

**BEFORE THE FLORIDA PUBLIC SERVICE
COMMISSION**

**FLORIDA POWER & LIGHT COMPANY
REBUTTAL TESTIMONY & EXHIBITS
OF
THOMAS R. KOCH**

DOCKET NOS. 070231-EI & 080244-EI

MAY 15, 2009

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6

7 **Q. Please state your name and business address.**

8 A. My name is Thomas R. Koch. My business address is Florida Power & Light
9 Company, 9250 W. Flagler Street, Miami, Florida 33174.

10 **Q. Did you previously submit direct testimony in this proceeding?**

11 A. Yes.

12 **Q. Are you sponsoring any exhibits as part of your rebuttal testimony in this
13 case?**

14 A. Yes. I am sponsoring the following exhibits, which are attached to my rebuttal
15 testimony.

- 16 • TRK-5 - Non-Storm Operational Costs Differential – Updated
- 17 MUUC Study v. FPL-Adjusted
- 18 • TRK-6 - Updated MUUC Study Table I-8A (Revised 5/6/2009 –
- 19 corrected arithmetic errors and updated assumptions)
- 20 • TRK-7 – Table I-8 Escalation Rate Detail
- 21 • TRK-8 – Updated MUUC Study Revised Table C-1 (Revised
- 22 5/6/2009 - corrected arithmetic errors and updated cost
- 23 adjustments)

- 1 • TRK-9 – Updated MUUC Study Second Revised Supplemental
- 2 Exhibit PJR-13
- 3 • TRK-10 – Reduced Accident Litigation and Awards Comparison
- 4 **(Confidential)**
- 5 • TRK-11 – URD Non-Storm Operational Cost Differential –
- 6 Updated MUUC Study v. FPL-Adjusted

7 **Q. What is the purpose of your testimony?**

8 A. I will respond to the portions of the testimony submitted on behalf of the
9 Municipal Underground Utilities Consortium (MUUC) by Witnesses Peter J. Rant
10 and Lloyd D. Shank, Jr. that relate to their objections to FPL’s tariff revisions
11 incorporating the net present value (NPV) of operational cost differentials
12 (“operational costs” or “differentials”) that were filed in Docket No. 070231-EI
13 for the Underground Residential Distribution (URD) charges and Docket No.
14 080244-EI for the underground conversion contribution-in-aid-of-construction
15 (CIAC).

16 **Q. What is your overall view of the analyses MUUC witness Rant prepared to**
17 **support his testimony?**

18 A. The analyses (herein referred to collectively as the “MUUC Studies”) are fatally
19 flawed and, therefore, the studies themselves as well as all assertions made by Mr.
20 Rant based upon them provide no credible basis for any modifications to the
21 currently approved FPL tariff revisions. The results of the MUUC Studies are at
22 best unreliable and at worst misleading.

23 **Q. Would you please summarize the MUUC Studies’ flaws?**

1 A. Yes. In 2006, MUUC witness Rant prepared a study he titled the Cost-
2 Effectiveness of Underground Electric Distribution Facilities in Florida on behalf
3 of the MUUC (2006 MUUC Study). In testimony, originally filed on April 14,
4 2009, Mr. Rant updated a few of the figures from the 2006 MUUC Study.
5 Subsequently, on May 8, 2009, he submitted a revised version of his testimony
6 correcting some arithmetic and cost assumption errors. I will base the discussion
7 in my testimony primarily on this late-filed revision, which I will refer to as the
8 “Updated MUUC Study”. Revised Table C-1 (as filed May 7, 2009 – see Exhibit
9 TRK-8) of the Updated MUUC Study summarizes the results of Mr. Rant’s
10 analysis of the non-storm operational cost differentials and Avoided Storm
11 Restoration Cost (ASRC).

12

13 The general categories of flaws with the Updated MUUC Study are listed below. I
14 will provide more detail in my testimony how each error impacts the MUUC
15 Studies’ results. The cumulative impact of all quantified flaws is a greater than
16 90% reduction in the Updated MUUC Study figure, from \$122,200 to \$11,400 per
17 pole-line mile (PLM).

18 • **Non-Compliance** – The MUUC Studies do not comply with Florida
19 Administrative Code (FAC) Rules 25-6.078 and 25-6.115. They reflect
20 **nominal** 30-year values instead of the required NPV calculations resulting in
21 grossly overstated impacts.

22 • **Methodology** – The MUUC Studies employ a “bottom-up” approach. For
23 such a methodology to be effective all variables and their relative impacts

1 would need to be identified and estimated. This would be a daunting task for a
2 rigorously conducted study to achieve. However, the MUUC Studies' handful
3 of selected variables and calculations fall well short of the necessary rigor,
4 employing instead an apparent "pick-and-choose" method ultimately
5 accounting for only a portion of FPL's annual distribution expenditures. In
6 addition, some of the calculations are incorrect or ill-conceived.

- 7 • **Assumptions** – The MUUC Studies utilize many unreasonable and
8 unsupported assumptions. For example, Mr. Rant was unable during his May
9 7, 2009 deposition to provide any supporting data for his extremely high
10 escalation rates or their application in the MUUC Studies (see Exhibit TRK-
11 7). As another example, Mr. Rant also selectively abandoned FPL's data
12 without justification as to his determination of "Other O&M" costs and
13 substituted that of two small cooperative utilities from outside Florida.
- 14 • **Omissions** – The MUUC Studies ignore differences in capital costs incurred
15 to maintain the overhead and underground distribution systems. This is a
16 startling oversight given the extensive discussion during the rulemaking on the
17 need to include capital as well as operations and maintenance (O&M) costs. In
18 fact, this is the very reason that the Commission uses the term "operational"
19 rather than "operating and maintenance" in the final amendments to Rules 25-
20 6.078 and 25-6.115 concerning operational cost differentials. The MUUC was
21 an active participant in these proceedings and should be well aware of the
22 need to include capital costs.

