22  Q.  **How is the DCF-determined cost of equity adjusted for the financial risk**

23      **associated with the book value of the capitalization?**

1    A.  In pioneering work, Nobel laureates Modigliani and Miller developed several

2        theories about the role of leverage in a firm's capital structure. As part of that work,

3        Modigliani and Miller established that, as the borrowing of a firm increases, the

4        expected return on stockholders' equity also increases. This principle is

5        incorporated into my leverage adjustment that recognizes that the expected return

6        on equity increases to reflect the increased risk associated with the higher financial

7        leverage shown by the book value capital structure, as compared to the market

8        value capital structure that contains lower financial risk. Modigliani and Miller

9        proposed several approaches to quantify the equity return associated with various

10       degrees of debt leverage in a firm's capital structure. These formulas point toward

11       an increase in the equity return associated with the higher financial risk of the book

12       value capital structure. As detailed in Appendix E, the Modigliani and Miller

13       theory shows that the cost of equity increases by 0.47% (11.01% - 10.54%) for the

14       Electric Group when the book value of equity, rather than the market value of

15       equity, is used in determining the weighted average cost of capital for ratesetting

16       purposes.

17   Q.  **Please provide the DCF return based upon your preceding discussion of**

18       **dividend yield, growth, and leverage.**

19   A.  As explained previously, I have utilized a six-month average dividend yield

20       ("$D_1/P_0$") adjusted in a forward-looking manner for my DCF calculation. This

21       dividend yield is used in conjunction with the growth rate ("$g$") previously

22       developed. The DCF also includes the leverage modification ("$lev.$") required

23       when the book value equity ratio is used in determining the weighted average cost

37

1   of capital in the ratesetting process rather than the market value equity ratio related

2   to the price of stock. The resulting DCF cost rate is:

$$D_1/P_0 \quad + \quad g \quad + \quad lev. \quad = \quad k$$

Electric Group    4.29%  +  6.25%  +  0.47%  =  11.01%

3   The DCF result shown above represents the simplified (i.e., Gordon) form of the

4   model that contains a constant growth assumption. I should reiterate, however, that

5   under this form of the DCF model, the indicated cost rate provides an explanation

6   of the rate of return on common stock market prices without regard to the prospect

7   of a change in the price-earnings multiple. An assumption that there will be no

8   change in the price-earnings multiple is not supported by the realities of the equity

9   market, because price-earnings multiples do not remain constant.

## RISK PREMIUM ANALYSIS

11  Q.  **Please describe your use of the Risk Premium approach to determine the cost**

12      **of equity.**

13  A.  The details of my use of the Risk Premium approach and the evidence in support of

14      my conclusions are set forth in Appendix G. I will summarize them here. With this

15      method, the cost of equity capital is determined by corporate bond yields plus a

16      premium to account for the fact that common equity is exposed to greater

17      investment risk than debt capital. As with other models of the cost of equity, the

18      Risk Premium approach has its limitations, including an accurate assessment of the

19      future cost of corporate debt and the measurement of the risk-adjusted common

20      equity premium.

1   Q.  **What long-term public utility debt cost rate did you use in your risk premium**

2       **analysis?**

3   A.  In my opinion, a 6.25% yield represents a reasonable estimate of the prospective

4       yield on long-term A-rated public utility bonds for the rate effective period. As I

5       will subsequently show, the Moody's index and the Blue Chip forecasts support this

6       figure.

7           The historical yields for long-term public utility debt are shown graphically

8       on page 1 of Schedule 11. For the twelve months ended January 2007, the average

9       monthly yield on Moody's A-rated index of public utility bonds was 6.09%. For

10      the six and three-month periods ended January 2007, the yields were 5.96% and

11      5.86%, respectively. During the twelve months ended January 2007, the range of

12      the yields on A-rated public utility bonds was 5.80% to 6.42%.

13  Q.  **What are the implications of emphasizing recent data taken from a period of**

14      **relatively low interest rates?**

15  A.  The low interest rates in 2003-'04 were, in part, the product of the Federal Open

16      Market Committee ("FOMC") policy. In the two-year period between June 2004

17      and June 2006, the FOMC increased the Fed Funds rate in seventeen 25 basis point

18      increments. These policy actions, which have brought the Fed Funds rate to 5.25%,

19      are widely interpreted as part of the process of moving toward a more neutral range

20      for monetary policy. Current interest rates are characterized by a relatively flat to

21      slightly inverted yield curve, which has endured longer than would have been

22      expected.

23  Q.  **What forecasts of interest rates have you considered in your analysis?**

1    A.    I have determined the prospective yield on A-rated public utility debt by using the

2          Blue Chip Financial Forecasts ("Blue Chip") along with the spread in the yields that

3          I describe above and in Appendix G. Blue Chip is a reliable authority and contains

4          consensus forecasts of a variety of interest rates compiled from a panel of banking,

5          brokerage, and investment advisory services. In early 1999, Blue Chip stopped

6          publishing forecasts of yields on A-rated public utility bonds because the Federal

7          Reserve deleted these yields from its Statistical Release H.15. To independently

8          project a forecast of the yields on A-rated public utility bonds, I have combined the

9          forecast yields on long-term Treasury bonds published on January 1, 2007 and the

10         yield spread of 1.00% that I describe in Appendix G. For comparative purposes, I

11         also have shown the Blue Chip forecast of yields of Aaa-rated and Baa-rated

12         corporate bonds. These forecasts are:

| | | Blue Chip Financial Forecasts | | | | |
| | | Corporate | | 30-Year | A-rated Public Utility | |
| Year | Quarter | Aaa-rated | Baa-rated | Treasury | Spread | Yield |
|------|---------|-----------|-----------|----------|--------|-------|
| 2007 | First | 5.5% | 6.4% | 4.8% | 1.0% | 5.8% |
| 2007 | Second | 5.6% | 6.5% | 4.8% | 1.0% | 5.8% |
| 2007 | Third | 5.7% | 6.6% | 4.9% | 1.0% | 5.9% |
| 2007 | Fourth | 5.8% | 6.7% | 5.0% | 1.0% | 6.0% |
| 2008 | First | 5.8% | 6.7% | 5.0% | 1.0% | 6.0% |
| 2008 | Second | 5.9% | 6.8% | 5.1% | 1.0% | 6.1% |

13   Q.    **Are there additional forecasts of interest rates that extend beyond those shown**

14         **above?**

15   A.    Yes. Twice yearly, Blue Chip provides long-term forecast of interest rates. In its

16         December 1, 2006 publication, the Blue Chip published forecasts of interest rates

17         are reported to be:

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| | Blue Chip Financial Forecasts | | | | |
| | Corporate | | 30-Year | A-rated Public Utility | |
| Averages | Aaa-rated | Baa-rated | Treasury | Spread | Yield |
|---|---|---|---|---|---|
| 2008-12 | 6.1% | 7.0% | 5.4% | 1.0% | 6.4% |
| 2013-17 | 6.3% | 7.1% | 5.5% | 1.0% | 6.5% |

1    Given these forecasts of long-term interest rates, a 6.25% yield on A-rated public

2    utility bonds represents a reasonable expectation

3  Q.  **What equity risk premium have you determined for public utilities?**

4  A.  Appendix G provides a discussion of the financial returns that I relied upon to

5    develop the appropriate equity risk premium for the S&P Public Utilities. I have

6    calculated the equity risk premium by comparing the market returns on utility

7    stocks and the market returns on utility bonds. I chose the S&P Public Utility index

8    for the purpose of measuring the market returns for utility stocks. The S&P Public

9    Utility index is reflective of the risk associated with regulated utilities than some

10   broader market indexes, such as the S&P 500 Composite index. The S&P Public

11   Utility index is a subset of the overall S&P 500 Composite index. Use of the S&P

12   Public Utility index reduces the role of judgment in establishing the risk premium

13   for public utilities. With the equity risk premiums developed for the S&P Public

14   Utilities as a base, I derived the equity risk premium for the Electric Group.

15  Q.  **What equity risk premium for the S&P public utilities have you determined**

16   **for this case?**

17  A.  To develop an appropriate risk premium, I analyzed the results for the S&P Public

18   Utilities by averaging (i) the midpoint of the range shown by the geometric mean

19   and median and (ii) the arithmetic mean. This procedure has been employed to

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1    provide a comprehensive way of measuring the central tendency of the historical

2    returns. As shown by the values set forth on page 2 of Schedule 12 the indicated

3    risk premiums for the various time periods analyzed are 5.37% (1928-2006), 6.40%

4    (1952-2006), 5.61% (1974-2006), and 5.83% (1979-2005). The selection of the

5    shorter periods taken from the entire historical series is designed to provide a risk

6    premium that conforms more nearly to present investment fundamentals, and

7    removes some of the more distant data from the analysis.

8  Q.  **Do you have further support for the selection of the time periods used in your**

9      **equity risk premium determination?**

10 A.  Yes. First, the terminal year of my analysis presented in Schedule 12 represents the

11     returns realized through 2006. Second, the selection of the initial year of each

12     period was based upon the events that I described in Appendix G. These events

13     were fixed in history and cannot be manipulated as later financial data becomes

14     available. That is to say, using the Treasury-Federal Reserve Accord as a defining

15     event, the year 1952 is fixed as the beginning point for the measurement period

16     regardless of the financial results that subsequently occurred. Likewise, 1974

17     represented a benchmark year because it followed the 1973 Arab Oil embargo.

18     Also, the year 1979 was chosen because it began the deregulation of the financial

19     markets. As such, additional data are merely added to the earlier results when they

20     become available, clearly showing that the periods chosen were not driven by the

21     desired results of the study.

22 Q.  **What conclusions have you drawn from these data?**

23 A.  Using the summary values provided on page 2 of Schedule 12, the 1928-2006

1    period provides the lowest indicated risk premiums, while the 1952-2006 period

2    provides the highest risk premium for the S&P Public Utilities.   Within these

3    bounds, a common equity risk premium of 5.72% (5.61% + 5.83% = 11.44% ÷ 2) is

4    shown from data covering the periods 1974-2006 and 1979-2006.   Therefore,

5    5.72% represents a reasonable risk premium for the S&P Public Utilities in this

6    case.

7        As noted earlier in my fundamental risk analysis, differences in risk

8    characteristics must be taken into account when applying the results for the S&P

9    Public Utilities to the Electric Group.   I recognized these differences in the

10   development of the equity risk premium in this case.   I previously enumerated

11   various differences in fundamentals among the Electric Group and the S&P Public

12   Utilities, including size, market ratios, common equity ratio, return on book equity,

13   operating ratios, coverage, quality of earnings, internally generated funds, and

14   betas.  In my opinion, these differences indicate that 5.25% represents a reasonable

15   common equity risk premium in this case.   This represents approximately 92%

16   (5.25% ÷ 5.72% = 0.92) of the risk premium of the S&P Public Utilities and is

17   reflective of the risk of the Electric Group compared to the S&P Public Utilities.

18   Q.   **What common equity cost rate would be appropriate using this equity risk**

19        **premium and the yield on long-term public utility debt?**

20   A.   The cost of equity (i.e., "$k$") is represented by the sum of the prospective yield for

21        long-term public utility debt (i.e., "$i$"), the equity risk premium (i.e., "$RP$").   The

22        Risk Premium approach provides a cost of equity of:

$$i \quad + \quad RP \quad = \quad k$$

Electric Group   6.25%   +   5.25%   =   11.50%

1                                    ## CAPITAL ASSET PRICING MODEL

2   **Q.**   **How have you used the Capital Asset Pricing Model to measure the cost of**

3        **equity in this case?**

4   A.   Yes.  I have used the CAPM in addition to my other methods.  As with other

5        models of the cost of equity, the CAPM contains a variety of assumptions that

6        create limitations in the model that I discuss in Appendix H.  Therefore, this method

7        should be used with other methods to measure the cost of equity, as each will

8        complement the other and will provide a result that will alleviate the unavoidable

9        shortcomings found in each method.

10  **Q.**   **What are the features of the CAPM as you have used it?**

11  A.   The CAPM uses the yield on a risk-free interest bearing obligation plus a rate of

12       return premium that is proportional to the systematic risk of an investment.  The

13       details of my use of the CAPM and evidence in support of my conclusions are set

14       forth in Appendix H.  To compute the cost of equity with the CAPM, three

15       components are necessary:  a risk-free rate of return ("$Rf$"), the beta measure of

16       systematic risk ("$\beta$"), and the market risk premium ("$Rm - Rf$") derived from the

17       total return on the market of equities reduced by the risk-free rate of return.  The

18       CAPM specifically accounts for differences in systematic risk (i.e., market risk as

19       measured by the beta) between an individual firm or portfolio of firms and the

20       entire market of equities.  As such, to calculate the CAPM it is necessary to employ

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1    firms with traded stocks. In this regard, I performed a CAPM calculation for the

2    Electric Group.

3  Q.  **What betas have you considered in the CAPM?**

4  A.  For my CAPM analysis, I initially considered the Value Line betas. As shown on

5    page 1 of Schedule 13, the average beta is .85 for the Electric Group.

6  Q.  **What betas have you used in the CAPM determined cost of equity?**

7  A.  The betas must be reflective of the financial risk associated with the ratesetting

8    capital structure that is measured at book value. Therefore, Value Line betas cannot

9    be used directly in the CAPM, unless those betas are applied to a capital structure

10   measured with market values. To develop a CAPM cost rate applicable to a book

11   value capital structure, the Value Line betas have been unleveraged and releveraged

12   for the common equity ratios using book values. This adjustment has been made

13   with the formula:

14   $$\beta l = \beta u \, [1 + (1 - t) \, D/E + P/E]$$

15   where $\beta l$ = the leveraged beta, $\beta u$ = the unleveraged beta, $t$ = income tax rate, $D$ =

16   debt ratio, $P$ = preferred and preference stock ratio, and $E$ = common equity ratio.

17   The betas published by Value Line have been calculated with the market price of

18   stock and therefore are related to the market value capitalization. By using the

19   formula shown above and the capital structure ratios measured at its market values,

20   the beta would become .55 for the Electric Group if they employed no leverage and

21   were 100% equity financed. With the unleveraged beta as a base, I calculated the

22   leveraged beta of .93 for the Electric Group associated with book value capital

23   structure.

45

1    The betas and their corresponding common equity ratios are:

| | Market Values | | Book Values | |
| --- | --- | --- | --- | --- |
| Beta | Common Equity Ratio | Beta | Common Equity Ratio |
| 0.85 | 54.62% | 0.93 | 48.57% |

2    The leveraged beta that I will employ in the CAPM cost of equity is .93 for the

3    Barometer Group.

4  Q.  **What risk-free rate have you used in the CAPM?**

5  A.  For reasons explained in Appendix F, I have employed the yields on 20-year

6    Treasury bonds using both historical and forecast data to match the longer-term

7    horizon associated with the ratesetting process.  As shown on pages 2 and 3 of

8    Schedule 13, I provided the historical yields on 20-year Treasury bonds.  For the

9    twelve months ended January 2007, the average yield was 5.02%, as shown on page

10    3 of that schedule.  For the six- and three-months ended January 2007, the yields on

11    20-year Treasury bonds were 4.91% and 4.84%, respectively.  During the twelve-

12    months ended January 2007, the range of the yields on 20-year Treasury bonds was

13    4.73% to 5.35%.  As shown on page 4 of Schedule 13, forecasts published by <u>Blue</u>

14    <u>Chip</u> on January 1, 2007 indicate that the yields on long-term Treasury bonds are

15    expected to increase to 5.1% during the next six quarters.  The longer-term forecasts

16    described previously, show that the yields on Treasury bonds will average 5.4%

17    from 2008 through 2012 and 5.5% from 2013 to 2017.  I have used a 5.25% risk-

18    free rate of return for CAPM purposes.

19  Q.  **What market premium have you used in the CAPM?**

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1    A.    As developed in Appendix H, the market premium is developed by averaging

2          historical market performance (i.e., 6.5%) and the forecasts (i.e., 6.44%). The

3          historical market premium is derived from the SBBI Yearbook and the forecasts are

4          developed from data published by Value Line and a DCF calculation for the S&P

5          500 Composite. The resulting market premium is 6.47% (6.5% + 6.44% = 12.94%

6          ÷ 2), which represents the average market premium using the historical and forecast

7          data.

8    Q.    **Are there adjustments to the CAPM that are necessary to fully reflect the rate**

9          **of return on common equity?**

10   A.    Yes. The technical literature supports an adjustment relating to the size of the

11         company or portfolio for which the calculation is performed. There would be an

12         understatement of the cost of equity using the CAPM unless the size of a firm is

13         considered. That is to say, as the size of a firm decreases, its risk and, hence, its

14         required return increases. Moreover, in his discussion of the cost of capital,

15         Professor Brigham has indicated that smaller firms have higher capital costs then

16         otherwise similar larger firms (see Fundamentals of Financial Management, fifth

17         edition, page 623). Also, the Fama/French study (see "The Cross-Section of

18         Expected Stock Returns"; The Journal of Finance, June 1992) established that size

19         of a firm helps explain stock returns. In an October 15, 1995 article in Public

20         Utility Fortnightly, entitled "Equity and the Small-Stock Effect," it was

21         demonstrated that the CAPM could understate the cost of equity significantly

22         according to a company's size. Indeed, it was demonstrated in the SBBI Yearbook

23         that stocks in lower deciles (i.e., smaller stocks) had returns in excess of those

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1    shown by the simple CAPM. In this regard, Electric Group has an average market

2    capitalization of its equity of $3,200 million, which would place it in the fourth

3    decile consisting of companies with market capitalization between $2,519 million

4    and $3,961 million according to the size of the companies traded on the NYSE,

5    AMEX, and NASDAQ. The third through fifth deciles comprise the mid-cap group

6    of stocks. According to the SBBI Yearbook, the mid-cap size premium is 1.02%.

7    Q.   **What CAPM result have you determined using the CAPM?**

8    A.   Using the 5.25% risk-free rate of return, the leverage adjusted betas of .93 for the

9         Electric Group, the 6.47% market premium, and the size premium adjustment

10        developed previously, the following result is indicated.

$$Rf \quad + \quad \beta \quad ( \quad Rm\text{-}Rf \quad ) + \quad size \quad = \quad K$$

Electric Group     5.25% + 0.93  (  6.47%  ) +  1.02% = 12.29%

11                    **COMPARABLE EARNINGS APPROACH**

12   Q.   **How have you applied the Comparable Earnings approach in this case?**

13   A.   The technical aspects of my Comparable Earnings approach are set forth in

14        Appendix I. In order to identify the appropriate return on equity for a public utility,

15        it is necessary to analyze returns experienced by other firms within the context of

16        the Comparable Earnings standard.   The firms selected for the Comparable

17        Earnings approach should be companies whose prices are not subject to cost-based

18        price ceilings (i.e., non-regulated firms) so that circularity is avoided.  To avoid

19        circularity, it is essential that returns achieved under regulation not provide the basis

20        for a regulated return.  Because regulated firms must compete with non-regulated

1    firms in the capital markets, it is appropriate, if not necessary, to view the returns

2    experienced by firms that operate in competitive markets. One must keep in mind

3    that the rates of return for non-regulated firms represent results on book value

4    actually achieved, or expected to be achieved, because the starting point of the

5    calculation is the actual experience of companies that are not subject to rate

6    regulation. The United States Supreme Court has held that:

7        A public utility is entitled to such rates as will permit it to earn
8        a return on the value of the property which it employs for the
9        convenience of the public equal to that generally being made at
10       the same time and in the same general part of the country on
11       investments in other business undertakings which are attended
12       by corresponding risks and uncertainties.... The return should
13       be reasonably sufficient to assure confidence in the financial
14       soundness of the utility and should be adequate, under efficient
15       and economical management, to maintain and support its credit
16       and enable it to raise the money necessary for the proper
17       discharge of its public duties. Bluefield Water Works vs.
18       Public Service Commission, 262 U.S. 668 (1923).
19

20   Therefore, it is important to identify the returns earned by firms that compete for

21   capital with a public utility. This can be accomplished by analyzing the returns of

22   non-regulated firms that are subject to the competitive forces of the marketplace.

23       There are two avenues available to implement the Comparable Earnings

24   approach. One method would involve the selection of another industry (or

25   industries) with comparable risks to the public utility in question, and the results for

26   all companies within that industry would serve as a benchmark. The second

27   approach requires the selection of parameters that represent similar risk traits for the

28   public utility and the comparable risk companies. Using this approach, the business

29   lines of the comparable companies become unimportant. The latter approach is

1   preferable with the further qualification that the comparable risk companies exclude

2   regulated firms. As such, this approach to Comparable Earnings avoids the circular

3   reasoning implicit in the use of the achieved earnings/book ratios of other regulated

4   firms. Rather, it provides an indication of an earnings rate derived from non-

5   regulated companies that are subject to competition in the marketplace and not rate

6   regulation. Because regulation is a substitute for competitively-determined prices,

7   the returns realized by non-regulated firms with comparable risks to a public utility

8   provide useful insight into a fair rate of return. This is because returns realized by

9   non-regulated firms have become increasingly relevant with the trend toward

10  increased risk throughout the public utility business. Moreover, the rate of return

11  for a regulated public utility must be competitive with returns available on

12  investments in other enterprises having corresponding risks, especially in a more

13  global economy.

