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October 16, 2017

J. L. Jarvis
Chief Clerk
North Carolina Utilities Commission
430 N. Salisbury Street
Raleigh, NC 27603 – 5918

**Re: PUBLIC Direct Testimony and Exhibits of Gregory L. Booth, NCUC Docket No.
EC-23, Sub 50**

Dear Ms. Jarvis:

Enclosed herewith, for filing on behalf of Blue Ridge Electric Membership Corporation, please find the PUBLIC Direct Testimony and Exhibits of Gregory L. Booth. Should you have any questions or comments, please do not hesitate to call me. Thank you in advance for your assistance and cooperation.

Regards,

/s Charlotte Mitchell

4815-1013-4589, v. 1

OFFICIAL COPY

Oct 16 2017

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. EC-23, SUB 50

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of:

BLUE RIDGE ELECTRIC MEMBERSHIP
CORPORATION,

Petitioner,

v.

CHARTER COMMUNICATIONS
PROPERTIES, LLC,

Respondent.

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

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Exhibits

Exhibit GLB-1	Gregory L. Booth Curriculum Vitae
Exhibit GLB-2	National Electrical Safety Code, 2017 Edition-Referenced Rules and Sections
Exhibit GLB-3	Charter Cable Violations of the NESC, and Practices Which Damage and Add Operations Cost to Cooperative Facilities – Representative Photographs
Exhibit GLB-4A	Map of Charter Violations from 2015/2016 Blue Ridge Inventory
Exhibit GLB-4B	Map of Charter Violations from PowerServices' Review
Exhibit GLB-5	PowerServices Five Circuit Survey; Summary of All Charter Violations Identified in Field August 2017
Exhibit GLB-6	North Carolina General Statutes, Chapter 89C-Engineering and Land Surveying
Exhibit GLB-7	Corporate Deposition of Nestor Martin on Behalf of Charter Communications Properties LLC, dated October 4, 2017 (Page Nos. 72, 74, 75, 76, 77)
Exhibit GLB-8	Corporate Deposition of Michael Mullins on Behalf of Charter Communications Properties, LLC, dated October 4, 2017 (Page Nos. 22, 23, 24, 25, 26, 30, 33, 40, 41)

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

I. IDENTIFICATION AND QUALIFICATIONS OF GREGORY L. BOOTH

Q. PLEASE STATE YOUR NAME AND THE BUSINESS ADDRESS OF YOUR EMPLOYER AND YOUR POSITION.

A. My name is Gregory L. Booth. I am President of PowerServices, Inc. ("PowerServices"), UtilityEngineering, Inc. ("UtilityEngineering"), and Gregory L. Booth, PLLC ("Booth, PLLC") all located at 1616 E. Millbrook Road, Suite 210, Raleigh, North Carolina 27609. As such, I am responsible for the direction, supervision, and preparation of engineering projects and management services for our clients, including the corporate involvement in engineering, planning, design, construction management, and participation as an expert witness.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS MATTER?

A. I am testifying on behalf of Blue Ridge Electric Membership Corporation ("Blue Ridge") headquartered in Lenoir, North Carolina.

Q. PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND.

A. I graduated from North Carolina State University in Raleigh, North Carolina in 1969 with a Bachelor of Science Degree in Electrical Engineering. I am a registered professional engineer ("P.E.") in twenty-three states, as well as the District of Columbia. I am also a registered land surveyor in North Carolina. I additionally hold a record with the National Council of Examiners for Engineering and Surveying.

Q. HAVE YOU ATTACHED TO YOUR TESTIMONY A COPY OF YOUR CURRICULUM VITAE?

1 A. Yes. My curriculum vitae is attached as Exhibit GLB-1 to this testimony and
2 includes: (1) educational background; (2) special educational recognition; (3) the
3 professional societies in which I am a member; (4) publications and courses
4 taught; and (5) an overview of my professional experience since beginning work
5 in 1963.

6 **Q. PLEASE BRIEFLY DESCRIBE YOUR EXPERIENCE WITH ELECTRIC**
7 **UTILITIES.**

8 A. I have worked in the area of electric utility and telecommunications engineering
9 and management services since 1963. My work has involved all aspects of
10 engineering, design, construction, construction management and inspection of
11 utility plant including generation, transmission, substations, distribution overhead
12 and underground systems, consumer service facilities and telecommunication
13 system plant (telephone, cable, fiber, broadband, antenna systems and cellular).

14 My experience specifically related to joint use of electric utility plant by
15 communications companies began in 1963 and has spanned my entire career of
16 more than 50 years. This has included but is not limited to: staking of joint use
17 distribution pole lines for electric and communication companies; designing
18 distribution and communication facilities; inspecting new and existing
19 construction and managing construction projects for electric and communications
20 facilities including highway relocation projects; assisting in the preparation of
21 numerous joint use and pole attachment agreements between electric utilities and
22 communication companies; preparing joint use construction standards; preparing
23 make ready designs for joint use facilities; performing work order and
24 construction inspections identifying NESC violations and other construction

1 discrepancies on joint use pole lines; inspecting in excess of a million miles of
2 pole line in my career, including for joint use communication company
3 deficiencies and NESC violations; testifying as an expert in property damage and
4 personal injury cases involving electric and communication facilities;
5 investigating and preparing reports and testifying at regulatory commissions on
6 joint use of pole lines, accidents, and the standard of care for electric and
7 communication utilities; and designing a wide variety of communications
8 facilities and structures, including cellular equipment, microwave, fiber,
9 telephone, cable, and interconnection into electric utility substations and
10 operations systems, such as SCADA systems. Additionally, I have been actively
11 involved in utility grid modernization projects that impact communications and
12 joint use issues and have participated as an expert witness in regulatory
13 proceedings in this context, as well.

14 **Q. DO YOU HAVE OTHER INVOLVEMENT AND EXPERIENCE WITH**
15 **COMPANIES THAT PROVIDE YOU WITH ADDITIONAL EXPERTISE**
16 **RELEVANT TO THIS DOCKET?**

17 **A.** Yes. My electric utility reliability assessment work at the Rhode Island Public
18 Utilities Commission for the Division of Public Utilities and Carriers
19 (“Division”); the New Jersey Board of Public Utilities (“NJBPU”); the
20 Pennsylvania Public Utility Commission (“PPUC”); the Massachusetts
21 Department of Public Utilities (“MDPU”), the North Carolina Utilities
22 Commission (“Commission”), and the Virginia State Corporation Commission
23 (“VSCC”) over the last ten years has involved working on an in-depth assessment
24 of reliability enhancement, and the costs associated with such enhancement,
25 including annual construction work plan development for electric utility systems

1 and the impacts of various communication companies use of electric utility
2 facilities, most particularly poles. This includes evaluation, impact and testimony
3 associated with storms, outage restoration and cost recovery.

4 **Q. HAVE YOU PREVIOUSLY TESTIFIED AS AN EXPERT BEFORE**
5 **STATE UTILITY COMMISSIONS AND OTHER REGULATORY**
6 **AGENCIES?**

7 A. Yes. I have testified on numerous occasions before the Federal Energy
8 Regulatory Commission ("FERC"), including wholesale rate, electric utility
9 reliability, and facility connection standards matters, including Duke Power
10 Company and Dominion Power dockets. I have also testified before the NJBPU,
11 the Delaware Public Service Commission, the Maryland Public Service
12 Commission, Minnesota Department of Public Service Environmental Quality
13 Board, VSCC, the PPUC, Rhode Island Public Utilities Commission,
14 Massachusetts Department of Public Utilities, Maine Public Utilities Commission
15 and the North Carolina Utilities Commission, including, most recently, in the
16 proceedings on-going in Docket Nos. EC-43, Sub 88; EC-49, Sub 55; EC55, Sub
17 70; and ED-39, Sub 44 concerning contractual issues in dispute between four
18 North Carolina Electric Membership Corporations and Time Warner Cable.

19 **Q. HAVE YOU BEEN ACCEPTED AS AN EXPERT BEFORE STATE OR**
20 **FEDERAL COURTS?**

21 A. Yes. I have been accepted as an expert in the area of electrical engineering and
22 electric utility engineering, construction and reliability matters and the NESC,
23 NEC, OSHA, the standard of care for electric and communications utilities, and
24 forensic engineering, including standard and customary utility operation practices

1 in the electric and communications utility industry and the electric industry before
2 18 state and federal courts.

3 **Q. HAVE YOU BEEN ACCEPTED AS AN EXPERT BEFORE**
4 **REGULATORY COMMISSIONS ON MATTERS OF JOINT USE AND**
5 **JOINT OWNERSHIP AGREEMENTS?**

6 A. Yes. I testified before the VSCC in Case No. PUE-2013-00055 and in Case No.
7 PUE-2011-00033. I have also testified before the North Carolina Utilities
8 Commission in Docket Nos. EC-43, Sub 88; EC-49, Sub 55; EC55, Sub 70; and
9 ED-39, Sub 44. I have additionally testified before the Rhode Island Public
10 Utilities Commission on behalf of the Rhode Island Division of Public Utilities
11 and Carriers concerning Joint Ownership Agreements and the party
12 responsibilities on multiple occasions; and have testified on multiple occasions
13 before the Massachusetts Department of Public Utilities on behalf of the Attorney
14 General's Office, including on matters regarding pole attaching entities
15 responsibilities and agreements.