23

1 While I will discuss the many flaws associated with each individual component of
2 the MUUC Studies, and attempt to calculate the relative impacts of the errors, it
3 must be emphasized that it is not possible to create a revised, fully “reconciled”
4 bottom line result. As I noted previously, it is extremely difficult to build a
5 comprehensive “bottom-up” analysis since this will almost invariably leave out
6 components which are difficult to discern and estimate – and the MUUC Studies
7 only selected a handful of cost components accounting for only a fraction of the
8 hundreds of millions of dollars FPL spends annually in non-storm operational
9 costs. This, among other reasons, is why FPL employed the more appropriate and
10 transparent “top-down” approach based on FPL’s complete books and records.

11 **Q. In addition to the computational flaws, did you find other problems with the**
12 **MUUC witnesses’ testimonies?**

13 A. Yes. One key theory repeatedly asserted by both MUUC witnesses Rant and
14 Shank is that “newer” underground facilities will have lower life cycle costs than
15 those in FPL’s existing system. The witnesses criticize FPL’s analysis for its use
16 of historical costs, which they claim implicitly “biases” the results against
17 underground. However, the MUUC witnesses fail to provide any credible
18 quantitative or qualitative evidence of the alleged relationship between the age of
19 facilities and life cycle non-storm operational cost differentials. Worse, their own
20 statements and analyses undermine their own position.

21
22 First, all of Mr. Rant’s calculations (except one) use historical values. The only
23 exception is vegetation management, for which FPL also uses projected values.

1 Mr. Rant's implication that the Updated MUUC Study addresses the alleged bias
2 is false and misleading.

3
4 Second, in his deposition, MUUC witness Shank identified the "newer
5 technology" that is supposed to be more reliable as comprising all underground
6 equipment installed since 1980. About 75% of FPL's underground facilities have
7 been installed after that date. So, by Mr. Shank's standard, it seems unlikely that
8 any significant underground bias would exist because three quarters of the
9 equipment reflected in FPL's historical underground operational costs is of the
10 newer, more reliable designs.

11
12 Third, both MUUC witnesses ignore the fact that the calculation of non-storm
13 operational costs represents a differential between underground and overhead
14 costs. They give short shrift to any similar improvements in overhead technology.
15 In fact, the average age of FPL's overhead facilities is older than that of FPL's
16 underground facilities. By the witnesses' own logic, this would create an implicit
17 bias against overhead, not underground as they assert.

18
19 Finally, MUUC does not possess any information to demonstrate quantitatively
20 that FPL's non-storm operational cost differential is biased by the use of historical
21 data or the extent of any such bias. To use a restoration example, age has nothing
22 to do with a falling tree striking a padmount transformer, dig-ins to a buried cable
23 or a lightning strike. While it is hoped that operational costs for both types of

1 infrastructure will in fact go down over the next decades, this may or may not
2 play out in practice. FPL always employs technology that we believe represents
3 the best balance of cost and reliability available at that point in time. If the cost
4 differential does narrow or widen over time, then those effects will be captured in
5 the periodic non-storm operational cost differential updates FPL will file with the
6 Commission.

7 **Q. Please recap FPL's analysis and contrast it to the Updated MUUC Study's**
8 **reported result for the non-storm operational cost differential.**

9 A. FPL's analysis, provided in my direct testimony as Exhibit TRK-4, shows a
10 slightly higher cost of \$11,300 per PLM for underground versus overhead. This
11 differential represents only about 7% of the overall operational costs and less than
12 2% of a typical underground conversion CIAC, indicating that the cost per PLM
13 to operate and maintain FPL's overhead and underground systems are quite
14 similar. The Updated MUUC Study shows overhead as \$122,200 per PLM more
15 costly than underground. FPL used the 5-year average of actual historical O&M
16 and capital costs as reported on the company's books, subsequently adjusted by
17 removing all identifiable non-operational costs. In contrast to FPL's "top-down"
18 approach, the MUUC Studies calculated the cost differential from the "bottom-
19 up" by attempting to identify relevant cost categories and then developing
20 theoretical calculations of the value for each using generic cost data.

21

22 While in theory both methods could yield similar results, the MUUC Studies are
23 fatally flawed due to the previously-discussed series of defects that I have

1 categorized as non-compliance, omission, methodology, and assumptions. In the
2 next section of my testimony I have summarized the findings from my review of
3 the Updated MUUC Study, addressing each component presented in Table C-1. It
4 should be noted that many of the Updated MUUC Study's values, calculations
5 and justifications remain unchanged from the 2006 Study so I will also be
6 referring to that prior version in my findings. As summarized in Exhibit TRK-5,
7 page 1 of 2, once adjustments are made for the flaws in the Updated MUUC
8 Study, MUUC's proposed operational cost differential of \$122,200 per PLM
9 becomes only \$11,400 per PLM, a reduction of 91%. As previously mentioned, it
10 is not possible to fully reconcile FPL's value of <\$11,300> with the Updated
11 MUUC Study. However, it is reasonable to conclude that the remaining gap
12 between the adjusted MUUC value and FPL is due to elements missing from the
13 MUUC's "bottom-up" approach which play a significant role in the overall
14 calculation of operational costs but are not readily identified, such as the
15 difference in capital expenditures for maintaining overhead versus underground
16 equipment.

17 **Q. Would you please elaborate on the significant flaws in the Updated MUUC**
18 **Study?**

19 A. Yes. First, I will discuss two overarching problems which affect all of the cost
20 components – FAC Rules non-compliance and unreasonable escalation rates.
21 Subsequently, I will discuss each of the cost components individually. Note that
22 whenever a figure is negative (as indicated by brackets), it means that

1 underground is more costly than overhead. See Exhibit TRK-5 for all of the
2 calculations.