14      To identify the comparable risk companies, the Value Line Investment

15  Survey for Windows was used to screen for firms of comparable risks. The Value

16  Line Investment Survey for Windows includes data on approximately 1,700 firms.

17  Excluded from the selection process were companies incorporated in foreign

18  countries and master limited partnerships ("MLPs").

19  Q.  How have you implemented the Comparable Earnings approach?

20  A.  In order to implement the Comparable Earnings approach, non-regulated companies

21  were selected from the Value Line Investment Survey for Windows that have six

22  categories (see Appendix I for definitions) of comparability designed to reflect the

23  risk of the Electric Group. These screening criteria were based upon the range as

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1   defined by the rankings of the companies in the Electric Group. The items

2   considered were: Timeliness Rank, Safety Rank, Financial Strength, Price

3   Stability, Value Line betas, and Technical Rank. The identities of the companies

4   comprising the Comparable Earnings group and its associated rankings within the

5   ranges are identified on page 1 of Schedule 14.

6        Value Line data was relied upon because it provides a comprehensive basis

7   for evaluating the risks of the comparable firms. Because many of the

8   comparability factors, as well as the published returns, are used by investors for

9   selecting stocks, and to the extent that investors rely on the Value Line service to

10   gauge its returns, it is, therefore, an appropriate database for measuring comparable

11   return opportunities.

12  **Q.**  **What data have you used in your Comparable Earnings analysis?**

13  A.  I have used both historical realized returns and forecast returns for non-utility

14   companies. As noted previously, I have not used returns for utility companies in

15   order to avoid the circularity that arises from using regulatory-influenced returns to

16   determine a regulated return. It is appropriate to consider a relatively long

17   measurement period in the Comparable Earnings approach in order to cover

18   conditions over an entire business cycle. A ten-year period (5 historical years and 5

19   projected years) is sufficient to cover an average business cycle. Unlike the DCF

20   and CAPM, the results of the Comparable Earnings method can be applied directly

21   to an original cost rate base, because the nature of the analysis relates to book value.

22   Hence, Comparable Earnings approach does not contain the potential

23   misspecification that results from applying the result of market models to an

1    original cost rate base when prices and book values diverge significantly.  The

2    historical rate of return on book common equity was 15.1% using the median value

3    as shown on page 2 of Schedule 14.  The forecast rates of return, as published by

4    Value Line, are shown by the 15.0% median values also provided on page 2 of

5    Schedule 14.

6  Q.  **What rate of return on common equity have you determined in this case using**

7    **the Comparable Earnings approach?**

8  A.  The average of the historical and forecast median rates of return is:

|  | *Historical* | *Forecast* | *Average* |
|---|---|---|---|
| Comparable Group | | | |
| Companies | 15.10% | 15.00% | 15.05% |

9    The results of the Comparable Earnings method are not sensitive to stock market

10   performance, but rather these results are determined from financial performance in

11   competitive markets that are determined in large measure by the business cycle.

12                            **CREDIT QUALITY**

13  Q.  **What are some of the important factors that influence credit quality?**

14  A.  The Company must have the financial strength that will, at a minimum, permit it to

15   maintain a financial profile that is commensurate with the requirements to obtain a

16   solid investment grade bond rating.  Strong credit quality is necessary to provide a

17   utility with the highest degree of financial flexibility in order to attract capital on

18   reasonable terms during all economic conditions.  Customers also benefit from

19   strong credit quality, because the utility will be able to obtain lower financing costs

20   that are passed on to customers in the form of a lower embedded cost of debt.  For

1   this reason, rates should be established that would allow the maintenance of a

2   financial profile that would support a strong A-bond rating.

3   Q.   **What credit quality issues should be considered in this case for PPL Electric?**

4   A.   The credit rating agencies are closely monitoring the outcome of this case according

5        to the testimony of Ms. Cannell.   Although the business profile score of PPL

6        Electric has improved from a '4,' at the time of the last case, to '3' at present, the

7        Company's financial risk has increased since that case.  Within the categories of '1'

8        (excellent) to '10' (vulnerable), regulated transmission and distribution utilities

9        (electric, gas and water) mainly have business profile scores clustered in the '1,'

10       '2,' '3' and '4' categories.   The average business profile score for the Electric

11       Group is '3,' which is the same as PPL Electric.  However, there is more financial

12       risk associated with the 43.13% common equity ratio proposed in this case as

13       compared to the less risky 46.87% common equity ratio that the Commission

14       accepted in the previous case.  As such, PPL Electric has offset its better business

15       profile score with higher financial risk since the time of the Company's previous

16       rate case.  This assessment is confirmed by the fact that the credit quality rating of

17       A- by S&P has not changed since that case.   In addition, the Company's credit

18       outlook has improved from "negative" in the last case to "stable" in this case.

19       S&P's statement regarding the outlook revision was:

20               "On Jan. 5, 2005, Standard & Poor's Ratings Services affirmed its
21               'A-/A-2' corporate credit rating on PPL Electric Utilities Corp. and
22               revised its outlook on the company to stable from negative
23               following the authorization of a $194 million rate increase by the
24               Pennsylvania Public Utilities Commission (PPUC). The outlook
25               revision reflects expectations that the rate increase, effective Jan. 1,
26               2005, will allow for material improvement in PPL Electric's

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1           financial profile, which had lagged expectation in recent years."

2

3           From a credit quality perspective, S&P viewed the Commission's decision in the

4           Company's last rate case as being reasonably supportive.

### CONCLUSION ON COST OF EQUITY

6  **Q.**  **What is your conclusion concerning the Company's cost of common equity?**

7  A.  Based upon the application of a variety of methods and models described

8           previously, it is my opinion that the 11.50% rate of return on common equity is

9           appropriate for the Company and provides recognition for the uncertainty

10          surrounding the fundamentals that will exist after the end of the transition period

11          and the exemplary performance of its management. The reaction of S&P to the

12          Commission's Order in the Company's last rate case was favorable. To sustain this

13          assessment of regulation in Pennsylvania, the Commission should continue to be

14          supportive of PPL Electric. It is essential that the Commission employ a variety of

15          techniques to measure the Company's cost of equity, because of the

16          limitations/infirmities that are inherent in each method. In conclusion, the

17          Company is entitled to an 11.50% rate of return on common equity so that it can

18          compete in the capital markets, maintain reasonable credit quality, and receive

19          recognition of the significant accomplishments that management has achieved.

20  **Q.**  **Does this conclude your direct testimony?**

21  A.  Yes, it does.

# PPL ELECTRIC UTILITIES CORPORATION

Appendices A through I
to Accompany the
Direct Testimony

of

Paul R. Moul
Managing Consultant
P. Moul & Associates

Concerning
Rate of Return

1  **EDUCATIONAL BACKGROUND, BUSINESS EXPERIENCE**
2  **AND QUALIFICATIONS**

3    I was awarded a degree of Bachelor of Science in Business Administration by Drexel

4  University in 1971. While at Drexel, I participated in the Cooperative Education Program

5  which included employment, for one year, with American Water Works Service Company,

6  Inc., as an internal auditor, where I was involved in the audits of several operating water

7  companies of the American Water Works System and participated in the preparation of annual

8  reports to regulatory agencies and assisted in other general accounting matters.

9    Upon graduation from Drexel University, I was employed by American Water Works

10  Service Company, Inc., in the Eastern Regional Treasury Department where my duties included

11  preparation of rate case exhibits for submission to regulatory agencies, as well as responsibility

12  for various treasury functions of the thirteen New England operating subsidiaries.

13    In 1973, I joined the Municipal Financial Services Department of Betz Environmental

14  Engineers, a consulting engineering firm, where I specialized in financial studies for municipal

15  water and wastewater systems.

16    In 1974, I joined Associated Utility Services, Inc., now known as AUS Consultants. I

17  held various positions with the Utility Services Group of AUS Consultants, concluding my

18  employment there as a Senior Vice President.

19    In 1994, I formed P. Moul & Associates, an independent financial and regulatory

20  consulting firm. In my capacity as Managing Consultant and for the past twenty-nine years, I

21  have continuously studied the rate of return requirements for cost of service regulated firms. In

22  this regard, I have supervised the preparation of rate of return studies which were employed in

23  connection with my testimony and in the past for other individuals. I have presented direct

1   testimony on the subject of fair rate of return, evaluated rate of return testimony of other

2   witnesses, and presented rebuttal testimony.

3   My studies and prepared direct testimony have been presented before thirty (30) federal,

4   state and municipal regulatory commissions, consisting of: the Federal Energy Regulatory

5   Commission; state public utility commissions in Alabama, Connecticut, Delaware, Florida,

6   Georgia, Hawaii, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts,

7   Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina,

8   Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and West

9   Virginia; and the Philadelphia Gas Commission. My testimony has been offered in over 200

10   rate cases involving electric power, natural gas distribution and transmission, resource

11   recovery, solid waste collection and disposal, telephone, wastewater, and water service utility

12   companies. While my testimony has involved principally fair rate of return and financial

13   matters, I have also testified on capital allocations, capital recovery, cash working capital,

14   income taxes, factoring of accounts receivable, and take-or-pay expense recovery. My

15   testimony has been offered on behalf of municipal and investor-owned public utilities and for

16   the staff of a regulatory commission. I have also testified at an Executive Session of the State

17   of New Jersey Commission of Investigation concerning the BPU regulation of solid waste

18   collection and disposal.

19   I was a co-author of a verified statement submitted to the Interstate Commerce

20   Commission concerning the 1983 Railroad Cost of Capital (Ex Parte No. 452). I was also co-

21   author of comments submitted to the Federal Energy Regulatory Commission regarding the

22   Generic Determination of Rate of Return on Common Equity for Public Utilities in 1985, 1986

23   and 1987 (Docket Nos. RM85-19-000, RM86-12-000, RM87-35-000 and RM88-25-000).

1 Further, I have been the consultant to the New York Chapter of the National Association of

2 Water Companies which represented the water utility group in the Proceeding on Motion of the

3 Commission to Consider Financial Regulatory Policies for New York Utilities (Case 91-M-

4 0509). I have also submitted comments to the Federal Energy Regulatory Commission in its

5 Notice of Proposed Rulemaking (Docket No. RM99-2-000) concerning Regional Transmission

6 Organizations and on behalf of the Edison Electric Institute in its intervention in the case of

7 Southern California Edison Company (Docket No. ER97-2355-000).

8 In late 1978, I arranged for the private placement of bonds on behalf of an investor-

9 owned public utility. I have assisted in the preparation of a report to the Delaware Public

10 Service Commission relative to the operations of the Lincoln and Ellendale Electric Company.

11 I was also engaged by the Delaware P.S.C. to review and report on the proposed financing and

12 disposition of certain assets of Sussex Shores Water Company (P.S.C. Docket Nos. 24-79 and

13 47-79). I was a co-author of a Report on Proposed Mandatory Solid Waste Collection

14 Ordinance prepared for the Board of County Commissioners of Collier County, Florida.

15 I have been a consultant to the Bucks County Water and Sewer Authority concerning

16 rates and charges for wholesale contract service with the City of Philadelphia. My municipal

17 consulting experience also included an assignment for Baltimore County, Maryland, regarding

18 the City/County Water Agreement for Metropolitan District customers (Circuit Court for

19 Baltimore County in Case 34/153/87-CSP-2636).

20 I am a member of the Society of Utility and Regulatory Financial Analysis (formerly

21 the National Society of Rate of Return Analysts) and have attended several Financial Forums

22 sponsored by the Society. I attended the first National Regulatory Conference at the Marshall-

23 Wythe School of Law, College of William and Mary. I also attended an Executive Seminar

1     sponsored by the Colgate Darden Graduate Business School of the University of Virginia

2     concerning Regulated Utility Cost of Equity and the Capital Asset Pricing Model.  In October

3     1984, I attended a Standard & Poor's Seminar on the Approach to Municipal Utility Ratings,

4     and in May 1985, I attended an S&P Seminar on Telecommunications Ratings.

5          My lecture and speaking engagements include:

| Date | Occasion | Sponsor |
|------|----------|---------|
| April 2001 | Thirty-third Financial Forum | Society of Utility & Regulatory Financial Analysts |
| December 2000 | Pennsylvania Public Utility Law Conference: Non-traditional Players in the Water Industry | Pennsylvania Bar Institute |
| July 2000 | EEI Member Workshop Developing Incentives Rates: Application and Problems | Edison Electric Institute |
| February 2000 | The Sixth Annual FERC Briefing | Except and Bruder, Gentile & Marcoux, LLP |
| March 1994 | Seventh Annual Proceeding | Electric Utility Business Environment  Conf. |
| May 1993 | Financial School | New England Gas Assoc. |
| April 1993 | Twenty-Fifth Financial Forum | National Society of Rate of Return Analysts |
| June 1992 | Rate and Charges Subcommittee Annual Conference | American Water Works Association |
| May 1992 | Rates School | New England Gas Assoc. |
| October 1989 | Seventeenth Annual Eastern Utility Rate Seminar | Water Committee of the National Association of Regulatory Utility Commissioners Florida Public Service Commission and University of Utah |
| October 1988 | Sixteenth Annual Eastern Utility Rate Seminar | Water Committee of the National Association of Regulatory Utility Commissioners, Florida Public Service Commission and University of Utah |
| May 1988 | Twentieth Financial | National Society of |

| | | Forum | Rate of Return Analysts |
|---|---|---|---|
| | October 1987 | Fifteenth Annual | Water Committee of the |
| | | Eastern Utility | National Association |
| | | Rate Seminar | of Regulatory Utility |
| | | | Commissioners, Florida |
| | | | Public Service Commis- |
| | | | sion and University of |
| | | | Utah |
| | September 1987 | Rate Committee | American Gas Association |
| | | Meeting | |
| | May 1987 | Pennsylvania | National Association of |
| | | Chapter | Water Companies |
| | | annual meeting | |
| | October 1986 | Eighteenth | National Society of Rate |
| | | Financial | of Return |
| | | Forum | |
| | October 1984 | Fifth National | American Bar Association |
| | | on Utility | |
| | | Ratemaking | |
| | | Fundamentals | |
| | March 1984 | Management Seminar | New York State Telephone |
| | | | Association |
| | February 1983 | The Cost of Capital | Temple University, School |
| | | Seminar | of Business Admin. |
| | May 1982 | A Seminar on | New Mexico State |
| | | Regulation | University, Center for |
| | | and The Cost of | Business Research |
| | | Capital | and Services |
| | October 1979 | Economics of | Brown University |
| | | Regulation | |

# RATESETTING PRINCIPLES

1

2    Under traditional cost of service regulation, an agency engaged in ratesetting, such as

3    the Commission, serves as a substitute for competition. In setting rates, a regulatory agency

4    must carefully consider the public's interest in reasonably priced, as well as safe and reliable,

5    service. The level of rates must also provide an opportunity to earn a rate of return for the

6    public utility and its investors that is commensurate with the risk to which the invested capital

7    is exposed so that the public utility has access to the capital required to meet its service

8    responsibilities to its customers. Without an opportunity to earn a fair rate of return, a public

9    utility will be unable to attract sufficient capital required to meet its responsibilities over time.

10    It is important to remember that regulated firms must compete for capital in a global

11    market with non-regulated firms, as well as municipal, state and federal governments.

12    Traditionally, a public utility has been responsible for providing a particular type of service to

13    its customers within a specific market area. Although this relationship with its customers has

14    been changing, it remains quite different from a non-regulated firm which is free to enter and

15    exit competitive markets in accordance with available business opportunities.

16    As established by the landmark Bluefield and Hope cases,[1] several tests must be

17    satisfied to demonstrate the fairness or reasonableness of the rate of return. These tests include

18    a determination of whether the rate of return is (i) similar to that of other financially sound

19    businesses having similar or comparable risks, (ii) sufficient to ensure confidence in the

20    financial integrity of the public utility, and (iii) adequate to maintain and support the credit of

21    the utility, thereby enabling it to attract, on a reasonable cost basis, the funds necessary to

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[1]    Bluefield Water Works & Improvement Co. v. P.S.C. of West Virginia, 262 U.S. 679 (1923) and
F.P.C. v. Hope Natural Gas Co., 320 U.S. 591 (1944).

1    satisfy its capital requirements so that it can meet the obligation to provide adequate and

2    reliable service to the public.

3         A fair rate of return must not only provide the utility with the ability to attract new

4    capital, it must also be fair to existing investors. An appropriate rate of return which may have

5    been reasonable at one point in time may become too high or too low at a subsequent point in

6    time, based upon changing business risks, economic conditions and alternative investment

7    opportunities. When applying the standards of a fair rate of return, it must be recognized that

8    the end result must provide for the payment of interest on the company's debt, the payment of

9    dividends on the company's stock, the recovery of costs associated with securing capital, the

10   maintenance of reasonable credit quality for the company, and support of the company's

11   financial condition, which today would include those measures of financial performance in the

12   areas of interest coverage and adequate cash flow derived from a reasonable level of earnings.

1 ## EVALUATION OF RISK

2       The rate of return required by investors is directly linked to the perceived level of risk.

3 The greater the risk of an investment, the higher is the required rate of return necessary to

4 compensate for that risk all else being equal. Because investors will seek the highest rate of

5 return available, considering the risk involved, the rate of return must at least equal the

6 investor-required, market-determined cost of capital if public utilities are to attract the

7 necessary investment capital on reasonable terms.

8       In the measurement of the cost of capital, it is necessary to assess the risk of a firm.

9 The level of risk for a firm is often defined as the uncertainty of achieving expected

10 performance, and is sometimes viewed as a probability distribution of possible outcomes.

11 Hence, if the uncertainty of achieving an expected outcome is high, the risk is also high. As a

12 consequence, high risk firms must offer investors higher returns than low risk firms which pay

13. less to attract capital from investors. This is because the level of uncertainty, or risk of not

14 realizing expected returns, establishes the compensation required by investors in the capital

15 markets. Of course, the risk of a firm must also be considered in the context of its ability to

16 actually experience adequate earnings which conform with a fair rate of return. Thus, if there is

17 a high probability that a firm will not perform well due to fundamentally poor market

18 conditions, investors will demand a higher return.

19       The investment risk of a firm is comprised of its business risk and financial risk.

20 Business risk is all risk other than financial risk, and is sometimes defined as the staying power

21 of the market demand for a firm's product or service and the resulting inherent uncertainty of

22 realizing expected pre-tax returns on the firm's assets. Business risk encompasses all operating

23 factors, e.g., productivity, competition, management ability, etc. that bear upon the expected

1    pre-tax operating income attributed to the fundamental nature of a firm's business. Financial

2    risk results from a firm's use of borrowed funds (or similar sources of capital with fixed

3    payments) in its capital structure, i.e., financial leverage. Thus, if a firm did not employ

4    financial leverage by borrowing any capital, its investment risk would be represented by its

5    business risk.

6        It is important to note that in evaluating the risk of regulated companies, financial

7    leverage cannot be considered in the same context as it is for non-regulated companies.

8    Financial leverage has a different meaning for regulated firms than for non-regulated

9    companies. For regulated public utilities, the cost of service formula gives the benefits of

10   financial leverage to consumers in the form of lower revenue requirements. For non-regulated

11   companies, all benefits of financial leverage are retained by the common stockholder.

12   Although retaining none of the benefits, regulated firms bear the risk of financial leverage.

13   Therefore, a regulated firm's rate of return on common equity must recognize the greater

14   financial risk shown by the higher leverage typically employed by public utilities.

15       Although no single index or group of indices can precisely quantify the relative

16   investment risk of a firm, financial analysts use a variety of indicators to assess that risk. For

17   example, the creditworthiness of a firm is revealed by its bond ratings. If the stock is traded,

18   the price-earnings multiple, dividend yield, and beta coefficients (a statistical measure of a

19   stock's relative volatility to the rest of the market) provide some gauge of overall risk. Other

20   indicators, which are reflective of business risk, include the variability of the rate of return on

21   equity, which is indicative of the uncertainty of actually achieving the expected earnings;

22   operating ratios (the percentage of revenues consumed by operating expenses, depreciation, and

23   taxes other than income tax), which are indicative of profitability; the quality of earnings,

1 which considers the degree to which earnings are the product of accounting principles or cost

2 deferrals; and the level of internally generated funds. Similarly, the proportion of senior capital

3 in a company's capitalization is the measure of financial risk which is often analyzed in the

4 context of the equity ratio (i.e., the complement of the debt ratio).

