



**REBUTTAL TESTIMONY OF  
GREGORY L. BOOTH, P.E.**

**Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

A. The purpose of my rebuttal testimony is to: (i) rebut the responsive testimony of Charter witness Micheal Mullins regarding Charter's use of space on Blue Ridge's poles, Charter's maintenance and construction practices, and the violations noted in the survey conducted by PowerServices in August 2017 of a sample of Charter's attachments to Blue Ridge's poles; (ii) rebut the responsive testimony of Charter witnesses Nestor Martin and Micheal Mullins regarding Charter's proposed contract terms and conditions; and (iii) clarify the specific relief that Blue Ridge requests from the Commission.

**Q. WHAT IS YOUR GENERAL REACTION TO THE RESPONSIVE TESTIMONY FILED BY CHARTER WITNESSES MULLINS AND MARTIN?**

A. Although Mr. Mullins and Mr. Martin testify to different issues, there is a consistent theme across their testimonies. Specifically, instead of accepting the responsibilities of safety and prudent utility practices that necessarily accompany its statutorily mandated right of access to the electric poles owned by Blue Ridge, Charter seeks to shift the burden of ensuring safe, workmanlike attachments to Blue Ridge's poles—and the on-going maintenance of those attachments—to Blue Ridge. As is evident from Mr. Mullins' responsive testimony regarding Charter's construction and maintenance practices and his review of the photographic examples of Charter's practices that Mr. Layton and I included in

1 our direct testimonies, instead of acknowledging and accepting responsibility for  
2 problems that we observed, Charter disputes almost every single issue we noted  
3 and argues either that the issue does not constitute a safety concern or that Blue  
4 Ridge is responsible for the issue.

5 Additionally, Mr. Mullins testifies that Charter is willing to accept  
6 “industry-standard” contract terms, characterizing several of Blue Ridge’s long  
7 standing requirements as “burdensome and unworkable[.]”<sup>1</sup> and Mr. Martin  
8 testifies as to what he characterizes as “reasonable and industry-standard” contract  
9 terms and conditions and indicates that Charter is willing to pay for the  
10 “reasonable, verifiable and actual costs incurred by Blue Ridge for work directly  
11 (and solely) related to Charter’s attachments.”<sup>2</sup> Review of Mr. Martin’s proposed  
12 “reasonable and industry-standard” contract terms and conditions, however,  
13 reveals that the terms are not reasonable, or even industry standard. Instead,  
14 Charter seeks to have Blue Ridge design and engineer its system of attachments to  
15 ensure compliance with the NESC and other applicable safety standards, as well  
16 as inspect Charter’s attachments, on an on-going basis, for compliance with safety  
17 standards. In essence, Charter wants Blue Ridge to design, engineer and inspect  
18 its attachments and expects that the pole attachment rate will cover the majority  
19 of, if not all of, the added cost imposed on Blue Ridge to do so.

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<sup>1</sup> Responsive Testimony of Micheal Mullins submitted on behalf of Charter Communications Properties, LLC (“Mullins Testimony”), p. 15, line 24 through p. 16, line 1.

<sup>2</sup> Responsive Testimony of Nestor Martin submitted on behalf of Charter Communications Properties, LLC (“Martin Testimony”), p. 11, lines 14-16.

1           While Charter concedes that it should reimburse Blue Ridge, separate  
2           from the pole attachment rate, for the costs it imposes on Blue Ridge, Charter  
3           limits what it is willing to do or pay for by agreeing to reimburse Blue Ridge only  
4           after Blue Ridge “verifies” those costs, apparently to Charter’s satisfaction, and  
5           proves that any such costs are directly and solely related to Charter’s attachments.  
6           It is clear—Charter will cover the costs Blue Ridge incurs only after it disputes,  
7           and perhaps even litigates, whether Charter is responsible for “causing” that cost.

8           Blue Ridge simply does not have the resources to design, engineer and  
9           inspect Charter’s system or to fight over every issue that arises. Compared to  
10          investor owned utilities (“IOUs”), Blue Ridge has limited resources, particularly  
11          staff, and must dedicate those resources to Blue Ridge’s primary purpose of  
12          providing safe, reliable and affordable electric service to its members.  
13          Furthermore, contrary to Charter’s contentions about its agreements with other  
14          electric utilities, in my experience, utilities such as Duke Energy have substantial  
15          additional fees for virtually everything Duke has to do to deal with pole attachers  
16          and joint users. The Commission should keep this in mind as it considers the  
17          terms and conditions proposed by Charter and those requested by Blue Ridge.

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1 **I. REBUTTAL OF TESTIMONY OF CHARTER WITNESS MICHEAL**  
2 **MULLINS**

3 **Q. MR. MULLINS TESTIFIES AS TO CHARTER'S USE OF SPACE ON**  
4 **BLUE RIDGE'S POLES. WHAT IS YOUR GENERAL RESPONSE TO**  
5 **HIS TESTIMONY?**

6 A. Mr. Mullins' testimony highlights the ways in which Charter misunderstand the  
7 electrical supply space. Specifically, he testifies that:

8 Blue Ridge makes its attachments in the top portion of the pole.  
9 Charter is typically next, with its attachments framed either 40  
10 inches below the neutral or 30 inches below the transformer (for  
11 attachments made prior to 2008) or 72 inches below the neutral for  
12 attachments made since then.<sup>3</sup>

13 This raises a critical issue that I addressed in my direct testimony and that  
14 I will address again now: Blue Ridge's specifications, and the specifications and  
15 guidelines of the Rural Utilities Service ("RUS"), provide required minimum  
16 space on the pole for cooperatives' electrical facilities. These are publicly  
17 available at [http://www.rd.usda.gov/publications/regulations-](http://www.rd.usda.gov/publications/regulations-guidelines/bulletins/electric)  
18 [guidelines/bulletins/electric](http://www.rd.usda.gov/publications/regulations-guidelines/bulletins/electric). Furthermore, dating back to the mid-1940s these  
19 specifications have been publicly available. Mr. Mullins either does not know this  
20 or is ignoring it. Instead, he insists that Charter is entitled to attach anywhere on  
21 the pole so long as it measures a certain distance from Blue Ridge's existing  
22 facilities. Yet, in doing so, he is not leaving or respecting Blue Ridge's allocated  
23 electrical supply space.

24 Historical design drawings of the RUS have provided that a minimum of  
25 8.5 feet of a three-phase, straight-line pole, measured from the top of the pole and

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<sup>3</sup>Mullins Testimony, p. 11, lines 2-6.

1 including transformer and service space, be reserved for the electric utility as the  
2 electrical supply space. Because Blue Ridge's current standard pole is taller than  
3 poles installed decades ago, the electrical supply space on Blue Ridge's standard  
4 poles is now 9.5 feet. For angle poles and other poles taller than the standard  
5 pole, RUS design standards dictate that the supply space may be greater than 9.5  
6 feet.<sup>4</sup>

7 Blue Ridge, as an RUS cooperative, has utilized the standard power line  
8 construction drawings of RUS dating back to 1947 or earlier, which have been  
9 updated from time to time. These design drawings have always been publicly  
10 available, and, therefore, Blue Ridge is not arbitrarily creating design drawings  
11 and the associated electrical supply space but rather is relying on RUS drawings  
12 and standards which have applied to electric cooperatives for more than 75 years.

13 Again, Blue Ridge's reliance on RUS design drawings is not arbitrary, but  
14 rather is reasonable, given that they are a nationally used and published set of  
15 construction drawings to which Charter and the public has access to obtain. This  
16 uniquely sets Blue Ridge and other electric cooperatives apart from Charter, IOUs  
17 and ILECs, which have their own private construction drawings and practices,  
18 whereas those of Blue Ridge have always been publicly open and available.

19 The electrical supply space is intended solely, and exclusively, for the  
20 electric cooperative. If a communications service provider, such as Charter, does

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<sup>4</sup> For example, an "angle pole" often involves vertical construction with each conductor installed vertically over the other phase conductors, rather than horizontally, as on a straight-line pole. This creates a much greater supply space, often 13.5 feet or more.

1 not observe the RUS allocated supply space, and instead attaches its facilities  
2 based only on minimum setoffs from a cooperative's existing facilities, it does so  
3 at its own risk. If the electric cooperative requires the use of the electric supply  
4 space, the communications service provider must move its attachment promptly  
5 and at its own expense.

6 Further, to the extent that the electric cooperative must make use of the  
7 electrical supply space in the future, and in doing so installs facilities less than 40  
8 inches from the communications service provider's attachments that are installed  
9 within the electrical supply space, the electric cooperative has not caused a safety  
10 or NESC violation. Rather, the communications service provider's attachment in  
11 the electrical supply space has given rise to the violation and must be corrected by  
12 the communications service provider.

13 Mr. Mullins testifies that he has:

14 seen many situations where Charter had properly framed its  
15 attachment 40 inches below the neutral, as required by the parties'  
16 prior contracts, and Blue Ridge has subsequently installed a  
17 transformer within that space creating a safety violation.

18 . . . .

19 While Charter will work with Blue Ridge to resolve these  
20 situations, it is simply not accurate to say that Charter has  
21 "created" these violations.<sup>5</sup>  
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23 I disagree with Mr. Mullins. To the extent that Charter has attached its  
24 facilities in the electrical supply space and Blue Ridge must later make use of the  
25 electrical supply space, Charter—not Blue Ridge—is responsible for any spacing  
26 violation as it is attached within Blue Ridge's exclusive space. Mr. Mullins

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<sup>5</sup> Mullins Testimony, page 34, lines 2-9.

1 appears to argue that Charter has been on poles for “decades,” yet the Blue Ridge  
2 poles and facilities and intended use were not only in place first, but its system  
3 was started over 75 years ago (beginning in the 1930s), which is long before  
4 communications services such as those offered by Charter were even  
5 contemplated.