3

4 **Non-Compliance with FAC Rules 25-6.078 and 25-6.115 NPV Requirements**

5 – The Updated MUUC Study’s reported result of \$122,200 per PLM does not
6 comply with the applicable FAC Rules and is a deceptive overstatement because
7 it reflects the *nominal* 30-year values (i.e., the annual calculated amounts
8 multiplied by 30) instead of the NPV of these amounts as required by the Rules.
9 In his deposition and the 2006 MUUC Study, MUUC witness Rant explained that
10 he felt there was no need to perform the NPV calculations required by Rules 25-
11 6.078 and 25-6.115, because he believed that the escalation and discount rates
12 were the same. However, his assertion directly conflicts with the escalation and
13 discount rates presented in both Table I-8 of the 2006 MUUC Study and the
14 revised Table I-8A (corrected for arithmetic errors and cost assumptions)
15 provided by Mr. Rant during his May 6, 2009 deposition. The impacts of this
16 error on each individual cost component are reflected later in my testimony
17 regarding those components and are also embedded in the results shown in
18 Exhibit TRK-5, page 1 of 2. However, in order to see the total effect of this error
19 in isolation, I have also, in Exhibit TRK-5, page 2 of 2 extrapolated NPV values
20 based on the escalation and discount rates provided in Mr. Rant’s Table I-8A
21 (Exhibit TRK-6). Note that I address below the unreasonableness of the various
22 assumed escalation rates. Correcting for the failure to incorporate NPV-based

1 calculations results in a substantial reduction of \$18,600, or 15% from the
2 Updated MUUC Study's reported total value of \$122,200 to \$103,600 per PLM.

3
4 **Unsupported Escalation Rates and Applications** – Table I-8 Escalation Rate
5 Detail provided by MUUC witness Rant (Exhibit TRK-7), includes 3 escalators –
6 Labor, Metals and CPI – which are multiplied by various weighting assumptions
7 to create weighted average values for each component. Litigation cost is the only
8 exception to this method and is assumed to be 10% without any further
9 explanation. In his deposition, Mr. Rant was unable to provide any credible
10 explanation or supporting data for any of the escalation rate values; why these
11 particular rates are even applicable to these cost components; or the weighting
12 percentages.

13
14 In computing the Updated MUUC Study's weighted average escalation rates, Mr.
15 Rant has selected certain very high rates for Labor (5.5%) and presumably as a
16 proxy for materials – “Metals” (10.3%). In addition, the weightings Mr. Rant
17 applies to given cost components appear designed to manipulate the operational
18 cost differential in favor of underground facilities. Certain of the values applied
19 make little sense. For example, Vegetation Management is assigned a 40%
20 weighting of the Metals rate, though there seems no logical reason for using a
21 high proportion of material-related escalation for this activity – other than to bias
22 the operational cost differential by boosting an overhead-related cost component.
23 Conversely, Loss of Pole Attachment Revenue, which has the effect of

1 increasing the operational cost of underground facilities, is given a 100%
2 weighting of the lowest escalator – CPI (2.3%).

3
4 Similar to the treatment of the NPV error, the impacts of these escalation rate
5 issues on each individual cost component are reflected in their respective
6 discussions later in my testimony as well as being embedded in the results shown
7 in Exhibit TRK-5, page 1 of 2. To see the total effect of these unreasonable
8 escalation rates in isolation, I have calculated the effect of substituting the more
9 reasonable FPL assumptions regarding escalation rates, then adjusting for the
10 error in the MUUC Studies resulting from ignoring the NPV requirement (see
11 Exhibit TRK-5, page 2 of 2). This produces an aggregate reduction of \$75,200,
12 or 62% from the Updated MUUC Study’s reported total value of \$122,200 to
13 \$47,000 per PLM.

14
15 **INDIVIDUAL COST COMPONENT ADJUSTMENTS (see Exhibit TRK-5):**

16
17 **Outage Restoration – Non-Major Events (Table C-2)** – As previously
18 mentioned, FPL’s analysis began with FPL’s complete books and records.
19 Therefore, all costs associated with restoration activities are reflected in FPL’s
20 data, so it was unnecessary to separately identify this component. In his
21 deposition MUUC witness Rant agreed that these costs were already fully
22 captured in FPL’s analysis. I have identified a number of flaws in the
23 calculations and assumptions. Because not all impacts can be quantified, the

1 overall adjustment is conservative and this component's value should be lower.
2 In terms of quantifiable flaws, the Updated MUUC Study includes an
3 unreasonably high 6.45% annual escalation rate which is contradicted by the cost
4 data used by Mr. Rant for this component and inconsistent with FPL's
5 experience. With regards to non-quantifiable flaws, the Updated MUUC Study:
6 ignores the differences in cost to repair underground versus overhead equipment;
7 uses only 1 year instead of 5 years of interruption data; and uses only feeder-
8 level interruption data. Applying the more reasonable CPI escalator from FPL's
9 analysis (in addition to correcting for the previously-discussed non-compliance
10 NPV error) would reduce the Updated MUUC Studies' result for this component
11 by about \$24,800 or 20%, from the initial Updated MUUC Study figure of
12 \$122,200 to about \$97,400 per PLM.

13

14 **Reduced Revenue Losses – Non-Major Events (Table C-9)** – MUUC witness
15 Rant commits a couple of egregious errors in calculating this component. He
16 apparently does not understand the data he was working with and thus grossly
17 exaggerated the estimated impact of outages on utility revenues. The indicator he
18 used for duration of the outages is L-Bar. This indicator measures the duration
19 for a given event from the point when the first customer is out of service until the
20 last customer is brought back in service. This is generally 3-4 times higher than
21 the indicator he should have used, Customer Average Interruption Duration
22 Index (CAIDI), which represents the period of time an average customer is
23 without service. This mistake alone overstates the “lost kWh” impact by 60-70%

1 Mr. Rant also acknowledged in his deposition that he did not include any
2 rebound effects which account for kWh increases from air conditioners, pool
3 pumps and the like running more after an outage. FPL estimates this rebound
4 effect to be about 75% - 85% (depending on customer class) which reduces this
5 component to 5% - 8% of the Updated MUUC Study figure. Finally, it is clear
6 from the source data and calculation that the Updated MUUC Study's calculation
7 is not a differential. The figures used were for all outages, regardless of type of
8 facilities, and overhead and underground were certainly not netted against each
9 other. The end result of adjusting for these errors, plus the NPV error, is that the
10 impact of this component becomes effectively de minimis. Making this
11 adjustment brings the cumulative net reduction to about \$25,900 per PLM (or
12 21%) yielding an adjusted Updated MUUC Study differential of about \$96,200
13 per PLM.