1      ## COST OF EQUITY--GENERAL APPROACH

2      Through a fundamental financial analysis, the relative risk of a firm must be established

3      prior to the determination of its cost of equity. Any rate of return recommendation which lacks

4      such a basis will inevitably fail to provide a utility with a fair rate of return except by

5      coincidence. With a fundamental risk analysis as a foundation, standard financial models can

6      be employed by using informed judgment. The methods which have been employed to

7      measure the cost of equity include: the Discounted Cash Flow ("DCF") model, the Risk

8      Premium ("RP") approach, the Capital Asset Pricing Model ("CAPM") and the Comparable

9      Earnings ("CE") approach.

10     The traditional DCF model, while useful in providing some insight into the cost of

11     equity, is not an approach that should be used exclusively. The divergence of stock prices from

12     company-specific fundamentals can provide a misleading cost of equity calculation. As

13     reported in The Wall Street Journal on June 6, 1991, a statistical study published by Goldman

14     Sachs indicated that only 35% of stock price growth in the 1980's could be attributed to

15     earnings and interest rates. Further, 38% of the rise in stock prices during the 1980's was

16     attributed to unknown factors. The Goldman Sachs study highlights the serious limitations of a

17     model, such as DCF, which is founded upon identification of specific variables to explain stock

18     price growth. That is to say, when stock price growth exceeds growth in a company's earnings

19     per share, models such as DCF will misspecify investor expected returns which are comprised

20     of capital gains, as well as dividend receipts. As such, a combination of methods should be

21     used to measure the cost of equity.

22     The Risk Premium analysis is founded upon the prospective cost of long-term debt, i.e.,

23     the yield that the public utility must offer to raise long-term debt capital directly from investors.

1     To that yield must be added a risk premium in recognition of the greater risk of common equity

2     over debt. This additional risk is, of course, attributable to the fact that the payment of interest

3     and principal to creditors has priority over the payment of dividends and return of capital to

4     equity investors. Hence, equity investors require a higher rate of return than the yield on long-

5     term corporate bonds.

6     The CAPM is a model not unlike the traditional Risk Premium. The CAPM employs

7     the yield on a risk-free interest-bearing obligation plus a premium as compensation for risk.

8     Aside from the reliance on the risk-free rate of return, the CAPM gives specific quantification

9     to systematic (or market) risk as measured by beta.

10     The Comparable Earnings approach measures the returns expected/experienced by other

11     non-regulated firms and has been used extensively in rate of return analysis for over a half

12     century. However, its popularity diminished in the 1970s and 1980s with the popularization of

13     market-based models. Recently, there has been renewed interest in this approach. Indeed, the

14     financial community has expressed the view that the regulatory process must consider the

15     returns which are being achieved in the non-regulated sector so that public utilities can compete

16     effectively in the capital markets. Indeed, with additional competition being introduced

17     throughout the traditionally regulated public utility industry, returns expected to be realized by

18     non-regulated firms have become increasing relevant in the ratesetting process. The

19     Comparable Earnings approach considers directly those requirements and it fits the established

20     standards for a fair rate of return set forth in the landmark decisions on the issue of rate of

21     return. These decisions require that a fair return for a utility must be equal to that earned by

22     firms of comparable risk.

1    ## DISCOUNTED CASH FLOW ANALYSIS

2    Discounted Cash Flow ("DCF") theory seeks to explain the value of an economic or

3    financial asset as the present value of future expected cash flows discounted at the appropriate

4    risk-adjusted rate of return. Thus, if $100 is to be received in a single payment 10 years

5    subsequent to the acquisition of an asset, and the appropriate risk-related interest rate is 8%, the

6    present value of the asset would be $46.32 (Value $= \$100 \div (1.08)^{10}$) arising from the

7    discounted future cash flow. Conversely, knowing the present $46.32 price of an asset (where

8    price = value), the $100 future expected cash flow to be received 10 years hence shows an 8%

9    annual rate of return implicit in the price and future cash flows expected to be received.

10    In its simplest form, the DCF theory considers the number of years from which the cash

11    flow will be derived and the annual compound interest rate which reflects the risk or

12    uncertainty associated with the cash flows. It is appropriate to reiterate that the dollar values to

13    be discounted are future cash flows.

14    DCF theory is flexible and can be used to estimate value (or price) or the annual

15    required rate of return under a wide variety of conditions. The theory underlying the DCF

16    methodology can be easily illustrated by utilizing the investment horizon associated with a

17    preferred stock not having an annual sinking fund provision. In this case, the investment

18    horizon is infinite, which reflects the perpetuity of a preferred stock. If $P$ represents price, $Kp$

19    is the required rate of return on a preferred stock, and $D$ is the annual dividend ($P$ and $D$ with

20    time subscripts), the value of a preferred share is equal to the present value of the dividends to

21    be received in the future discounted at the appropriate risk-adjusted interest rate, $Kp$. In this

22    circumstance:

$$P_0 = \frac{D_1}{(1 + Kp)} + \frac{D_2}{(1 + Kp)^2} + \frac{D_3}{(1 + Kp)^3} + \ldots + \frac{D_n}{(1 + Kp)^n}$$

1    If $D_1 = D_2 = D_3 = \ldots D_n$ as is the case for preferred stock, and $n$ approaches infinity, as is the

2    case for non-callable preferred stock without a sinking fund, then this equation reduces to:

3

4
$$P_0 = \frac{D_1}{Kp}$$

5    This equation can be used to solve for the annual rate of return on a preferred stock when the

6    current price and subsequent annual dividends are known. For example, with $D_1 = \$1.00$, and

7    $P_0 = \$10$, then $Kp = \$1.00 \div \$10$, or 10%.

8        The dividend discount equation, first shown, is the generic DCF valuation model for all

9    equities, both preferred and common. While preferred stock generally pays a constant dividend,

10    permitting the simplification subsequently noted, common stock dividends are not constant.

11    Therefore, absent some other simplifying condition, it is necessary to rely upon the generic

12    form of the DCF. If, however, it is assumed that $D_1, D_2, D_3, \ldots D_n$ are systematically related to

13    one another by a constant growth rate $(g)$, so that $D_0 (1 + g) = D_1, D_1 (1 + g) = D_2, D_2 (1 + g)$

14    $= D_3$ and so on approaching infinity, and if $Ks$ (the required rate of return on a common stock)

15    is greater than $g$, then the DCF equation can be reduced to:

$$P_0 = \frac{D_1}{Ks - g} \quad or \quad P_0 = \frac{D_0(1 + g)}{Ks - g}$$

16    which is the periodic form of the "Gordon" model.[1] Proof of the DCF equation is found in all

17    modern basic finance textbooks. This DCF equation can be easily solved as:

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[1]    Although the popular application of the DCF model is often attributed to the work of Myron J. Gordon in

$$Ks = \frac{D_0(1+g)}{P_0} + g$$

1    which is the periodic form of the Gordon Model commonly applied in estimating equity rates

2    of return in rate cases. When used for this purpose, $Ks$ is the annual rate of return on common

3    equity demanded by investors to induce them to hold a firm's common stock. Therefore, the

4    variables $D_0$, $P_0$ and $g$ must be estimated in the context of the market for equities, so that the

5    rate of return, which a public utility is permitted the opportunity to earn, has meaning and

6    reflects the investor-required cost rate.

7    .      Application of the Gordon model with market·derived variables is straightforward. For

8    example, using the most recent prior annualized dividend $(D_0)$ of $0.80, the current price $(P_0)$

9    of $10.00, and the investor expected dividend growth rate $(g)$ of 5%, the solution of the DCF

10    formula provides a 13.4% rate of return. The dividend yield component in this instance is

11    8.4%, and the capital gain component is 5%, which together represent the total 13.4% annual

12    rate of return required by investors. The capital gain component of the total return may be

13    calculated with two adjacent future year prices. For example, in the eleventh year of the

14    holding period, the price per share would be $17.10 as compared with the price per share of

15    $16.29 in the tenth year which demonstrates the 5% annual capital gain yield.

16    Some DCF devotees believe that it is more appropriate to estimate the required return

17    on equity with a model which permits the use of multiple growth rates. This may be a plausible

18    approach to DCF, where investors expect different dividend growth rates in the near term and

19    long run. If two growth rates, one near term and one long-run, are to be used in the context of a

---

the mid-1950's, J. B. Williams exposited the DCF model in its present form nearly two decades earlier.

1    price $(P_0)$ of $10.00, a dividend $(D_0)$ of $0.80, a near-term growth rate of 5.5%, and a long-run

2    expected growth rate of 5.0% beginning at year 6, the required rate of return is 13.57% solved

3    with a computer by iteration.

### Use of DCF in Ratesetting

5        The DCF method can provide a misleading measure of the cost of equity in the

6    ratesetting process when stock prices diverge from book values by a meaningful margin.  When

7    the difference between share values and book values is significant, the results from the DCF

8    can result in a misspecified cost of equity when those results are applied to book value.  This is

9    because investor expected returns, as described by the DCF model, are related to the market

10   value of common stock. This discrepancy is shown by the following example.  If it is assumed,

11   hypothetically, that investors require a 12.5% return on their common stock investment value

12   (i.e., the market price per share) when share values represent 150% of book value, investors

13   would require a total annual return of $1.50 per share on a $12.00 market value to realize their

14   expectations.  If, however, this 12.5% market-determined cost rate is applied to an original cost

15   rate base which is equivalent to the book value of common stock of $8.00 per share, the utility's

16   actual earnings per share would be only $1.00.  This would result in a $.50 per share earnings

17   shortfall which would deny the utility the ability to satisfy investor expectations.

18       As a consequence, a utility could not withstand these DCF results applied in a rate case

19   and also sustain its financial integrity.  This is because $1.00 of earnings per share and a 75%

20   dividend payout ratio would provide earnings retention growth of just 3.125% (i.e., $1.00 x .75

21   = $0.75, and $1.00 - $0.75 = $0.25 ÷ $8.00 = 3.125%).  In this example, the earnings retention

22   growth rate plus the 6.25% dividend yield ($0.75 ÷ $12.00) would equal 9.375% (6.25% +

23   3.125%) as indicated by the DCF model.  This DCF result is the same as the utility's rate of

1    dividend payments on its book value (i.e., $0.75 ÷ $8.00 = 9.375%). This situation provides

2    the utility with no earnings cushion for its dividend payment because the DCF result equals the

3    dividend rate on book value (i.e., both rates are 9.375% in the example). Moreover, if the price

4    employed in my example were higher than 150% of book value, a "negative" earnings cushion

5    would develop and cause the need for a dividend reduction because the DCF result would be

6    less than the dividend rate on book value. For these reasons, the usefulness of the DCF method

7    significantly diminishes as market prices and book values diverge.

8          Further, there is no reason to expect that investors would necessarily value utility stocks

9    equal to their book value. In fact, it is rare that utility stocks trade at book value. Moreover,

10    high market-to-book ratios may be reflective of general market sentiment. Were regulators to

11    use the results of a DCF model, that fails to produce the required return when applied to an

12    original cost rate base, they would penalize a company with high market-to-book ratios. This

13    clearly would penalize a regulated firm and its investors that purchased the stock at its current

14    price. When investor expectations are not fulfilled, the market price per share will decline and

15    a new, different equity cost rate would be indicated from the lower price per share. This

16    condition suggests that the current price would be subject to disequilibrium and would not

17    allow a reasonable calculation of the cost of equity. This situation would also create a serious

18    disincentive for management initiative and efficiency. Within that framework, a perverse set of

19    goals and rewards would result, i.e., a high authorized rate of return in a rate case would be the

20    reward for poor financial performance, while low rates of return would be the reward for good

21    financial performance. As such, the DCF results should not be used alone to determine the cost

22    of equity, but should be used along with other complementary methods.

1                                   **Dividend Yield**

2          The historical annual dividend yields are shown on and Schedule 3 for the Electric

3    Group. The 2001-2005 five-year average dividend yield was 4.8% for the Electric Group. The

4    monthly dividend yields for the past twelve months are shown graphically on Schedule 8.

5    These dividend yields reflect an adjustment to the month-end closing prices to remove the pro

6    rata accumulation of the quarterly dividend amount since the last ex-dividend date.

7          The ex-dividend date usually occurs two business days before the record date of the

8    dividend (i.e., the date by which a shareholder must own the shares to be entitled to the

9    dividend payment--usually about two to three weeks prior to the actual payment). During a

10   quarter (here defined as 91 days), the price of a stock moves up ratably by the dividend amount

11   as the ex-dividend date approaches. The stock's price then falls by the amount of the dividend

12   on the ex-dividend date. Therefore, it is necessary to calculate the fraction of the quarterly

13   dividend since the time of the last ex-dividend date and to remove that amount from the price.

14   This adjustment reflects normal recurring pricing of stocks in the market, and establishes a

15   price that will reflect the true yield on a stock.

16         A six-month average dividend yield has been used to recognize the prospective

17   orientation of the ratesetting process as explained in the direct testimony. For the purpose of a

18   DCF calculation, the average dividend yields must be adjusted to reflect the prospective nature

19   of the dividend payments, i.e., the higher expected dividends for the future rather than the

20   recent dividend payment annualized. An adjustment to the dividend yield component, when

21   computed with annualized dividends, is required based upon investor expectation of quarterly

22   dividend increases.

1    The procedure to adjust the average dividend yield for the expectation of a dividend

2    increase during the initial investment period will be at a rate of one-half the growth component,

3    developed below. The DCF equation, showing the quarterly dividend payments as $D_0$, may be

4    stated in this fashion:

$$K = \frac{D_0(1+g)^0 + D_0(1+g)^0 + D_0(1+g)^1 + D_0(1+g)^1}{P_0} + g$$

5    The adjustment factor, based upon one-half the expected growth rate developed in my direct

6    testimony, will be 3.125% (6.25% x .5) for the Electric Group which assumes that two dividend

7    payments will be at the expected higher rate during the initial investment period. Using the six-

8    month average dividend yield as a base, the prospective (forward) dividend yield would be

9    4.28% (4.15% x 1.03125) for the Electric Group.

10    Another DCF model that reflects the discrete growth in the quarterly dividend $(D_0)$ is as

11    follows:

$$K = \frac{D_0(1+g)^{25} + D_0(1+g)^{50} + D_0(1+g)^{75} + D_0(1+g)^{1.00}}{P_0} + g$$

12    This procedure confirms the reasonableness of the forward dividend yield previously

13    calculated. The quarterly discrete adjustment provides a dividend yield of 4.31% (4.15% x

14    1.03877) for the Electric Group. The use of an adjustment is required for the periodic form of

15    the DCF in order to properly recognize that dividends grow on a discrete basis.

1     In either of the preceding DCF dividend yield adjustments, there is no recognition for

2     the compound returns attributed to the quarterly dividend payments. Investors have the

3     opportunity to reinvest quarterly dividend receipts. Recognizing the compounding of the

4     periodic quarterly dividend payments $(D_0)$, results in a third DCF formulation:

$$k = \left[ \left( 1 + \frac{D_0}{P_0} \right)^4 - 1 \right] + g$$

5     This DCF equation provides no further recognition of growth in the quarterly dividend.

6     Combining discrete quarterly dividend growth with quarterly compounding would provide the

7     following DCF formulation, stating the quarterly dividend payments $(D_0)$:

$$k = \left[ \left( 1 + \frac{D_0 (1 + g)^{.25}}{P_0} \right)^4 - 1 \right] + g$$

8     A compounding of the quarterly dividend yield provides another procedure to recognize the

9     necessity for an adjusted dividend yield. The unadjusted average quarterly dividend yield was

10     1.0375% (4.15% ÷ 4) for the Electric Group. The compound dividend yield would be 4.28%

11     $(1.010533^4 - 1)$ for the Electric Group, recognizing quarterly dividend payments in a forward-

12     looking manner. These dividend yields conform with investors' expectations in the context of

13     reinvestment of their cash dividend.

14     For the Electric Group, a 4.29% forward-looking dividend yield is the average (4.28%

15     + 4.31% + 4.28% = 12.87% ÷ 3) of the adjusted dividend yield using the form $D_0/P_0 (1+.5g)$,

1    the dividend yield recognizing discrete quarterly growth, and the quarterly compound dividend

2    yield with discrete quarterly growth.

3                                              **Growth Rate**

4            If viewed in its infinite form, the DCF model is represented by the discounted value of

5    an endless stream of growing dividends.  It would, however, require 100 years of future

6    dividend payments so that the discounted value of those payments would equate to the present

7    price so that the discount rate and the rate of return shown by the simplified Gordon form of the

8    DCF model would be about the same.  A century of dividend receipts represents an unrealistic

9    investment horizon from almost any perspective.  Because stocks are not held by investors

10   forever, the growth in the share value (i.e., capital appreciation, or capital gains yield) is most

11   relevant to investors' total return expectations.  Hence, investor expected returns in the equity

12   market are provided by capital appreciation of the investment as well as receipt of dividends.

13   As such, the sale price of a stock can be viewed as a liquidating dividend which can be

14   discounted along with the annual dividend receipts during the investment holding period to

15   arrive at the investor expected return.

16           In its constant growth form, the DCF assumes that with a constant return on book

17   common equity and constant dividend payout ratio, a firm's earnings per share, dividends per

18   share and book value per share will grow at the same constant rate, absent any external

19   financing by a firm.  Because these constant growth assumptions do not actually prevail in the

20   capital markets, the capital appreciation potential of an equity investment is best measured by

21   the expected growth in earnings per share.  Since the traditional form of the DCF assumes no

22   change in the price-earnings multiple, the value of a firm's equity will grow at the same rate as

23   earnings per share.  Hence, the capital gains yield is best measured by earnings per share

1     growth using company-specific variables.

2        Investors consider both historical and projected data in the context of the expected

3     growth rate for a firm. An investor can compute historical growth rates using compound

4     growth rates or growth rate trend lines. Otherwise, an investor can rely upon published growth

5     rates as provided in widely-circulated, influential publications. However, a traditional constant

6     growth DCF analysis that is limited to such inputs suffers from the assumption of no change in

7     the price-earnings multiple, i.e., that the value of a firm's equity will grow at the same rate as

8     earnings. Some of the factors which actually contribute to investors' expectations of earnings

9     growth and which should be considered in assessing those expectations, are: (i) the earnings

10    rate on existing equity, (ii) the portion of earnings not paid out in dividends, (iii) sales of

11    additional common equity, (iv) reacquisition of common stock previously issued, (v) changes

12    in financial leverage, (vi) acquisitions of new business opportunities, (vii) profitable liquidation

13    of assets, and (viii) repositioning of existing assets. The realities of the equity market regarding

14    total return expectations, however, also reflect factors other than these inputs. Therefore, the

15    DCF model contains overly restrictive limitations when the growth component is stated in

16    terms of earnings per share (the basis for the capital gains yield) or dividends per share (the

17    basis for the infinite dividend discount model). In these situations, there is inadequate

18    recognition of the capital gains yields arising from stock price growth which could exceed

19    earnings or dividends growth.

20        To assess the growth component of the DCF, analysts' projections of future growth

21    influence investor expectations as explained above. One influential publication is <u>The Value</u>

22    <u>Line Investment Survey</u> which contains estimated future projections of growth. <u>The Value</u>

23    <u>Line Investment Survey</u> provides growth estimates which are stated within a common

1  economic environment for the purpose of measuring relative growth potential. The basis for

2  these projections is the Value Line 3 to 5 year hypothetical economy. The Value Line

3  hypothetical economic environment is represented by components and subcomponents of the

4  National Income Accounts which reflect in the aggregate assumptions concerning the

5  unemployment rate, manpower productivity, price inflation, corporate income tax rate, high-

6  grade corporate bond interest rates, and Fed policies. Individual estimates begin with the

7  correlation of sales, earnings and dividends of a company to appropriate components or

8  subcomponents of the future National Income Accounts. These calculations provide a

9  consistent basis for the published forecasts. Value Line's evaluation of a specific company's

10  future prospects are considered in the context of specific operating characteristics that influence

11  the published projections. Of particular importance for regulated firms, Value Line considers

12  the regulatory quality, rates of return recently authorized, the historic ability of the firm to

13  actually experience the authorized rates of return, the firm's budgeted capital spending, the

14  firm's financing forecast, and the dividend payout ratio. The wide circulation of this source and

15  frequent reference to Value Line in financial circles indicate that this publication has an

16  influence on investor judgment with regard to expectations for the future.