6 Blue Ridge’s contracts have specified that attachments must be made, on a  
7 going forward basis, 72 inches from the neutral. It is my observation and  
8 experience, through years of working with electric utilities on matters related to  
9 pole attachments, that the contractors used by the communications service  
10 providers, such as Charter, have no knowledge of NESC standards, RUS  
11 guidelines, or even contractual standards. Rather, they have proven they only  
12 know one thing—that they should attach the cable company lines 40 inches below  
13 the neutral, regardless of how the electrical supply space is defined on the pole to  
14 which the attachment is made. My discussion of the examples from the  
15 PowerServices survey below support this observation. In building its plant this  
16 way, the communications service provider takes away a significant portion of the  
17 pole from the electric utility. A contractual provision requiring 72 inches makes it  
18 more likely that the attachment is made outside of the electrical supply space than  
19 simply requiring a 40-inch separation

20 Thus, the primary issue is not whether there are 40 or 72 inches between  
21 attachments, rather it is that the poles were installed by Blue Ridge with the intent  
22 of providing service to its member/consumers long before Charter or any other  
23 cable company even existed. Finally, Mr. Mullins’ testimony highlights the

1 general concern I expressed above—instead of working to correct violations when  
2 they arise, Charter disputes its responsibility.

3 **Q. MR. MULLINS TESTIFIES AS TO CHARTER’S CONSTRUCTION AND**  
4 **MAINTENANCE PRACTICES. WHAT IS YOUR GENERAL RESPONSE**  
5 **TO HIS TESTIMONY?**

6 A. Mr. Mullins acknowledges that Charter does not conduct regular safety  
7 inspections of its attachments to Blue Ridge’s poles and, instead, “generally relies  
8 on the pole owners to conduct inspections of their aerial plant . . . and notify  
9 Charter when those inspections come across code issues related to Charter’s  
10 plant.”<sup>6</sup>

11 As I testified in my direct testimony, it is gravely concerning that Charter  
12 does not implement a formal safety inspection program with a defined periodic  
13 schedule, as clearly contemplated by Rule 214 of the NESC. Charter’s reliance  
14 on Blue Ridge to inspect its plant inappropriately burdens Blue Ridge with this  
15 obligation and attempts to shift risk and liability associated with safety code  
16 violations to Blue Ridge. This simply is not acceptable.

17 **Q. MR. MULLINS TESTIFIES THAT BLUE RIDGE INSTALLS**  
18 **STREETLIGHTS, FIBER OPTIC WIRES, AND OTHER EQUIPMENT TO**  
19 **GENERATE REVENUE IN THE "SAFETY SPACE." IS THIS**  
20 **ACCURATE?**

21 A. No, it is not. Blue Ridge has attached virtually all of its fiber optic wires in the  
22 electrical supply space, *not* the Communications Worker Safety Zone (“CWSZ”)  
23 or the “safety space” as Mullins refers to it. In fact, Blue Ridge uses all-dielectric  
24 self-supporting optical fiber cable (a much more expensive type of line that uses

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<sup>6</sup> Mullins Testimony, page 36, lines 10-13.

1 Kevlar instead of metal for strength) so it can attach its fiber in the electrical  
2 supply space. My assessment of the system indicates nearly all of the streetlights  
3 are, likewise, located in the electrical supply space, and *not* the CWSZ. The  
4 facilities Blue Ridge has located in the CWSZ are riser conduits, which complies  
5 with the NESC.

6 **Q. MR. MULLINS CLAIMS THAT PHOTOGRAPHS INCLUDED IN HIS**  
7 **TESTIMONY SHOW BLUE RIDGE FACILITIES LOCATED IN THE**  
8 **CWSZ. DO YOU AGREE WITH HIS ASSESSMENT?**

9 A. Absolutely not. Mr. Mullins fails to have a full understanding of the NESC and,  
10 therefore, has applied the wrong standards. In every case, the Blue Ridge  
11 facilities are within its supply space, as defined by the NESC and Blue Ridge's  
12 standards based on RUS guidelines. Charter's facilities are in the CWSZ and  
13 have encumbered Blue Ridge's electrical supply space. This is just one example  
14 of why the 72-inch minimum from the neutral is an essential contract term.

15 **Q. MR. MULLINS TESTIFIES THAT "SAFETY IS VERY IMPORTANT TO**  
16 **CHARTER AND TO ME." DO YOU FIND CHARTER'S ACTIONS**  
17 **REFLECT MULLINS' TESTIMONY?**

18 A. Absolutely not. Charter has no professional engineer on staff and fails to  
19 understand, or disregards, that the design of its facilities constitute the practice of  
20 engineering and require the oversight of a P.E. to provide for the health, safety,  
21 and welfare of the public. Additionally, Charter has no periodic inspection  
22 program, as required by Rule 214 of the NESC.

23 **Q. MR. MULLINS TESTIFIES THAT BECAUSE THE VAST MAJORITY OF**  
24 **CHARTER'S SYSTEM IN BLUE RIDGE'S SERVICE AREA WAS BUILT**  
25 **"DECADES AGO," THE SPACING VIOLATIONS MUST BE CREATED**  
26 **BY BLUE RIDGE. HOW DO YOU RESPOND TO THIS TESTIMONY?**

1 A. The Blue Ridge system has been in place for over 75 years. The obvious fact is  
2 that Blue Ridge installed its poles, and its electrical facilities, before Charter or  
3 any of its predecessors were ever there. Charter owns no poles. Mr. Mullins’  
4 assertion is unsupported and relies on the vague argument that Charter has been in  
5 existence for “more than 30 years” as a way of avoiding responsibility for  
6 clearance violations when Blue Ridge’s poles and facilities existed long before  
7 communications companies like Charter existed, much less attached.

8 **Q. MR. MULLINS DISCUSSES THE FACT BLUE RIDGE PLACES SOME**  
9 **OF ITS EQUIPMENT IN THE SUPPORT SPACE AND CLAIMS BLUE**  
10 **RIDGE HAS EXCESSIVE OR POORLY PLACED EQUIPMENT ON**  
11 **POLES. HOW DO YOU RESPOND?**

12 A. First, this testimony clearly indicates why Blue Ridge needs an agreement that is  
13 protective of the primary purpose of Blue Ridge’s system—to provide safe,  
14 reliable and affordable electric service to its members. Blue Ridge installed its  
15 poles to serve its electric member/consumers—beginning more than 75 years  
16 ago—when no one else would.

17 Notwithstanding this, the equipment on the pole shown in photographs 4  
18 and 5 was incorrectly identified by Mullins as BREMC equipment when, *in fact,*  
19 *all equipment is owned by a third party cellular company who is providing*  
20 *cellular and broadband service to the Town of Blowing Rock, North Carolina.*  
21 Moreover, it is my understanding that the pole is in a temporary configuration  
22 because of utility relocation associated with the NCDOT road construction on  
23 U.S. Highway 321 through Blowing Rock. Not only did BREMC remove all of  
24 its equipment from the pole, it installed anchors and down guys to support Charter  
25 and other pole attachment and joint users. These anchors were necessary to keep

1 the pole from falling over during the lengthy time frame leading up to Charter,  
2 and other pole attachers, vacating the pole so that BREMC can complete the pole  
3 removal work for NCDOT.

4 **Q. MR. MULLINS STATES THAT SOME OF THE VIOLATIONS NOTED**  
5 **IN THE POWERSERVICES SURVEY APPEAR TO BE A PRODUCT OF**  
6 **NATURAL EVENTS AND OTHERS APPEAR TO BE THE RESULT OF**  
7 **BLUE RIDGE'S ADDING A TRANSFORMER AFTER THE CABLE**  
8 **ATTACHMENT. HOW DO YOU RESPOND?**

9 A. First, hardly any are due to natural events, but even if they were, this  
10 demonstrates Charter does not inspect its system or keep its system maintained.

11 Second, Blue Ridge built its system to serve its electric  
12 member/consumers, which includes and requires transformers. Blue Ridge's  
13 facilities are located in the designated supply space below which, per the NESC,  
14 Charter must be a minimum of 40 inches. Charter is not in compliance. Mr.  
15 Mullins' testimony further demonstrates why Blue Ridge needs the agreement  
16 protections requested. Charter wants to dispute, and typically litigate, each of its  
17 violations by blaming the utility, including Blue Ridge, for having transformers  
18 the utility has placed in its own supply space on its own pole.

19 **Q. MULLINS TESTIFIES THAT YOU AND BLUE RIDGE PURPOSELY**  
20 **WITHHELD THE "IMMEDIATE HAZARDS" FOR MONTHS AS A**  
21 **"LITIGATION TACTIC" AND THAT THEY ARE NOT HAZARDS AT**  
22 **ALL. HOW DO YOU RESPOND?**

23 A. This accusation is both false and should be ignored by the Commission. More  
24 than 2,000 photographs of violations were accumulated in the field and completed  
25 at the end of August as part of the PowerServices survey process. These  
26 photographs had to be individually evaluated and categorized. A detailed



1 spreadsheet with individual pole numbers and GPS coordinates had to be created.  
2 All of this work was done over a 5-week period, after which I personally went  
3 through each photograph to evaluate the hazard, categorize it, and create the list  
4 of public hazards which should be immediately addressed. This list was then  
5 efficiently transmitted through the attorneys. Given the massive amount of data  
6 from the five (5) Blue Ridge circuits that had to be compiled, five (5) to six (6)  
7 weeks is a very appropriate timeframe and, until the information was assessed and  
8 catalogued, a direct assessment of each violation could not be created. The data  
9 were transmitted as soon as the review process was completed, and there was no  
10 withholding of information for any of the purposes suggested by Mr. Mullins.