1 **II. PURPOSE AND OVERVIEW OF DIRECT TESTIMONY**

2 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

3 A. The purpose of my testimony is: (i) to provide a brief overview of the basics of
4 communications attachments to electric utility poles; (ii) to provide evidence on
5 the burdens and costs to Blue Ridge that would not be incurred but for
6 attachments made by Charter Communications Properties LLC (“Charter”) to
7 Blue Ridge’s poles; and (iii) to provide the Commission with the contractual
8 provisions that are necessary to protect Blue Ridge from the impacts that would
9 not be incurred but for Charter’s attachments to Blue Ridge’s poles.

10 **Q. PLEASE PROVIDE A BRIEF SUMMARY OF THE COSTS THAT BLUE**
11 **RIDGE WOULD NOT OCCUR BUT FOR CHARTER’S ATTACHMENTS**
12 **TO BLUE RIDGE’S POLES.**

13 A. These “but for” costs generally fall into two categories: (i) code and safety
14 violations that require correction; and (ii) Charter’s standard and customary
15 practices that encumber Blue Ridge’s plant and that inappropriately transfer
16 Charter’s duties and obligations onto Blue Ridge, as well as burdens and costs to
17 Blue Ridge, which Blue Ridge incurs even if Charter’s attachments are made in a
18 proper and workmanlike manner. With respect to the first category, the most
19 recent inspection of Charter’s attachments to Blue Ridge’s poles, conducted by
20 Blue Ridge in 2015 and 2016, revealed thousands of safety violations (3,767)
21 discovered among Charter’s attachments, which indicates a failure on Charter’s
22 part to inspect its attachments or supervise the work of its contractors who make
23 the attachments. With respect to the second category, Charter employs no
24 professional engineers to approve or review the design, construction, or

1 maintenance, of its attachments and has no safety inspection program for its
2 attachments to the poles as contemplated by the NESC.¹ Additionally, Charter
3 customarily installs its cables and facilities within the space on the pole allocated
4 to Blue Ridge, thus encumbering pole space intended for use to serve electric
5 consumers. Also with respect to this second category, even if Charter attached its
6 facilities in a proper, workmanlike manner, Blue Ridge incurs the following costs
7 associated with Charter's attachments:

8 (i) administrative oversight, including for example, processing permits and
9 applications and related tracking and paperwork;

10 (ii) time and resources spent addressing issues in the field, including for
11 example, "make ready" design or construction for new attachments, field
12 inspections of attachments, delays caused when Charter fails to transfer its
13 attachments in a timely manner;

14 (iii) handling of emergency calls received related to downed lines or other
15 issues that are ultimately related to Charter's facilities, not Blue Ridge's,
16 attachments;

17 (iv) costs and expenses required to audit and inspect Charter's
18 attachments;

19 (v) impediments to vegetation management and climbing of the poles
20 caused by Charter's attachments; and

21 (vi) costs and expenses associated with liability resulting from Charter's
22 attachments to Blue Ridge's poles.

¹ Nestor Martin Deposition Testimony (attached hereto as Exhibit GLB-7), Page Nos. 74-77.

1 **Q. PROVIDE A BRIEF SUMMARY OF THE NECESSARY CONTRACT**
2 **PROVISIONS, IN LIGHT OF THESE “BUT FOR” COSTS.**

3 A. In light of the “but for” costs discussed above, a pole attachment agreement
4 should include the following provisions to protect Blue Ridge from adverse
5 impacts caused by Charter. Although I discuss each provision in detail in Section
6 IV of my testimony, these provisions can be summarized as follows:

7 **1. Indemnity.** Charter—not Blue Ridge—should bear all risks associated
8 with Charter’s attachments to Blue Ridge’s poles. Charter should therefore
9 be required to defend and indemnify Blue Ridge for all existing
10 attachments Charter has made to Blue Ridge’s system that violate the
11 NESC, the terms and conditions of the pole attachment agreement, or any
12 other applicable design and/or safety standard. Such a contract provision
13 is critically important given the widespread safety violations Blue Ridge
14 has discovered among Charter’s existing attachments.

15 **2. Certification of Pole Attachment.** In order to ensure safety and Blue
16 Ridge’s ability to provide adequate and reliable service to its members,
17 Charter should be required to provide the certification of a professional
18 engineer of each and every attachment made to Blue Ridge’s poles,
19 including any overloading. Both prudent electric utility practice and North
20 Carolina law dictate that Charter provide such certification to demonstrate
21 compliance with all applicable standards, including the NESC.

22 **3. Non-Compliant Attachments.** In the event that a Charter attachment
23 fails to comply with applicable standards, including the NESC, Charter

1 should be required to remedy, at its own expense, such non-compliance
2 within a time certain. In the interest of safety and reliability, if Charter
3 fails to implement timely corrective action, Blue Ridge should be
4 authorized to revoke the permit and apply liquidated damages provisions
5 associated with unauthorized attachment. Should Charter not be so
6 obligated and Blue Ridge not be so authorized, the risk of non-compliance
7 will be borne almost entirely by Blue Ridge.

8 **4. Overlashing.** “Overlashing” is a method Charter uses to add aerial
9 facilities by running new cable over an existing cable and then lashing the
10 cables together, in effect using the existing cable as a way to support and
11 string the new cable. Overlashing affects wind and ice loads on poles and
12 adds structural load to Blue Ridge’s poles. In addition, overlashing
13 necessarily involves work by Charter (or its contractors) on Blue Ridge’s
14 system. Accordingly, any pole attachment agreement should require
15 Charter to apply for and obtain a permit from Blue Ridge before
16 overlashing to ensure that Blue Ridge has notice of Charter’s overlashed
17 facilities and opportunity to review and approve the design and
18 construction of the overlashed facilities. In addition, as is the case with an
19 attachment, Charter should be required to provide professional
20 engineering certification of any attachment, including overlashing.

21 **5. Unauthorized Attachment Fee and Safety Violation Fee.** Charter’s
22 practices of making attachments without providing notice to Blue Ridge
23 (and without a permit), including overlashing, and causing safety

1 violations imposes significant risk on Blue Ridge. Fees and liquidated
2 damages provisions serve as a deterrent to unauthorized attachments and
3 safety violations. Charter should be required to pay fines or liquidated
4 damages, in addition to back rent, for unauthorized attachments and
5 should be required to pay fines or liquidated damages for safety violations
6 in order to deter such conduct.

7 **6. Maintenance and Transfers.** The costs associated with a pole
8 replacement necessitated by Charter's attachments should be borne by
9 Charter.

10 **7. Timely Transfers.** When it is necessary for Charter to transfer an
11 existing attachment to another pole, Charter should bear the cost
12 associated with such transfer. Additionally, in order to ensure that Blue
13 Ridge can continue to deliver safe and reliable power to its members,
14 Charter should be obligated to complete transfers within a time certain in
15 order to minimize interference with or disruption to Blue Ridge's
16 provision of electric service.

17 **8. Permit Application and Fee.** To protect Blue Ridge and its members
18 from the risks imposed by Charter's attachments to its poles, Charter
19 should be required to notify Blue Ridge and submit a permit application
20 for each and every pole to which Charter seeks to attach. In addition, in
21 order for Blue Ridge to recover costs associated with processing the
22 application (including all technical and administrative work), Charter

1 should be required to pay a permit application fee for each permit
2 application.

3 **9. Disputed Invoices.** Disputes related to invoices from Blue Ridge may
4 arise from time to time during the term of the new agreement. In order to
5 deter Charter from disputing amounts indisputably owed to Blue Ridge
6 and from working less than efficiently to resolve disputes, Charter should
7 be required to pay all invoices, including those that are subject to dispute,
8 pending resolution.

9 **10. Insurance.** The Rural Utilities Service ("RUS") has provided loans to
10 Blue Ridge to finance the construction of its infrastructure, including
11 poles, and these financing arrangements obligate Blue Ridge to provide
12 certain insurance coverage. Therefore, since the RUS has financed the
13 infrastructure to which Charter seeks to attach and obligates Blue Ridge to
14 provide certain insurance coverage, Charter should be required to provide
15 the coverage required by RUS, as well.

16 **11. Rights and Obligations in the Event of Default.** A new agreement
17 should give Blue Ridge the right to withhold permits for new attachments
18 in the event that Charter defaults under the agreement. Such a provision is
19 necessary to deter Charter from refusing to cure a default and help ensure
20 that Charter will not allow existing violations to persist on Blue Ridge's
21 system.