17       There are other sources of earnings growth forecasts. One of these sources is the

18  Institutional Brokers Estimate System ("IBES"), which has been published for many years.

19  The IBES service provided data on consensus earnings per share forecasts and five-year

20  earnings growth rate estimates. The publisher of IBES has been purchased by Thomson/First

21  Call. The IBES forecasts have been integrated into the First Call consensus growth forecasts.

22  The earnings estimates are obtained from financial analysts at brokerage research departments

23  and from  institutions whose securities analysts are projecting earnings for companies in the

1    First Call universe of companies. Other services that tabulate earnings forecasts and publish

2    them are Zacks Investment Research and Market Guide (which is provided over the Internet by

3    Reuters). As with the First Call forecasts, Zacks and Reuters/Market Guide provide consensus

4    forecasts collected from analysts for most publically traded companies.

5         In each of these publications, forecasts of earnings per share for the current and

6    subsequent year receive prominent coverage. That is to say, First Call/Thomson, Zacks,

7    Reuters/Market Guide, and Value Line show estimates of current-year earnings and projections

8    for the next year. While the DCF model typically focusses upon long-run estimates of growth,

9    stock prices are clearly influenced by current and near-term earnings prospects. Therefore, the

10   near-term earnings per share growth rates should also be factored into a growth rate

11   determination.

12        Although forecasts of future performance are investor influencing[2], equity investors

13   may also rely upon the observations of past performance. Investors' expectations of future

14   growth rates may be determined, in part, by an analysis of historical growth rates. It is apparent

15   that any serious investor would advise himself/herself of historical performance prior to taking

16   an investment position in a firm. Earnings per share and dividends per share represent the

17   principal financial variables which influence investor growth expectations.

18        Other financial variables are sometimes considered in rate case proceedings. For

19   example, a company's internal growth rate, derived from the return rate on book common

20   equity and the related retention ratio, is sometimes considered. This growth rate measure is

21   represented by the Value Line forecast "$BxR$" shown on Schedule 10. Internal growth rates are

22   often used as a proxy for book value growth. Unfortunately, this measure of growth is often

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[2]   As shown in a National Bureau of Economic Research monograph by John G. Cragg and Burton G.
Malkiel, Expectations and the Structure of Share Prices, University of Chicago Press 1982.

1     not reflective of investor-expected growth. This is especially important when there is an

2     indication of a prospective change in dividend payout ratio, earned return on book common

3     equity, change in market-to-book ratios or other fundamental changes in the character of the

4     business. Nevertheless, I have also shown the historical and projected growth rates in book

5     value per share and internal growth rates.

6     <div align="center">**Leverage Adjustment**</div>

7     As noted previously, the divergence of stock prices from book values creates a conflict

8     within the DCF model when the results of a market-derived cost of equity are applied to the

9     common equity account measured at book value for the purpose of determining the weighted

10     average cost of capital is in the ratesetting context. This is the situation today where the market

11     price of stock exceeds its book value for most companies. This divergence of price and book

12     value also creates a financial risk difference, whereby the capitalization of a utility measured at

13     its market value contains relatively less debt and more equity than the capitalization measured

14     at its book value. It is a well-accepted fact of financial theory that a relatively higher

15     proportion of equity in the capitalization has less financial risk than another capital structure

16     more heavily weighted with debt. This is the situation for the Electric Group where the market

17     value of its capitalization contains more equity than is shown by the book capitalization. The

18     following comparison demonstrates this situation where the market capitalization is developed

19     by taking the "Fair Value of Financial Instruments" (Disclosures about Fair Value of Financial

20     Instruments -- Statement of Financial Accounting Standards ("FAS") No. 107) as shown in the

21     annual report for these companies and the market value of the common equity using the price

22     of stock. The comparison of capital structure ratios is:

|  | Capitalization at Market Value (Fair Value) | Capitalization at Book Value (Carrying Amounts) |
|---|---|---|
| Long-term Debt | 44.19% | 49.95% |
| Preferred Stock | 1.20 | 1.49 |
| Common Equity | 54.62 | 48.57 |
| | | |
| Total | 100.00% | 100.00% |

9    With regard to the capital structure ratios represented by the carrying amounts shown above,

10    there are some variances from the ratios shown on Schedule 3. These variances arise from the

11    use of balance sheet values in computing the capital structure ratios shown on Schedule 3 and

12    the use of the Carrying Amounts of the Financial Instruments according to FAS 107 (the

13    Carrying Amounts were used in the table shown above to be comparable to the Fair Value

14    amounts used in the comparison calculations).

15    With the capital ratios calculated above, is necessary to first calculate the cost of equity

16    for a firm without any leverage. The cost of equity for an unleveraged firm using the capital

17    structure ratios calculated with market values is:

18    $ku = ke - (((ku - i)\ 1\text{-}t)\ D\ /\ E) - (ku - d)\ P\ /\ E$

19    $8.93\% = 10.54\% - (((8.93\%-5.96\%)\ .65)\ 44.19\%/54.62\%) - (8.93\% - 6.04\%)\ 1.20\%/54.62\%$

20    where $ku$ = cost of equity for an all-equity firm, $ke$ = market determined cost equity, $i$ = cost of

21    debt[3], $d$ = dividend rate on preferred stock[4], $D$ = debt ratio, $P$ = preferred stock ratio, and $E$ =

22    common equity ratio. The formula shown above indicates that the cost of equity for a firm with

23    100% equity is 8.93% in the case of the Electric Group using the market value of the

24    capitalization. Having determined that the cost of equity for a firm with 100% equity, the rate

25    of return on common equity associated with the book value capital structure is:

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[3]    The cost of debt is the six-month average yield on Moody's A rated public utility bonds.

[4]    The cost of preferred is the six-month average yield on Moody's "a" rated preferred stock.

1      $ke = ku + (((ku - i) 1-t) \quad D / E) + (ku - d) P / E$

2      $11.01\% = 8.93\% + (((8.93\%-5.96\%).65) \, 49.95\%/48.57\%) + (8.93\%-6.04\%) \, 1.49\%/48.57\%$

1 **<u>INTEREST RATES</u>**

2     Interest rates can be viewed in their traditional nominal terms (i.e., the stated rate of

3 interest) and in real terms (i.e., the stated rate of interest less the expected rate of inflation).

4 Absent consideration of inflation, the real rate of interest is determined generally by supply

5 factors which are influenced by investors willingness to forego current consumption (i.e., to

6 save) and demand factors that are influenced by the opportunities to derive income from

7 productive investments. Added to the real rate of interest is compensation required by investors

8 for the inflationary impact of the declining purchasing power of their income received in the

9 future. While interest rates are clearly influenced by the changing annual rate of inflation, it is

10 important to note that the expected rate of inflation, that is reflected in current interest rates,

11 may be quite different than the prevailing rate of inflation.

12     Rates of interest also vary by the type of interest bearing instrument. Investors require

13 compensation for the risk associated with the term of the investment and the risk of default.

14 The risk associated with the term of the investment is usually shown by the yield curve, i.e., the

15 difference in rates across maturities. The typical structure is represented by a positive yield

16 curve which provides progressively higher interest rates as the maturities are lengthened. Flat

17 (i.e., relatively level rates across maturities) or inverted (i.e., higher short-term rates than long-

18 term rates) yield curves occur less frequently.

19     The risk of default is typically associated with the creditworthiness of the borrower.

20 Differences in interest rates can be traced to the credit quality ratings assigned by the bond

21 rating agencies, such as Moody's Investors Service, Inc. and Standard & Poor's Corporation.

22 Obligations of the United States Treasury are usually considered to be free of default risk, and

23 hence reflect only the real rate of interest, compensation for expected inflation, and maturity

1  risk.  The Treasury has been issuing inflation-indexed notes which automatically provide

2  compensation to investors for future inflation, thereby providing a lower current yield on these

3  issues.

4  <center>**Interest Rate Environment**</center>

5  Federal Reserve Board ("Fed") policy actions which impact directly short-term interest

6  rates also substantially affect investor sentiment in long-term fixed-income securities markets.

7  In this regard, the Fed has often pursued policies designed to build investor confidence in the

8  fixed-income securities market. Formative Fed policy has had a long history, as exemplified by

9  the historic 1951 Treasury-Federal Reserve Accord, and more recently, deregulation within the

10  financial system which increased the level and volatility of interest rates.  The Fed has

11  indicated that it will follow a monetary policy designed to promote noninflationary economic

12  growth.

13  As background to the recent levels of interest rates, history shows that the Open Market

14  Committee of the Federal Reserve board ("FOMC") began a series of moves toward lower

15  short-term interest rates in mid-1990 -- at the outset of the previous recession.  Monetary policy

16  was influenced at that time by (i) steps taken to reduce the federal budget deficit, (ii) slowing

17  economic growth, (iii) rising unemployment, and (iv) measures intended to avoid a credit

18  crunch.  Thereafter, the Federal government initiated several bold proposals to deal with future

19  borrowings by the Treasury.  With lower expected federal budget deficits and reduced Treasury

20  borrowings, together with limitations on the supply of new 30-year Treasury bonds, long-term

21  interest rates declined to a twenty-year low, reaching a trough of 5.78% in October 1993.

22  On February 4, 1994, the FOMC began a series of increases in the Fed Funds rate (i.e.,

23  the interest rate on excess overnight bank reserves).  The initial increase represented the first

1    rise in short-term interest rates in five years. The series of seven increases doubled the Fed

2    Funds rate to 6%. The increases in short-term interest rates also caused long-term rates to

3    move up, continuing a trend which began in the fourth quarter of 1993. The cyclical peak in

4    long-term interest rates was reached on November 7 and 14, 1994 when 30-year Treasury

5    bonds attained an 8.16% yield. Thereafter, long-term Treasury bond yields generally declined.

6    Beginning in mid-February 1996, long-term interest rates moved upward from their

7    previous lows. After initially reaching a level of 6.75% on March 15, 1996, long-term interest

8    rates continued to climb and reached a peak of 7.19% on July 5 and 8, 1996. For the period

9    leading up to the 1996 Presidential election, long-term Treasury bonds generally traded within

10   this range. After the election, interest rates moderated, returning to a level somewhat below the

11   previous trading range. Thereafter, in December 1996, interest rates returned to a range of

12   6.5% to 7.0% which existed for much of 1996.

13   On March 25, 1997, the FOMC decided to tighten monetary conditions through a one-

14   quarter percentage point increase in the Fed Funds rate. This tightening increased the Fed

15   Funds rate to 5.5%. In making this move, the FOMC stated that it was concerned by persistent

16   strength of demand in the economy, which it feared would increase the risk of inflationary

17   imbalances that could eventually interfere with the long economic expansion.

18   In the fourth quarter of 1997, the yields on Treasury bonds began to decline rapidly in

19   response to an increase in demand for Treasury securities caused by a flight to safety triggered

20   by the currency and stock market crisis in Asia. Liquidity provided by the Treasury market

21   makes these bonds an attractive investment in times of crisis. This is because Treasury

22   securities encompass a very large market which provides ease of trading and carry a premium

1   for safety. During the fourth quarter of 1997, Treasury bond yields pierced the psychologically

2   important 6% level for the first time since 1993.

3   Through the first half of 1998, the yields on long-term Treasury bonds fluctuated within

4   a range of about 5.6% to 6.1% reflecting their attractiveness and safety. In the third quarter of

5   1998, there was further deterioration of investor confidence in global financial markets. This

6   loss of confidence followed the moratorium (i.e., default) by Russia on its sovereign debt and

7   fears associated with problems in Latin America. While not significant to the global economy

8   in the aggregate, the August 17 default by Russia had a significant negative impact on investor

9   confidence, following earlier discontent surrounding the crisis in Asia. These events

10   subsequently led to a general pull back of risk-taking as displayed by banks growing reluctance

11   to lend, worries of an expanding credit crunch, lower stock prices, and higher yields on bonds

12   of riskier companies. These events contributed to the failure of the hedge fund, Long-Term

13   Capital Management.

14   In response to these events, the FOMC cut the Fed Funds rate just prior to the mid-term

15   Congressional elections. The FOMC's action was based upon concerns over how increasing

16   weakness in foreign economies would affect the U.S. economy. As recently as July 1998, the

17   FOMC had been more concerned about fighting inflation than the state of the economy. The

18   initial rate cut was the first of three reductions by the FOMC. Thereafter, the yield on long-

19   term Treasury bonds reached a 30-year low of 4.70% on October 5, 1998. Long-term Treasury

20   yields below 5% had not been seen since 1967. Unlike the first rate cut that was widely

21   anticipated, the second rate reduction by the FOMC was a surprise to the markets. A third

22   reduction in short-term interest rates occurred in November 1998 when the FOMC reduced the

23   Fed Funds rate to 4.75%.

1    All of these events prompted an increase in the prices for Treasury bonds which lead to

2    the low yields described above. Another factor that contributed to the decline in yields on

3    long-term Treasury bonds was a reduction in the supply of new Treasury issues coming to

4    market due to the Federal budget surplus -- the first in nearly 30 years. The dollar amount of

5    Treasury bonds being issued declined by 30% in two years thus resulting in higher prices and

6    lower yields. In addition, rumors of some struggling hedge funds unwinding their positions

7    further added to the gains in Treasury bond prices.

8    The financial crisis that spread from Asia to Russia and to Latin America pushed

9    nervous investors from stocks into Treasury bonds, thus increasing demand for bonds, just

10   when supply was shrinking. There was also a move from corporate bonds to Treasury bonds to

11   take advantage of appreciation in the Treasury market. This resulted in a certain amount of

12   exuberance for Treasury bond investments that formerly was reserved for the stock market.

13   Moreover, yields in the fourth quarter of 1998 became extremely volatile as shown by Treasury

14   yields that fell from 5.10% on September 29 to 4.70 percent on October 5, and thereafter

15   returned to 5.10% on October 13. A decline and rebound of 40 basis points in Treasury yields

16   in a two-week time frame is remarkable.

17   Beginning in mid-1999, the FOMC raised interest rates on six occasions reversing its

18   actions in the fall of 1998. On June 30, 1999, August 24, 1999, November 16, 1999, February

19   2, 2000, March 21, 2000, and May 16, 2000, the FOMC raised the Fed Funds rate to 6.50%.

20   This brought the Fed Funds rate to its highest level since 1991, and was 175 basis points higher

21   than the level that occurred at the height of the Asian currency and stock market crisis. At the

22   time, these actions were taken in response to more normally functioning financial markets, tight

1  labor markets, and a reversal of the monetary ease that was required earlier in response to the

2  global financial market turmoil.

3      As the year 2000 drew to a close, economic activity slowed and consumer confidence

4  began to weaken. In two steps at the beginning and at the end of January 2001, the FOMC

5  reduced the Fed Funds rate by one percentage point. These actions brought the Fed Funds rate

6  to 5.50%. The FOMC described its actions as "a rapid and forceful response of monetary

7  policy" to eroding consumer and business confidence exemplified by weaker retail sales and

8  business spending on capital equipment and cut backs in manufacturing production.

9  Subsequently, on March 20, 2001, April 18, 2001, May 15, 2001, June 27, 2001, and August

10  21, 2001, the FOMC lowered the Fed Funds in steps consisting of three 50 basis points

11  decrements followed by two 25 basis points decrements. These actions took the Fed Funds rate

12  to 3.50%. The FOMC observed on August 21, 2001:

13          "Household demand has been sustained, but business profits and
14          capital spending continue to weaken and growth abroad is
15          slowing, weighing on the U.S. economy. The associated easing
16          of pressures on labor and product markets is expected to keep
17          inflation contained.
18
19          Although long-term prospects for productivity growth and the
20          economy remain favorable, the Committee continues to believe
21          that against the background of its long-run goals of price
22          stability and sustainable economic growth and of the
23          information currently available, the risks are weighted mainly
24          toward conditions that may generate economic weakness in the
25          foreseeable future."
26
27  After the terrorist attack on September 11, 2001, the FOMC made two additional 50 basis

28  points reductions in the Fed Funds rate. The first reduction occurred on September 17, 2001

29  and followed the four-day closure of the financial markets following the terrorist attacks. The

30  second reduction occurred at the October 2 meeting of the FOMC where it observed:

1            "The terrorist attacks have significantly heightened uncertainty
2            in an economy that was already weak. Business and household
3            spending as a consequence are being further damped.
4            Nonetheless, the long-term prospects for productivity growth
5            and the economy remain favorable and should become evident
6            once the unusual forces restraining demand abate."
7
8   Afterward, the FOMC reduced the Fed Funds rate by 50 basis points on November 6, 2001 and

9   by 25 basis points on December 11, 2001. In total, short-term interest rates were reduced by

10   the FOMC eleven (11) times during the year 2001. These actions cut the Fed Funds rate by

11   4.75% and resulted in 1.75% for the Fed Funds rate.

12       In an attempt to deal with weakening fundamentals in the economy recovering from the

13   recession that began in March 2001, the FOMC provided a psychologically important one-half

14   percentage point reduction in the federal funds rate. The rate cut was twice as large as the

15   market expected, and brought the fed funds rate to 1.25% on November 6, 2002. The FOMC

16   stated that:

17            "The Committee continues to believe that an accommodative
18            stance of monetary policy, coupled with still-robust underlying
19            growth in productivity, is providing important ongoing support
20            to economic activity. However, incoming economic data have
21            tended to confirm that greater uncertainty, in part attributable to
22            heightened geopolitical risks, is currently inhibiting spending,
23            production, and employment. Inflation and inflation
24            expectations remain well contained.
25
26            In these circumstances, the Committee believes that today's
27            additional monetary easing should prove helpful as the economy
28            works its way through this current soft spot. With this action,
29            the Committee believes that, against the background of its long-
30            run goals of price stability and sustainable economic growth and
31            of the information currently available, the risks are balanced
32            with respect to the prospects for both goals in the foreseeable
33            future."
34
35       As 2003 unfolded, there was a continuing expectation of lower yields on Treasury

36   securities. In fact, the yield on ten-year Treasury notes reached a 45-year low near the end of

1     the second quarter of 2003. For long-term Treasury bonds, those yields culminated with a

2     4.24% yield on June 13, 2003. Soon thereafter, the FOMC reduced the Fed Funds rate by 25

3     basis points on June 25, 2003. In announcing its action, the FOMC stated:

4            "The Committee continues to believe that an accommodative
5            stance of monetary policy, coupled with still robust underlying
6            growth in productivity, is providing important ongoing support
7            to economic activity. Recent signs point to a firming in
8            spending, markedly improved financial conditions, and labor
9            and product markets that are stabilizing. The economy,
10          nonetheless, has yet to exhibit sustainable growth. With
11          inflationary expectations subdued, the Committee judged that a
12          slightly more expansive monetary policy would add further
13          support for an economy which it expects to improve over
14          time."
15
16     Thereafter, intermediate and long-term Treasury yields moved marketedly higher. Higher

17     yields on long-term Treasury bonds, which exceeded 5.00% can be traced to: (i) the market's

18     disappointment that the Fed Funds rate was not reduced below 1.00%, (ii) an indication that the

19     Fed will not use unconventional methods for implementing monetary policy, (iii) growing

20     confidence in a strengthening economy, and (iv) a Federal budget deficit that is projected to be

21     $455 billion in 2003 (reported subsequently, the actual deficit was $374 billion) and $475

22     billion in 2004 (revised subsequently, the estimated deficit is $500 billion in 2004). All these

23     factors significantly changed the seniment in the bond market.

24        For the remainder of 2003, the FOMC continued with its balanced monetary policy,

25     thereby retaining the 1% Fed Funds rate. However, in 2004, the FOMC initiated a policy of

26     moving toward a more neutral Fed Funds rate (i.e., removing the bias of abnormal low rates).

27     On June 30, 2004, August 10, 2004, September 21, 2004, November 10, 2004, December 14,

28     2004, February 2, 2005, March 22, 2005, May 3, 2005, June 30, 2005, August 9, 2005,

29     September 20, 2005, November 1, 2005, December 13, 2005, January 31, 2006, March 28,

1   2006, May 10, 2006, and June 29, 2006, the FOMC increased the Fed Funds rate in seventeen

2   25 basis point increments. These policy actions are widely interpreted as part of the process of

3   moving toward a more neutral range for the Fed Funds rate. In its January 31, 2007 press

4   release, the FOMC stated:

5       "Recent indicators have suggested somewhat firmer economic
6       growth, and some tentative signs of stabilization have appeared in
7       the housing market. Overall, the economy seems likely to expand
8       at a moderate pace over coming quarters.

9       Readings on core inflation have improved modestly in recent
10      months, and inflation pressures seem likely to moderate over
11      time. However, the high level of resource utilization has the
12      potential to sustain inflation pressures.

13      The Committee judges that some inflation risks remain. The
14      extent and timing of any additional firming that may be needed to
15      address these risks will depend on the evolution of the outlook
16      for both inflation and economic growth, as implied by incoming
17      information."