11 **Q. MR. MULLINS DISPUTES SPECIFIC INSTANCES OF VIOLATIONS**  
12 **IDENTIFIED IN THE POWER SERVICES SURVEY. HOW DO YOU**  
13 **RESPOND TO EACH OF HIS CONTENTIONS?**

14 A. Mullins attempts to justify the Charter violations and encroachments into the Blue  
15 Ridge supply space by asserting that Charter's predecessors framed their  
16 attachments "decades ago" 40 inches below the neutral. This ignores the fact that  
17 Blue Ridge, in all cases, was there first and often 30 to 50 years prior to the so-  
18 called predecessor. Charter purchased the systems of its predecessors, but  
19 apparently never inspected what it purchased. With respect to his specific  
20 contentions, based on additional field inspection:

21 **Photograph 8:** The Blue Ridge transformer is located in the electrical  
22 supply space and was attached first since there is no way Blue Ridge  
23 would have or reasonably could have put its riser and electric cables where  
24 they are had Charter's attachment been there first. Moreover, Charter is

1 attached 30 inches below the transformer, even though this encroaches  
2 into Blue Ridge's allocated space. The fact that Charter's attachment is  
3 exactly 30 inches below the bottom of the transformer strongly suggests  
4 Charter attached after Blue Ridge and used the transformer as a reference  
5 point for its measurement. It is Charter that has incorrectly encroached  
6 into the electrical supply space.

7 **Photograph 9:** It is my understanding that Mullins incorrectly identified  
8 the pole in Photo 9 as Pole No. 16-08-038. Pole No. 16-08-038 is actually  
9 the pole number for the pole shown in Photograph 10. Without the  
10 location or additional information about this pole, BREMC could not  
11 verify any details about the pole or its location. Additionally, BREMC  
12 cannot verify that the pole is on its system from the photo and description  
13 that is presented in testimony by Mr. Mullins.

14 **Photograph 10:** This photograph depicts that Charter is attached 12  
15 inches above an AT&T communication cable. Charter is attached 27  
16 inches below the BREMC transformer, but just above the BREMC riser.  
17 The Charter attachment is consistent with other attachments that used the  
18 bottom of the transformer as a reference for measuring 30 inches below  
19 the transformer. However, in this instance, the location of the BREMC  
20 riser prevented attachment at 30 inches, and the Charter attachment was  
21 moved to just above the top of the BREMC riser. This resulted in a 27-  
22 inch separation. Thus, Charter attached to the pole after BREMC.

1           **Photograph 11:** Charter is attached exactly 30 inches from the bottom of  
2 BREMC transformers on the pole depicted in this picture, which strongly  
3 suggests that BREMC's transformer was installed first, since the  
4 transformer had to be there in order for Charter to use it as a reference  
5 point.

6           **Photograph 12:** The Charter attachment is on the opposite side of the  
7 pole from the viewpoint presented in Photograph 12. Attached below is a  
8 photo taken to show Charter's attachment to this same pole. Mullins  
9 argues that BREMC must have attached second, because Charter's  
10 through bolt, holding up its attachment, is installed behind the risers in this  
11 picture. *The risers, however, are not BREMC equipment.* The risers are  
12 actually customer-owned equipment. Moreover, Charter's attachment is  
13 exactly 30 inches below the BREMC transformer, which strongly suggests  
14 that the transformer was there first and Charter used it as a reference point  
15 for making its attachment.



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**Photograph 13:** On this pole, Charter is attached 27 inches below the BREMC transformers. Charter could not attach at 30 inches because of the BREMC riser that was already in place. Thus, the Charter attachment is just above the top of the BREMC riser. Charter attached after BREMC to use BREMC transformers as a point of reference for attachment spacing measurements.

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**Photograph 14:** Mr. Mullins claims that he somehow knows Charter's attachments in this picture were attached first because Charter has been in this area for "more than thirty years."<sup>7</sup> However, according to Blue Ridge's records and staking personnel, this pole, which is located in Blowing Rock, was part of a project in 1998 in which Blue Ridge and Charter both transferred their lines to new poles. The pole itself has a

<sup>7</sup> Mullins Testimony, p. 54, line 5.

wood-burned date mark indicating it was manufactured in 1998, as shown in the picture below:



Moreover, while it is not visible from the picture Mr. Mullins included in his testimony, Charter has used a “set-off” bracket to pull its line to the pole, as shown in these pictures:



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This strongly suggests that Charter transferred its attachments to this pole from an existing pole line, and used the stand-off bracket because it did not have sufficient slack in the line to pull it all the way to the new pole. The fact that this pole was part of a transfer project makes it extremely unlikely that Charter actually attached to this pole before Blue Ridge's electric facilities were installed.

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Furthermore, Mr. Mullins' comments, and particularly his use of the 8.5 feet from the top of the pole, show his lack of understanding of electric utility construction. This is a three-phase vertical line construction, with each phase over top of one another. It is not the straight-line



1 horizontal crossarm construction for which 8.5 feet applies. The supply  
2 space on this pole is 13.5 feet, and Charter is well inside of that area.  
3 Additionally, Charter is located only 12 inches from BREMC secondary  
4 conductors.

5 **Q. HOW DO YOU RESPOND TO MR. MULLINS' THAT YOUR**  
6 **ASSESSMENT OF FIVE CIRCUITS FOR SAFETY IS A "LITIGATION**  
7 **TACTIC"?**

8 A. This type of argument, which is a common refrain from Charter whenever its  
9 safety violations are at issue, shows a clear disregard and lack of concern for the  
10 safety, health, and welfare of the public and Charter's employees working on Blue  
11 Ridge poles. Charter is not taking the thousands of identified NESC violations  
12 seriously and, apparently, hopes to avoid any contract terms and conditions that  
13 would require it to address them, by arguing about whether they are used as part  
14 of "litigation tactic." Whether they were identified as part of Blue Ridge's  
15 investigation into this proceeding or not, they are still safety violations, and they  
16 need to be addressed. This is precisely why Blue Ridge needs a clear, enforceable  
17 agreement which protects Blue Ridge, its electric system, its member/consumers,  
18 and does not allow Charter to pose a risk to system safety and reliability.

19 **Q. MR. MULLINS DESCRIBES SAFETY SPACE AND INDICATES THAT**  
20 **IT PROTECTS BOTH THE COMMUNICATION WORKERS AND THE**  
21 **COOPERATIVE WORKERS. IS THIS ACCURATE?**

22 A. Absolutely not. First, Mr. Mullins is apparently unfamiliar with all the details of  
23 the NESC, particularly Rules 235C and 238E. Rule 235C not only addresses the  
24 separation between communication facilities and electric facilities, but also  
25 between different electric utility facilities. Therefore, Mr. Mullins has

1 misrepresented the definition of safety space. In addition, the communication  
2 worker safety zone is *only* required if communication workers elect to use only  
3 communication workers rules and equipment. The code is quite clear, as are all  
4 treatises, regarding that if all the parties were using electric utility work rules in  
5 compliance with the NESC, the communication worker safety zone between the  
6 communication facilities and electric utility facilities would not be required. This  
7 makes it quite clear the communication workers safety zone is exclusively for the  
8 communication workers. It is my understanding that Blue Ridge's electric  
9 workers employ the electric utility work rules for all facilities on its poles, and,  
10 therefore, the communication worker safety zone between the communication  
11 facilities and electric utility facilities would not be required. Relevant excerpts  
12 from the NESC and guidance on this issue are attached hereto as Exhibit GLB-  
13 1R.

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1 **II. REBUTTAL OF TESTIMONY OF CHARTER WITNESSES NESTOR**  
2 **MARTIN AND MICHAEL MULLINS ON CONTRACT TERMS AND**  
3 **CONDITIONS**

4 **Q. MR. MULLINS ASSERTS THAT CHARTER IS WILLING TO ACCEPT**  
5 **“INDUSTRY-STANDARD TERMS” AND THAT MANY OF THE TERMS**  
6 **AND CONDITIONS REQUIRED BY BLUE RIDGE ARE “BURDENSOME**  
7 **OR UNWORKABLE.” MR. MARTIN PROPOSES CONTRACT TERMS**  
8 **AND CONDITIONS HE DEEMS TO BE “REASONABLE AND**  
9 **INDUSTRY-STANDARD.” HOW DO YOU RESPOND TO MULLINS’**  
10 **ASSERTIONS AND TO MARTIN’S PROPOSALS?**

11 A. Section IV of Mr. Martin’s testimony sets forth Charter’s proposals for certain  
12 contract terms and conditions. I will address each of Charter’s proposals set forth  
13 in Martin’s testimony separately, responding as I go to the assertions made by  
14 Mullins regarding Blue Ridge’s positions.

15 **Direct Charges for Pole Attachments.** Mr. Martin testifies that Charter  
16 is willing to pay for the “reasonable, verifiable and actual costs incurred by Blue  
17 Ridge for work directly (and solely) related to Charter’s attachments.”<sup>8</sup> Martin  
18 proposes contract language to this effect, which specifies that Charter “shall be  
19 responsible for the direct, verifiable costs [Blue Ridge] incurs to accommodate  
20 Charter’s attachments”<sup>9</sup> Additionally, the contract provision specifies that the  
21 “make ready fee” shall not include costs to include safety violations that Charter  
22 did not cause. While, on its face, it is reasonable that Charter should not pay for a  
23 violation it did not cause, I am concerned, based on experience, that Charter will  
24 dispute any and every violation, as it has done with the examples that Blue Ridge  
25 has provided in this proceeding. Additionally, I am concerned that Charter’s  
26 position regarding its attachments made in the electrical supply space, will result

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<sup>8</sup> Martin Testimony, p. 11, lines 14-16.