1 **12. Right to Withhold Consent.** The parties agree that it would be
2 reasonable for Blue Ridge to withhold any consent required by the new
3 agreement (including, specifically, the granting of new permits) in the
4 event that Charter is in default under the agreement or is more than thirty
5 (30) days past due in any amounts owed to Blue Ridge. However, Charter
6 would deny Blue Ridge the right to withhold consent in the context of
7 granting access to new/additional poles, which effectively abrogates any
8 incentive for Charter to cure a default by depriving BREMC of what
9 should be a standard interim contractual remedy.

10 **13. Confidentiality.** While North Carolina law grants Charter the right to
11 access Blue Ridge's poles, the agreement that governs this access will
12 involve market sensitive information and is necessarily the result of
13 compromise and negotiation between the parties. For this reason, Blue
14 Ridge should be allowed to require that the terms and conditions of a new
15 agreement will be confidential.

16 **14. Recovery of Space.** If at any time Blue Ridge requires space on its pole
17 that is occupied by Charter's attachments, Charter should be required to
18 rearrange or remove its attachments, at Charter's expense, within a time
19 certain to allow Blue Ridge to use the space. Therefore, any pole
20 attachment agreement should include a provision obligating Charter to
21 remove or rearrange its facilities, at Charter's expense, in the event Blue
22 Ridge seeks to add additional electrical facilities and there is insufficient
23 space on the pole due to Charter's attachments.

1 **15. Reservation of Space.** To enable Blue Ridge to accommodate future
2 electrical facilities and make full use of the space allocated to it, any pole
3 attachment agreement should include a provision specifying that all
4 attachments made after the date of the agreement shall have at least 72
5 inches vertical clearance under Blue Ridge's grounded neutral. Further,
6 the agreement should make clear that Blue Ridge shall always have the
7 exclusive right to, at a minimum, the uppermost nine feet six inches of the
8 pole as its electrical supply space.

1 **III. BASICS OF POLE ATTACHMENTS AND THE ASSOCIATED COSTS**
 2 **IMPOSED ON BLUE RIDGE**

4 **Q. TO HELP THE COMMISSION UNDERSTAND THE COSTS AND**
 5 **BURDENS ASSOCIATED WITH CHARTER'S ATTACHMENTS,**
 6 **WOULD YOU DESCRIBE THE TYPICAL POLE PLANT WITH**
 7 **CHARTER ATTACHED?**

8 **A. I have included as Figure 1 a typical, 40-foot three-phase distribution pole, which**
 9 **can be broken into four basic sections.**

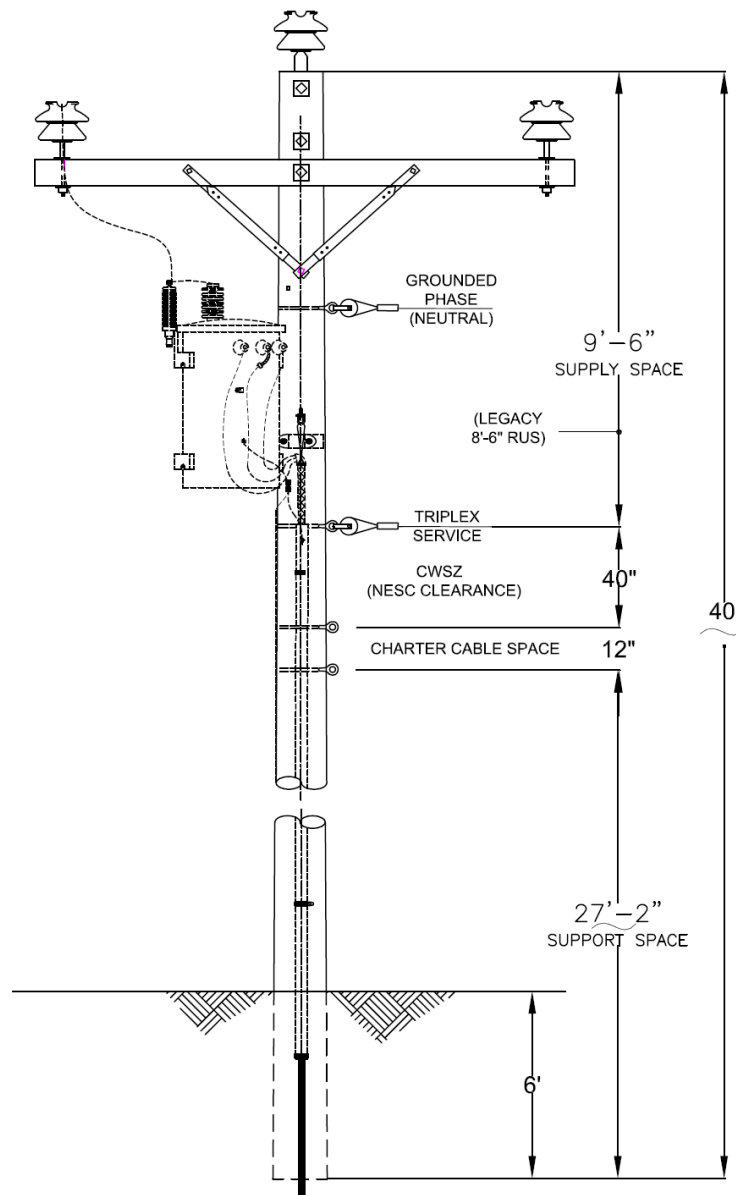


FIGURE 1

1 Moving from the top of the pole to the bottom, the four sections are described as
2 follows:

3 (i) At the top of the pole is the electrical “supply space,” which is Blue
4 Ridge’s allocated area in which to run its electric facilities.² Historical RUS
5 design drawings require that a minimum of the top 8.5 feet of a three-phase
6 straight line pole be reserved for the electrical supply space. Figure 1 indicates a
7 9.5-foot area reserved for Blue Ridge, which is Blue Ridge’s current standard.

8 (ii) The “communication worker safety zone” (“CWSZ”) is an area
9 immediately below the electrical supply space that is required for the protection of
10 communications workers (such as Charter’s contractors). As required by the
11 NESC,³ the CWSZ is a minimum of a 40-inch (3.33 feet for a 7.2 kV line)
12 distance in which Charter must maintain clearance from the electrical “supply
13 space” and all electric utility energized lines and equipment. The CWSZ exists
14 for the protection of communications workers, who are often not trained or
15 allowed by NESC or Occupational Safety and Health Administration standards to
16 work on or near the electric utility's energized electrical facilities. It is a space
17 requirement only to the extent that a communications company has attached to the
18 pole. In other words, the CWSZ would not be required “but for” the presence of a
19 communications attachment. For the purpose of responsibility for “make ready”
20 work and associated cost, it is important to understand that the CWSZ should be
21 measured from the bottom of Blue Ridge's reserved electrical supply space—not

² National Electrical Safety Code (“NESC”), C2-2017 Edition, Definitions Page No. 17, and Rule 238E.

³ NESC, C2-2017 Edition, Rule 235.

1 from whatever equipment happens to be present on the pole when a
2 communications provider, like Charter, makes its attachments to the pole. Just
3 because the pole does not yet have all of the facilities that Blue Ridge may intend
4 to put in the electrical supply space at some point during the pole's life (such as a
5 transformer and a service), does not mean that Charter has the right to invade the
6 utility's supply space without the possibility that it will be later asked to move its
7 facilities. Throughout my testimony I will describe encroachments into the supply
8 space by Charter and provide photographs depicting instances in which Charter's
9 attachments so encroach.

10 (iii) The "cable space," located immediately below the CWSZ, is the space
11 on the pole assigned to a communications provider, such as Charter, to make its
12 attachments. In the basic example shown in Figure 1, this is the one-foot space
13 reserved exclusively for communications attachments. There may be multiple
14 communication attachments on a single pole, and each must be separated from the
15 other by one foot. Not shown in Figure 1 are the many other types of facilities—
16 such as conduit "risers" that run the entire length of the pole and power supplies,
17 amplifiers or similar boxes that are attached to a pole—that Charter and other
18 communications providers routinely attach to the pole, which seriously impede
19 Blue Ridge's line workers from safely climbing the pole.

20 (iv) The "support space" is the bottom-most part of the pole, which
21 includes the portion of the pole underground and aboveground that provides for
22 the strength, support, and height necessary to meet all of the requirements of the

NESC, including clearance above ground and strength to support the facilities on the pole.

Figure 2, below, shows a typical “lift pole” or “secondary pole.”