18                          **Public Utility Bond Yields**
19
20          The Risk Premium analysis of the cost of equity is represented by the combination of a

21  firm's borrowing rate for long-term debt capital plus a premium that is required to reflect the

22  additional risk associated with the equity of a firm as explained in Appendix G. Due to the

23  senior nature of the long-term debt of a firm, its cost is lower than the cost of equity due to the

24  prior claim which lenders have on the earnings and assets of a corporation.

25          As a generalization, all interest rates track to varying degrees of the benchmark yields

26  established by the market for Treasury securities. Public utility bond yields usually reflect the

27  underlying Treasury yield associated with a given maturity plus a spread to reflect the specific

28  credit quality of the issuing public utility. Market sentiment can also have an influence on the

29  spreads as described below. The spread in the yields on public utility bonds and Treasury

1    bonds varies with market conditions, as does the relative level of interest rates at varying

2    maturities shown by the yield curve.

3        Pages 1 and 2 of Schedule 11 provide the recent history of long-term public utility bond

4    yields for the rating categories of Aa, A and Baa (no yields are shown for Aaa rated public

5    utility bonds because this index has been discontinued).  The top four rating categories of Aaa,

6    Aa, A and Baa are known as "investment grades" and are generally regarded as eligible for

7    bank investments under commercial banking regulations.   These investment grades are

8    distinguished from "junk" bonds which have ratings of Ba and below.

9        A relatively long history of the spread between the yields on long-term A-rated public

10   utility bonds and 20-year Treasury bonds is shown on page 3 of Schedule 11. There, it is shown

11   that those spreads were at about the one percentage point during the years 1994 through 1997.

12   With the aversion to risk and flight to quality described earlier, a significant widening of the

13   spread in the yields between corporate (e.g., public utility) and Treasury bonds developed in

14   1998, after an initial widening of the spread that began in the fourth quarter of 1997.  The

15   significant widening of spreads in 1998 was unexpected by some technically savvy investors,

16   as shown by the debacle at the Long-Term Capital Management hedge fund.  When Russia

17   defaulted its debt on August 17, some investors had to cover short positions when Treasury

18   prices spiked upward.  Short covering by investors that guessed wrong on the relationship

19   between corporate and Treasury bonds also contributed to run-up in Treasury bond prices by

20   increasing the demand for them.  This helped to contribute to a widening of the spreads

21   between corporate and Treasury bonds.

22       As shown on page 3 of Schedule 11, the spread in yields between A-rated public utility

23   bonds and 20-year Treasury bonds were about one percentage point prior to 1998, 1.32% in

1  1998, 1.42% in 1999, 2.01% in 2000, 2.13% in 2001, 1.94% in 2002, 1.62% in 2003, 1.12% in

2  2004, 1.01% in 2005 and 1.08% in 2006. As shown by the monthly data presented on pages 4

3  and 5 of Schedule 11, the interest rate spread between the yields on 20-year Treasury bonds and

4  A-rated public utility bonds was 1.07 percentage points for the twelve-months ended January

5  2007. For the six- and three-month periods ending January 2007, the yield spread was 1.05%

6  and 1.02%, respectively.

7  **Risk-Free Rate of Return in the CAPM**

8  Regarding the risk-free rate of return (see Appendix H), pages 2 and 3 of Schedule 13

9  provide the yields on the broad spectrum of Treasury Notes and Bonds. Some practitioners of

10  the CAPM would advocate the use of short-term treasury yields (and some would argue for the

11  yields on 91-day Treasury Bills). Other advocates of the CAPM would advocate the use of

12  longer-term treasury yields as the best measure of a risk-free rate of return. As Ibbotson has

13  indicated:

14  The Cost of Capital in a Regulatory Environment. When
15  discounting cash flows projected over a long period, it is
16  necessary to discount them by a long-term cost of capital.
17  Additionally, regulatory processes for setting rates often
18  specify or suggest that the desired rate of return for a regulated
19  firm is that which would allow the firm to attract and retain
20  debt and equity capital over the long term. Thus, the long-term
21  cost of capital is typically the appropriate cost of capital to use
22  in regulated ratesetting. (Stocks, Bonds, Bills and Inflation -
23  1992 Yearbook, pages 118-119)
24
25  As indicated above, long-term Treasury bond yields represent the correct measure of the risk-

26  free rate of return in the traditional CAPM. Very short term yields on Treasury bills should be

27  avoided for several reasons. First, rates should be set on the basis of financial conditions that

28  will exist during the effective period of the proposed rates. Second, 91-day Treasury bill yields

29  are more volatile than longer-term yields and are greatly influenced by FOMC monetary policy,

1   political, and economic situations. Moreover, Treasury bill yields have been shown to be

2   empirically inadequate for the CAPM. Some advocates of the theory would argue that the risk-

3   free rate of return in the CAPM should be derived from quality long-term corporate bonds.

1  ## RISK PREMIUM ANALYSIS

2  The cost of equity requires recognition of the risk premium required by common

3  equities over long-term corporate bond yields. In the case of senior capital, a company

4  contracts for the use of long-term debt capital at a stated coupon rate for a specific period of

5  time and in the case of preferred stock capital at a stated dividend rate, usually with provision

6  for redemption through sinking fund requirements. In the case of senior capital, the cost rate is

7  known with a high degree of certainty because the payment for use of this capital is a

8  contractual obligation, and the future schedule of payments is known. In essence, the investor-

9  expected cost of senior capital is equal to the realized return over the entire term of the issue,

10  absent default.

11  The cost of equity, on the other hand, is not fixed, but rather varies with investor

12  perception of the risk associated with the common stock. Because no precise measurement

13  exists as to the cost of equity, informed judgment must be exercised through a study of various

14  market factors which motivate investors to purchase common stock. In the case of common

15  equity, the realized return rate may vary significantly from the expected cost rate due to the

16  uncertainty associated with earnings on common equity. This uncertainty highlights the added

17  risk of a common equity investment.

18  As one would expect from traditional risk and return relationships, the cost of equity is

19  affected by expected interest rates. As noted in Appendix F, yields on long-term corporate

20  bonds traditionally consist of a real rate of return without regard to inflation, an increment to

21  reflect investor perception of expected future inflation, the investment horizon shown by the

22  term of the issue until maturity, and the credit risk associated with each rating category.

1    The Risk Premium approach recognizes the required compensation for the more risky

2    common equity over the less risky secured debt position of a lender. The cost of equity stated

3    in terms of the familiar risk premium approach is:

4    $$k=i+RP$$

5    where, the cost of equity *("k")* is equal to the interest rate on long-term corporate debt *("i")*,

6    plus an equity risk premium *("RP")* which represents the additional compensation for the

7    riskier common equity.

8    <div align="center">**Equity Risk Premium**</div>

9    The equity risk premium is determined as the difference in the rate of return on debt

10    capital and the rate of return on common equity. Because the common equity holder has only a

11    residual claim on earnings and assets, there is no assurance that achieved returns on common

12    equities will equal expected returns. This is quite different from returns on bonds, where the

13    investor realizes the expected return during the entire holding period, absent default. It is for

14    this reason that common equities are always more risky than senior debt securities. There are

15    investment strategies available to bond portfolio managers that immunize bond returns against

16    fluctuations in interest rates because bonds are redeemed through sinking funds or at maturity,

17    whereas no such redemption is mandated for public utility common equities.

18    It is well recognized that the expected return on more risky investments will exceed the

19    required yield on less risky investments. Neither the possibility of default on a bond nor the

20    maturity risk detracts from the risk analysis, because the common equity risk rate differential

21    (i.e., the investor-required risk premium) is always greater than the return components on a

22    bond. It should also be noted that the investment horizon is typically long-run for both

23    corporate debt and equity, and that the risk of default (i.e., corporate bankruptcy) is a concern

1    to both debt and equity investors. Thus, the required yield on a bond provides a benchmark or

2    starting point with which to track and measure the cost rate of common equity capital. There is

3    no need to segment the bond yield according to its components, because it is the total return

4    demanded by investors that is important for determining the risk rate differential for common

5    equity. This is because the complete bond yield provides the basis to determine the differential,

6    and as such, consistency requires that the computed differential must be applied to the complete

7    bond yield when applying the risk premium approach. To apply the risk rate differential to a

8    partial bond yield would result in a misspecification of the cost of equity because the computed

9    differential was initially determined by reference to the entire bond return.

10        The risk rate differential between the cost of equity and the yield on long-term corporate

11   bonds can be determined by reference to a comparison of holding period returns (here defined

12   as one year) computed over long time spans. This analysis assumes that over long periods of

13   time investors' expectations are on average consistent with rates of return actually achieved.

14   Accordingly, historical holding period returns must not be analyzed over an unduly short period

15   because near-term realized results may not have fulfilled investors' expectations. Moreover,

16   specific past period results may not be representative of investment fundamentals expected for

17   the future. This is especially apparent when the holding period returns include negative returns

18   which are not representative of either investor requirements of the past or investor expectations

19   for the future. The short-run phenomenon of unexpected returns (either positive or negative)

20   demonstrates that an unduly short historical period would not adequately support a risk

21   premium analysis. It is important to distinguish between investors' motivation to invest, which

22   encompass positive return expectations, and the knowledge that losses can occur. No rational

1    investor would forego payment for the use of capital, or expect loss of principal, as a basis for

2    investing. Investors will hold cash rather than invest with the expectation of a loss.

3          Within these constraints, page 1 of Schedule 12 provides the historical holding period

4    returns for the S&P Public Utility Index which has been independently computed and the

5    historical holding period returns for the S&P Composite Index which have been reported in

6    Stocks, Bonds, Bills and Inflation published by Ibbotson & Associates. The tabulation begins

7    with 1928 because January 1928 is the earliest monthly dividend yield for the S&P Public

8    Utility Index. I have considered all reliable data for this study to avoid the introduction of a

9    particular bias to the results. The measurement of the common equity return rate differential is

10    based upon actual capital market performance using realized results. As a consequence, the

11    underlying data for this risk premium approach can be analyzed with a high degree of

12    precision. Informed professional judgment is required only to interpret the results of this study,

13    but not to quantify the component variables.

14          The risk rate differentials for all equities, as measured by the S&P Composite, are

15    established by reference to long-term corporate bonds. For public utilities, the risk rate

16    differentials are computed with the S&P Public Utilities as compared with public utility bonds.

17          The measurement procedure used to identify the risk rate differentials consisted of

18    arithmetic means, geometric means, and medians for each series. Measures of the central

19    tendency of the results from the historical periods provide the best indication of representative

20    rates of return. In regulated ratesetting, the correct measure of the equity risk premium is the

21    arithmetic mean because a utility must expect to earn its cost of capital in each year in order to

22    provide investors with their long-term expectations. In other contexts, such as pension

23    determinations, compound rates of return, as shown by the geometric means, may be

1    appropriate. The median returns are also appropriate in ratesetting because they are a measure

2    of the central tendency of a single period rate of return. Median values have also been

3    considered in this analysis because they provide a return which divides the entire series of

4    annual returns in half and are representative of a return that symbolizes, in a meaningful way,

5    the central tendency of all annual returns contained within the analysis period. Medians are

6    regularly included in many investor-influencing publications.

7       As previously noted, the arithmetic mean provides the appropriate point estimate of the

8    risk premium. As further explained in Appendix H, the long-term cost of capital in rate cases

9    requires the use of the arithmetic means. To supplement my analysis, I have also used the rates

10   of return taken from the geometric mean and median for each series to provide the bounds of

11   the range to measure the risk rate differentials. This further analysis shows that when selecting

12   the midpoint from a range established with the geometric means and medians, the arithmetic

13   mean is indeed a reasonable measure for the long-term cost of capital. For the years 1928

14   through 2006, on a preliminary basis, the risk premiums for each class of equity are:

|  | S&P Composite | S&P Public Utilities |
|---|---|---|
| Arithmetic Mean | 5.86% | 5.41% |
| Geometric Mean | 4.25% | 3.35% |
| Median | 10.17% | 7.29% |
| Midpoint of Range | 7.21% | 5.32% |
| Average | 6.54% | 5.37% |

27   The empirical evidence suggests that the common equity risk premium is higher for the S&P

28   Composite Index compared to the S&P Public Utilities.

1    If, however, specific historical periods were also analyzed in order to match more

2    closely historical fundamentals with current expectations, the results provided on page 2 of

3    Schedule 12 should also be considered. One of these sub-periods included the 55-year period,

4    1952-2006. These years follow the historic 1951 Treasury-Federal Reserve Accord which

5    affected monetary policy and the market for government securities.

6    A further investigation was undertaken to determine whether realignment has taken

7    place subsequent to the historic 1973 Arab Oil embargo and during the deregulation of the

8    financial markets. In each case, the public utility risk premiums were computed by using the

9    arithmetic mean, and the geometric means and medians to establish the range shown by those

10   values. The time periods covering the more recent periods 1974 through 2006 and 1979

11   through 2006 contain events subsequent to the initial oil shock and the advent of monetarism as

12   Fed policy, respectively. For the 55-year, 33-year and 28-year periods, the public utility risk

13   premiums were 6.40%, 5.61%, and 5.83% respectively, as shown by the average of the specific

14   point-estimates and the midpoint of the ranges provided on page 2 of Schedule 12.

1      ## CAPITAL ASSET PRICING MODEL

2      Modern portfolio theory provides a theoretical explanation of expected returns on

3      portfolios of securities. The Capital Asset Pricing Model ("CAPM") attempts to describe the

4      way prices of individual securities are determined in efficient markets where information is

5      freely available and is reflected instantaneously in security prices. The CAPM states that the

6      expected rate of return on a security is determined by a risk-free rate of return plus a risk

7      premium which is proportional to the non-diversifiable (or systematic) risk of a security.

8      The CAPM theory has several unique assumptions that are not common to most other

9      methods used to measure the cost of equity. As with other market-based approaches, the

10     CAPM is an expectational concept. There has been significant academic research conducted

11     that found that the empirical market line, based upon historical data, has a less steep slope and

12     higher intercept than the theoretical market line of the CAPM. For equities with a beta less

13     than 1.0, such as utility common stocks, the CAPM theoretical market line will underestimate

14     the realistic expectation of investors in comparison with the empirical market line which shows

15     that the CAPM may potentially misspecify investors' required return.

16     The CAPM considers changing market fundamentals in a portfolio context. The

17     balance of the investment risk, or that characterized as unsystematic, must be diversified.

18     Some argue that diversifiable (unsystematic) risk is unimportant to investors. But this

19     contention is not completely justified because the business and financial risk of an individual

20     company, including regulatory risk, are widely discussed within the investment community and

21     therefore influence investors in regulated firms. In addition, I note that the CAPM assumes that

22     through portfolio diversification, investors will minimize the effect of the unsystematic

23     (diversifiable) component of investment risk. Because it is not known whether the average

1    investor holds a well-diversified portfolio, the CAPM must also be used with other models of

2    the cost of equity.

3        To apply the traditional CAPM theory, three inputs are required: the beta coefficient

4    $("\beta")$, a risk-free rate of return $("Rf")$, and a market premium $("Rm - Rf")$. The cost of equity

5    stated in terms of the CAPM is:

6                    $$k = Rf + \beta (Rm - Rf)$$

7        As previously indicated, it is important to recognize that the academic research has

8    shown that the security market line was flatter than that predicted by the CAPM theory and it

9    had a higher intercept than the risk-free rate. These tests indicated that for portfolios with betas

10   less than 1.0, the traditional CAPM would understate the return for such stocks. Likewise, for

11   portfolios with betas above 1.0, these companies had lower returns than indicated by the

12   traditional CAPM theory. Once again, CAPM assumes that through portfolio diversification

13   investors will minimize the effect of the unsystematic (diversifiable) component of investment

14   risk. Therefore, the CAPM must also be used with other models of the cost of equity,

15   especially when it is not known whether the average public utility investor holds a well-

16   diversified portfolio.

17                            **Beta**

18       The beta coefficient is a statistical measure which attempts to identify the non-

19   diversifiable (systematic) risk of an individual security and measures the sensitivity of rates of

20   return on a particular security with general market movements. Under the CAPM theory, a

21   security that has a beta of 1.0 should theoretically provide a rate of return equal to the return

22   rate provided by the market. When employing stock price changes in the derivation of beta, a

23   stock with a beta of 1.0 should exhibit a movement in price which would track the movements

1     in the overall market prices of stocks. Hence, if a particular investment has a beta of 1.0, a one

2     percent increase in the return on the market will result, on average, in a one percent increase in

3     the return on the particular investment. An investment which has a beta less than 1.0 is

4     considered to be less risky than the market.

5     The beta coefficient $("\beta")$, the one input in the CAPM application which specifically

6     applies to an individual firm, is derived from a statistical application which regresses the

7     returns on an individual security (dependent variable) with the returns on the market as a whole

8     (independent variable). The beta coefficients for utility companies typically describe a small

9     proportion of the total investment risk because the coefficients of determination $(R^2)$ are low.

10     Page 1 of Schedule 13 provides the betas published by Value Line. By way of

11     explanation, the Value Line beta coefficient is derived from a "straight regression" based upon

12     the percentage change in the weekly price of common stock and the percentage change weekly

13     of the New York Stock Exchange Composite average using a five-year period. The raw

14     historical beta is adjusted by Value Line for the measurement effect resulting in overestimates

15     in high beta stocks and underestimates in low beta stocks. Value Line then rounds its betas to

16     the nearest .05 increment. Value Line does not consider dividends in the computation of its

17     betas.

18     <div align="center">**Market Premium**</div>

19     The final element necessary to apply the CAPM is the market premium. The market

20     premium by definition is the rate of return on the total market less the risk-free rate of return

21     $("Rm - Rf")$. In this regard, the market premium in the CAPM has been calculated from the total

22     return on the market of equities using forecast and historical data. The future market return is

1 established with forecasts by Value Line using estimated dividend yields and capital

2 appreciation potential.

3     With regard to the forecast data, I have relied upon the Value Line forecasts of capital

4 appreciation and the dividend yield on the 1,700 stocks in the Value Line Survey. According to

5 the January 19, 2007, edition of The Value Line Investment Survey Summary and Index, (see

6 page 5 of Schedule 13) the total return on the universe of Value Line equities is:

|  | Dividend Yield | + | Median Appreciation Potential | = | Median Total Return |
|---|---|---|---|---|---|
| As of January 19, 2007 | 1.7% | + | 8.78%[1] | = | 10.48% |

12 The tabulation shown above provides the dividend yield and capital gains yield of the

13 companies followed by Value Line. Another measure of the total market return is provided by

14 the DCF return on the S&P 500 Composite index. As shown below, that return is 12.89%.

DCF Result for the S&P 500 Composite

| D/P | ( | 1+.5g | ) | + | g | = | k |
|---|---|---|---|---|---|---|---|
| 1.72% | ( | 1.05535 | ) | + | 11.07% | = | 12.89% |

| where: | Price (P) | at | 31-Dec-2006 | = | 1418.30 |
|---|---|---|---|---|---|
| | Dividend (D) | for | 3rd Qtr '06 | = | 6.09 |
| | Dividend (D) | | annualized | = | 24.36 |
| | Growth (g) | | First Call EpS | = | 11.07% |

15 Using these indicators, the total market return is 11.69% (10.48% + 12.89% = 23.37% ÷ 2)

16 using both the Value Line and S&P derived returns. With the 11.69% forecast market return

17 and the 5.25% risk-free rate of return, a 6.44% (11.69% - 5.25%) market premium would be

18 indicated using forecast market data.

19     With regard to the historical data, I provided the rates of return from long-term

---

[1]     The estimated median appreciation potential is forecast to be 40% for 3 to 5 years hence. The annual capital gains yield at the midpoint of the forecast period is 8.78% (i.e., $1.40^{.25}$ - 1).

1   historical time periods that have been widely circulated among the investment and academic

2   community over the past several years, as shown on page 6 of Schedule 13. These data are

3   published by Ibbotson Associates in its <u>Stocks, Bonds, Bills and Inflation</u> ("SBBI"). From the

4   data provided on page 6 of Schedule 13, I calculate a market premium using the common stock

5   arithmetic mean returns of 12.3% less government bond arithmetic mean returns of 5.8%. For

6   the period 1926-2006, the market premium was 6.5% (12.3% - 5.8%).