<sup>9</sup> Martin Testimony, p. 14, lines 8-9.

1 in Charter's denying responsibility for any make ready work that must occur to  
2 remove its facilities from the electrical supply space and relocated them. Thus,  
3 Charter's proposal will force Blue Ridge to spend time and resources in dispute  
4 resolution or simply paying to resolve the issue to avoid the fight. For this reason,  
5 it is critical that the Commission find that to the extent that Charter has attached a  
6 facility in the electrical supply space that Charter, not Blue Ridge, is responsible  
7 for all costs associated with removing it. Furthermore, this supply space is not  
8 disputable, given the RUS design drawings that have existed back as far as 1947,  
9 decades before any cable company existed.

10 **Certifications Related to New Attachments.** Charter agrees that a  
11 requirement that it certify that its new attachments are made in compliance with  
12 applicable safety standards. However, Charter proposes that an "authorized  
13 representative"—not a professional engineer (P.E.)—give this certification.<sup>10</sup>  
14 Mullins asserts that the requirement that a PE certify installations is "burdensome  
15 and unworkable" without real explanation.<sup>11</sup> Martin defends Charter's proposal on  
16 the basis that 68 of its and its affiliates TWC's 90 agreements with pole owners in  
17 North Carolina include no post-installation certification.<sup>12</sup> Martin also notes that,  
18 to his knowledge, Charter has never been asked to provide a certification.<sup>13</sup>  
19 Regardless of any contractual obligations that Charter may or may not have with  
20 respect to other pole owners, Blue Ridge required the post-installation  
21 certification of a P.E. in the 2003 Agreement and [BEGIN CONFIDENTIAL] ■

<sup>10</sup> Martin Testimony, p. 15, lines 7-20.

<sup>11</sup> Mullins Testimony, p. 15, line 24 through p. 16, line 3.

<sup>12</sup> Martin Testimony, p. 15, lines 22-24.

<sup>13</sup> Martin Testimony, p. 16, line 1.

1 [REDACTED]<sup>14</sup> [END CONFIDENTIAL] In addition, whether Blue  
2 Ridge ever requested a certification from Charter in the past is immaterial for the  
3 following reasons. The 2015/2016 audit conducted by Blue Ridge reveals that  
4 Charter routinely attaches to Blue Ridge's poles without prior notice to Blue  
5 Ridge. Thus, it could be that Blue Ridge did not know to request certification as  
6 it did not know that Charter was making attachments. Additionally, as testified  
7 by Blue Ridge witness Lee Layton, going forward, Blue Ridge intends to adhere  
8 strictly to a formal permitting process to ensure the safety and reliability of its  
9 electric system. Therefore, past practice should not dictate practice going forward,  
10 particularly one as critical to the safe and reliable operation of Blue Ridge's  
11 system as this one.

12 Finally, I am of the opinion that Charter's design of attachments  
13 constitutes the "practice of engineering" within the meaning of North Carolina  
14 statutory law and must be performed under the responsible charge of a  
15 professional engineer.<sup>15</sup> In reaching this opinion, I have relied on the consultation  
16 and guidance provided by counsel to the North Carolina Board of Examiners for  
17 Engineers and Land Surveyors that an activity falls within the definition of  
18 engineering and requires a professional engineer if it requires engineering  
19 knowledge to adequately protect the public. I was advised that loading  
20 calculations required by Sections 25 and 26 of the NESC to determine whether a  
21 pole can accommodate the attachment or overlashing appear to require

<sup>14</sup> See 2003 Agreement, Exhibit B-8, attached as Exhibit LL-4 to the Direct Testimony of Lee Layton; [REDACTED]

<sup>15</sup> N.C. Gen. Stat. §89C-3(6).

1 engineering knowledge. The guidance I received from counsel to the NCBELS is  
2 attached as Exhibit GLB-2R.

3 For these reasons, the Commission should determine that the post-  
4 installation certification of a P.E.—and not simply an authorized representative—  
5 is a reasonable contract term.

6 **Overlashing.** With respect to overlashing, Charter objects to the  
7 requirement to submit a permit when overlashing and, instead, proposes to email  
8 Blue Ridge in advance of overlashing.<sup>16</sup> Mr. Mullins testifies that if Charter were  
9 required to follow the permitting process for overlashing, the process “would  
10 significantly delay and inhibit [Charter’s] ability to sign up and serve new  
11 customers particularly new commercial customers.”<sup>17</sup> In addition, instead of  
12 performing its own engineering calculations to ensure compliance with the NESC  
13 and applicable safety standards, Charter proposes to “pay Blue Ridge’s actual  
14 costs of any loading analysis it actually performs, including work that Blue Ridge  
15 deems necessary from one of its professional engineers.”<sup>18</sup> Charter’s proposal is  
16 not acceptable. As I explained in my direct testimony, overlashing is a method  
17 Charter uses to add aerial facilities by running new cable over an existing cable  
18 and then lashing the cables together, in effect using the existing cable as a way to  
19 support and string the new cable. Overlashing affects wind and ice loads on poles  
20 and adds structural load to Blue Ridge’s poles. In addition, overlashing  
21 necessarily involves work by Charter (or its contractors) on Blue Ridge’s system.

---

<sup>16</sup> Martin Testimony, p. 18, lines 1-6.

<sup>17</sup> Mullins Testimony, p. 14, lines 16-19.

<sup>18</sup> Martin Testimony, p. 18, lines 9-11.

1 Accordingly, Charter should be required to apply for and obtain a permit from  
2 Blue Ridge before overlashing to ensure that Blue Ridge has notice of Charter's  
3 overlashed facilities and opportunity to review the design and construction of the  
4 overlashed facilities.

5 With respect to Mullins' assertion that a permitting process for  
6 overlashing would impede Charter's ability to provide service to customers  
7 quickly, I maintain that Charter's indiscriminate overlashing – without notice to  
8 Blue Ridge and without the oversight of a P.E. – poses a serious threat to the  
9 reliability of Blue Ridge's system and its ability to provide electric service to  
10 those same customers.

11 With respect to Martin's assertion that overlashing without submitting a  
12 permit but by submitting prior notice, such as through email, has been acceptable  
13 to Jones-Onslow EMC and Union EMC,<sup>19</sup> my understanding is that these EMCs  
14 absolutely expect a separate design calculation and permit for overlashed  
15 facilities, as outlined in their recent filings made to this Commission. These  
16 cooperatives were appalled to learn TWC had no professional engineer on staff,  
17 and that TWC performed no calculations of additional loading for overlashing.

18 Martin testifies that I suggested that the NESC requires permitting prior to  
19 overlashing.<sup>20</sup> This is *not* what I testified. I testified that Charter was required by  
20 the NESC to calculate the loading impact of overlashing, including ice and wind  
21 loading. Absent performing this engineering analysis and providing it to Blue  
22 Ridge, it cannot be determined whether the overlashing causes the loads on the

---

<sup>19</sup> Martin Testimony, p. 18, lines 3-5.

<sup>20</sup> Martin Testimony, p. 21, lines 15-17.

1 pole to exceed the capabilities of the poles. Charter would have the Commission  
2 believe that overloading does not have any impact. This is categorically not true.  
3 Charter, overloads indiscriminately and when wind and ice loading are applied to  
4 the larger surface areas, much larger than the Blue Ridge primary conductors,  
5 they add significant additional strain to the poles. Charter does not employ any  
6 P.E.s and does not have the capability to perform these calculations, therefore, I  
7 do not understand how Mullins and Martin can begin to testify regarding the  
8 impact of overloading to Blue Ridge's facilities.

9 As is the case with design and installation of an attachment, Charter  
10 should be required to provide professional engineering certification of any  
11 overloading. NESC Sections 25 and 26 absolutely mandate that Charter conduct  
12 loading calculations for overloading and, as discussed above, this requires  
13 engineering knowledge.

14 Furthermore, Charter was required to obtain a permit for overloaded  
15 facilities under the 2003 [BEGIN CONFIDENTIAL] [REDACTED]  
16 [END CONFIDENTIAL]. And, as evidenced by the results of the 2015/2016  
17 audit conducted by Blue Ridge, Charter does not have a good track record of  
18 notifying Blue Ridge in advance of making attachments, which makes its proposal  
19 all the more suspect.

20 Finally, Charter's proposal highlights, again, Charter's preference to shift  
21 burden to Blue Ridge and, in effect, use Blue Ridge as a contractor, by proposing  
22 that Blue Ridge perform the design and engineering of its system.

1           **Unauthorized Attachments.** Charter proposes a contract provision that  
2           would assess a fee for unauthorized attachments equal to five times the current  
3           annual attachment fee and no other fee.<sup>21</sup> As I understand Charter's proposal,  
4           Blue Ridge may charge Charter a fee in the amount of five times the current  
5           annual attachment fee for unauthorized attachments, presumably those discovered  
6           through regular audits. However, this amounts to nothing more than a rental  
7           payment – that which was owed but had not been paid by Charter because Blue  
8           Ridge was unaware that the attachment existed. Blue Ridge's position is that the  
9           fee structure included in the 2003 [BEGIN CONFIDENTIAL] [REDACTED]  
10          [REDACTED], [END CONFIDENTIAL] which authorize the charging of a  
11          “discovery” fee for each unauthorized attachment as well as “daily” fee for each  
12          day the attachment persists without Charter's applying for a permit “after the fact”  
13          within a time certain is a better approach, as it should serve as a deterrent to  
14          Charter's making unauthorized attachments – as long as it is enforced.<sup>22</sup> As the  
15          2015/2016 audit conducted by Blue Ridge revealed 1,373 unauthorized  
16          attachments made by Charter, the contract must include a strong deterrent to  
17          prevent this type of behavior going forward.