14

15 **Reduced Revenue Losses – Major Events (Table C-10)** – These costs are not
16 appropriate to include as differential cost adjustments to URD charges or CIAC
17 because FPL does not currently collect outage-related revenue losses (even if
18 incurred) from the general body of customers. The purpose of applying an
19 operational cost differential to the URD charge and CIAC is to attempt to capture
20 more completely the incremental life-cycle costs and savings of discretionary
21 decisions by applicants to install underground facilities and thus ensure an
22 equitable sharing of costs between the applicants and the general body of
23 customers, thereby avoiding potential subsidization. FPL presently is not

1 compensated by the general body of customers (or anyone else) for the revenues
2 that may be lost during major storm-related power outages. Therefore, adjusting
3 CIAC to reflect lost revenues associated with assumed lower average outage
4 time for underground service would burden the general body of customers with
5 an added cost (i.e., supporting the increased rate base resulting from a CIAC
6 reduction) with no offsetting benefit (because they are not compensating FPL for
7 storm-related lost revenues in the first place). FPL also has concerns with the
8 Updated MUUC Study's calculation methodology and assumptions, but these
9 concerns are rendered moot because this component is properly excluded from
10 the operational cost differential calculation. Removal of this component brings
11 the cumulative net reduction to about \$46,400 per PLM (or 38%) yielding an
12 adjusted Updated MUUC Study differential of about \$75,800 per PLM.

13
14 **Vegetation Management (Table C-4)** – The Updated MUUC Study substantially
15 overstates the savings associated with avoided vegetation management costs for
16 underground facilities because it ignores the periodic nature of these
17 expenditures. Though the footnote on Table C-4 implies the calculation reflects
18 FPL's 3-year feeder and 6-year lateral cycles, the cycles are in fact ignored. The
19 calculation merely takes a single annual average cost figure per PLM and
20 multiplies by 30. FPL needed to make three adjustments to more appropriately
21 calculate this value. First, a correction was made to convert from nominal to
22 NPV using the 2006 MUUC Study's escalation rate assumption. Next, FPL
23 applied its more reasonable escalation assumption. Finally, an adjustment was

1 made to reflect the proper periodic trim cycles versus straight annual
2 expenditures. The end result of these adjustments brings the cumulative net
3 reduction to about \$84,600 per PLM (or 69%) yielding an adjusted Updated
4 MUUC Study differential of about \$37,600 per PLM.

5
6 **Other O&M (2006 MUUC Study Table C-6 and Updated MUUC Study**

7 **Table C-7)** – The MUUC Studies inappropriately abandoned FPL actual data
8 and instead used “proxy” data developed from the average of two small
9 cooperatives, Jones-Onslow Electric Membership Corporation in North Carolina
10 and A&N Electric Cooperative in Virginia, who combined have a mere 94,000
11 customers. This approach is unreasonable and unsupportable. As shown in Table
12 C-6 of the 2006 MUUC Study (Exhibit PJR-2, page 94 of 158), MUUC witness
13 Rant also calculated the nominal value using FPL data as about <\$12,000> per
14 PLM (the negative value indicates underground is more costly than overhead).
15 On a NPV basis, using FPL’s more reasonable escalation assumptions, this
16 would translate into about <\$5,600> per PLM – \$15,600 below the Updated
17 MUUC Studies’ Table C-1 value of about \$10,000 per PLM. During his
18 deposition, Mr. Rant was unable to provide a satisfactory explanation as to why
19 the costs of these two non-Florida cooperatives, rather than FPL’s own costs,
20 better represent the adjustment amounts FPL’s general body of customers should
21 bear. At this point, due to the absence of any real factual foundation for Mr.
22 Rant’s position, I have adjusted the Updated MUUC’s amount to reflect the
23 <\$5,600> per PLM previously described. This brings the cumulative net

1 reduction to about \$100,100 per PLM (or 82%) yielding an adjusted Updated
2 MUUC Study differential of about \$22,100 per PLM.

3

4 **Underground (UG) Locates** – The source data and calculation for this
5 component was not provided in either of the MUUC Studies. The costs
6 associated with this particular activity are embedded in FPL’s overall O&M
7 figures. Since there was no reason to attempt to break this activity’s costs out,
8 FPL has no point of comparison for adjustment, other than to correct for the
9 Updated MUUC Study’s NPV error. The NPV is <\$3,100> versus the Updated
10 MUUC Study’s nominal value of <\$6,500> per PLM. This brings the cumulative
11 net reduction to about \$96,700 per PLM (or 79%) yielding an adjusted Updated
12 MUUC Study differential of about \$25,500 per PLM.

13

14 **Loss of Pole Attachment Revenue** –As with the previous element, the source
15 data and calculation for this component was not provided in either of the MUUC
16 Studies. Because FPL used actual data from its books and records for this
17 element, it is reasonable to substitute FPL’s NPV amount of about \$7,200 per
18 PLM in lieu of that provided in the Updated MUUC Studies. This results in only
19 a relatively modest reduction of about \$2,100 per PLM from the Updated MUUC
20 Study’s amount. This brings the cumulative net reduction to about \$94,600 per
21 PLM (or 77%) yielding an adjusted Updated MUUC Study differential of about
22 \$27,600 per PLM.