7        I should note that the arithmetic mean must be used in the CAPM because it is a single

8   period model. It is further confirmed by Ibbotson who has indicated:

9          *Arithmetic Versus Geometric Differences*
10         For use as the expected equity risk premium in the CAPM, the
11         *arithmetic* or *simple difference* of the *arithmetic* means of stock
12         market returns and riskless rates is the relevant number. This is
13         because the CAPM is an additive model where the cost of capital
14         is the sum of its parts. Therefore, the CAPM expected equity
15         risk premium must be derived by arithmetic, *not geometric*,
16         subtraction.
17
18         *Arithmetic Versus Geometric Means*
19         The expected equity risk premium should always be calculated
20         using the arithmetic mean. The arithmetic mean is the rate of
21         return which, when compounded over multiple periods, gives the
22         mean of the probability distribution of ending wealth values.
23         This makes the arithmetic mean return appropriate for
24         computing the cost of capital. The discount rate that equates
25         expected (mean) future values with the present value of an
26         investment is that investment's cost of capital. The logic of
27         using the discount rate as the cost of capital is reinforced by
28         noting that investors will discount their (mean) ending wealth
29         values from an investment back to the present using the
30         arithmetic mean, for the reason given above. They will therefore
31         require such an expected (mean) return prospectively (that is, in
32         the present looking toward the future) to commit their capital to
33         the investment. (<u>Stocks, Bonds, Bills and Inflation</u> - 1996
34         Yearbook, pages 153-154)
35
36        For the CAPM, a market premium of 6.47% (6.5% + 6.44% = 12.94% ÷ 2) would be

1    reasonable which is the average of the 6.5% using historical data and a market premium of

2    6.44% using forecasts.

1    **COMPARABLE EARNINGS APPROACH**

2    Value Line's analysis of the companies that it follows includes a wide range of financial

3    and market variables, including nine items that provide ratings for each company.  From these

4    nine items, one category has been removed dealing with industry performance because, under

5    approach employed, the particular business type is not significant.  In addition, two categories

6    have been ignored that deal with estimates of current earnings and dividends because they are

7    not useful for comparative purposes.  The remaining six categories provide relevant measures

8    to establish comparability.  The definitions for each of the six criteria (from the Value Line

9    Investment Survey - Subscriber Guide) follow:

10                                   Timeliness Rank
11
12                   The rank for a stock's probable relative market performance in
13                   the year ahead.   Stocks ranked 1 (Highest) or 2 (Above
14                   Average) are likely to outpace the year-ahead market.  Those
15                   ranked 4 (Below Average) or 5 (Lowest) are not expected to
16                   outperform most stocks over the next 12 months.   Stocks
17                   ranked 3 (Average) will probably advance or decline with the
18                   market in the year ahead.   Investors should try to limit
19                   purchases to stocks ranked 1 (Highest) or 2 (Above Average)
20                   for Timeliness.
21
22                                    Safety Rank
23
24                   A measure of potential risk associated with individual common
25                   stocks rather than large diversified portfolios (for which Beta is
26                   good risk measure).  Safety is based on the stability of price,
27                   which includes sensitivity to the market (see Beta) as well as
28                   the stock's inherent volatility, adjusted for trend and other
29                   factors including company size, the penetration of its markets,
30                   product  market volatility, the degree of financial leverage, the
31                   earnings quality, and the overall condition of the balance sheet.
32                   Safety Ranks range from 1 (Highest) to 5 (Lowest).
33                   Conservative investors should try to limit purchases to equities
34                   ranked 1 (Highest) or 2 (Above Average) for Safety.

## Financial Strength

The financial strength of each of the more than 1,600 companies in the VS II data base is rated relative to all the others. The ratings range from A++ to C in nine steps. (For screening purposes, think of an A rating as "greater than" a B). Companies that have the best relative financial strength are given an A++ rating, indicating an ability to weather hard times better than the vast majority of other companies. Those who don't quite merit the top rating are given an A+ grade, and so on. A rating as low as C++ is considered satisfactory. A rating of C+ is well below average, and C is reserved for companies with very serious financial problems. The ratings are based upon a computer analysis of a number of key variables that determine (a) financial leverage, (b) business risk, and (c) company size, plus the judgment of Value Line's analysts and senior editors regarding factors that cannot be quantified across-the-board for companies. The primary variables that are indexed and studied include equity coverage of debt, equity coverage of intangibles, "quick ratio", accounting methods, variability of return, fixed charge coverage, stock price stability, and company size.

## Price Stability Index

An index based upon a ranking of the weekly percent changes in the price of the stock over the last five years. The lower the standard deviation of the changes, the more stable the stock. Stocks ranking in the top 5% (lowest standard deviations) carry a Price Stability Index of 100; the next 5%, 95; and so on down to 5. One standard deviation is the range around the average weekly percent change in the price that encompasses about two thirds of all the weekly percent change figures over the last five years. When the range is wide, the standard deviation is high and the stock's Price Stability Index is low.

## Beta

A measure of the sensitivity of the stock's price to overall fluctuations in the New York Stock Exchange Composite Average. A Beta of 1.50 indicates that a stock tends to rise (or fall) 50% more than the New York Stock Exchange Composite Average. Use Beta to measure the stock market risk inherent in any diversified portfolio of, say, 15 or more companies. Otherwise, use the Safety Rank, which measures total risk inherent in an equity, including that portion attributable to

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market fluctuations. Beta is derived from a least squares regression analysis between weekly percent changes in the price of a stock and weekly percent changes in the NYSE Average over a period of five years. In the case of shorter price histories, a smaller time period is used, but two years is the minimum. The Betas are periodically adjusted for their long-term tendency to regress toward 1.00.

## Technical Rank

A prediction of relative price movement, primarily over the next three to six months. It is a function of price action relative to all stocks followed by Value Line. Stocks ranked 1 (Highest) or 2 (Above Average) are likely to outpace the market. Those ranked 4 (Below Average) or 5 (Lowest) are not expected to outperform most stocks over the next six months. Stocks ranked 3 (Average) will probably advance or decline with the market. Investors should use the Technical and Timeliness Ranks as complements to one another.

# BEFORE THE
# PENNSYLVANIA PUBLIC UTILITY COMMISSION


Docket No. R-00072155


## PPL Electric Utilities Corporation

Statement No. 12


Direct Testimony of Julie M. Cannell

# I. INTRODUCTION

1

2

3   Q.   **Please state your name, employer, and business address.**

4   A.   My name is Julie M. Cannell. I am the president of my own advisory firm, J.M.

5        Cannell, Inc. My business address is P.O. Box 199, Purchase, NY 10577.

6   Q.   **Please describe your professional and educational background.**

7   A.   My firm, J.M. Cannell, Inc., provides advisory services to electric utility

8        companies and other firms and organizations with an interest in the industry.

9        Prior to establishing my firm in February 1997, I was employed by the New

10       York-based investment manager, Lord Abbett & Company, from June 1978 to

11       January 31, 1997. During my tenure with Lord Abbett, I was a securities analyst

12       specializing in the electric utility and telecommunications services industries;

13       portfolio manager of America's Utility Fund, an equity utility mutual fund, for

14       which Lord Abbett was a subadvisor; portfolio manager of numerous institutional

15       equity portfolios; and co-director of Lord Abbett's Equity Research Department.

16       Further information on my background can be found in Appendix A.

17  Q.   **Have you submitted testimony previously before any state regulatory**

18       **agencies?**

19  A.   Yes, I have. In addition to Pennsylvania, I have submitted pre-filed testimony on

20       behalf of investor-owned utilities before Public Service or Public Utility

21       Commissions in the states of Arizona, Kansas, Missouri, Nevada, Oklahoma,

22       South Carolina, Texas, Virginia, and Washington.

23  Q.   **What is the scope of your testimony in this proceeding?**

| 1 | A. | I have been asked by the Company to discuss the perspective of investors with |
| 2 | | respect to the return on equity for PPL Electric Utilities Corporation ("PPL |
| 3 | | Electric" or the "Company") in the context of the current rate case. |
| 4 | **Q.** | **As an analyst or portfolio manager, did you follow PPL Corporation?** |
| 5 | A. | Yes, I did. Both Lord Abbett and America's Utility Fund periodically maintained |
| 6 | | a holding in the common stock of PPL Corp. ("PPL"), which was then named |
| 7 | | Pennsylvania Power & Light Company. |
| 8 | **Q.** | **Please summarize the key points of your testimony.** |
| 9 | A. | As my testimony will explain, investors now require a higher return when |
| 10 | | investing in the electric industry due to the changing nature of the industry |
| 11 | | through a hybrid deregulated structure and attendant increased risk. The |
| 12 | | investment industry itself has undergone major changes in recent years, including |
| 13 | | a dramatic growth in the amount of capital controlled by institutional investors |
| 14 | | and hedge funds. Performance pressures have shortened significantly the |
| 15 | | timeframe during which an investment must realize its expected return. |
| 16 | | In making their assessments of utility companies, credit rating agencies |
| 17 | | and investors consider various factors, key among them the regulatory |
| 18 | | environment. Regulators influence a utility's capital structure and returns that |
| 19 | | may be earned on that capital. Those factors in turn determine a company's |
| 20 | | creditworthiness, as well as its ability to provide stable earnings and dividends. |
| 21 | | The credit rating agencies generally are positive on PPL Electric at this time due, |
| 22 | | at least in part, to their perceptions of a constructive regulatory climate in |
| 23 | | Pennsylvania. At the same time, the credit rating agencies have sounded various |

1   cautionary notes related to the need for strong investment spending, as well as the

2   risks attendant in the post-POLR period in the state. Security analysts have

3   expressed both an awareness of the current case, as well as concerns about power

4   procurement policies in the post-transition to competition period. The latter factor

5   is an additional risk factor in their outlook.

6       In my judgment, the investment community would find an 11.5% return

7   on equity for the Company to be reasonable. Such a return level would provide

8   PPL Electric with the necessary cash flow to continue to maintain its strong credit

9   quality and also meet the expectations of equity investors. Importantly, an 11.5%

10  ROE would benefit customers by strengthening the Company's finances and

11  lowering its future cost of capital.

12  Q.  *Please summarize what in your experience allows you to provide testimony*

13      *about the viewpoint of investors.*

14  A.  As a securities analyst, I specialized in the electric utility industry and the

15      individual companies comprising it. And as a portfolio manager, I applied that

16      knowledge, along with investment fundamentals, toward investment decisions on

17      behalf of institutions and individual investors. Moreover, I have reviewed the

18      various reports of analysts and rating agencies, which have addressed the

19      Company and its regulatory situation.

20  Q.  **Please describe how your testimony is organized.**

21  A.  There are three parts to my testimony.

22      **How Investors Evaluate Investments in Utility Companies.** This section

23      discusses why investors choose to invest in electric utilities, with particular

1    emphasis on why the regulatory climate in which the utility operates is of such

2    importance to investors. This section of the testimony also discusses why the risk

3    of investing in the electric utility industry has risen substantially in recent years

4    on an industry-wide basis, and why markets today react so swiftly and strongly to

5    unfavorable news about a company. It further details the risk present in

6    distribution-only companies.

7    **Investors' Perceptions Related to the Present Proceeding**. This section

8    reviews the investment community's perceptions of PPL Electric and

9    Pennsylvania regulation. This review is based on a number of recent publications

10   by credit rating agencies and investment analysts discussing their perceptions of

11   the rate case and the Company's regulatory environment.

12   **Return on Equity.** This section discusses PPL Electric's request for an 11.5%

13   return on equity, which will be addressed in greater detail in the direct testimony

14   supported by Mr. Paul Moul. My conclusion is that the Company's proposal is

15   one that investors view as important and constructive. An allowed ROE of 11.5%

16   would lead to a more robust stream of earnings and cash flow, and would be

17   viewed favorably by rating agencies and the investment community at a time

18   when increased financial stability is very important to the Company.

19

20         **II. HOW INVESTORS EVALUTE INVESTMENTS IN UTILITY**

21                                    **COMPANIES**

22

23   Q.   **Why is it important to consider the opinions of the investment community?**

1    A.    Investors provide the capital necessary to maintain and expand the Company's

2          infrastructure, which in turn enables PPL Electric to provide reliable service to

3          customers. The terms on which the Company is able to obtain that capital have a

4          direct and measurable impact on ratepayers and the amounts they pay for delivery

5          service. For example, if credit rating agencies such as Moody's, S&P, or Fitch

6          believe that the utility's revenues will be diminished by adverse business or

7          regulatory decisions, those rating agencies would lower their credit ratings for the

8          utility, which would raise the cost of debt. And, because the cost of debt is a

9          component of the weighted average cost of capital, the increased costs of capital

10         would be passed on to ratepayers in the form of higher rates.

11             The same is true for equity investors. If individual or institutional

12         investors believe that the return they are offered is too low in light of the risk

13         involved, they will either sell their stock or elect not to purchase the stock, which

14         generally drives the stock price down. Although lower stock prices would appear

15         at first blush to be a concern only to investors, they also affect ratepayers. When

16         a utility has to go to the equity markets to obtain capital, a low stock price

17         requires it to issue more shares of stock to obtain the same amount of money that

18         it would have received for fewer shares if the per share price had been higher.

19         Because of the resulting increase in the number of shares outstanding, more

20         dollars would have to be expended toward dividends, resulting in less retained

21         earnings for reinvestment in the company.

22             The corollary is that when investors believe that they are investing in a

23         company that enjoys fair, consistent regulation and a reasonable rate of return,

| 1 | | those investors charge less for their capital. And when debt and equity investors |
| 2 | | demand less for their capital, utility rates remain lower and utilities have more |
| 3 | | ready access to the capital markets. Thus, a utility and its ratepayers have a |
| 4 | | shared interest in meeting the expectations of investors and credit rating agencies. |
| 5 | | Regulators share this interest as well, because fair treatment of one utility |
| 6 | | decreases the costs of capital for all utilities in that regulatory jurisdiction. |
| 7 | **Q.** | **Are you suggesting that the Pennsylvania Public Utility Commission should** |
| 8 | | **cater to the desires of investors?** |
| 9 | A. | No. I realize that the Pennsylvania Public Utility Commission ("PUC" or |
| 10 | | "Commission") has to balance the interests of both investors, who want consistent |
| 11 | | and constructive regulatory treatment, and ratepayers, who want lower rates. My |
| 12 | | point is that the Commission's decision on rate of return is not simply a zero-sum |
| 13 | | game. If the rate of return is within a zone of reasonableness, both the utility and |
| 14 | | ratepayers win. If the rate of return is set too low, both the utility and ratepayers |
| 15 | | lose because of the effect on the cost of capital. The PUC's December 2004 |
| 16 | | decision for PPL Electric was emblematic of fairly balancing the interests of |
| 17 | | investors and ratepayers. At the time of that decision, a 10.7% ROE on a 47% |
| 18 | | equity ratio, while at the low end of a reasonable range, was viewed by investors |
| 19 | | as constructive. Within the context of the PUC's ruling, the equity return |
| 20 | | treatment was considered to be reasonably supportive, given the current cost of |
| 21 | | capital. I note that the cost of capital is a function of market risks and the risks |
| 22 | | borne by PPL Electric, and thus can change over time. The next part of my |

1   testimony is devoted to explaining why the correlation of investor and shareholder

2   interests exists.

3   Q.   **What goals lead investors to invest in electric utilities?**

4   A.   Historically, electric utilities have been regarded as investment vehicles that

5        provide stable performance through the ups and downs of market cycles and

6        changing economic conditions. Electric utilities historically have earned a

7        reasonable return even when conditions were not favorable for other companies.

8        Accordingly, electric utility stocks have been particularly valuable holdings when

9        conditions were not favorable to investments in more volatile industry sectors. In

10       other words, investors might see greater returns from investment in other

11       industries when times were good, but they would lose less on electric utility

12       stocks when times were less favorable.

13       In addition, the reliability of electric utilities' earnings streams historically

14       has permitted most of the companies to continue to pay regular dividends during

15       both good and bad economic cycles. For investors with a need for regular cash

16       income, the prospect of regular dividends has been an important consideration in

17       making a decision to invest in electric utility stocks

18       Based on these factors, investors traditionally have viewed electric utility

19       stocks as bond substitutes. In other words, electric utility stocks have provided

20       regular cash returns in the form of dividends and the shares themselves were seen

21       to have a stable underlying value. Electric utilities historically have paid out a

22       large proportion of their earnings as dividends, and their large construction

23       programs have kept them dependent on the capital markets. As a result, electric

1   utility stocks as a group have tended to move closely in line with the direction of

2   interest rates, but in an inverse relationship. That is, utility stock prices rose when

3   interest rates fell, and vice versa. These factors made electric utilities a preferred

4   investment during economic slowdowns or recessions and owning them was a

5   way of balancing the risks in a stock portfolio that included stocks in more

6   volatile industries.

7   **Q.   Have the recent changes in the industry increased the risk of investing in**

8   **electric utilities?**

9   A.   Yes. Investors now understand that the predictability of the electric utility

10  industry's earnings, across the sector, has been undermined by the restructuring

11  that has taken place in many parts of the country, including Pennsylvania. These

12  risks are in addition to the risks posed by technological, economic, environmental

13  and other policy changes that affect the industry. These increased risks mean that

14  investors no longer perceive electric utilities as a group as being the "safe havens"

15  they once were.

16         Investors' goals, however, have not fundamentally changed. They still

17  look to electric utilities primarily as defensive investments, and still look for

18  stable performance and regular dividends as the reason to invest in electric

19  utilities. But investors also understand that the investment risk in electric stocks

20  has risen significantly, and that there is more risk than before that could serve to

21  frustrate investors' goals for investing in this sector.

22         In the end, investors have a very large universe of stocks from which to

23  select; with few exceptions, they have no requirement to own electric utility

1     stocks. Consequently, investors now require a higher return for investing in the

2     electric utility industry to balance the increased risk associated with it.

3  Q.  **How do these concerns affect PPL Electric?**

4  A.  Markets tend to make judgments about investment risks that apply to industry

5     sectors as a whole. Company-specific risk factors are additive to sector risk. In

6     other words, investors first determine the risk involved in investing in a particular

7     sector. They then add to that sector risk the specific risks applicable to individual

8     companies.

9  Q.  **Does PPL Electric face additional risks in a competitive market for energy?**

10 A.  Yes, it does. When the Company was an integrated utility involved in the broad

11    provision of generation, transmission, and distribution services, PPL Electric was

12    able to spread the risks involved in any of those businesses across a broader base.

13    However, as a wires-only company now, focusing on energy delivery, PPL

14    Electric has all of its assets concentrated in a single line of business and thus is

15    fully exposed to any risks, including those pertaining to size and scope, that may

16    impact its core business. In addition, PPL Electric can no longer control the cost

17    of power to the customer, because of deregulation. This creates a greater risk that

18    it will not be able to respond to competitive-imposed pressures.

19 Q.  **Are there other risks?**

20 A.  Yes. Another set of risks pertain to advances in technology. One such issue is

21    distributed generation, which is a technology that permits power to be generated

22    on small-scale machines that can be sited near a manufacturing facility, in a

23    commercial business, or even a residence. Micro-grids that currently are

| 1 | | proposed for the state are an example of such machines. Distributed generation |
|---|---|---|
| 2 | | potentially can have a serious adverse impact on a utility's delivery system |
| 3 | | because distributed generation can facilitate bypass of the system. To the extent |
| 4 | | that customers see distributed generation as a means of controlling their price, |
| 5 | | reliability and power quality, even in areas where the utility (such as PPL |
| 6 | | Electric) provides high reliability and quality, they may choose distributed |
| 7 | | generation in an effort to take more of their operations under their own control. |
| 8 | Q. | **Do rising electric prices create risks that the Company will face increased** |
| 9 | | **competition to maintain its distribution customers?** |
| 10 | A. | Yes. That risk is heightened as rate caps expire. As will be discussed later in my |
| 11 | | testimony, the post-POLR period beginning January 1, 2010 is well within |
| 12 | | investors' current investment horizon. At that point, the Company could be |
| 13 | | vulnerable to a myriad of new risks related to the formation of micro-grids, as |
| 14 | | detailed in Mr. Krall's testimony. As explained by Mr. Krall, micro-grids—a |
| 15 | | small power generation and distribution network directly serving multiple |
| 16 | | customers with an electric generating facility located near or on the same site as |
| 17 | | the consumer—could have a number of unintended negative impacts on the |
| 18 | | Company. These can include: cannibalizing the Company's highest load |
| 19 | | customers and forcing the loss of significant revenues; making operations and |
| 20 | | investments less efficient due to a decreasing average load factor; and requiring |
| 21 | | PPL Electric to sell standby power at the lowest reasonable cost. The extent of |
| 22 | | the risk from micro-grids would depend largely on factors beyond the utility's |
| 23 | | control, but it could prove to be substantial. |

1     Q.     **What other risks do you see technology posing to wires-only utilities?**

2     A.     The advances in technology have made some industries less dependent on

3          geography. There will be continuing pressure to retain customers who can

4          relocate out of the utility's service area or who can take actions that are equivalent

5          to relocation. Manufacturers and commercial businesses can choose to relocate to

6          other parts of a state, or to other states or regions. Bypass may increasingly

7          become economic for these customers, as well as customers who do not wish to or

8          cannot move. There will be pressure to discount prices to retain these customers.

9          PPL Electric no longer controls the cost of power and may not be able to discount

10        enough to compete. Furthermore, the effect of lost customers is exacerbated for

11        the Company because it is a much smaller company after generation divestiture.