18           **Non-Compliant Attachments.** With respect to non-compliant  
19          attachments, Charter proposes a contract term that obligates Blue Ridge to  
20          provide written notice to Charter and that provides Charter with the opportunity to  
21          “contest the notice of non-compliance in writing” or correct the non-compliance.

---

<sup>21</sup> Martin Testimony, p. 23, lines 6-10.

<sup>22</sup> 2003 Agreement, Art 10; [BEGIN CONFIDENTIAL] [REDACTED] [END  
CONFIDENTIAL]

1 Charter's proposal allows Blue Ridge to revoke the permit for the attachment if  
2 Charter fails to correct the non-compliance in "a reasonable timeframe" and  
3 specifies that Charter shall not be responsible for the cost of correcting non-  
4 compliant attachments that were "placed by or otherwise created by [Blue Ridge]  
5 . . . after Charter's facilities were attached."<sup>23</sup>

6 Charter's proposal invites disputes and litigation. Allowing Charter to  
7 correct the non-compliance in a "reasonable timeframe" is not sufficient. Charter  
8 must be obligated to correct the non-compliance within a time certain, particularly  
9 those instances that pose a risk to public safety and welfare or the safe and  
10 reliable operation of Blue Ridge's system. Moreover, I am concerned that  
11 Charter's proposal allows it to deny responsibility for the cost to correct the non-  
12 compliance of those attachments made in the electrical supply space, as I have  
13 previously discussed. The 2003 [BEGIN CONFIDENTIAL] [REDACTED]  
14 [REDACTED] [END CONFIDENTIAL] include a non-compliant attachment  
15 provision to which Charter has previously agreed and that sets forth a defined  
16 process and timeframes for corrective action that are reasonable and protective of  
17 the public welfare and Blue Ridge's system.<sup>24</sup>

18 Further, the 2015/2016 audit and the PowerServices survey demonstrate  
19 that Charter has a systemic NESC violation problem and lack of regard for the  
20 safety and reliability of the Blue Ridge system. Without some form of liquidated  
21 damages associated with non-compliant attachments—such as the right to deem

---

<sup>23</sup> Martin Testimony, p. 25, lines 1-14.

<sup>24</sup> 2003 Agreement, Art 11; [BEGIN CONFIDENTIAL] [REDACTED] [END  
CONFIDENTIAL]



1 the attachment to be “unauthorized” and subject to the unauthorized attachment  
2 fee—it is very unlikely that Charter will change its practices, thus leaving the  
3 liability to Blue Ridge.

4 With respect to Mr. Martin’s assertion that I suggested that all of Charter’s  
5 attachments should comply with the latest version of the NESC, in this  
6 proceeding and in every proceeding in which I have been involved, I have  
7 testified consistently that the utilities and attachers must comply with the NESC  
8 edition applicable at the time of the installation or rebuild for design and  
9 construction practices. The employee work rules and operation practices must  
10 comply with the latest edition of the NESC, just as they must comply with the  
11 latest OSHA standards.

12 **Recovery of Space.** Charter appears to agree with Blue Ridge that the  
13 recovery of space provision included in the 2008 agreement is reasonable.<sup>25</sup>  
14 However, Mr. Martin testifies that the agreements between Charter and Blue  
15 Ridge do not define—in terms of measured space on the pole—the electrical  
16 supply space. He testifies as follows:

17 [I]t is incumbent on Blue Ridge to tell us that it needs more space,  
18 and ask us to rearrange our attachments, vacate the pole or pay for  
19 a taller pole to accommodate the change, rather than dropping a  
20 transformer too close to our cable and creating a dangerous  
21 condition.<sup>26</sup>  
22  
23

---

<sup>25</sup> Martin Testimony, p. 28, lines 2-8; 2003 Agreement, Art 14; 2008 Agreement, Art. 14.

<sup>26</sup> Martin Testimony, p. 28, lines 19-22.

1           Martin also testified in his deposition on behalf of Charter  
2           Communications Properties, LLC that if Blue Ridge needs to install facilities in  
3           the electrical supply space and a new, taller pole is necessary to accommodate  
4           Charter's facilities and Blue Ridge's facilities, it is not Charter's responsibility to  
5           pay for the new pole if Charter's facilities had been attached to the old pole.<sup>27</sup>  
6           Rather, Martin testified that if Charter is already on the pole, then all attachers to  
7           the pole—including Blue Ridge—must pay for the new pole.<sup>28</sup> In short, Martin  
8           asserted that if Charter is on the pole first, and Blue Ridge later needs the space to  
9           install electric facilities, Blue Ridge is responsible for at least some of the cost of  
10          rearranging the facilities, which may include the installation of a new pole, even  
11          though such rearrangement would not be necessary but for Charter's presence on  
12          the pole.

13           Martin's testimony demonstrates that Charter does not acknowledge an  
14          electrical supply space that is the exclusive domain of the electric cooperative. As  
15          I have testified, RUS design drawings have demonstrated for many decades that  
16          the electrical supply space is 8.5 feet from top of pole. It would be disingenuous  
17          for Martin to take the position that he or Charter is unaware of this industry  
18          standard. In fact, Charter witness Mullins testifies that "Blue Ridge uses as much  
19          as 8.5 feet of space (or more) at the top of the pole for its facilities."<sup>29</sup> To the  
20          extent that Blue Ridge allowed or did not prevent Charter (or Charter, without  
21          prior notice to Blue Ridge) to locate its attachments in the electrical supply space,

---

<sup>27</sup> 30(b)(6) Deposition of Nestor Martin, N.C.U.C. Docket No. EC-23, Sub 50, October 4, 2017 ("Martin Deposition"), page 31, lines 4-22.

<sup>28</sup> Martin Deposition, page 31, lines 23-25 through page 32, lines 1-3.

<sup>29</sup> Mullins Testimony, page 2, lines 21-22.

1 Charter proceeded at risk that it might have to relocate if and when Blue Ridge  
2 needed the space.

3 However, Charter has proposed a contract provision, which it has  
4 identified as “Reservation of Space” that requires Charter to relocate its facilities,  
5 vacate the pole, or pay for a taller pole, when Blue Ridge requires space on the  
6 pole for the provision of electric service. To the extent Charter intends this  
7 provision to apply both to recovery of space and reservation of space instances  
8 and simply misidentified its proposed language—and to the extent that Charter’s  
9 language obligates it to be responsible for all costs of rearranging facilities or  
10 replacing poles, then Charter’s proposal appears to be reasonable, notwithstanding  
11 Martin’s testimony quoted above, which appears to be inconsistent with Charter’s  
12 proposed contract language.

13 **Reservation of Space.** Charter does not oppose a contract provision  
14 addressing Blue Ridge’s reservation of space, however, Charter opposes the  
15 requirement that all attachments made after the date of the agreement must have  
16 at least 72 inches vertical clearance under Blue Ridge’s grounded neutral. Charter  
17 asserts that such a provision will require Charter to pay to install taller poles even  
18 when there is no expectation that the additional space on the pole will be  
19 necessary for Blue Ridge. Charter proposes contract language that would obligate  
20 Charter to install its attachments at least 40 inches below the grounded neutral but  
21 that specifies that 72 inches of clearance is preferred. Charter’s proposal is  
22 insufficient to protect Blue Ridge’s rights and denies Blue Ridge the right to  
23 reserve space on its poles, which is allocated to it as electric supply space under

1 applicable standards and the rate formulas proposed by the parties, for its future  
2 use.

3  
4 **Transfer and Relocation of Facilities.** Martin acknowledges that there  
5 have been instances where Charter has failed to transfer its facilities in a timely  
6 manner when requested to do so by Blue Ridge.<sup>30</sup> Charter proposes a contract  
7 provision that is “consistent with the 2008 agreement” and requires Charter to  
8 transfer its facilities at its own expense within 60 days from receiving notice. As  
9 Charter’s proposal is generally consistent with the 2008 agreement, it appears to  
10 be reasonable. However, in the interest of clarity, Blue Ridge requests that the  
11 Commission direct the parties to adopt the transfer provisions from the 2008  
12 agreement.<sup>31</sup>

13 **Indemnification.** Charter has insisted that any indemnification  
14 requirement must be “reciprocal.”<sup>32</sup> However, Charter—not Blue Ridge—should  
15 bear all risks associated with Charter’s attachments. This includes an obligation  
16 that Charter defend and indemnify Blue Ridge for all existing attachments Charter  
17 has made to Blue Ridge’s system that violate the NESC, the terms of the parties’  
18 agreements, or any other applicable design and safety standards. This is especially  
19 important given the widespread safety violations Blue Ridge has discovered  
20 among Charter’s existing attachments, including attachments made outside of the  
21 space allocated to Charter.

---

<sup>30</sup> Martin Testimony, page 32, lines 6-11.

<sup>31</sup> 2008 Agreement, Art. 9.

<sup>32</sup> Martin Testimony, page 33, lines 13-29.

1           Moreover, I have seen and testified in numerous cases, including a TWC  
2 case, in which the electric utility was included in litigation relating to the cable  
3 attacher's facilities only because the cable company's attachments were made to  
4 the electric utilities poles. This situation caused the electric utility, Wake EMC,  
5 to incur significant litigation expenses even in spite of the fact that the jury found  
6 that the cable company – and not Wake EMC – was liable for the plaintiffs'  
7 damages. Charter's proposed language will not change this risk, liability, and  
8 eventual cost to the utility. Blue Ridge should be protected if Charter desires to  
9 place its facilities on Blue Ridge poles, particularly since Charter wants to pass on  
10 the engineering of its system to Blue Ridge.