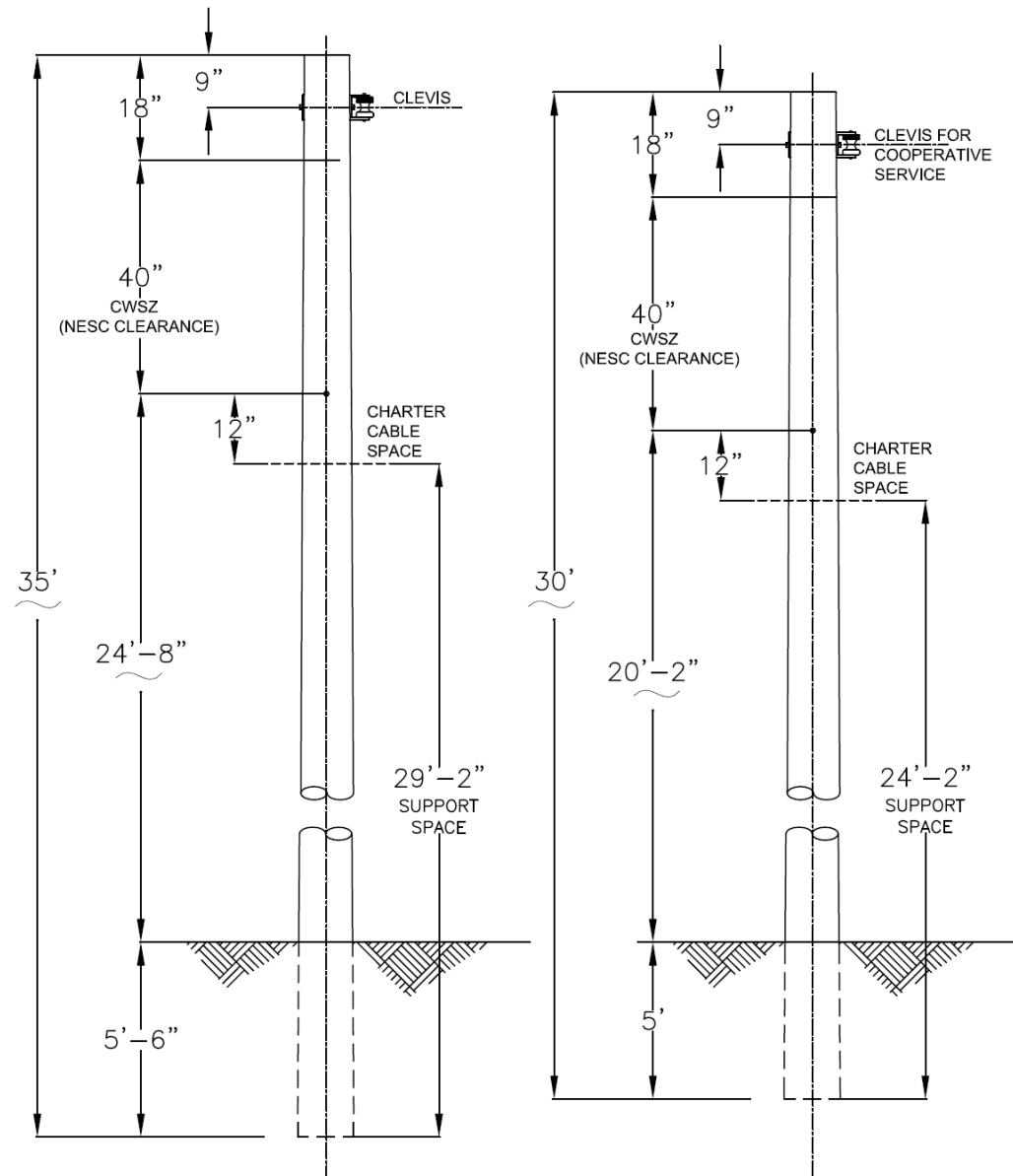


FIGURE 2

A lift pole (also referred to as a secondary pole) is a pole installed between the mainline distribution poles and a consumer's premises because the distance

1 requires the lift (or secondary) pole to support the wires. Lift poles are typically
2 shorter than mainline distribution poles, but generally involve the same space
3 allocation categories. On such a pole, Blue Ridge's facilities typically occupy
4 approximately 12-18 inches of the top of the pole. It is important to recognize
5 that communications providers, such as Charter, also utilize these poles but that
6 the communications provider is using more space than Blue Ridge since it is both
7 occupying one foot for its facilities and also imposing the required 40-inch space
8 for the CWSZ. Therefore, absent the communication provider's presence, the lift
9 pole could be five feet shorter.

10 **Q. WHAT IS THE NESC AND HOW DOES IT APPLY TO CHARTER'S**
11 **ATTACHMENTS?**

12 A. The NESC establishes the minimum safety and design standards and work rules
13 for the electric and communications industries. This includes standards such as
14 vertical clearance over roads or above the ground, horizontal clearance from
15 buildings, clearances between electric and communications lines, and the strength
16 requirements associated with the facilities, including the application of guys and
17 anchors. Section 62-350 of the North Carolina General Statutes provides that an
18 electric membership corporation, such as Blue Ridge, shall require attaching
19 entities to comply with the NESC,⁴ and, typically, pole attachment agreements,
20 joint use agreements, and joint ownership agreements establish the NESC as one
21 of the minimum standards to which the electric utility and communications
22 provider must adhere. Additionally, Rule R8-26 of the Rules and Regulations of
23 the North Carolina Utilities Commission adopts by reference the NESC as the

⁴ N.C. Gen. Stat. § 62-350(a).

1 electric safety rules of the Commission and specifies that the NESC shall apply to
2 all electric utilities which operate in North Carolina under the jurisdiction of the
3 Commission. The basic premise of the NESC is to provide for the practical
4 safeguarding of the public, and utility and communication company employees.
5 While the NESC provides minimum safety-related standards, it is not a design
6 manual or construction manual, and, typically, utility pole owners have separate
7 design and construction requirements, and manuals, which meet or exceed the
8 NESC.

9 **Q. DO COMMUNICATIONS PROVIDERS ADHERE TO THE NESC?**

10 A. In my experience, communications providers and their contractors are not trained,
11 or at least not adequately trained, regarding the application of the NESC. In many
12 cases of which I am aware, including tort cases, negligence cases, and regulatory
13 proceedings, evidence has shown that communications provider employees and
14 their contractors are often completely unaware of the existence of the NESC and
15 do not have professional engineering staff to ensure compliance with the NESC.

16 **Q. ARE THERE OTHER STANDARDS THAT GOVERN CHARTER'S**
17 **ATTACHMENTS TO BLUE RIDGE'S POLES?**

18 A. Yes. In addition to electric utility construction and design standards, there are
19 also numerous state, federal and local laws, and rules promulgated by trade
20 groups and other organizations that define best practices in the industry. These
21 include, among others, the National Electrical Code, the North Carolina
22 Department of Transportation, the Occupational Safety and Health Act, the Rural
23 Utilities Service, and the Society of Cable Television Engineer's Recommended
24 Practices for Coaxial Cable Construction and Testing and for Optical Fiber Cable

1 Construction. In addition, ordinary standards of good and workmanlike
2 construction practices should govern a party's attachments to a utility pole.
3 Charter employee Nestor Martin acknowledges that when making attachments,
4 Charter has a responsibility to comply with the practices set forth by these trade
5 groups and government organizations.⁵

6 **Q. PLEASE DISCUSS THE IMPACTS OF CHARTER'S ATTACHMENTS**
7 **TO BLUE RIDGE'S POLES.**

8 A. As I will explain in greater detail, in my professional opinion, Charter's
9 attachments impose significant burdens and costs on Blue Ridge that it would not
10 otherwise incur but-for the presence of Charter's attachments. These "but for"
11 costs are not recovered through an attachment rate that is based on the costs of the
12 utility plant.

13 **Q. WHAT ARE THESE "BUT FOR" COSTS?**

14 A. These burdens and costs can be divided into two basic categories. First, Charter's
15 attachments to Blue Ridge's poles often violate the safety standards I described
16 previously. Second, Blue Ridge incurs various other costs in connection with
17 Charter's attachments, irrespective of whether Charter's attachments are made in
18 a good and workmanlike manner, which Blue Ridge would not bear "but-for" the
19 presence of Charter's attachments.

20 **Q. PLEASE DESCRIBE THE FIRST CATEGORY OF "BUT FOR" COSTS**
21 **IN DETAIL.**

⁵Nestor Martin Deposition Testimony, Page No. 72, Exhibit GLB-8.

1 A. The first category of costs incurred by Blue Ridge relates to Charter's failure to
2 comply with safety standards established by the NESC or necessitated by Blue
3 Ridges' work practices. The following discusses several NESC standards that are
4 applicable to Charter's attachments to Blue Ridge's poles, and the NESC
5 standards referenced are included in Exhibit GLB-2. Further in my testimony, I
6 provide multiple examples, accompanied by photographs, of Charter's failure to
7 comply with these specific standards.

- 8 • NESC Rules 010, 011, 012, and 200

9 These rules establish applicability of the NESC to Charter. The rules not only
10 require that initial design and construction comply with the NESC but also
11 that Charter must operate and maintain its facilities to comply with the
12 requirements of the NESC, including the practical safeguarding of persons
13 and utility facilities.

- 14 • NESC Rule 214

15 This Rule stipulates the requirement for initial inspection for compliance
16 when placed in service and inspection at such intervals as experience has
17 shown to be necessary.

- 18 • NESC Rule 232

19 Rule 232 establishes the minimum vertical clearance to the ground for wires,
20 conductors, and cables. Proper vertical clearances are necessary to
21 accommodate safe passage of people, vehicles or equipment beneath lines.