12        The Company simply has fewer units over which to spread its fixed costs.

13     Q.     **What additional risk factors are facing wires-only companies today?**

14     A.     The past year has seen a rise in disruptive activity in state legislatures, particularly

15        those in the states of Illinois and Maryland, related to the expiration of price caps

16        imposed under a restructured regulatory scheme. High commodity prices have

17        also contributed to a reluctance on the part of politicians and regulators to subject

18        consumer to additional rate increases. In Pennsylvania, PPL Electric's rate caps

19        will be expiring at the end of 2009, and investors are very focused on this fact.

20        While PPL Electric and other utilities in the state have made proposals to the PUC

21        for mitigating the impact of price cap expiration on customers and the PUC itself

22        has initiated proceedings to seek solutions for the issue, there is no guarantee that

23        the negative action occurring in other states will not surface in Pennsylvania. As

1  noted previously, the potential for micro-grids to exist from 2010 forward could

2  impose a significant risk on PPL Electric and other distribution utilities in the

3  state.

4  A related factor is rising environmental requirements coupled with a

5  significantly heightened public awareness of climate issues, making the prospect

6  of legislation with mandatory compliance requirements and attendant higher

7  expenditures within the near future more likely. Even though PPL Electric does

8  not own generation, it would bear the expenses associated with environmental

9  compliance—particularly because Pennsylvania is a deregulated state—through

10  the costs it pays for POLR power, which would factor in higher environmental-

11  related power production expenses.

12  **Q. Have further risks related to wires-only companies presented themselves?**

13  A. Yes. A number of factors are converging to suggest there will be more regular

14  rate cases, which raise questions about a utility's cash flow recovery. Such

15  proceedings will be driven by such items as rising medical costs and pension

16  expenses and increased capital investment in utility infrastructure.

17  **Q. You've discussed the mounting risks you see a distribution company facing.**

18  **Do those risks have the potential to reduce the company's earnings and cash**

19  **flow streams and increase their volatility?**

20  A. Yes. A single line of business increases exposures to enterprise credit risk,

21  operating issues, prospective new costs, and technology issues, all of which can

22  have negative financial ramifications. Moreover, because these factors are in

23  large part beyond a company's control, the company's investors have little

1  guidance and more uncertainty. Uncertainty leads to investor concern and

2  demands for higher investment returns.

3  Q.  **Please turn now to utility regulation. Why is the perception of regulatory**

4  **climate of such importance to investors?**

5  A.  Equity investors today are still seeking companies that can offer stability in

6  earnings and dividends. Fixed income investors look for stable and adequate cash

7  flows to ensure payment of principal and interest when due, as indicated by stable

8  credit ratings. The ability to pay dividends and sustain credit ratings is directly

9  related to the consistency and sufficiency of a utility's earnings, which depend in

10  large part on how the utility is regulated. If there is uncertainty about whether

11  regulation will allow a utility the opportunity to earn a reasonable return in future

12  years, then that uncertainty will lead investors to avoid holding investment

13  positions in the utility, all other things being equal.

14  As a result, I believe that investors selecting electric utility stocks today

15  place a very high value on consistent and constructive regulation. And, with a

16  new round of base rate case filings underway in the industry, I think it likely that

17  the quality of regulation will receive renewed investor attention.

18  Q.  **In your experience as an analyst and portfolio manager, could a perceived**

19  **change in a company's regulatory climate affect your investment opinion?**

20  A.  Absolutely. During my tenure as an active investor, a company's regulatory

21  environment was a critical factor in my assessment of its investment

22  attractiveness. An adverse regulatory decision could be a key determinant in my

1    recommendation or decision to sell a stock already owned or not to make an

2    investment in one under consideration.

3  Q.  **Who are typical investors in utility stocks?**

4  A.  There are two kinds of investors: individuals, who generally seek stability and

5     income from their utility holdings, and institutions, which generally seek total

6     return (i.e., price appreciation plus dividend income) from their utility

7     investments.

8  Q.  **How has the investment industry itself changed in recent years?**

9  A.  In recent years, institutional investors and hedge funds have grown dramatically

10    in the amount of capital they control.  This growth has had a significant impact on

11    the speed with which the market reacts to unfavorable developments.  It has led

12    the market to be much more reactive and much less forgiving than it may have

13    been in the past.  In the context of a regulatory decision, investors will not

14    necessarily wait, as they would have in the past, to see how the ramifications of a

15    decision might play out.  Rather, they simply sell their shares if a regulator's

16    decision runs counter to their expectations.

17  Q.  **What has led to that change in the market's reaction?**

18  A.  The market is now heavily populated by institutional investors, who play a

19    significant role in the marketplace.

20  Q.  **Why are institutional investors of such importance generally?**

21  A.  Because of the sheer size of their investment positions, institutions can effectively

22    direct the course of individual securities, and sometimes can move the market as a

23    whole.  Institutional investors include financial institutions such as:  mutual funds,

1    investment companies, insurance companies, commercial and investment banks,

2    and various types of public retirement funds. They approach the investment

3    selection process from the standpoint of a portfolio. An investment portfolio is a

4    collection of stocks selected to achieve the highest possible return within a

5    commensurate level of risk. Therefore, institutional investors keep electric

6    utilities in their portfolios only when such stocks contribute to achieving the

7    desired risk/return relationship.

8    It should be remembered that, generally, the customers of institutional

9    investors are individuals and it is they who ultimately gain or suffer loss from

10   changes in the value of the institution's investments. Anyone who has a stake in a

11   retirement plan, owns a mutual fund, or has a trust fund, for example, is directly

12   or indirectly a client of an institutional investor. But the individuals who make

13   the decisions concerning these investments are paid money managers, and how

14   they see their responsibilities to the clients they serve, and the way that their

15   performance is judged, have a great deal to do with how they react to

16   developments in the market.

17   Q.  **Why are institutional investors important to PPL Electric and PPL?**

18   A.  Institutional investors today hold roughly 63% of PPL's total common shares.

19       Such investors warrant significant attention because they can dramatically change

20       the market for PPL shares. Because institutional investors own large blocks of

21       shares relative to the volumes typically traded, their activity in moving in or out

22       of the company's shares is often noticeable as a significant change in the price

23       and volume of shares being traded for the company. This change may be picked

1    up by other institutional investors, by the investment community in general, and

2    eventually by individual investors. These other entities will then look to see what

3    is driving this trend in the stock and whether the trend is likely to continue or

4    disappear. If they see support for the trend, they may follow the lead of the firms

5    that initially began to move the market, and by following the leaders, the late

6    movers may further strengthen the trend.

7  Q.  **Why might an institutional investor choose not to hold investments in a**

8      **particular electric utility?**

9  A.  Several factors might be drivers. First, institutional investors have fiduciary

10     responsibilities. For example, managers of pension assets fall under Federal

11     ERISA laws, which mandate that a portfolio manager's decisions meet the so-

12     called "prudent man" standard. That is to say, he or she is expected not to make

13     investment decisions that are unduly risky or to retain stocks that are unduly risky

14     given the investment goals of the portfolio and the function of the stock within it.

15         In addition, institutional investors have performance pressures. It is not

16     enough for stocks in a portfolio simply to increase in value. Rather, relative

17     performance is what counts. Investment performance is gauged against the

18     returns earned by a market proxy (such as the Standard & Poor's 500 Index) or a

19     peer group of investments (i.e., those with a similar style, such as value, growth,

20     growth & income, small cap, etc.). Mutual fund rating organizations such as

21     Morningstar track and publicize the relative performance for mutual funds, while

22     various pension consultants perform the same service for their client

23     organizations.

- 16 -

| 1 | Q. | **What happens when an institutional investor underperforms?** |
|---|---|---|
| 2 | A. | The results can vary, but, eventually, underperformance will result in lost business |
| 3 | | and personnel changes. Mutual fund shareholders can sell their fund shares. A |
| 4 | | pension plan sponsor can fire the professional investor or reduce the assets under |
| 5 | | their investor's management. And, of course, poor performance also |
| 6 | | disadvantages the individual who has entrusted his monies to the institution for |
| 7 | | management. |
| 8 | Q. | **How long a period does an institutional investor have before performance** |
| 9 | | **becomes an issue?** |
| 10 | A. | Again, it can vary. But there is little argument that institutional investors no |
| 11 | | longer have the luxury of a long time horizon in which to show performance. |
| 12 | | Investors want results. And, with the public visibility that investment results now |
| 13 | | have (through organizations such as Morningstar and the various pension |
| 14 | | consultants) and the resulting performance pressure, most investment |
| 15 | | organizations are now operating with a much shorter time horizon than in years |
| 16 | | past. Generally speaking, a long investment time horizon today can be as short as |
| 17 | | 12-18 months. So, a stock that is unlikely to perform within the prescribed time |
| 18 | | horizon is usually not attractive for purchase or continued investment by an |
| 19 | | institutional investor. |
| 20 | Q. | **What does this mean for investments in regulated utilities specifically?** |
| 21 | A. | This shortened time frame means that if there is bad news, institutional investors |
| 22 | | are more likely to react quickly. In the instance of a rate proceeding, these |
| 23 | | investors are unlikely to wait to see what the outcome of the next rate decision |

| 1 | | will be. That would represent an opportunity cost to them. Rather, institutional |
| 2 | | investors would be more prone to sell their shares on the news of an adverse |
| 3 | | regulatory outcome. This would not be good for ratepayers either, for the reasons |
| 4 | | discussed earlier. |
| 5 | Q. | **Do all institutional investors function within the time frames you describe?** |
| 6 | A. | No. There is a type of institutional investor called a hedge fund that frequently |
| 7 | | buys and sells the same stock during the course of a day. |
| 8 | Q. | **What impact do hedge funds have on the market in general and stocks in** |
| 9 | | **particular?** |
| 10 | A. | Their impact can be dramatic. Hedge funds are well known for trading in |
| 11 | | information; their actions are frequently event-driven. Sometimes that |
| 12 | | information is factual and other times it falls into the category of rumor. Because |
| 13 | | investors at hedge funds have wide information networks and are in frequent |
| 14 | | *communication with companies and a broad range of other investors, they have* |
| 15 | | the ability and the power to create volatility, which in turn impacts the movement |
| 16 | | of stock prices. The number of hedge funds participating in the market and the |
| 17 | | funds' assets have grown exponentially in recent years—recent estimates put the |
| 18 | | numbers at over 9000 firms with assets of $1.225 trillion globally in mid-2006, |
| 19 | | with the top 150 U.S. hedge funds' assets at almost $500 billion, compared to 610 |
| 20 | | firms with $39 billion in assets in 1990. Thus, they have become a very strong |
| 21 | | force both in the market and in stocks in which they are interested. When they |
| 22 | | like an industry group or a stock, hedge funds can provide substantial support to |
| 23 | | stock prices. But, conversely, when they become disenchanted, their tendency is |

| | | |
|---|---|---|
| 1 | | to sell quickly and without remorse. Although their focus is not on contributing |
| 2 | | to orderly markets, hedge funds are a formidable presence in the market place and |
| 3 | | must be reckoned with. |
| 4 | Q. | **Can you give an example of how hedge funds might traffic in PPL's stock?** |
| 5 | A. | Yes. Investors have been aware of the current proceeding for several months. |
| 6 | | Hedge funds assuredly made assumptions about the details of the case, including |
| 7 | | its resolution, prior to the filing. If, when the PUC's decision is ultimately |
| 8 | | announced, the details fall short of those expectations, the hedge funds could put |
| 9 | | significant pressure on the stock either through outright sales, or short-selling |
| 10 | | (i.e., selling stock that is borrowed in anticipation that the price of the stock will |
| 11 | | drop before the borrowed stock must be replaced). Hedge funds seek to get ahead |
| 12 | | of the broader market and react to news before the market can. Accordingly, if |
| 13 | | hedge funds decide to make moves on PPL's shares based on the order in this |
| 14 | | proceeding, they will begin to do so within hours of the release of the order. |
| 15 | | The presence of such funds also can serve to attract like-minded hedge funds to |
| 16 | | join forces into a herd mentality that can prove a highly disruptive force. |
| 17 | Q. | **What role do credit agencies play in investors' expectations?** |
| 18 | A. | In the wake of financial disasters, bankruptcies, and the ensuing severe erosion in |
| 19 | | investor confidence in the past few years, credit issues have become critically |
| 20 | | important not only to fixed income investors, but also to equity investors. While |
| 21 | | credit downgrades initially impacted only the most troubled companies, a |
| 22 | | spillover effect soon was seen on healthy utilities. Part of this was due to the fact |
| 23 | | that the rating agencies came under harsh criticism that they had failed to catch |

1   problems early enough in companies such as Enron Corp. As a result, they began

2   to heighten their scrutiny of all entities under their watch and became far more

3   proactive in making rating changes. As well, "headline risk" began to come into

4   play, as investors worried that —when credit problems in an industry are in the

5   headlines—any company in the sector could be vulnerable to a downgrade. Thus,

6   equity investors now closely watch the actions of the credit agencies, because any

7   change in ratings can have a significant impact on a company's stock price.

8   Q.  **What happens when a credit downgrade occurs?**

9   A.  In the simplest terms, it becomes more expensive for a company to raise money in

10      the capital markets because a downgrade raises a company's risk profile and

11      consequently, increases the cost of debt. And because of the increased linkage

12      these days between ratings and stock prices, the price frequently reacts—

13      sometimes quite strongly—to a downgrade. It should be noted that both negative

14      and positive changes in credit ratings can and do occur as a result of regulatory

15      actions. Following the PUC's December 2004 rate decision for PPL Electric, for

16      example, the Company was upgraded by Moody's and S&P raised its ratings

17      outlook on the Company to "Stable" from "Negative." The agencies advised,

18      however, that the PUC needed to continue its constructive treatment of the

19      Company for the new rating levels to be maintained.

20

21  **III. INVESTORS' PERCEPTIONS OF THE CURRENT PROCEEDING**

22

23  Q.  **Why is it important to consider the opinions of the investment community?**

- 20 -

1  A.  Suffice it to say, investors provide the capital necessary to maintain and expand

2      the Company's infrastructure, which in turn enables PPL Electric to provide

3      reliable service to its customers. Perceptions of the investment community

4      matter. The availability and cost of necessary funding ultimately impacts the

5      Company's customers.

6  Q.  **How have you gauged investors' perceptions of the issues in this proceeding?**

7  A.  To supplement my own knowledge of the industry, I have reviewed various

8      reports related to PPL and PPL Electric written by the credit rating agencies and

9      investment analysts. A clear picture of investors' perceptions emerges from these

10     reports, which is in keeping with my own views.

11 Q.  **Which credit agency reports have you reviewed?**

12 A.  I have examined reports written by Moody's, Standard & Poor's, and Fitch

13     Ratings, which are the three key credit rating agencies.

14 Q.  **Why is a utility's regulatory environment important in general to the rating**

15     **agencies?**

16 A.  The rating agencies appraise companies on the basis of creditworthiness. They

17     evaluate current financial soundness and attempt to discern how that might

18     change in the future. One of the key factors in assessing a utility's financial

19     picture is the regulatory climate in which the company operates, because

20     regulators influence the utility's capital structure and establish allowed returns

21     that may be earned on that capital. Thus, a regulatory environment characterized

22     by consistency and predictability is one that lends itself to a company's having a

1      sounder financial base. Conversely, a regulatory situation defined by a lack of

2      stability can have a deleterious impact on a utility's credit profile.

3   **Q.**   **How do the rating agencies view PPL Electric and its regulatory situation?**

4   **A.**   All three agencies view the utility constructively, but separately offer various

5      cautionary notes.

6   **Q.**   **Please elaborate.**

7   **A.**   In a March 2006 report, Moody's raised PPL Electric's senior secured debt rating

8      to A3 from Baa1, with a stable outlook, along with the ratings for sister company

9      PPL Capital Funding. PPL and the other subsidiaries were maintained at their

10      respective current levels. Among the factors the agency cited for its upgrades

11      were:

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> "1) Expectations for higher earnings and cash flow over the next three
> years;
> 2) The generally constructive regulatory situation for PPL EU, which
> includes a pass through of generation-based energy costs related to its
> long-term, full-requirements power supply agreements that enable PPL
> EU to meet its obligations as a POLR provider over the 2006-2009 period;
> 3) Moderate expected growth in the volume of energy deliveries, which
> supports the expected stability of cash flows from regulated operations
> until the end of the regulatory transition period in 2009."[1]

22      Elaborating on its upgrade of PPL Electric, Moody's noted that it had "considered

23      the risk that the utility may need to seek large rate increases in 2010," and

24      assumed that "regulatory treatment will provide for reasonably timely recovery of

25      increased costs and expenditures."[2] In discussing the utility's credit strengths, the

26      agency pointed to the fact that PPL Electric "operates in a reasonable regulatory

27      climate," and "Supply and price risk is virtually eliminated by its Provider of Last

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[1] Moody's Investors Service, Credit Opinion: PPL Electric Utilities Corporation." March 31, 2006.
[2] Ibid.

- 22 -

| 1 | | Resort or 'all requirements' contract through December 31, 2009 that has been |
| 2 | | approved by the Pennsylvania Public Utility Commission."[3]  Moody's also |
| 3 | | considers PPL Electric to have credit challenges, which include a "higher level of |
| 4 | | planned capex over the next several years" and "the company is committed to |
| 5 | | improving its financial performance.[4] |
| 6 | Q. | **What is Fitch Ratings' opinion of the Company?** |
| 7 | A. | The agency, which carries an A- stable rating on PPL Electric's secured bonds, |
| 8 | | provided a credit update on the Company last August.  Like Moody's, Fitch |
| 9 | | characterized its ratings as reflecting: |

> "...the low risk of PPL Electric Utilities Corporation's (PPLEU) regulated
> electric distribution operations and a sound financial profile.  The low
> business risk assessment primarily reflects a full-requirements electricity
> supply contract with affiliate PPL EnergyPlus, LLC (PPL EnergyPlus) and
> a constructive regulatory environment.[5]

| 16 | | The agency said the current ratings "assume the cost of procuring power to meet |
| 17 | | PPL Electric's POLR obligations after 2009 will be passed through to customers," |
| 18 | | and noted the Company's August 2006 proposal to the PUC for such |
| 19 | | procurement.[6] |
| 20 | Q. | **How does Standard & Poor's view PPL Electric?** |
| 21 | A. | As does Fitch, S&P has an "A- stable" rating on the Company's secured debt.  As |
| 22 | | a PPL Electric "Strength," the agency cited the December 2004 rate case decision |
| 23 | | which "*provides support to credit quality through the ability to recover all power* |
| 24 | | *and transmission costs,*" while a weakness in S&P's view is "uncertainty about |

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[3] Ibid.
[4] Ibid.
[5] Fitch Ratings, "Credit Update: PPL Electric Utilities Corporation," August 28, 2006.
[6] Ibid.

1       competitive markets in Pennsylvania after the transition plan expires."[7]

2       Elaborating on the previous rate decision, the agency pointed to its benefiting the

3       Company's credit profile, with a 10.7% allowed ROE. S&P said, "The rate

4       increase has resulted in an improvement in the past 18 months. For the 12 months

5       ended Sept. 30, 2006, credit measures were satisfactory for the rating."[8] While

6       duly acknowledging the strengthening in PPL Electric's financial profile, S&P

7       also cautioned "If credit-protection measures weaken, however, the outlook may

8       be revised to negative, and the ratings subsequently lowered."[9]

9   Q.     **What conclusion do you draw from the rating agencies' reports?**

10   A.     *The agencies are universally positive on PPL Electric due, at least in part, to their*

11       *perceptions of a constructive regulatory climate in Pennsylvania and evidenced by*

12       *positive credit actions following the supportive ROE award in the Company's*

13       December 2004 rate order. But cautionary notes were sounded. Moody's is

14       concerned about the high level of capital expenditures facing the Company in the

15       context of a commitment to improving financial performance. Fitch, in basing its

16       current ratings on the assumption that post-2009 power procurement costs will be

17       passed through to customers, silently raises the question that such a circumstance

18       isn't certain. S&P pointed to the uncertainty surrounding the post-2009 period as

19       a weakness in its ratings of PPL Electric and warned that weakening credit

20       protection measures could result in a downgrade.