23

1 **Reduced Accident Litigation and Awards** – The Updated MUUC Study used
2 FPL’s 2010 forecast of about \$10 million from Account 228.2 Injuries and
3 Damages in MFR Schedule B-21 as the basis of this calculation. For
4 confidentiality reasons, FPL has embedded the differential costs associated with
5 this component within the analysis’ general O&M figures. The Updated MUUC
6 Study overstated the value of the differential for two reasons. First, more than
7 just costs associated with overhead and underground distribution lines are
8 included in account 228.2 in the MFR. Second, the Updated MUUC Study uses
9 the entire amount, not a differential as required. Due to confidentiality concerns,
10 I have created a separate confidential Exhibit TRK-10 which shows the impact of
11 these overstatements. Putting aside the overstated litigation cost differential
12 addressed in Exhibit TRK-10 and correcting only for the NPV error brings the
13 cumulative net reduction to about \$98,500 per PLM (or 81%) yielding an
14 adjusted Updated MUUC Study differential of about \$23,700 per PLM.

15
16 **MISSING COMPONENTS** – As previously discussed, the MUUC Studies’
17 “bottom-up” approach makes it difficult to identify and address all the
18 components that should have been included. However, I have identified below a
19 few obvious components that are missing from the MUUC Studies.

20
21 **Missing Components – Capital Expenditures** – The MUUC Studies do not
22 include the differential costs associated with capital expenditures. For accounting
23 purposes, many operational costs are capitalized, and this is especially so for

1 underground facilities. The associated property taxes and insurance are also
2 ignored. During his deposition, MUUC witness Rant acknowledged this
3 deficiency but provided no explanation for why these valid costs were not
4 included in the MUUC Studies. The result of these omissions is that the Updated
5 MUUC Study overstates the differential adjustment by about \$16,800 per PLM.
6 This brings the cumulative net reduction to about \$115,300 per PLM (or 94%)
7 yielding an adjusted Updated MUUC Study differential of about \$6,900 per
8 PLM.

9
10 **Missing Components – Pole Inspection/Remediation** – The MUUC Studies
11 also omit the O&M and capital cost differentials associated with FPL's pole
12 inspection and remediation program. The result of this omission is that the
13 Updated MUUC Study understates the differential adjustment by about \$4,500
14 per PLM. This brings the final cumulative net reduction to about \$110,800 per
15 PLM (or 91%) yielding an adjusted Updated MUUC Study differential of about
16 \$11,400 per PLM.

17 **Q. Do these flaws also affect MUUC witness Rant's calculations of non-storm**
18 **operational costs proposed in the late-filed second-revised supplemental**
19 **Exhibit PJR-13 to his testimony (Exhibit TRK-9)?**

20 **A.** Yes. First, as my testimony has established, the Updated MUUC Study is fatally
21 flawed and thus does not provide a credible basis for developing the operational
22 cost differentials to apply to URD any more than it does for underground
23 conversions. Second, Mr. Rant has compounded the problem by directly applying

1 a percentage derived from the Updated MUUC Study second-revised Table C-1
2 (Exhibit TRK-8) instead of his using his computed dollar values. Mr. Rant then
3 applies this percentage to the three subdivision types' pre-operational cost
4 differentials. Since this is not the same basis as was used to derive them initially,
5 the results are entirely inappropriate. Given that Mr. Rant already knows the
6 PLM-to-lot conversion formula, it appears this was done solely to manipulate the
7 resulting URD charges. In Exhibit TRK-11, I have calculated the per lot
8 differentials using the FPL-adjusted MUUC values based on Exhibit TRK-5.
9 Interestingly, the two methodology errors end up partially offsetting each other
10 for the Low and High Density. For Low Density, the FPL-Adjusted figure is
11 \$50/lot and the MUUC amount is \$65/lot (Exhibit TRK-9, page 2 of 2). For High
12 Density, the FPL-Adjusted figure is \$37/lot and the MUUC amount is \$16/lot
13 (Exhibit TRK-9, page 2 of 2). The Meter Pedestal best illustrates the
14 consequences of this methodology. Because the pre-operational cost is effectively
15 zero, Mr. Rant's approach assumes there would be no operational costs either –
16 which is clearly an inaccurate extrapolation. It should be noted that the ASRC as
17 applied in second-revised Exhibit PJR-13 (Exhibit TRK-9) suffers from the same
18 problems.

19 **Q. Do you have any objections to the ASRC value that MUUC witness Rant has**
20 **calculated?**

21 A. No. His value of 24% is essentially the same as FPL's 25%.

22 **Q. Do you agree with MUUC witness Rant's alternative to FPL's ASRC middle**
23 **tier?**

1 A. No. Mr. Rant agrees with FPL's eligibility criteria for the three tiers. However,
2 rather than the single charge for the middle tier, he suggests a sliding scale. His
3 recommendation would create winners and losers compared to FPL's current
4 structure, with those projects whose size is below two PLM getting less ASRC
5 credit and those above getting more.

6
7 While this is an alternative, FPL chose a much simpler approach for two reasons.
8 First, FPL has no data to support any more discrete intermediate values, and
9 neither does Mr. Rant. Second, the 3-tier method was designed to be
10 administratively straightforward and transparent for employees and applicants.
11 Despite Mr. Rant's assurances to the contrary, MUUC's proposed structure would
12 be administratively burdensome because it would require additional sets of
13 lengthy tables to FPL's tariffs with the calculated interval values to ensure that the
14 tariff charges are transparent for applicants. In addition, Mr. Rant's assertion that
15 FPL could implement a "simple computer algorithm" demonstrates a lack of
16 understanding of the realities of the cost and complexity involved in deploying
17 such a change within a large company (e.g., systems modifications, training for
18 hundreds of employees, technical support, etc.) These concerns apply to both the
19 underground conversion and URD tariffs.