1 • NESC Rule 235

2 Rule 235 establishes the minimum clearances between different utility
3 functions for wires, conductors and cables on the same supporting structure.

4 This rule establishes required distances to prevent communication cables from
5 contacting energized electrical lines. It also establishes a safe perimeter for
6 communication workers when working near energized lines.

7 • NESC Rules 264 and 279

8 These rules establish the requirements for guys, anchors, and braces, which
9 are used to support structures under the tension of attached cables. Each utility
10 is responsible for providing guys and anchors to support its own conductors.

11
12 • NESC Sections 25 and 26

13 Both of these sections include the rules pertaining to the general loading
14 requirements and strength requirements for structures. Rule 250 notes it is
15 necessary to assume the wind and ice loads that may occur on a line. The
16 intent of the NESC rules is to apply wind loading in an essentially horizontal
17 plane. Three weather loadings are specified in Rules 250B, 250C and 250D.

18 Rule 260 recognizes that deformation, deflections, or displacement of parts on
19 a structure may change the effects of the loads assumed.

20
21 **Q. HOW HAS CHARTER FAILED TO COMPLY WITH SPECIFIC NESC**
22 **STANDARDS?**

1 A. The violations caused by many of Charter's attachments to Blue Ridge's poles are
2 wide ranging and best explained through photographs. To streamline my
3 testimony and illustrate the first category of "but for" costs, I have prepared
4 Exhibit GLB-3, which includes photographs demonstrating the serious nature of
5 the improper actions and inactions of Charter. These photographs reflect a small
6 percentage of violations documented during a recent pole attachment survey,
7 described in detail below. Exhibit GLB-4A, generated using Blue Ridge's GIS
8 tool, depicts all of Charter's attachments in Blue Ridge's service area as well as
9 the Charter violations identified as part of the pole attachment inventory
10 completed by Blue Ridge in 2015 and 2016. Exhibit GLB-4B, generated using
11 Blue Ridge's GIS tool, depicts the Charter violations that were found during the
12 recent survey completed by PowerServices of five (5) circuits in Blue Ridge's
13 service area, which survey is described below in greater detail.

14 **Q. PLEASE DESCRIBE THE RECENT INVENTORY PERFORMED BY**
15 **BLUE RIDGE AND SURVEY PERFORMED BY POWERSERVICES ON**
16 **BLUE RIDGE'S SYSTEM.**

17 A. Blue Ridge completed a system wide audit or inventory of all pole attachments in
18 2015 and 2016. As part of this audit or inventory, a basic assessment of obvious
19 and readily apparent NESC violations was completed, the results of which have
20 been provided to Charter. Separate and apart from this inventory, PowerServices
21 surveyed a representative sample of Charter's pole attachments to poles in Blue
22 Ridge's distribution system in August 2017. As part of this survey,
23 PowerServices took detailed photographs of all of Charter's safety violations and
24 adverse attachment practices. The survey involved the evaluation of five (5)
25 different electric distribution circuits in Blue Ridge's system. Those five (5)

1 circuits consist of 2,022 poles. As there are 113,641 poles in Blue Ridge's
2 system, the surveyed sample represents 1.7% of total poles. Additionally, as there
3 are 24,888 poles to which Charter attaches in Blue Ridge's system, the surveyed
4 sample represents 8% of the poles to which Charter has attached. The
5 PowerServices survey was conducted over a period of eight days, from August
6 21-25 and August 28-30, 2017 and was performed by teams comprised of one
7 employee of Blue Ridge and one employee of PowerServices. During this time,
8 two teams physically rode each circuit and photographed each pole containing a
9 violation. Poles with visible NESC violations were also documented on a
10 spreadsheet by type of violation. Of those, a subset of poles was photographed
11 with a tool providing verifiable measurements on the pole. Multiple photographs
12 were taken of each pole evaluated, and the survey produced a total of 2,922
13 photographs. Each pole with a Charter violation was catalogued and summarized
14 by Blue Ridge pole number and type of violation. Exhibit GLB-5 documents all
15 poles surveyed with violations, by violation type.

16 **Q. WHAT WERE THE OVERALL RESULTS OF THE SURVEY?**

17 A. Of the 2,022 distribution poles surveyed, 879 poles, or 43%, of the poles had at
18 least one instance where Charter violated NESC standards, Blue Ridge work
19 practices, or both. A total of 1,520 violations were documented on the 879 poles
20 surveyed that had at least one violation. This number of violations and high
21 percentage of poles with violations is a clear indication of Charter's egregious
22 disregard for safety standards. Table 1, below, condenses the information
23 included in Exhibit GLB-5 and shows the number of surveyed violations, by type.

Table 1

Type of Violation	40" Separation	8.5' Encumbrance	Guy & Anchor	Pole Equipment & Pedestal	Low Span	Transfer Needed	Total*
Number of Charter Violations	667	565	212	24	6	46	1,520
* 879 poles had violations - some have multiple							

Q. WHAT DOES EXHIBIT GLB-3 SHOW?

A. The photographs in Exhibit GLB-3 document some of the many issues caused by Charter's attachments to Blue Ridge's poles, which can result in damage to Blue Ridge's poles, create public and employee hazards, reflect a disregard for the NESC, create lineman climbing hazards, and impose other operational costs on Blue Ridge. The photographs in Exhibit GLB-3 depict a representative percentage of the actual instances of each of these Charter violations that were documented as part of the survey. A record of the photographed 1,520 violations, as summarized above in Table 1, has been provided to Charter for its records.

Q. HOW HAVE YOU ORGANIZED EXHIBIT GLB-3?

A. The photographs included in Exhibit GLB-3 have been divided into six (6) categories of violations. Of these six (6) categories, five (5) are direct NESC rule violations, and the remaining category involves instances that hinders safe work practices while imposing costs to Blue Ridge. Each photograph visually depicts the violation caused by Charter within a respective category. Many poles have multiple Charter violations, but for the purposes of this discussion, the violation pertinent to a specific category is highlighted.

Q. PLEASE SUMMARIZE THE SIX CATEGORIES OF VIOLATIONS AND EXPLAIN THE SIGNIFICANCE OF EACH.

A. The six (6) categories of violations are as follows:

1 **1. Failure to Observe Forty-Inch Clearance.** The conditions shown in the
2 photographs of Exhibit GLB-3, Section A, demonstrate how Charter
3 positions its attachments less than the required 40 inches from Blue
4 Ridge's neutral line or lowest equipment on the pole. This is a violation
5 of NESC Rule 235. It also hinders or prevents future expansion down the
6 pole by Blue Ridge. In order to "recapture" the electrical supply space to
7 install transformers, consumer services and other equipment necessary to
8 meet changing electric service needs, Charter's facilities must be moved
9 down the pole, or if space is not available for both Blue Ridge's and
10 Charter's facilities, the pole must be replaced with a taller/stronger pole
11 and all existing facilities must be transferred to the new pole. These
12 attachment relocation and pole replacement costs can be considerable, and
13 would not be incurred by Blue Ridge but-for the use of the pole by Charter
14 and, moreover, Charter's disregard for the NESC requirements.

15 **2. Encroachment into Electrical Supply Space.** The conditions shown in
16 the photographs of Exhibit GLB-3, Section B, demonstrate how Charter
17 often positions its attachments such that they encroach on the electrical
18 supply space, which is reserved for Blue Ridge's facilities. Although in
19 some cases Charter may position its attachment 40 inches below Blue
20 Ridge's neutral in apparent technical compliance with NESC Rule 235, it
21 is still within Blue Ridge's defined electrical supply space, thus violating
22 the intent of the allocated space for electric utility and communication
23 utility. Placing a communications attachment 40 inches from Blue
24 Ridge's neutral does not technically violate the NESC, though it does

1 hinder and often prevent future expansion down the pole by Blue Ridge.
2 This is why Blue Ridge's pole attachment agreements with Charter have
3 specified that attachments must be installed at least seventy-two (72)
4 inches vertical clearance under the grounded neutral. In order to
5 "recapture" the electrical supply space from Charter to install transformers
6 and other equipment necessary to meet changing electric service needs,
7 Charter's facilities must be moved down the pole, or if space is not
8 available for both Blue Ridge's and Charter's facilities, the pole must be
9 replaced with a taller/stronger pole and all existing facilities must be
10 transferred to the new pole. Both the relocation of the electric facilities
11 and the communications attachment relocation, as well as the pole
12 replacement costs can be considerable, and would not be incurred by Blue
13 Ridge but-for the use of the pole by Charter. These photographs
14 demonstrate how Charter is consuming 1 foot of space plus 40 inches of
15 CWSZ, while restricting Blue Ridge to as little as 4 feet of space on the
16 pole. Furthermore, in those instances where an outdoor light is installed on
17 the pole, Charter's encroachment into the supply space may make it
18 appear as if the light may be in the CWSZ while the light is actually
19 installed in the electrical supply space. To the extent that Charter argues
20 that Blue Ridge is using the CWSZ for revenue-generating purposes by
21 installing lights in that space, the Commission must be aware that, more
22 often than not, Charter's facilities are incorrectly attached to the pole,
23 encroaching on the electrical supply space and giving the appearance that
24 Blue Ridge's facilities encroach into the CWSZ when in fact they do not.