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[7] Standard & Poor's, PPL Electric Utilities Corp.," November 16, 2006.
[8] Ibid.
[9] Ibid.

| 1 | Q. | **Please turn your attention now to the thoughts of security analysts regarding** |
| | | **PPL Electric. What are their opinions about the Company's regulatory** |
| 3 | | **circumstances?** |

4  A.  Several investors have commented on the prospects for a PPL Electric rate case.

5  Lehman Brothers notes:

> PPL Electric utilities [sic] will file a rate case in March '07 for a test year
> ending September '06, new rates from this case would be effective
> beginning in 2008 and this is embedded in PPL's indicative '08
> guidance.[10]

Wachovia Securities also commented on the case:

> PPL Electric Utilities plans to file a base rate case with the Pennsylvania
> PUC in late March 2007 to cover higher costs attributable to personnel,
> poles, wire and equipment necessary to distribute electricity. The
> company indicated that it expects the rate increase request to be less than
> its 7.1% increase that was effective January 1, 2005. In that case, the
> company received a total annual revenue increase of $194MM, roughly
> $57MM of which was tied to an increase in PJM-related transmission
> charges.[11]

Additional mention of the pending filing was made by Dahlman Rose:

> Delivery EPS should benefit from a distribution rate increase expected in
> January 2008. The company intends to file for a delivery rate increase in
> March 2007. If the company was earning only 7.5% ROE at year-end
> 2006 (data not yet available), it may file for a $90m rate increase, and may
> receive about $60m in additional revenues—which would add about $0.10
> to EPS when offset by normal attrition.[12]

*Further reference to the case came from A.G. Edwards:*

> PPL Electric is preparing to file for a distribution rate increase to be
> effective at the beginning of 2008. The requested increase is expected to
> be modest and is needed to recover rising operating and capital costs.
> During the 12-month period ended 9/30/2006, PPL Electric's distribution
> operations earned an 8.1% ROE. This compares with an authorized ROE

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[10] Lehman Brothers, "PPL Corporation, Steady as she goes, awaiting PUC Action," February 1, 2007.
[11] Wachovia Capital Markets, "PPL Corporation, PPL: Downgrading Rating to Market Perform; Valuation, Regulatory Uncertainty, Modest EPS Growth," February 1, 2007.
[12] Dahlman Rose & Co., "PPL Corporation: PPL Stays the Course with 14% CAGR," February 5, 2006.

| 1 | | of 10.7%, established in a late 2004 PUC rate order. We expect a rate |
| 2 | | increase would have a modest $0.04-$0.06 impact on annual EOS, which |
| 3 | | is reflected in our 2008 estimate.[13] |

4

5 **Q.** **Did the analysts' discussion of the rate filing focus on associated regulatory**

6 **risk?**

7 A. No. I believe that there are several reasons for that. First, the case had not been

8 filed at the time of the reports' publication. Second, investors' regulatory focus in

9 Pennsylvania already had turned to the post-POLR period in the state.

10 **Q.** **Please elaborate on the latter.**

11 A. Analysts are acutely aware of the fact that PPL Electric's fixed price contract for

12 power supply with PPL EnergyPlus expires at the end of 2009, raising the specter

13 of considerable financial uncertainty from 2010 forward. While PPL Electric

14 filed a proposal in August 2006 for a "bridge" power procurement plan for 2010,

15 and a PUC Administrative Law Judge in late February recommended that the

16 Commission adopt the scheme, no resolution in the matter has yet occurred. Even

17 if the plan is approved by the PUC—and it could occur during the course of these

18 proceedings— uncertainty remains present for 2011, as the proposal covers 2010

19 only. In the analysts' words:

20 We believe that PPL will remain range bound in the near term while
21 execution of the scrubber program, plant performance, up-rates, and
22 regulatory treatment of the roll off of POLR pricing to competitive pricing
23 in '10/11+ remain catalysts that could provide upside to the story provided
24 there is positive resolution. . . . The biggest uncertainty surrounding PPL
25 is the transition from POLR regulated below market rates to market rates,
26 or some other regulated scheme in 2010 and 2011+. . . . We view the PA
27 PUC as constructive with regards toward competitive markets. As these
28 regulatory matters become resolved we believe the earnings picture in

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[13] A.G. Edwards, "PPL Corporation," February 1, 2007. ·

| 1 | | 2010+ for PPL will crystallize, providing the market with a clearer view of |
| 2 | | PPL's out year earnings. [Lehman Brothers][14] |
| 3 | | |
| 4 | | A decision is expected shortly from the Pennsylvania PUC on PPL's |
| 5 | | proposed transition plan – a favorable outcome would reduce lingering |
| 6 | | political and regulatory concerns related to PA's upcoming transition to a |
| 7 | | competitive market. [A.G. Edwards][15] |
| 8 | | |

9    **Q.**    **What implications does investors' post-2009 focus have on this rate case?**

10    A.    The fact that the investment community already is paying attention to the post-

11        POLR period suggests an added element of risk and uncertainty is now present in

12        a PPL Electric investment. Although power procurement from 2010 forward is

13        several years away, analysts already are considering what ramifications this will

14        have on PPL's earnings power; investors provide capital today with the

15        expectations of future returns. Accordingly, the existence of this uncertainty will

16        make investors require a higher return to compensate for their assuming this

17        additional risk.

18    **Q.**    **Did the analysts also convey their expectations for a return on equity award**

19        **in the rate case?**

20    A.    No, but that is not surprising because the reports were written prior to the case

21        being filed. However, given the fact that the Company is perceived now to have

22        an added layer of risk that was not immediately present in the last rate case, I

23        believe that the absolute floor that would be considered acceptable to investors

24        would be the 10.7% ROE that the PUC awarded in 2004.

25    **Q.**    **Does that imply that investors expect an ROE allowance of 10.7%?**

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[14] Lehman Brothers, op. cit.
[15] A.G. Edwards, op. cit.

1 A. No. That is simply the minimum level that I believe investors would find to be

2 acceptable. In addition to the concerns that investors have about the post-POLR

3 period for PPL Electric, they also have some unease about the supportiveness of

4 regulation in the current climate of rising energy prices, and thus would likely err

5 on the side of conservatism (i.e., the low end of the expected allowed range) in

6 anticipating the rate case's outcome.

7 Indeed, this regulatory uncertainty also is reflected in Lehman Brothers'

8 2006 ranking of state utility commissions from an investor perspective. The firm

9 rated Pennsylvania "Tier 4" on a 5-tiered scale, with Tier 1 being "Most

10 Shareholder Oriented" and Tier 5 being "Most Consumer Oriented." Lehman's

11 rankings were based on 6 criteria: 1) elected versus appointed commissions; 2)

12 performance-based ratemaking mechanism or not; 3) allowed ROEs; 4)

13 settlements versus litigation 5) rate levels; and 6) a subjective investor friendless

14 rating.[16] It also bears mention that in Lehman's 2004 regulatory study,

15 Pennsylvania regulation was assigned a "2" rating, one of eight states at that level,

16 which reinforces the concept of additional uncertainty at the present time.[17] As

17 well, a lower rating has negative implications for all utilities in the state, as, all

18 other things being equal, the cost of capital associated with a utility investment in

19 a state with a more regulatory-friendly investment climate would be less than in

20 one that is viewed as less constructive.

21 Q. **Did Lehman comment further on ROE awards in general?**

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[16] Lehman Brothers, "Capital Lessons," March 15, 2006.
[17] Lehman Brothers, "They're Back! Twenty-Six Rate Cases This Year Give Rise to the Regulators," March 5, 2004.

| 1 | A. | Yes. The firm presented projections for annual allowed returns on equity for the |
| 2 | | industry for 2006 through 2010. Lehman is estimating an 11.30% average ROE |
| 3 | | award. The firm notes, however, that "Primarily because of regulatory lag and |
| 4 | | increased financing expenses, utilities suffer subpar returns during periods of |
| 5 | | heavy capital investment." |
| 6 | **Q.** | **What are the implications of Lehman's industry ROE analysis for PPL** |
| 7 | | **Electric?** |
| 8 | A. | Lehman is projecting an 11.3% average allowed ROE for the industry over each |
| 9 | | of the next five years. That projection would reinforce the likelihood that a 10.7% |
| 10 | | ROE is conservative. Mr. Moul's recommendation of an 11.25%-11.75% ROE |
| 11 | | range and recommendation of 11.5% is consistent with Lehman's 11.3% ROE. |
| 12 | **Q.** | **Are there additional inferences to be drawn from investors' views of the** |
| 13 | | **Company?** |
| 14 | A. | Yes. One of the key factors analysts use to evaluate the quality of a regulatory |
| 15 | | climate is the consistency of a commission's decisions. Investors value certainty |
| 16 | | and predictability; a lack of consistency in a commission's decisions serves to |
| 17 | | increase the investment risk associated with a utility. With an unpredictable track |
| 18 | | record of regulatory decisions, investors are unable to anticipate reliably the |
| 19 | | future actions of a commission. That in turn depresses valuations—i.e., lowers |
| 20 | | the price of a stock and increases a company's cost of borrowing. In a study I |
| 21 | | prepared last year for the Edison Electric Institute on investors' perceptions of |
| 22 | | state regulation, respondents were asked to cite the regulatory factors they felt |
| 23 | | characterized a constructive environment, as well as a non-constructive |

1   environment. On the positive side of the ledger, one of the top set of factors was

2   a regulatory climate that is "fair, stable, predictable, and consistent." The top

3   factor cited by the respondents as characterizing a non-constructive environment

4   was a climate that is "arbitrary, inconsistent, and unwilling to acknowledge the

5   economic realities that utilities face." One investor summed up that type of non-

6   constructive regulation as "regulatory purgatory."[18]

7   Q.  **Have other comments than those in the previously cited reports been made**

8       **about the quality of Pennsylvania regulation?**

9   A.  Yes. Following the PUC's December 2004 decision in PPL Electric's rate case, a

10      number of analysts wrote reports on the outcome. Merrill Lynch, citing as the

11      reason for its report "Constructive Outcomes to PA and UK Rate Cases," noted

12      "The Pennsylvania rate case outcome is more favorable than the ALJ

13      recommendation, which was for a 10.25% ROE and a slightly lower equity ratio.

14      The rate increase will represent a substantial improvement to the utility's current

15      low single-digit ROE."[19] Lehman Brothers also opined, in a report entitled "Good

16      Rate Outcomes Point to Stronger EPS," that "PPL has reached constructive rate

17      outcomes in both PA and the UK . . ."[20] The investment community viewed the

18      PUC's 10.7% ROE award in the Company's prior rate case as constructive in the

19      context of the entire rate order. The Commission will need to follow up that

20      supportive ROE action in the present proceeding.

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[18] J.M. Cannell, Inc., "State Utility Regulation: An Assessment of Investor Perceptions," August 2005.
[19] Merrill Lynch, "PPL Corp.: Rate Cases Wrapped Up," December 3, 2004.
[20] Lehman Brothers, "PPL Corp.: Change of Earnings Forecast: Good Rate Outcomes Point to Stronger EPS," December 14, 2004.

| 1 | Q. | **Yet you mentioned earlier that Lehman's ranking of Pennsylvania regulation** |
|---|---|---|

1  Q.  **Yet you mentioned earlier that Lehman's ranking of Pennsylvania regulation**

2  **from an investor perspective was lowered from a "2" to a "4" on the firm's 1-**

3  **5 scale after the last PPL Electric rate decision. How do you account for that**

4  **negative change?**

5  A.  Other than publishing the criteria used to derive their rankings in general, Lehman

6  does not explain the rationale behind its individual state assessments. However,

7  some of those criteria might shed some light on the altered rankings: performance

8  based ratemaking mechanisms or not, and allowed ROEs. While many states do

9  have some form of performance-based ratemaking ("PBR"), i.e. incentives,

10  Pennsylvania does not. PBR is positive from an investor perspective because it

11  provides a utility management with the opportunity to improve financial

12  performance and share those benefits with ratepayers; conversely, if a

13  management fails to meet agreed-upon standards or measures, no reward is

14  granted, and often a financial penalty is assessed. In other words, the onus rests

15  on management to run the business more efficiently and capture additional

16  earnings in the process. An additional factor that might explain Lehman's change

17  of ranking is allowed ROEs. While investors applauded the PUC's permitting

18  PPL Electric an ROE in excess of that recommended by the ALJ in the previous

19  rate case and was considered a positive step as evidenced by S&P's credit

20  analysis, the fact is that the Company has not been able to earn at the allowed

21  level. Additionally, while the 10.7% award was, indeed, an improvement over the

22  ALJ recommendation, it was below the average 10.91% authorized in the fourth

23  quarter of 2004 for a total of eight electric cases nationwide during that period,

1      according to statistics compiled by research firm Regulatory Research Associates

2      ("RRA").[21] As well, PPL Electric's 10.7% ROE was awarded within the context

3      of data in an historical, rather than a projected, test year, which makes it

4      difficult—if not impossible—for the Company to earn at allowed levels. Because

5      investors consider companies on a comparative basis, the fact is, other utilities

6      that were potential investments presented an opportunity for earning higher

7      returns on an equity investment.

8  Q.  **Does RRA offer an evaluation of the quality of Pennsylvania regulation?**

9  A.  Yes. The firm provides a ranking of the regulatory climates of 49 states and the

10     District of Columbia. According to RRA:

11         The evaluations are assigned from an investor perspective and indicate the
12         relative regulatory risk associated with the ownership of securities issued
13         by the jurisdiction's electric, gas, and telephone utilities. Each evaluation
14         is based upon our studies of the numerous factors affecting the regulatory
15         process in the state, and is changed as major events occur which cause us
16         to modify our view of the regulatory risk accruing to the ownership of
17         utility securities in that individual jurisdiction. We also review our
18         evaluation when we issue State Regulatory Reviews, and when we publish
19         quarterly comparative evaluations. The majority of factors that we
20         consider are discussed in *Focus Notes*, State Regulatory Reviews, Final
21         Reports, or Regulatory Updates. We also consider information obtained
22         from contacts with commission, company, and government personnel in
23         the course of our research. The final evaluation reflects our assessment of
24         the probable level and quality of the earnings to be realized by the state's
25         utilities as a result of regulatory, legislative, and court actions.[22]
26
27     There are three tiers to RRA's ranking scheme: Above Average, Average, and

28     Below Average, with a numeric designation of 1, 2, or 3 within the principal

29     rating category employed to indicate relative strength therein. Pennsylvania is

30     accorded an "Average/3" ranking, which reflects the weakest segment or low end

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[21] Regulatory Research Associates, "Major Rate Case Decisions—January 2005-December 2006; Supplemental Study," January 30, 2007.
[22] Regulatory Research Associates, "State Regulatory Evaluations," July 12, 2006.

| 1 | | of the Average tier.  Although RRA's and Lehman's rating structures are not |
| 2 | | identical, it could be argued that the firms' assessment of Pennsylvania regulation |
| 3 | | is similar.  According to RRA, |

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> The Pennsylvania regulatory climate continues to be relatively stable.  The Commission and Legislature have been proactive in responding to changes in the electric, gas, and telecommunications industries.  In implementing electric retail choice, the PUC adopted transition plans that at that time were, for the most part, considered constructive. ... However, the plans preclude the utilities from increasing prices during their company-specific transition periods to reflect rising costs associated with providing power to customers who decline to select an alternative supplier. ... it is unclear what the post-transition market will look like in the state. ... We continue to accord Pennsylvania regulation an Average/3 rating.[23]

15  Q.  **Have other investors offered opinion on regulatory quality in general?**

16  A.  Yes.  Bank of America Securities publishes an annual study of regulation, in

17  which it lists characteristics it believes comprise a state commission that is

18  supportive of credit quality.[24]  Although the list is extensive, the two top factors

19  pertain to decisions that are supportive of credit quality and the authorized return

20  on equity and equity ratios.  Regarding the first factor, the firm notes that: "The

21  commission consistently adopts regulatory policies and makes decisions that have

22  the result of producing strong, stable cash flow and interest coverage."[25]  As to

23  .equity returns and levels, Bank of America opines: "Higher authorized returns on

24  equity and higher approved equity ratios used in setting the fair rate of return

25  provide higher interest coverages for regulated utilities. It is our view that the

26  utilities that have higher equity ratios than the industry average do so in large part

27  because historically, their state commissions recognize the benefit and permit the

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[23] Regulatory Research Associates, "Pennsylvania Regulatory Review—February 2007."
[24] Bank of America Securities, "Kaleidoscope of Power: Regulation in Focus," March 2005.
[25] Ibid.

1     companies to pass costs through rates."[26] While Bank of America Securities does

2     not rank the various regulatory commissions, it does provide data on each to

3     permit investors to draw their own conclusions.

4   Q.   **What inference do you draw from the various analysts' comments about the**

5     **quality of regulation in general and Pennsylvania regulation in particular as**

6     **they pertain to this regulatory proceeding?**

7   A.   In my opinion, investors—both equity and debt—would clearly view a PUC

8     decision that is consistent with the Company's request to be reflective of the

9     continuation of constructive regulation in Pennsylvania. The PUC demonstrated

10     to investors in its December 2004 decision for PPL Electric that it would support

11     utilities' need to invest significant levels of capital to maintain a strong and

12     reliable electric infrastructure. For the PUC to deviate from that positive example

13     in the current case would send a strong signal to investors that the quality of

14     Pennsylvania regulation is inconsistent and not supportive of utilities' needs to

15     access the capital markets.

16

17     **IV. RETURN ON EQUITY FOR PPL ELECTRIC**

18   Q.   **How do you believe that PPL Electric's requested return on equity of 11.5%**

19     **comports with investors' perceptions?**

20   A.   I believe that the investment community would find an 11.5% ROE supportive for

21     the company. It is consistent with investors' expectations for ROE allowances in

22     2006 for supportive jurisdictions.

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[26] Ibid.

1    Q.    **Why do return on equity rewards vary among state commissions and**

2           **companies?**

3    A.    As Mr. Moul's testimony sets forth, generic factors such as interest rates and

4           industry issues contribute to a determination of return on equity, but in the final

5           analysis, the appropriate ROE level is specific to the company in question. For

6           example, as noted previously, PPL Electric has a number of risk factors relevant

7           to a wires-only utility that increase its risk, coupled with company-specific issues,

8           which should argue for a higher allowed ROE as compensation for that greater

9           risk level.

10   Q.    **Please comment on Mr. Moul's ROE recommendation.**

11   A.    Mr. Moul notes that the cost of equity capital for the Company is within a range

12         of 11.25% and 11.75%. Investment risk in the electric utility industry is higher

13         than it has been, and investors are requiring greater levels of compensation to

14         assume that added risk. As an input in valuation models, earnings levels logically

15         translate into the attractiveness of a stock, other factors being equal. A reasonable

16         ROE award should sustain the Company's earnings power and affect the potential

17         for future dividend growth. Conversely, a lower ROE could potentially

18         undermine investors' expectations for dividend sustainability.

19   Q.    **Could a return on equity award that is consistent with investor expectations**

20         **also be expected to provide benefits to PPL Electric's customers?**

21   A.    Absolutely. A higher ROE permits the realization of a stronger earnings stream.

22         In turn, that can improve a company's stock's valuation prospects, which results

23         in a higher stock price. Thus, when a company needs to tap the equity markets for

| | | |
|---|---|---|
| 1 | | capital needed to meet customer needs, it can get more for its money. Said |
| 2 | | another way, each share sold brings more equity into the Company with the same |
| 3 | | commitment by the Company to generate earnings and pay dividends to support |
| 4 | | the value of that share. In regard to debt financing, a higher ROE awarded to PPL |
| 5 | | Electric would be viewed as a sign of constructive regulation and would be |
| 6 | | positive for the Company's credit rating. Importantly, customers' rates will |
| 7 | | eventually reflect this lower cost of capital. |
| 8 | Q. | DOES THIS COMPLETE YOUR TESTIMONY? |
| 9 | A. | Yes. |

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1997-        J.M. CANNELL, INC.

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1977 - 1997    LORD ABBETT & COMPANY, New York, New York

1995 - 1997    Equity Portfolio Manager. Responsibility for management and client servicing of ten institutional equity portfolios with total assets in excess of $700M. Actively and successfully involved in new institutional business marketing effort.

1994-1996    Associate Director of Equity Research. Provided oversight of departmental activities, including supervision of analysts' research efforts and support staff functions.

1992-1995    Portfolio Manager, America's Utility Fund. Full portfolio management responsibility for the fund since its May 1992 inception.

1978-1995    Securities Analyst. Sole responsibility for analysis of and stock recommendations for the electric utility and telecommunications industries. Other areas of coverage previously included housing (2 years) and pollution control (1 year).

Summer 1977    Research Assistant in Utilities.


1973-1976    UNIVERSITY OF COLORADO. Colorado Springs, Colorado.

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| 1978 | COLUMBIA UNIVERSITY, MBA - Finance |
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Wall Street Utility Group

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PPL Electric Utilities Corporation :
Supplement No. 54 to Tariff - Electric : Docket No. R-00072155
Pa. P.U.C. No. 201 :

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## CERTIFICATION OF SERVICE

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I hereby certify that I have this day served a true copy of the foregoing

documents upon the participant(s), listed below, in accordance with the requirements of

§1.54 (relating to service by a participant):

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