20 **Q. Do you agree with MUUC witness Rant that case-by-case operational cost**
21 **differential calculations for underground conversion CIAC are appropriate?**

22 A. No. Such an idea is ill-conceived and administratively infeasible. Mr. Rant claims
23 there will be certain locations where conditions vary significantly enough from

1 the “average” conditions that customized CIAC costs are warranted. I’m
2 assuming he is referring only to the non-storm operational cost differential portion
3 of CIAC because FPL already performs a detailed engineering analysis for every
4 conversion project thus creating a customized initial cost estimate. From a
5 practical standpoint, it would be virtually impossible to determine which locations
6 deviate significantly enough from the “average” circumstances to warrant an
7 adjustment to operational costs. In fact, defining the parameters of “average”
8 conditions would undoubtedly just lead to protracted subjective debate.
9 Additionally, neither FPL nor the MUUC has any data upon which to base such
10 customizations, let alone their magnitude. FPL has used all available data from its
11 books and records in order to produce the current operational cost differential
12 figures and my rebuttal testimony has established that MUUC’s information is not
13 credible enough to reasonably use for average cost purposes let alone for case-by-
14 case determinations. Finally, as previously stated, FPL’s non-storm operational
15 cost differential value represents a very small fraction of the cost of underground
16 conversions, so this would result in an enormous amount of extra work with very
17 little impact.

18 **Q. Does this conclude your rebuttal testimony?**

19 **A. Yes.**

TRK-5 - Non-Storm Operational Costs Differential - Updated MUUC Study v. FPL-Adjusted

	(a) Updated Table C-1	(b) FPL- Adjusted	(c) Variance \$	(d) %	(e) Adjustments	(f) Cumulative Balance	(g) % Change
Non-Storm Components							
1 MUUC Updated Study:						122,189	
2 Outage Restoration - Non-Major Events	46,775	21,942	(24,834)	-53%	(24,834)	97,355	-20%
3 Reduced Revenue Losses							
4 Non-Major Events	1,109	-	(1,109)	-100%	(25,943)	96,246	-21%
5 Major Events	20,444	-	(20,444)	-100%	(46,387)	75,802	-38%
6 Vegetation Management	52,470	14,303	(38,167)	-73%	(84,554)	37,635	-69%
7 Other O&M	9,960	(5,620)	(15,580)	-156%	(100,134)	22,054	-82%
8 Cost of UG Locates	(6,540)	(3,068)	3,472	-53%	(96,662)	25,526	-79%
9 Loss of Pole Attachment Revenue	(9,300)	(7,249)	2,051	-22%	(94,611)	27,577	-77%
10 Reduced Accident Litigation & Awards	7,270	3,406	(3,864)	-53%	(98,475)	23,713	-81%
11 Missing Components:							
13 Net Capital	-	(14,944)	(14,944)	n/a	(113,419)	8,769	-93%
12 Property Taxes & Insurance	-	(1,877)	(1,877)	n/a	(115,296)	6,892	-94%
14 Pole Inspection/Remediation	-	4,472	4,472	n/a	(110,824)	11,364	-91%
15 TOTAL ADJUSTED UPDATED MUUC STUDY	122,189	11,364	(110,824)	-91%			
16 FPL TARIFF DIFFERENTIAL						(11,300)	
17 FPL TARIFF DIFFERENTIAL v. ADJUSTED UPDATED MUUC STUDY						22,664	

Notes:

- 18 (a) Updated MUUC Study - Nominal 30-year values (i.e., annual amount * 30). Only Lines 6 & 10 values were updated from the 2006 Study.
- 19 Line 10 subsequently revised on 5/6/09 to correct arithmetic error.
- 20 (b) Reflects NPV, FPL escalation & discount rates, & data & calculation corrections.
- 21 (c) = (b) - (a)
- 22 (d) = (c) / (a)
- 23 (e) = Cumulative sum of (c)
- 24 (f) = Initial 5/6/09 Updated MUUC Study Table C-1 total [column (a), row 15] + (e)
- 25 (g) = (e) / Beginning Balance of (f)

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 Non-Storm Operational Costs Differential -
 Updated MUUC Study v FPL Adjusted
 Exhibit TRK-5 Page 1 of 2

**TRK-5 - Non-Storm Operational Costs Differential - Updated MUUC Study v. FPL-Adjusted
- Net Present Value & Escalation Rate Assumptions Adjustments -**

	(a)	(b)		(c)		(d)	(e)			(f)		(g)
	Updated Table C-1	Updated MUUC Study Assumptions		Variance		%	FPL Assumptions		Variance		%	
		NPV	\$	%	NPV		\$	%				
Non-Storm Components												
1 Outage Restoration - Non-Major Events	46,775	36,524	(10,251)	-22%		21,942	(24,834)	-53%				
2 Reduced Revenue Losses												
3 Non-Major Events	1,109	543	(566)	-51%		521	(589)	-53%				
4 Major Events	20,444	10,001	(10,443)	-51%		9,585	(10,859)	-53%				
5 Vegetation Management	52,470	47,406	(5,064)	-10%		14,303	(38,167)	-73%				
6 Other O&M	9,960	7,778	(2,182)	-22%		4,673	(5,287)	-53%				
7 Cost of UG Locates	(6,540)	(3,202)	3,338	-51%		(3,068)	3,472	-53%				
8 Loss of Pole Attachment Revenue	(9,300)	(4,553)	4,747	-51%		(4,363)	4,937	-53%				
9 Reduced Accident Litigation & Awards	7,270	9,090	1,820	25%		3,406	(3,864)	-53%				
10 TOTAL	122,189	103,589	(18,599)	-15%		46,998	(75,191)	-62%				

Notes:

- 11 (a) Nominal 30-year values (i.e., annual amount * 30). Only Lines 5 & 9 values were updated from the 2006 MUUC Study
- 12 (b) = Extrapolated NPV using the 2006 MUUC Study escalation & discount rate assumptions.
Table I-8A provided by Witness Rant at 5/6/09 deposition.
- 13 (c) = (b) - (a)
- 14 (d) = (c) / (a)
- 15 (e) = NPV using the FPL's escalation & discount rate assumptions (Exhibit TRK-4, pages 3 & 4 of 17).
- 16 (f) = (h) - (a)
- 17 (g) = (f) / (a)

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Non-Storm Operational Costs Differential-
Updated MUUC Study v FPL Adjusted
Exhibit TRK-5 Page 2 of 2