1 **3. Guy and Anchor Violations.** The poles shown in the photographs of
2 Exhibit GLB-3, Section C, demonstrate significant and obvious violations
3 of NESC Rules 264 and 279, in addition to good and workmanlike
4 conduct. The violations include: (i) improper or missing guys causing
5 major pole deformation and damage; (ii) improper guy installation too
6 close to Blue Ridge's anchor causing Blue Ridge's anchors not to support
7 as designed; and (iii) attachment of the communication guy to Blue
8 Ridge's anchor, which places more load on the anchor than was intended
9 by the design. These violations lead to early replacement of poles that are
10 weakened and/or deformed due to this additional load and that fail more
11 readily during storms thereby allowing energized conductors to fall to the
12 ground.

13 **4. Vertical Clearance Violations.** The conditions shown in the photographs
14 of Exhibit GLB-3, Section D, depict instances in which the conditions
15 created by Charter's attachments create a risk of harm to the public. They
16 include, for example: (i) low clearance over roads; and (ii) low clearance
17 over driveways and fields. These are clear violations of NESC Rule 232.

18 **5. Climbing Impediments.** As shown in numerous photographs of Exhibit
19 GLB-3, Section E, Charter's attachments (even when properly made)
20 require excess time for Blue Ridge's workers to climb poles and, in many
21 cases, present unacceptable hazards to utility workers. Charter has placed
22 excess equipment on pole surfaces, including large cabinets and multiple
23 conduits, along with pedestals at the base of poles. The equipment is

1 installed in a manner that impedes climbing space for Blue Ridge's
2 linemen. This creates a fall hazard and/or increases climbing time due to
3 the required use of the "Buck Squeeze" OSHA approved fall protection
4 device, as demonstrated in the video which has been provided for review.
5 See this video
6 at <https://drive.google.com/open?id=0B0z4zj3csc2FWXNR0TVYWFZye>
7 [Wc](#)

8 **6. Failure to Transfer Pole Attachments.** As shown in photographs of
9 Exhibit GLB-3, Section F, Charter has failed to transfer attachments from
10 an old pole to a newly installed replacement pole. In each case, the old
11 pole has been shortened to accommodate Charter's transfer, but Charter
12 has failed to complete the work. This results in excess pole plant in the
13 field, creates an impediment in access to the new pole, and requires
14 unnecessary oversight by Blue Ridge who is responsible for removing old
15 poles. These actions by Charter also necessitate multiple trips to the pole
16 by Blue Ridge. Furthermore, the property owners complain to Blue Ridge
17 creating ill will on the part of the member/consumer and additional
18 administrative effort for Blue Ridge.

19 **Q. DO THESE PHOTOGRAPHS SHOW THAT CHARTER FAILED TO**
20 **COMPLY WITH THE NESC?**

21 **A.** Yes. In each of the 879 photographed poles with Charter violations, including the
22 subsets provided in Exhibit GLB-3, the pole is owned by Blue Ridge, Blue
23 Ridge's equipment was installed on the pole prior to Charter's, and all of Blue
24 Ridge's facilities, including conductors, transformers, services, and underground

1 risers, are located in Blue Ridge's defined electrical supply space. Therefore, the
2 NESC violations between the Charter attachments and Blue Ridge's facilities
3 could only have been the result of Charter's improper design and construction of
4 its attachments. The repeated failures of Charter and its contractors to comply
5 with the NESC is one of the most egregious and serious impacts imposed on Blue
6 Ridge.

7 **Q. DO THE CONDITIONS REFLECTED IN THE PHOTOGRAPHS**
8 **INCLUDED IN EXHIBIT GLB-3 CAUSE YOU CONCERN BEYOND THE**
9 **FACT THAT THEY DEPICT NESC VIOLATIONS?**

10 A. Yes. These violations by Charter fall far below the standard of care in the
11 industry. The hundreds of electric utilities with which I have worked have always
12 had in place design and construction standards which, when compromised as
13 Charter has done in numerous instances, result in work rule and public safety
14 concerns. Additionally, Charter's practices adversely impact the electric system
15 reliability and potentially result in more and longer outages for electric
16 consumers. I hear consistently from electric utility clients that the presence of
17 communications attachments to their poles cause outages that would not
18 otherwise occur and that last for a longer duration. This has a significant adverse
19 economic impact, one which even the Department of Energy has quantified in a
20 study.⁶ Furthermore, these practices of Charter bring about greater risk of

⁶ Ernest Orlando Lawrence Berkeley National Laboratory, LBNL-2132E, Estimated Value of Service Reliability for Electric Utility Customers in the United States; prepared for Office of Electricity Delivery and Energy Reliability-U.S. Department of Energy, principal authors: Michael J. Sullivan, Ph.D., Matthew Mercurio, Ph.D., Josh Schellenberg, M.A., Freeman, Sullivan & Co., Environmental Energy Technologies Division, June 2009, available at <http://eetd.lbl.gov/ea/EMS/EMSpubs.html>.

1 litigation—in which Blue Ridge will necessarily be involved—although the cause
2 could be exclusively Charter facilities.

3 **Q. WHAT STEPS DOES BLUE RIDGE TAKE TO ENSURE ITS OWN**
4 **FACILITIES ARE IN COMPLIANCE WITH THE NESC?**

5 A. Blue Ridge, generally consistent with the RUS guidelines, follows the NESC for
6 construction and the NESC requirement per Rule 214 for inspection, including
7 having an established institutionalized system of inspection and professional
8 engineering certification that its construction is in compliance with the NESC.
9 Blue Ridge typically inspects its new overhead facilities during or following
10 construction to assure that facilities comply both with Blue Ridge's construction
11 standards and specifications and the NESC. It then has a system by which a
12 licensed professional engineer must additionally inspect a portion of their work
13 orders and new construction to assure that they are in compliance with the NESC,
14 RUS standards, and cooperative standards and specifications. The professional
15 engineer then provides a certification within the work order system on RUS Form
16 219. This provides a second inspection and additional assurance of NESC
17 compliance.

18 **Q. WHY DOES BLUE RIDGE'S INSPECTION PROCESS ALSO NOT**
19 **ENSURE THAT THERE WILL BE CHARTER COMPLIANCE WITH**
20 **THE NESC?**

21 A. These inspections are associated with Blue Ridge's electric construction and do
22 not involve a separate process to inspect Charter facilities after they have been
23 installed. The Charter installations typically are made after Blue Ridge has
24 installed its facilities or built its power line and performed its inspections. The
25 NESC imposes, under Rule 214, the same inspection requirements on Charter,

1 which are that the initial installation shall be inspected for compliance with the
2 NESC and there should be a system in place to provide for a routine system
3 inspection as experience has shown necessary. My experience, however,
4 associated with cable companies, including Charter, indicates they have no such
5 inspection program in place.

6 **Q. DOES CHARTER INSPECT ITS SYSTEM OF ATTACHMENTS MADE**
7 **TO BLUE RIDGE'S POLES?**

8 A. No. Deposition testimony in this proceeding shows that Charter fails to properly
9 inspect its attachments.⁷ Charter does not have a routine, standard program for
10 the inspection of its lines and aerial facilities for safety violations or NESC
11 compliance, and there is no Charter employee that has responsibility for ensuring
12 compliance safety standards.⁸ Rather, the only inspection that occurs by Charter
13 is when field technicians happen to come across violations while in the field on a
14 job.⁹ None of Charter's employees that perform construction and maintenance
15 work on its facilities are professional engineers, and, additionally, the only NESC
16 training the Charter provides appears to be "on-the-job training" on limited topics
17 rather than formal, comprehensive training.¹⁰ Furthermore, Charter neither
18 provides training for its contractors related to NESC compliance nor trains its
19 contractors on the requirements and specifications that are specific to Charter's
20 contract with Blue Ridge,¹¹ which is very concerning given that in every instance
21 in which construction work is performed on Blue Ridge's poles, contractors, not

⁷ Nestor Martin Deposition Testimony, Page Nos. 76 – 77; Micheal Mullins Deposition Testimony (attached as Exhibit GLB-8), Page No. 24.

⁸ Nestor Martin Deposition Testimony, Page Nos. 76 – 77.

⁹ Micheal Mullins Deposition Testimony, Page No. 24.

¹⁰ Micheal Mullins Deposition Testimony, Page No. 25.

¹¹ Micheal Mullins Deposition Testimony, Page Nos. 26, 40 - 41.

1 Charter employees do this work.¹² Thus, not only do Charter's contractors
2 perform all construction work on Blue Ridge's system but these contractors are
3 solely responsible for providing training to their employees, as Charter fails to do
4 so.

