

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Verizon Pennsylvania LLC and Verizon North LLC

v.

**Metropolitan Edison Company, Pennsylvania Electric Company, and
Pennsylvania Power Company
Docket No. C-2020-3019347**

**Rejoinder Testimony
of
Clark Guo**

List of Topics Addressed

Statistically-Reliable Estimates of Rate Formula Input Variables

NON-PROPRIETARY VERSION

TABLE OF CONTENTS

I.	INTRODUCTION AND PURPOSE	1
II.	RATE FORMULA INPUT VARIABLES	2
III.	CONCLUSION.....	6

1 **II. RATE FORMULA INPUT VARIABLES**

2 **Q. After reviewing Verizon’s surrebuttal testimony, do you still believe that your report**
3 **is statistically reliable and sound?**

4 A. Yes. Nothing in Verizon’s surrebuttal testimony has changed my position. Further, I want
5 to emphasize that my rejoinder testimony may not respond to every individual issue raised
6 in Verizon’s surrebuttal testimony regarding my rebuttal testimony. Instead, my rejoinder
7 testimony is focused on responding to particular issues I identified in Verizon’s surrebuttal
8 testimony. If there are any claims by Verizon that I do not address in this rejoinder
9 testimony, it does not mean that I agree with them.

10

11 **Q. Verizon witness Mills alleges that your statistical analysis is unreliable because it is**
12 **based on the field audit study performed by DRG. (Verizon Statement No. 1.1, p 71.)**
13 **Dr. Calnon also critiques your report because you did not independently verify the**
14 **data collected by DRG. (Verizon Statement No. 2.1, pp. 29-30.) Would you please**
15 **respond?**

16 A. As explained in my rebuttal testimony, I was asked to produce a statistically valid random
17 sample that would produce estimates of rate formula input variables representing
18 characteristics of the FirstEnergy electric distribution systems that would be sufficient to
19 produce a 95% confidence level for analysis. These rate formula input variables would
20 then be used by FirstEnergy to calculate rates pursuant to the Federal Communications
21 Commission’s (“FCC”) rate formulas.

22 I was not tasked with independently verifying the data collected by DRG as part of
23 its field study. This is common practice in my field when preparing statistical analyses,

1 such as the one requested by FirstEnergy for purposes of this proceeding. For information
2 about DRG's performance of the field audit study and the reliability of the data it collected,
3 please see Mr. Scott Carlin's rejoinder testimony. (FirstEnergy Statement No. 6-RJ.)
4

5 **Q. Verizon's witnesses also dispute the reliability of report on the grounds that it**
6 **provided data for [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL]**
7 **FirstEnergy-owned poles and [BEGIN CONFIDENTIAL] [REDACTED] [END**
8 **CONFIDENTIAL] Verizon-owned poles, while your report indicated that to produce**
9 **a 95% confidence level for the analysis, the sample size should consist of [BEGIN**
10 **CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] FirstEnergy-owned poles and**
11 **[BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] Verizon-owned poles.**
12 **(Verizon Statement No. 2.1, pp. 21-22, 25; Verizon Statement No. 3.1, pp. 8, 39-40.)**
13 **Please respond.**

14 **A.** So long as the sampling discrepancy is not biased – in other words, there is no systematic
15 problem with the sampling, – then the confidence level is not significantly changed. Even
16 if it is not 95% confidence, it would be 94% confidence. The only risk is sampling bias,
17 which is refuted by Mr. Carlin's rejoinder testimony. (See FirstEnergy Statement No. 6-

18 RJ.) [BEGIN CONFIDENTIAL] [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

1 [REDACTED]
2 [END CONFIDENTIAL]

3
4 **Q. Dr. Calnon also contends that the results contained in report are unreliable because**
5 **“[t]he results exclude significant numbers of FirstEnergy poles, while including most**
6 **of the Verizon poles, without explanation.” (Verizon Statement No. 2.1, pp. 27-28.)**
7 **He then goes on to argue that the results contained in report are unreliable because**
8 **“[t]he results exclude significant numbers of FirstEnergy poles, while including most**
9 **of the Verizon poles, without explanation.” (Verizon Statement No. 2.1, pp. 27-28.)**
10 **Dr. Tardiff raises similar criticisms in his rejoinder testimony. (Verizon Statement**
11 **No. 3.1, pp. 39-40.) Do you agree?**

12 **A.** No. Again, so long as the removals were without bias, there would be no reliability or
13 validity problems. Here, poles with certain pieces of missing or non-numerical data were
14 removed from the calculations for those pole characteristics so that they did not skew the
15 results. In other words, the average calculations needed to be based on actual data that did
16 not include null values for certain poles. The disparity between the number of FirstEnergy
17 and Verizon poles is simply reflective of this fact.

18
19 **Q. Mr. Mills argues that certain poles “should not have been included in the data set**
20 **because they are stand-alone street-light poles without wireline attachments.”**
21 **(Verizon Statement No. 1.1, p. 58.) As an example, he points to pole Scid numbers**
22 **1143, 1210, 1298, 1381, and 1389. (Verizon Statement No. 1.1, p. 58.) Did you consider**
23 **these poles in your analysis?**

1 A. No, I did not. [BEGIN CONFIDENTIAL] [REDACTED]
[REDACTED]
[REDACTED] [END CONFIDENTIAL] Therefore,
4 Mr. Mills's concern that these poles affected my analysis is unfounded.

5
6 Q. Dr. Calnon alleges that [BEGIN CONFIDENTIAL] [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] [END CONFIDENTIAL]

14
15 Q. Dr. Calnon further contends that the report's results [BEGIN CONFIDENTIAL]
16 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] [END CONFIDENTIAL] Dr. Tardiff makes similar
20 allegations and asserts that "the mismatch between the universe of poles reported in
21 the Precision report and the joint use poles at issue here violates a fundamental
22 sampling principle that in order to extrapolate a sampling statistic to its underlying

1 **populations, the sample must be drawn from that population.” (Verizon Statement**
2 **No. 3.1, pp. 37-40.) Would you please respond?**

3 A. This is a concern only if there is some fundamental difference between these types of poles,
4 and there is no evidence of that. Further, this mismatch is tiny and has no material impact
5 on the results. Moreover, even if the fundamental difference existed, re-doing the average
6 with those differences accounted for would not substantively change the results.

7

8 **III. CONCLUSION**

9 **Q. Does this conclude your rejoinder testimony?**

10 A. Yes, it does.