11           **Default Remedies.** Charter proposes default remedies that include,  
12 among others, the right to authorize additional attachments until defaults are  
13 cured. Ultimately, Blue Ridge must have the right to deny Charter authorization  
14 to make additional attachments while Charter is in default under the agreement in  
15 order to deter defaults and encourage Charter to move quickly to cure. Charter  
16 proposes a 30-day cure period for all defaults, which is generally acceptable  
17 except when the default involves risk to public safety and welfare or Charter's  
18 payment obligations. Martin testifies that Charter's proposal "is consistent with  
19 the 2008 agreement" but the 2003 and [BEGIN CONFIDENTIAL] [REDACTED]

20 [REDACTED]  
21 o [REDACTED].<sup>33</sup> [END CONFIDENTIAL] Thus, since the

<sup>33</sup> 2003 Agreement, Art. 23; [REDACTED].

1 2008 provision is acceptable to Charter, Blue Ridge requests that the Commission  
2 direct the parties to adopt the default provisions from the 2008 agreement.

3 **Disputed Invoices.** Mr. Martin testifies that it is not reasonable for Blue  
4 Ridge to require Charter to pay disputed invoices in full pending resolution and  
5 appears to assert that Section 62-350 of the General Statutes appears to address  
6 the issue by requiring a party that seeks “to bring a dispute to the Commission pay  
7 only ‘undisputed fees’ . . . .”<sup>34</sup> In order to deter Charter from disputing amounts  
8 indisputably owed to Blue Ridge and from working less than efficiently to resolve  
9 disputes, Charter should be required to pay invoices in full, pending resolution.  
10 Although I am not an attorney, Martin’s assertion that the statute resolves this  
11 issue does not appear to be correct, as the statute simply provides that when a  
12 communications service provider seeks to initiate a proceeding before the  
13 Commission related to the negotiation of a pole attachment agreement it must first  
14 pay all undisputed amount owed to the cooperative or municipality under the  
15 preexisting agreement.

16 **Insurance.** Charter opposes Blue Ridge’s position that it be required to  
17 provide the same insurance coverage as that required of Blue Ridge by the RUS,  
18 which is Blue Ridge’s lender.<sup>35</sup> Blue Ridge stands by its position on this issue.

19 **Confidentiality.** Charter opposes a confidentiality provision, claiming  
20 that Blue Ridge seeks to use the confidentiality provision to cloak “the highest  
21 pole rates[,]” “stringent requirements[,]” and obligations that Charter interprets as

---

<sup>34</sup> Martin Testimony, p. 35, lines 13-23.

<sup>35</sup> Martin Testimony, p. 36, lines 2-10.

1 “red tape.”<sup>36</sup> Further, Mr. Mullins suggests that Blue Ridge’s requirement of a  
2 confidentiality provision is to enable discriminatory treatment against Charter.<sup>37</sup>  
3 While Charter’s perspective on a confidentiality provision is telling, it certainly is  
4 not Blue Ridge’s intention to hide behind a confidentiality provision. In fact, it  
5 was Blue Ridge, not Charter, that petition the Commission for help in resolving  
6 the terms and conditions, as well as the rate methodology, that will be included in  
7 the new contract. As I explained in my direct testimony, while North Carolina  
8 law grants Charter the right to access Blue Ridge’s poles, the agreement that  
9 governs this access will necessarily be the result of give and take between the  
10 parties. For this reason, Blue Ridge should be allowed to require that the terms  
11 and conditions of a new agreement will be confidential.

---

<sup>36</sup> Martin Testimony, p. 36, lines 19-22.

<sup>37</sup> Mullins Testimony, p. 23, lines 8-23.

1           **III.    SPECIFIC RELIEF REQUESTED FROM THE COMMISSION**

2   **Q.    ULTIMATELY, WHAT RELIEF ARE YOU REQUESTING THE**  
3   **COMMISSION PROVIDE TO BLUE RIDGE?**

4   A.    Although Blue Ridge has, in the past, attempted to work cooperatively and  
5           informally with Charter, as evidenced by the results of the 2015/2016 audit and in  
6           light of Charter's construction and maintenance practices and assertions regarding  
7           its right to space on the poles, this approach is no longer appropriate. In the  
8           interest of protecting its members' investments in its electrical system and of  
9           providing safe, reliable and affordable electric service, Blue Ridge is asking the  
10          Commission to resolve the disputed contract terms and conditions consistent with  
11          the recommendations set forth in my testimony. Ultimately, Charter has a right to  
12          access the poles owned by Blue Ridge (subject to certain limitations) and Blue  
13          Ridge will work to honor that right. But Blue Ridge will not do so in a way that  
14          threatens Blue Ridge's ability to provide safe, reliable and affordable electric  
15          service or that forces Blue Ridge to choose between constantly engaging in  
16          disputes with Charter over its attachments to Blue Ridge's poles or assuming the  
17          burdens (and risks) of designing and maintaining Charter's system of attachments  
18          to its poles.

19   **Q.    DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

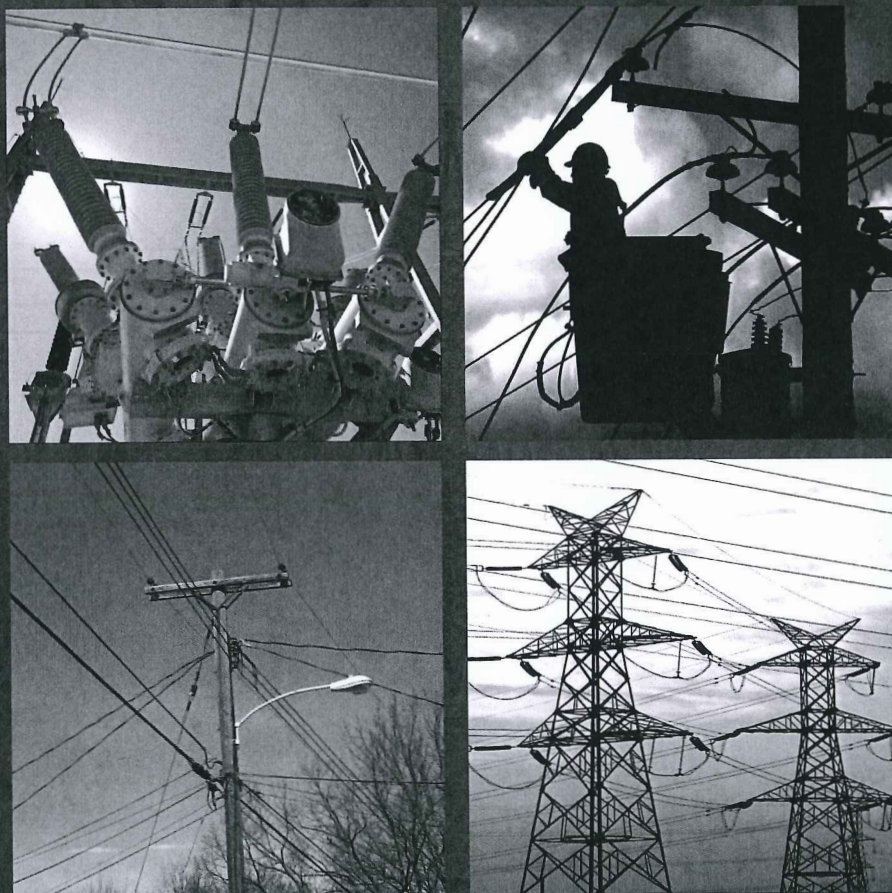
20   A.    Yes, it does.  
21  
22



EXHIBIT GLB-1R

# 2017 National Electrical Safety Code<sup>®</sup> (NESC<sup>®</sup>)

## C2-2017



**100**<sup>TH</sup> ANNIVERSARY EDITION



3 Park Avenue, New York, NY 10016-5997, USA



Accredited  
Standards  
Committee  
C2-2017

# National Electrical Safety Code®

Secretariat  
Institute of Electrical and Electronics Engineers, Inc.

Approved 26 April 2016  
American National Standards Institute

2017 Edition

**Abstract:** This Code covers basic provisions for safeguarding of persons from hazards arising from the installation, operation, or maintenance of (1) conductors and equipment in electric supply stations, and (2) overhead and underground electric supply and communication lines. It also includes work rules for the construction, maintenance, and operation of electric supply and communication lines and equipment. The Code is applicable to the systems and equipment operated by utilities, or similar systems and equipment, of an industrial establishment or complex under the control of qualified persons. This Code consists of the introduction, definitions, grounding rules, list of referenced and bibliographic documents, and Parts 1, 2, 3, and 4 of the 2017 Edition of the National Electrical Safety Code.

**Keywords:** communications industry safety; construction of communication lines; construction of electric supply lines; electrical safety; electric supply stations; electric utility stations; high-voltage safety; operation of communications systems; operation of electric supply systems; power station equipment; power station safety; public utility safety; safety work rules; underground communication line safety; underground electric line safety

The Institute of Electrical and Electronics Engineers, Inc.  
3 Park Avenue, New York, NY 10016-5997, USA

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Printed in the United States of America

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ISBN 978-1-5044-1993-2

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**climbing.** The vertical movement (ascending and descending) and horizontal movement to access or depart the worksite.

**common use.** Simultaneous use by two or more utilities of the same kind.

**communication equipment.** Equipment that produces, modifies, regulates, or controls communication signals. This equipment may also produce, modify, or safeguard a supply of electric energy for the exclusive use of communication devices as long as the equipment and communication devices being served are owned and operated by the same party. *See:* **electric supply equipment.**

**communication lines.** *See:* **lines.**

**communication space.** The space on joint-use structures where communication facilities are separated from the supply space by the communication worker safety zone. *See* Figure D-1.