5 **Q. PLEASE EXPLAIN THE SECOND CATEGORY OF BURDENS AND**
6 **COSTS BORNE BY BLUE RIDGE THAT ARE UNRELATED TO THE**
7 **SAFETY VIOLATIONS SHOWN IN EXHIBIT GLB-3.**

8 A. In addition to the costs associated with identifying and correcting violations such
9 as those identified in Exhibits GLB-3, costs and burdens arise from the routine,
10 ordinary course of dealing with Charter's attachments. These costs and burdens
11 are also "but for" impacts because but for Charter's presence on Blue Ridge's
12 poles, Blue Ridge would not incur such costs.

13 **Q. PLEASE SUMMARIZE THESE "BUT FOR" COSTS AND EXPLAIN THE**
14 **SIGNIFICANCE OF EACH.**

15 A. Yes. I have divided them into six (6) categories, as follows:

16 1. **Administrative oversight.** These costs are associated with the need for
17 added office and legal personnel to accommodate Charter's attachment
18 requests, monitor and administer Charter's existing attachments, and deal
19 on an administrative level with Charter's failure to follow the terms of the
20 parties' pole attachment agreement. Examples of these administrative and
21 legal burdens include the following:

22 a. pole attachment agreement and rate negotiations;

23 b. pole attachment agreement administration; and

¹²Micheal Mullins Deposition Testimony, Page Nos. 22, 33.

1 c. processing permits and applications (personnel and/or software
2 tracking).

3 These costs increase when Charter does not notify Blue Ridge or follow
4 the permitting process and, instead, makes unauthorized attachments to
5 Blue Ridge's poles in an unsafe or otherwise improper manner, or
6 otherwise fails to comply with the provisions of the agreement.

7 **2. Field oversight.** Whenever Charter desires to attach to Blue Ridge's pole,
8 numerous issues may arise in the field. There are costs associated with the
9 "make ready" process, by which Blue Ridge's poles are made ready to
10 receive Charter's attachments, but these costs are typically reimbursed by
11 the communications company seeking to attach. Issues arise when Charter
12 attaches without requesting necessary make-ready work, leaving Blue
13 Ridge to sort things out later. A common example is when Blue Ridge
14 desires to recapture its supply space under circumstances in which Charter
15 has installed its cables in a location that impedes Blue Ridge's use of its
16 supply space. Exhibit GLB-3 shows many of these instances in which
17 Charter has imposed on Blue Ridge's ability to use supply space for a
18 future transformer, service, or other equipment. These instances reflect
19 where Charter proceeded as if no make ready work were required, then
20 simply improperly installed its cables in a manner that imposed upon Blue
21 Ridge's supply space. In all cases shown in Exhibit GLB-3, I see no
22 evidence that Charter used a Professional Engineer to design these
23 installations. As a professional engineer since 1973, I am not aware of

1 any professional engineer that would design an installation with the
2 violations identified in Exhibit GLB-3.

3
4 Issues also arise when Charter fails to transfer its cables from an
5 abandoned pole to a new pole. I am aware of circumstances where Blue
6 Ridge had to install a new pole, either for line expansion, system
7 expansion, or because the old pole was rotten and a hazard, and Charter
8 simply ignored these circumstances for long periods of time. The other
9 major circumstance is when Blue Ridge must relocate its poles and lines
10 for subdivisions or other reasons, and Charter fails to relocate its facilities.

11
12 Additionally, the relocation of lines by Blue Ridge has revealed unused
13 coaxial cable on the existing facilities that must be removed as part of the
14 relocation. Although Charter has no idea of the magnitude of the problem,
15 it is reasonable to conclude from Charter's relocation practices some
16 portion of Charter's facilities in Blue Ridge's service territory contains
17 "dead" cable that is not being used, but is taking up valuable space and
18 creating potential pole loading safety issues.

19
20 Specific examples of the burdens and costs associated with these issues
21 include the following:

- 22 a. initial field inspections to verify attachment requests and
23 inspection after completion, including any repeat trips;

- 1 b. make-ready design and construction, including confirmation that
2 Charter's facilities meet design criteria;
3 c. coordinating and resolving any disputes regarding the recapture of
4 supply space taken by Charter;
5 d. inspections and additional engineering analysis on non-permitted
6 communication installations and overloading;
7 e. multiple trips to poles associated with replacement or upgrades due
8 to communication facilities not being transferred in a timely
9 manner or failure to transfer at all;
10 f. managing abandoned poles, especially when Charter provides no
11 notification of removing its facilities; and
12 g. safety violation identification and remediation, and disputes over
13 who caused the violation.

14 In sum, this group of issue has tremendous cost implications for Blue
15 Ridge, which would not be incurred but for the presence of Charter's
16 attachments, and, in many cases, would not be incurred but for
17 Charter's unauthorized attachment activity.

- 18 **3. Emergency calls.** Cooperatives are often required to respond to
19 "emergency" or after-hours calls associated with Charter attachments,
20 which would not happen but for Charter's attachments. Often, the public
21 or police call the cooperative regarding downed lines belonging to the
22 communications providers. The cooperative must respond to ensure the
23 public, police, and itself that the downed line is a cable line and not a

1 hazardous electrical line. Cooperatives, including Blue Ridge, like all
2 electric utilities, have an elevated call and dispatch system for 911 calls
3 and downed line calls. In my experience, communications providers treat
4 a downed line or 911 call just like a customer call about a TV service
5 interruption, with the response that a service technician can be there in, in
6 some cases, three days. This means that the cooperative is often the one
7 responding to the communications provider's downed lines. In my
8 professional experience, I am aware of litigation concerning personal
9 injury cases involving downed lines and Charter's affiliate, Time Warner
10 Cable, in which a cooperative was sued even though its lines were not
11 involved.

12
13 Specific examples of these issues include:

- 14 a. responding to mistaken customer calls that turn out to be
15 communication lines, instead of the cooperative's power lines;
- 16 b. added work and call outs due to communications provider's failure
17 to have an adequate emergency response system, resulting in the
18 cooperative's fixing the communications provider's problems
19 and/or needing to coordinate with the communications provider's
20 contact and response;
- 21 c. additional time/expense to replace poles damaged in storms to
22 temporarily move or reattach communications facilities for safety
23 clearances; and

1 d. additional legal and in-house administrative and managerial
2 expense incurred to respond to and resolve legal issues pertaining
3 to those downed or improperly strung lines.
4

5 **4. Pole attachment audits and inspections.** These issues related to pole
6 attachment audits and inspections are required only because of
7 communication attachments. A pole attachment audit counts the number
8 of attachments to verify records and to identify unauthorized attachments.
9 As discussed in my testimony above, Blue Ridge conducted such a pole
10 attachment audit in 2015 and 2016. While obvious, readily apparent NESC
11 violations were noted during this audit, it was not a full safety inspection.
12 As distinct from an audit, a pole attachment safety inspection identifies
13 NESC violations, including but also beyond those which are obvious and
14 readily apparent, and would cost far more. An inspection for NESC
15 violations among Charter facilities would cost far more (as much as four
16 times more) than the cost of a standard pole audit alone. This is because
17 more sophisticated equipment must be used by more highly trained
18 personnel who are taking more time to inspect the pole.
19

20 Specific examples of costs and burdens associated with such audits and
21 inspections include:

- 22 a. identifying qualified audit and/or inspection contractors;
23 b. identifying type/cost of the audit or inspection and level of detail
24 required;

- c. coordination of contractor selection process with Charter;
- d. quality control inspection after audit or inspection (accuracy);
- e. preparation and compilation of data;
- f. comparing data from inventory or inspection to permitted attachments;
- g. preparing inventory/inspection cost allocation among communications attachers, if appropriate; and
- h. providing inventory/inspection invoices and negotiating true-up data with Charter.

5. **Interference with Vegetation Management.** The presence of Charter's attachments adds to the complexity and burdens associated with basic vegetation management of Blue Ridge's poles. Charter's presence on Blue Ridge's poles adversely impacts system reliability and causes outages experienced by electric consumers to be extended longer than would be the case if Charter facilities were not on the poles. The Department of Energy has published a study indicating the value of every minute of outage duration reduction is \$14/kWh. Charter should be required to take action to remedy its impacts on poles, and also to reimburse Blue Ridge and its members/consumers/owners for the added costs it imposes. While Blue Ridge is constantly modernizing its electric grids to improve system reliability, Charter's facilities and its failure to participate in the operation and maintenance of these facilities in a responsible manner threatens Blue Ridge's reliability.

1 Specific examples of costs and burdens associated with these issues
2 include:

- 3 a. storm removal of trees on communication messengers in order to
4 restore power;
- 5 b. additional time/expense for routine vegetation management in
6 order to maneuver equipment around communication facilities; and
- 7 c. broken poles due to hazard trees from outside the right-of-way
8 falling on cable messengers that do not create a broken pole but-for
9 the presence of communications providers' attachments.