Table I 8A

Revised 5/6/2009 -Corrected arithmetic errors and updated cost assumptions

**Present Value
Overhead to Underground Conversion Adjustments to CIAC**

Event	Annual \$/mile estimate	Escalation Rate	Discount Rate	Discounted Escalation Multiplier	Discounted PV
Outage Restoration Reduction -- Major Events	\$6,593	8.40%	8.37%	30.13	\$198,647
Outage Restoration Reduction -- Non-major events	\$1,559	6.45%	8.37%	22.95	\$35,779
Reduced Revenue Loss -- Major Events	\$681	2.30%	8.37%	13.90	\$9,466
Reduced Revenue Loss -- Non-major events	\$37	2.30%	8.37%	13.90	\$514
Reduced O&M Costs -- Vegetation Management	\$1,749	7.60%	8.37%	26.87	\$46,996
Reduced O&M Cost -- Other O&M	\$332	6.45%	8.37%	22.95	\$7,619
Cost of UG Locates	(\$218)	2.30%	8.37%	13.90	(\$3,030)
Loss of Pole Attachment Revenue	(\$310)	2.30%	8.37%	13.90	(\$4,309)
Litigation	\$242	10.00%	8.37%	38.31	\$9,271
Total					\$300,953



Docket Nos. 070231-EI & 080244-EI
Updated MUUC Study Table I-8A (Revised 5/6/2009 corrected arithmetic errors and updated assumptions)
TRK-6 Page 1 of 1

Table I-8 Escalation Rate Detail

	Labor Escalator	Metals Escalator	CPI Escalator	% Labor	% Metals	% CPI	Escalation Rate
Outage Restoration Reduction – Major Events	5.5%	10.3%	2.3%	40%	60%	0%	8.40%
Outage Restoration Reduction – Non-major events	5.5%	10.3%	2.3%	80%	20%	0%	6.45%
Reduced Revenue Loss – Major Events	5.5%	10.3%	2.3%	0%	0%	100%	2.30%
Reduced Revenue Loss – Non-major events	5.5%	10.3%	2.3%	0%	0%	100%	2.30%
Reduced O&M Costs – Vegetation management	5.5%	10.3%	2.3%	60%	40%	0%	7.60%
Reduced O&M Costs – Other O&M	5.5%	10.3%	2.3%	80%	20%	0%	6.45%
Cost of UG Locates	5.5%	10.3%	2.3%	0%	0%	100%	2.30%
Loss of Pole Attachment Revenue	5.5%	10.3%	2.3%	0%	0%	100%	2.30%
Litigation 1/							10.00%

1/ Litigation cost is assumed to increase by 10% per year

UPDATED POWERSERVICES, INC. ANALYSIS

Table C-1 OVERHEAD to UNDERGROUND CONVERSION ADJUSTMENTS to CIAC
 (Costs and adjustments on a per mile of conversion basis)

Revised 5/6/2009 -Corrected arithmetic errors and updated cost adjustments

Base Conversion Cost Differential		\$635,314.00
Overhead to Underground Conversion		
Outage Restoration Reduction	- Non-major events - Major Events	\$46,775.42 \$197,791.32
Reduced Revenue Losses	- Non-major events - Major events	\$1,109.25 \$20,443.99
Reduced O&M Costs	- Vegetation Management - Other O&M**	\$52,470.00 \$9,960.00
Cost of UG Locates		(\$6,540.00)
Loss of Pole Attachment Revenue		(\$9,300.00)
Reduced Accident Litigation & Award Payments		\$7,269.90
Non-Participant Benefit (Qualitative Others)		-
Elimination of NESC (Code) Violations		-
Elimination of Overhead Routing Problems		-
Fixed Adjustments		\$319,979.88
		38.31%

** Other O&M From FPL Data Responses Reflects Higher O&M for Underground 7 Mile PowerServices Inc. Estimates Reflect Improved O&M Cost for Underground Based on Improved Technology and other utility experience

UPDATED POWERSERVICES, INC. ANALYSIS

URD ADJUSTMENTS TO CIAC

SECTION 10.3 UNDERGROUND DISTRIBUTION FACILITIES FOR
 RESIDENTIAL SUBDIVISIONS AND DEVELOPMENTS

Docket Nos. 080244-EI and 070231-EI
 Recommended URD Changes
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	FPL Proposed Applicant Contribution	MUUC Proposed Applicant Contribution
1. Where density is 6.0 or more dwelling units per acre:		
1.1 Buildings that do not exceed four units, townhouses, and mobile homes - per service lateral		
1. Subdivisions with 300 or more total service laterals	\$0.00	\$89.03
2. Subdivisions from 100 to 299 total service laterals	\$203.19	\$110.06
3. Subdivisions less than 100 total service laterals	\$280.19	\$117.07
1.2 Mobile homes having Customer-owned services from meter center installed adjacent to the FPL primary trench route per dwelling unit		
1. Subdivisions with 300 or more total service laterals	\$0.00	\$0.00
2. Subdivisions from 100 to 299 total service laterals	\$19.15	\$0.00
3. Subdivisions less than 100 total service laterals	\$96.15	\$0.00
2. Where density is 0.5 or greater, but less than 6.0 dwelling units per acre: Buildings that do not exceed four units, townhouses, and mobile homes - per service lateral		
1. Subdivisions with 200 or more total service laterals	\$424.23	\$357.71
2. Subdivisions from 85 to 199 total service laterals	\$654.23	\$442.19
3. Subdivisions less than 85 total service laterals	\$731.23	\$470.35
3. Where the density is less than 0.5 dwelling units per acre, or the Distribution System is of non-standard design, individual cost estimates will be used to determine the differential cost as specified in Paragraph 10.2.5		

Docket Nos. 070231-EI & 080244-EI
 Updated MUUC Study Second Revised
 Supplemental Exhibit PJR-13
 Exhibit TRK-9 Page 2 of 2