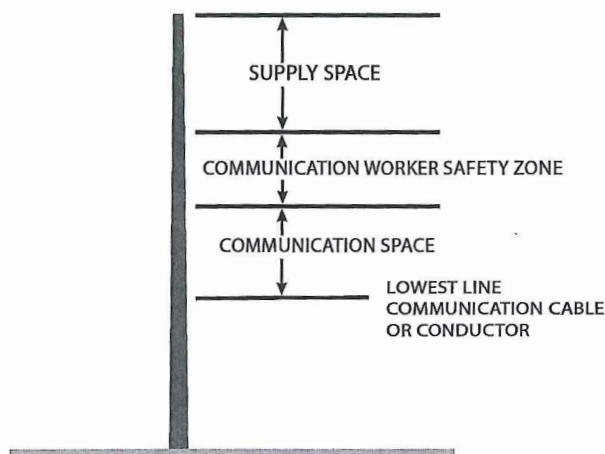


Figure D-1—Communication space

**conductor.**

1. A material, usually in the form of a wire, cable, or bus bar, suitable for carrying an electric current.
2. **bare conductor.** A metallic conductor without a covering.
3. **bundled conductor.** An assembly of two or more conductors used as a single conductor and employing spacers to maintain a predetermined configuration. The individual conductors of this assembly are called *subconductors*.
4. **covered conductor.** A conductor covered with a dielectric having no rated insulating strength or having a rated insulating strength less than the voltage of the circuit in which the conductor is used.
5. **fiber-optic conductor.** *See:* **fiber-optic cable—communication** or **fiber-optic cable—supply.**
6. **grounded conductor.** A conductor that is intentionally grounded, either solidly or through a noninterrupting current-limiting device.
7. **grounding conductor.** A conductor that is used to connect the equipment or the wiring system with a grounding electrode or electrodes.
8. **insulated conductor.** A conductor covered with a dielectric (other than air) having a rated insulating strength equal to or greater than the voltage of the circuit in which it is used.
9. **lateral conductor.** A wire or cable entirely supported on one structure and extending in a general horizontal, vertical, or diagonal direction to make connections to line conductors, service drops, equipment, or other facilities supported on the same structure. Lateral conductors may be attached directly to the structure or supported away from the structure.

**structure conflict.** A line so situated with respect to a second line that the overturning of the first line will result in contact between its supporting structures or conductors and the conductors of the second line, assuming that no conductors are broken in either line.

**substation.** *See:* electric supply station.

**supervised installation.** Where conditions of maintenance and supervision ensure that only qualified persons monitor and service the system.

**supply equipment.** *See:* electric supply equipment.

**supply space.** The space on joint-use structures where supply facilities are separated from the communication space by the communication worker safety zone. *See* Figure D-5.

*NOTE:* Communication facilities may be located in the supply space (see Rule 224A).

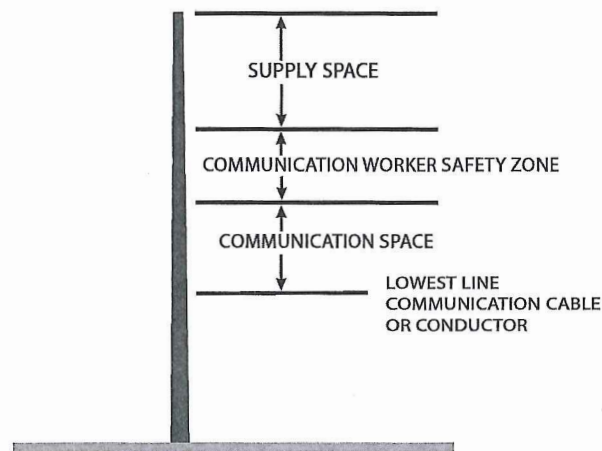


Figure D-5—Supply space

**supply station.** *See:* electric supply station.

**supported facility.** Any component of an overhead line system that is supported on, but is not intended to provide structural strength to, the supporting structure or mechanical support system.

*NOTE:* Examples of supported facilities include, but are not limited to, components such as messengers, conductors, line hardware, equipment hanger brackets, and switches.

**supporting structure.** The main supporting unit (usually a pole or tower) used to support supply and/or communication conductors, cables, and equipment.

*NOTE:* A supporting structure may consist of a single or multiple pole arrangement that supports supply and/or communication conductors, cables, and equipment at a line location.

1. **readily climbable.** A supporting structure having sufficient handholds or footholds so that the structure can be climbed easily by an average person without using a ladder, tools or devices, or extraordinary physical effort.
2. **not readily climbable.** A supporting structure not meeting the definition of a readily climbable structure, including but not limited to the following:



- (3) For span lengths in excess of 45 m (150 ft), vertical clearance at the structure between open supply conductors and communication cables or conductors shall be adjusted so that under conditions of conductor temperature of 15 °C (60 °F), no wind displacement and final sag, no open supply conductor of over 750 V but less than 50 kV shall be lower in the span than a straight line joining the points of support of the highest communication cable or conductor.

*EXCEPTION:* Effectively grounded supply conductors associated with systems of 50 kV or less need meet only the provisions of Rule 235C2b(1).

3. Alternate clearances for different circuits where one or both exceed 98 kV ac, or 139 kV dc to ground

The clearances specified in Rules 235C1 and 235C2 may be reduced for circuits with known switching-surge factors, but shall not be less than the crossing clearances required by Rule 233C3.

#### 4. Communication worker safety zone

The clearances specified in Rules 235C and 238 create a *communication worker safety zone* between the facilities located in the supply space and facilities located in the communication space, both at the structure and in the span between structures. Except as allowed by Rules 238C, 238D, and 239, no supply or communication facility shall be located in the communication worker safety zone.

- D. Diagonal clearance between line wires, conductors, and cables located at different levels on the same supporting structure

No wire, conductor, or cable may be closer to any other wire, conductor, or cable than defined by the dashed line in Table 235-1, where V and H are determined in accordance with other parts of Rule 235.

- E. Clearances in any direction at or near a support from line conductors to supports, and to vertical or lateral conductors, service drops, and span or guy wires, attached to the same support

##### 1. Fixed supports

Clearances shall be not less than those given in Table 235-6.

*EXCEPTION:* For voltages exceeding 98 kV ac to ground or 139 kV dc to ground, clearances less than those required by Table 235-6 are permitted for systems with known switching-surge factor. (See Rule 235E3.)

*NOTE 1:* For clearances in any direction from supply line conductors to communication antennas in the supply space attached to the same supporting structure, see Rule 235I.

*NOTE 2:* For antennas in the communication space, see Rule 236D1 and Rule 238.

##### 2. Suspension insulators

Where suspension insulators are used and are not restrained from movement, the clearance shall be increased so that the string of insulators may swing transversely throughout a range of insulator swing up to its maximum design swing angle without reducing the values given in Rule 235E1. The maximum design swing angle shall be based on a 290 Pa (6 lb/ft<sup>2</sup>) wind on the conductor at final sag at 15 °C (60 °F). This may be reduced to a 190 Pa (4 lb/ft<sup>2</sup>) wind in areas sheltered by buildings, terrain, or other obstacles. Trees are not considered to shelter a line. The displacement of the wires, conductors, and cables shall include deflection of flexible structures and fittings, where such deflection would reduce the clearance.

##### 3. Alternate clearances for voltages exceeding 98 kV ac to ground or 139 kV dc to ground

The clearances specified in Rules 235E1 and 235E2 may be reduced for circuits with known switching-surge factors but shall not be less than the following:

- a. Alternate clearances to anchor guys, surge-protection wires, and vertical or lateral conductors

The alternate clearances shall be not less than the crossing clearances required by Rule 233B3 and Rules 233C3a and 233C3b for the conductor voltages concerned. For the

**E. Communication worker safety zone**

The clearances specified in Rules 235C and 238 create a communication worker safety zone between the facilities located in the supply space and facilities located in the communication space, both at the structure and in the span between structures. Except as allowed by Rules 238C, 238D, and 239, no supply or communication facility shall be located in the communication worker safety zone.

**Table 238-1—Vertical clearance between supply conductors and communications equipment, between communication conductors and supply equipment, and between supply and communications equipment**

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section, both initially and following subsequent breaker operations. See the definitions section for voltages of other systems. See also Rule 238B.)

Supply voltage (kV)	Vertical clearance	
	(m)	(in)
1. Grounded conductor and messenger hardware and supports	0.75	30
2. 0 to 8.7	1.00 <sup>①</sup>	40 <sup>①</sup>
3. Over 8.7	1.00 plus 0.01 per kV <sup>①</sup> in excess of 8.7 kV	40 plus 0.4 per kV <sup>①</sup> in excess of 8.7 kV

①Where non-current-carrying parts of supply equipment are effectively grounded and the associated neutral meeting Rule 230E1 or supply cables meeting Rule 230C1 (including the support brackets) are bonded to communication messengers at intervals meeting Rule 092C through out well-defined areas and where communication is at lower levels, clearances may be reduced to 0.75 m (30 in).

**Table 238-2—Vertical clearance of span wires and brackets from communication lines and equipment**

(See also Rule 238C.)

	Carrying luminaires, traffic signals, or trolley conductors			
	Not effectively grounded		Effectively grounded	
	(mm)	(in)	(mm)	(in)
Above communication support arms	1000	40	500	20 <sup>①</sup>
Below communication support arms	1000	40	600	24
Above messengers carrying communication cables	1000	40	100	4
Below messengers carrying communication cables	1000	40	100	4
From terminal box of communication cable	1000	40	100	4
From communication brackets, bridle wire rings, or drive hooks	1000	40	100	4

①This may be reduced to 300 mm (12 in) for either span wires or metal parts of brackets at points 1.0 m (40 in) or more from the structure surface.