UPDATED POWERSERVICES, INC. ANALYSIS

URD ADJUSTMENT TO CIAC

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		<u>Operational Cost / Lot</u>				
<u>Low Density</u>	<u>Lot Density</u>	<u>Non-Storm</u>	<u>Storm</u>	<u>Total</u>		<u>Cost Differential</u>
Pre-Operational Cost						\$563.23
Post-Operational Cost						
Tier 1 - GAF Equivalent	(>200)	(\$64.72)	(\$140.81)	(\$205.52)		\$357.71
Tier 2 - Mid-Band (40%) ¹	(85-199)	(\$64.72)	(\$56.32)	(\$121.04)		\$442.19 ¹
Tier 3 - Baseline (20%)	(<85)	(\$64.72)	(\$28.16)	(\$92.88)		\$470.35
<u>Operational Cost / Lot</u>						
<u>High Density</u>	<u>Lot Density</u>	<u>Non-Storm</u>	<u>Storm</u>	<u>Total</u>		<u>Cost Differential</u>
Pre-Operational Cost						\$140.19
Post-Operational Cost						
Tier 1 - GAF Equivalent	(>300)	(\$16.11)	(\$35.05)	(\$51.16)		\$89.03
Tier 2 - Mid-Band (40%) ¹	(100-299)	(\$16.11)	(\$14.02)	(\$30.13)		\$110.06 ¹
Tier 3 - Baseline (20%)	(<100)	(\$16.11)	(\$7.01)	(\$23.12)		\$117.07
<u>Operational Cost / Lot</u>						
<u>Meter Pedestal</u>	<u>Lot Density</u>	<u>Non-Storm</u>	<u>Storm</u>	<u>Total</u>		<u>Cost Differential</u>
Pre-Operational Cost						\$0.00 ²
Post-Operational Cost						
Tier 1 - GAF Equivalent	(>300)	\$0.00	\$0.00	\$0.00		\$0.00 ²
Tier 2 - Mid-Band (40%) ²	(100-299)	\$0.00	\$0.00	\$0.00		\$0.00 ²
Tier 3 - Baseline (20%) ²	(<100)	\$0.00	\$0.00	\$0.00		\$0.00 ²

¹ Tier 2 level represented here based upon the proposed formula calculation.
 For projects between Tier 1 and Tier 3 the formula listed below is proposed:

Low Density

$$URD_{charge} = 357.71 + \left\{ 112.64 - \left[\left(\left(\frac{NU}{85} \right) - 1 \right) \times \left(\frac{112.64}{1.83} \right) \right] \right\}$$

High Density

$$URD_{charge} = 89.03 + \left\{ 28.04 - \left[\left(\left(\frac{NU}{100} \right) - 1 \right) \times \left(\frac{28.04}{4} \right) \right] \right\}$$

² Since the Pre-operational Cost Differential is in fact negative, there should be no charges to meter pedestal customers.

TRK-10 - Reduced Accident Litigation & Awards Comparison
- CONFIDENTIAL -

	<u>\$/PLM</u>	<u>Cumulative Variance</u>		<u>Source</u>
		<u>\$</u>	<u>%</u>	
1 Updated MUUC Study - Revised Table C-1	7,270			TRK-5
2 Updated MUUC Study - FPL-Adjusted NPV	3,406	(3,864)	-53%	TRK-5
3				

TRK-11 - URD Non-Storm Operational Costs Differential - Updated MUUC Study v. FPL-Adjusted

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Low Density				High Density / Meter Pedestal			
	Updated Table C-1	FPL- Adjusted	Variance \$	%	Updated Table C-1	FPL- Adjusted	Variance \$	%
Non-Storm Components								
1 MUUC Updated Study:								
2 Outage Restoration - Non-Major Events	(46,775)	(21,942)	24,834	-53%	(46,775)	(21,942)	24,834	-53%
3 Reduced Revenue Losses								
4 Non-Major Events	(1,109)	-	1,109	-100%	(1,109)	-	1,109	-100%
5 Major Events	(20,444)	-	20,444	-100%	(20,444)	-	20,444	-100%
6 Vegetation Management	(26,235)	(7,152)	19,083	-73%	(26,235)	(7,152)	19,083	-73%
7 Other O&M	(9,960)	5,620	15,580	-156%	(9,960)	5,620	15,580	-156%
8 Cost of UG Locates	6,540	3,068	(3,472)	-53%	6,540	3,068	(3,472)	-53%
9 Loss of Pole Attachment Revenue	9,300	7,249	(2,051)	-22%	9,300	7,249	(2,051)	-22%
10 Reduced Accident Litigation & Awards	(7,270)	(3,406)	3,864	-53%	(7,270)	(3,406)	3,864	-53%
11 Missing Components:								
13 Net Capital	-	14,944	14,944	n/a	-	14,944	14,944	n/a
12 Property Taxes & Insurance	-	1,683	1,683	n/a	-	1,737	1,737	n/a
14 Pole Inspection/Remediation	-	(4,406)	(4,406)	n/a	-	(3,835)	(3,835)	n/a
15 TOTAL ADJUSTED UPDATED MUUC STUDY	(95,954)	(4,341)	91,613	-95%	(95,954)	(3,716)	92,238	-96%
16 Lots per PLM	86	86			100	100		
17 Cost per Lot	(1,113)	(50)	1,063	-95%	(959)	(37)	921	-96%
18 FPL TARIFF DIFFERENTIAL		245				217		
19 FPL v. ADJUSTED UPDATED MUUC STUDY		(295)				(254)		

Notes:

- 20 (a) Same as Exhibit TRK-5, except Vegetation Management reduced by 50%
- 21 (b) Same as Exhibit TRK-5, except Vegetation Management reduced by 50% & slight differences in Pole Inspection/Remediation & Property Taxes & Insurance
- 22 (b) Reflects NPV, FPL escalation & discount rates, & data & calculation corrections.
- 23 (c) = (b) - (a)
- 24 (d) = (c) / (a)
- 25 (e) = (a)
- 26 (f) = (a) with slight differences in Pole Inspection/Remediation & Property Taxes & Insurance
- 27 (g) = (f) - (e)