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# NESC<sup>®</sup> Handbook

## Seventh Edition

A Discussion of the National Electrical Safety Code<sup>®</sup>

Allen L. Clapp



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## Library of Congress Cataloging-in-Publication Data

Clapp, Allen L.  
National electrical safety code handbook / Allen L. Clapp, editor. — 7th ed.  
p. cm.  
Includes bibliographical references and index.  
ISBN 978-0-7381-6286-7  
1. Electric engineering—Safety measures—Standards—United States.  
I. Clapp, Allen L.  
TK152.N345 2011  
621.319'250218--dc23 2011018555

## IEEE

3 Park Avenue, New York, NY 10016-5997, USA

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235. Clearance for Wires, Conductors, or Cables Carried on the Same Supporting Structure

On joint-use structures, a *communication worker safety zone* of 1 m (40 in) between communication and supply conductors of up to (1) 8700 V to ground for effectively grounded circuits or (2) 8700 V between conductors for other circuits is generally considered an appropriate value. The *communication worker safety zone* terminology has been in long use and was codified in the 2002 Edition. The communication worker safety zone is only needed if the communication utility chooses to use communication work rules and equipment. Experience has shown that, with span lengths of 45 m (150 ft) or less, such as are commonly found in urban joint-use construction, a 1 m (40 in) clearance at the structure will generally minimize the possibility of accidental contacts between the usual types of supply conductors and communication cables in the spans, even when the supply conductors are loaded with ice. This clearance is also generally sufficient to limit contact in situations where ice may fall or be jarred off communication cables in the lower position while the supply conductors are still under load. Such clearance also provides a clear working space between the two types of facilities so that (1) line workers working on supply wires at about waist level will have clear leg room below such wires and (2) communications workers will be provided with clear headroom while working on their facilities. Increased clearances are required with increased voltage.

Experience indicates that adequate clearance at the supports is a fundamental requirement for safety where joint-use construction is employed. While the rules provide for a minimum clearance of 1 m (40 in), greater clearances are required where spans exceed 45 m (150 ft) in length and for higher voltages. For application of Rule 235C2a, the calculation of voltage is intended to require the two circuits to be considered as being 180° out of phase, as in all similar calculations in the Code.

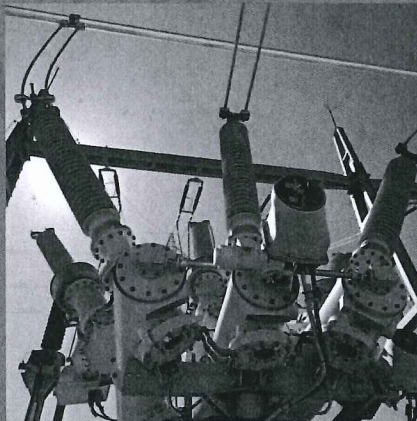
Where direct-current feeder circuits of voltages in excess of 750 V to ground are installed above communication conductors, particular attention should be given to the sags. Because of their size and



# 2017 NESC<sup>®</sup> Handbook

## Premier Edition

A presentation of contributor commentary on the 2017 NESC, including a representation of the Code





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*PDF: ISBN 978-1-5044-1996-3 STD20927  
Print: ISBN 978-1-5044-1997-0 STDPT20927*

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On joint-use structures, a *communication worker safety zone* of 1 m (40 in.) between communication and supply conductors of up to (1) 8700 V to ground for effectively grounded circuits or (2) 8700 V between conductors for other circuits is generally considered an appropriate value. The *communication worker safety zone* terminology has been in long use and was codified in the 2002 Code. The communication worker safety zone is only needed if the communication utility chooses to use communication work rules and equipment (see Rule 224A). Experience has shown that, with span lengths of 45 m (150 ft) or less, such as are commonly found in urban joint-use construction, a 1 m (40 in.) clearance at the structure will generally minimize the possibility of accidental contacts between the usual types of supply conductors and communication cables in the spans, even when the supply conductors are loaded with ice. This clearance is also generally sufficient to limit contact in situations where ice may fall or be jarred off communication cables in the lower position while the supply conductors are still under load. Such clearance also provides a clear working space between the two types of facilities so that (1) line workers working on supply wires at about waist level will have clear leg room below such wires and (2) communications workers will be provided with clear headroom while working on their facilities. Increased clearances are required with increased voltage.

Experience indicates that adequate clearance at the supports is a fundamental requirement for safety where joint-use construction is employed. While the rules provide for a minimum clearance of 1 m (40 in.), greater clearances are required where spans exceed 45 m (150 ft) in length and for higher voltages. For application of Rule 235C2a, the calculation of voltage is intended to require the two circuits to be considered as being 180° out of phase, as in all similar calculations in the Code.

Where direct-current feeder circuits of voltages in excess of 750 V to ground are installed above communication conductors, particular attention should be given to the sags. Because of their size and weight, it is somewhat difficult to deadend them under some conditions and they are often given large sags. Consequently, the vertical clearance between these trolley feeders and communication conductors at the supports should be increased over what is usually provided for supply conductors of equal voltage.

*EXCEPTION 2* of Rule 235C1 was added in the 1968 Code solely to encourage the use of common crossing poles for communication service drops crossing under supply lines. *EXCEPTION 2* applies only where a communication drop from one line crosses under an effectively grounded supply neutral of another line and is attached to the structure of the other line. It was intended to recognize that many existing supply lines built solely for supply facilities would not have sufficient height to allow both the normal supply/communication clearances and the required ground clearances at the same time. It was concluded that, because multi-grounded neutrals do not ordinarily represent a safety hazard, and because relatively few operations on such service drops would be required by communications workers, the greater safety of a joint-crossing pole justified the reduced clearance allowed in this special instance. *EXCEPTION 2* does not apply to joint-use or colinear construction. *EXCEPTION 3* was added in the 1981 Code.

*EXCEPTION 3* of Rule 235C1 was added in the 1981 Code to reflect appropriate standard practice.

The 1981 Code modified Rule 235C3 to show that it applied when one or both of the circuits exceeds 98 kV to ground.

Table 235-5 was extensively revised in the 1987 Code. Phase-to-ground voltage values are normally used in the column and row headings to enter the table. However, where a calculation is required within the table, Rule 235A3 applies and the greater of phasor difference voltage or phase-to-ground voltage is used. This recognizes that the worst case for conductors of similar voltage and phase relationships may be when one line is turned off and grounded for maintenance.

The vertical clearances of Table 235-5 are from the horizontal plane of the lowest surface of the upper conductor at its attachment point. This is a "square box" concept; vertical clearances are intended to be exactly that; they are not diagonal clearances (see Rule 235D).

A new *EXCEPTION* under Rule 235C2b(1)(a) was added in the 1987 Code that allows neutrals meeting Rule 230E1 to be attached with a clearance from communication of 750 mm (30 in.) at the structure if it maintains a clearance from communication of 300 mm (12 in.) or more at all points in the span. This change was coordinated with Rule 238. The requirement that the neutral be bonded with the communication messenger was added in the 1990 Code.

The 2002 Code added *EXCEPTION 2* to Rule 235C2b(1)(a) to allow different utilities to use the clearances for the same utility, if they both agreed to do so. The 2012 Code moved both *EXCEPTIONS* to the end of the rule and applied them to both Rule 235C2b(1)(a) and Rule 235C2b(1)(b).

EXHIBIT GLB-2R



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Mr. Gregory L. Booth, PE  
PowerServices, Inc.  
1616 E. Millbrook Road, Suite 210  
Raleigh, NC 27609

Re: Request for Guidance, "Practice of Engineering"  
N.C. Gen. Stat. § 89C-3(6)

Dear Mr. Booth:

In response to your letter, dated October 31, 2017, I am providing information consistent with previous interpretations of the Board within the engineering committee and disciplinary review committees of the Board and by briefly discussing with two engineering members of the Board. While none of us can speak for the Board, this will give an insight into any possible ultimate determination by the Board. The questions that you asked about threshold determinations for when a Professional Engineer (PE) is required, as you related it to the activities under a communications contractor's scope of work in attaching cables, wires and associated facilities and equipment onto the poles of the electric utility company, must be interpreted under the licensing statute G.S. 89C-3(6) for the definition of engineering.

The range of activities that you describe falls within the definition of engineering and requires a PE. The threshold boils down to whether it requires engineering knowledge to adequately protect the public. One indicator is the calculation of loads. Please understand that the engineering committee of the Board can be requested to review and make a recommendation to the full Board for a definitive answer. Specifically, "overlashing," or physically tying additional wires or cables to those that are already attached to a utility pole thereby accommodating additional strands of fiber or coaxial cable on existing pole attachments and potentially increasing loads from deadweight and ice, snow and wind would require engineering analysis and/or calculations to assure public protection from failure and requires a PE. As you noted, overlashing increases the weight and surface area of the attachment, impacting the ice and wind loading calculations required by the National Electrical Safety Code (NESC).



Mr. Gregory L. Booth, PE  
November 2, 2017  
Page 2

While there is no specific threshold, if the work requires engineering knowledge (education, training or experience) to properly perform and protect the public then a PE is required. When additional loads are added to the existing systems, it will in most cases require a PE. The Board in applying G.S. 89C looks for a reasonable interpretation that will protect the public. This does not impact maintenance, repair and renovation work where loads are not increased and there are no other factors that impact the performance.

We will be glad to address any specific examples that you may encounter that you wish to submit to the Engineering Committee if you need further clarification. Let me know if I can be of additional help, by contacting me at [dstuttle@ncbels.org](mailto:dstuttle@ncbels.org) or (919) 791- 2000 ext. 111.

Sincerely,

A handwritten signature in black ink, appearing to read "D. S. Tuttle", with a long horizontal flourish extending to the right.

David S. Tuttle  
Board Counsel

DST/

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Nov 06 2017