10 **6. Liability Risk and Associated Costs.** The presence of Charter's
11 attachments results in substantial expense associated with numerous legal
12 issues that would not exist but for Charter's presence on the poles. In my
13 experience, I have seen that cooperatives are now being forced into more
14 and more litigation in order to protect their poles, systems, and ensure
15 public and employee safety. Charter's failure to observe the NESC,
16 OSHA and the standard of care required in the industry transfers a
17 tremendous risk of legal exposure to Blue Ridge, particularly given Blue
18 Ridge's small size and limited resources to litigate every violation and
19 improper action by Charter.

20 Specific examples of these issues include:

- 21 a. litigation related to communication facilities, including attorneys'
22 fees, as well as management, administration, and technical support
23 for the litigation and expert consultants;

- 1 b. dispute resolution before the North Carolina Utilities Commission;
2 and
3 c. liability exposure related to untrained communication
4 personnel/contractors working on Blue Ridge's poles.

- 5 **Q. DOES EACH CATEGORY OF "BUT FOR" COSTS IMPACT BLUE**
6 **RIDGE AND REPRESENT A COST IT WOULD NOT INCUR BUT FOR**
7 **THE PRESENCE OF CHARTER'S ATTACHMENTS?**
8 A. Absolutely. Each category not only adds to Blue Ridge's cost, it also adversely
9 impacts the safety and reliability of Blue Ridge's system and jeopardizes the
10 safety of the public and the line workers.

1 **IV. NECESSARY CONTRACT PROVISIONS**

2 **Q. PLEASE DESCRIBE THE CONTRACT PROVISIONS THAT ARE**
3 **NECESSARY TO PROTECT BLUE RIDGE IN LIGHT OF THE “BUT**
4 **FOR” COSTS IMPOSED BY CHARTER.**

5 A. Yes. Below, I discuss specific contract provisions that are necessary to ensure
6 that Charter—not Blue Ridge—bears the risks, costs and burdens associated with
7 its attachments to Blue Ridge’s poles.

8 **1. Indemnity.** In general, while Charter has a right to attach to Blue Ridge’s
9 poles at just, reasonable and non-discriminatory rates, terms and
10 conditions, Blue Ridge’s primary obligation is to provide safe and reliable
11 electric service—an essential service—to its member-owners. Charter—
12 not Blue Ridge—should bear all risks associated with Charter’s
13 attachments to Blue Ridge’s poles. Thus, in order to properly allocate risk
14 among the parties, a pole attachment agreement should include a provision
15 requiring Charter to defend and indemnify Blue Ridge for any claims or
16 losses arising from existing attachments Charter has made to Blue Ridge’s
17 system, and especially those that violate the NESC, the terms and
18 conditions of the pole attachment agreement, or any other applicable
19 design and/or safety standard. Such a contract provision is critically
20 important given the widespread safety violations Blue Ridge has
21 discovered among Charter’s existing attachments. To this end, the
22 agreement should require that, to fullest extent permitted by law, Charter
23 shall defend, indemnify and hold harmless Blue Ridge from any and all
24 liability, losses or damages in any way related to Charter’s use of Blue

1 Ridge's poles. Additionally, the agreement should provide that Charter
2 waives and releases any and all claims, damages and liability of any kind
3 against Blue Ridge that are in any way related to Charter's use of Blue
4 Ridge's poles.

5 **2. Certification of Pole Attachments.** In the interest of
6 safety and the ability of Blue Ridge to provide adequate and reliable
7 service to its members, Charter should be required to provide the
8 certification of a professional engineer on each and every attachment made
9 to Blue Ridge's poles, including any overlashing. Both prudent electric
10 utility practice and North Carolina statutory law, specifically Chapter 89C
11 of the North Carolina General Statutes, dictate that Charter provide such
12 certification to demonstrate compliance with all applicable standards,
13 including the NESC.

14 To this end, a new pole attachment agreement between Charter and
15 Blue Ridge should require Charter, no later than 30 days after it installs
16 the last attachment (or the last overlashing) covered by its approved permit
17 application, to provide Blue Ridge with a certification by a professional
18 engineer duly licensed and registered in North Carolina that the
19 attachments (and/or overlashing) are of sound engineering design and
20 fully comply with the safety and operational requirements of the
21 agreement, including without limitation the NESC. If the certification is
22 not received within the 30-day period, Blue Ridge should have the right to
23 declare the attachment to be unauthorized.

1 **3. Non-Compliant Attachments.** At a minimum, the pole
2 attachment agreement should require Charter's attachments to comply
3 with the latest requirements and specifications of the NESC, the National
4 Electrical Code, the North Carolina Department of Transportation, the
5 Occupational Safety and Health Act, the RUS, the Society of Cable
6 Television Engineer's Recommended Practices for Coaxial Cable
7 Construction and Testing and for Optical Fiber Cable Construction, and
8 the design and operational standards developed, from time to time, by
9 Blue Ridge. In the event that a Charter attachment fails to comply with
10 such standards, Charter must be obligated to remedy, at its own expense,
11 such non-compliance within a time certain. In the interest of safety and
12 reliability, if Charter fails to implement timely corrective action, Blue
13 Ridge should have the right to revoke the permit and apply penalty
14 provisions associated with unauthorized attachment. Should Charter not
15 be so obligated and Blue Ridge not have this right, the risk of non-
16 compliance would be borne entirely by Blue Ridge. Such an allocation of
17 risk to Blue Ridge is unreasonable and inequitable, given that Charter's
18 conduct has created the risk.

19 **4. Overlashing.** "Overlashing" is a method Charter uses to
20 add aerial facilities by running new cable over an existing cable and then
21 lashing the cables together, in effect using the existing cable as a way to
22 support and string the new cable. Overlashing creates a significantly
23 greater cross-sectional area of the multiple cables versus the singular
24 cable, which means greater ice or wet snow accumulation and loading and

1 far greater wind loading are now all imposed on the pole. Thus,
2 overlashing affects wind and ice loads on poles and add structural load to
3 Blue Ridge's poles. In addition, overlashing necessarily involves work by
4 Charter (or its contractors) on Blue Ridge's system.

5 The NESC, specifically Sections 25 and 26, require the analysis,
6 design, and strengthening of the structures to accommodate overlashing.
7 However, in practice, Charter simply ignores this safety requirement and
8 does not perform any pole loading study at all when overlashing its
9 facilities.¹³ Charter's practice creates a dangerous public safety condition.
10 The significant increase in cable surface area creates much greater ice
11 loading and wind loading. NESC Sections 25 and 26 require the analysis
12 of this impact, and will often necessitate pole upgrades. The analysis
13 required for overlashing must, therefore, be policed through the permitting
14 process—just like any other attachment to Blue Ridge's poles.

15 Accordingly, any pole attachment agreement should require
16 Charter to apply for and obtain a permit from Blue Ridge before
17 overlashing to ensure Blue Ridge has notice of Charter's overlashed
18 facilities and opportunity to review and approve the design and
19 construction of the overlashed facilities. In addition, as is the case with an
20 attachment, Charter should be required to provide a professional
21 engineer's certification of any overlashing.

¹³Micheal Mullins Deposition Testimony Page No. 30.

1 It should be noted that Charter, in the 2003 Pole Attachment
2 Agreement with Blue Ridge, agreed to submit to the permitting process for
3 overloading, [BEGIN CONFIDENTIAL] [REDACTED]
4 [REDACTED]¹⁴ [END CONFIDENTIAL]

5 **5. Unauthorized Attachment Fee.** Charter's making
6 attachments without notice to Blue Ridge (and, therefore, without a
7 permit) including overloading, and causing safety violations imposes
8 significant risk on Blue Ridge. Fees and penalty provisions serve as a
9 deterrent to unauthorized attachments and safety violations. Charter must
10 be obligated to pay fines or penalties, in addition to back rent, for
11 unauthorized attachments and must be obligated to pay fines or penalties
12 for safety violations in order to deter such conduct. Specifically, the
13 agreement should provide that, in addition to recovering any pole
14 attachment rental rate that is due, Blue Ridge may assess a fee for any
15 unauthorized attachment, including non-compliant attachments that are
16 declared to be unauthorized attachments. The fee should be no less than
17 \$150 per unauthorized attachment in order to serve as an appropriate
18 deterrent and appropriately compensate Blue Ridge for the additional costs
19 incurred as a result of the unauthorized attachment. The pole attachment
20 agreement should specify that Charter remedy the unauthorized

¹⁴ See 2003 Pole Attachment License Agreement, Art. 7. The 2003 Pole Attachment License Agreement is attached as Exhibit 1 to Charter's Answer to Complaint and Counterclaims, filed in this docket on February 1, 2017. See also 2008 Pole Attachment License Agreement, Art. 7. The 2008 Pole Attachment License Agreement is attached as Exhibit LL-3 to the Direct Testimony of Lee Layton, filed in this docket on October 16, 2017 on behalf of Blue Ridge Electric Membership Corporation.

1 attachment within a time certain and should provide Blue Ridge with a
2 self-help option if Charter fails to remedy the unauthorized attachment
3 within the time certain. In addition, to the extent that Blue Ridge resorts
4 to self-help and removes the unauthorized attachment, the agreement
5 should make clear that Blue Ridge has no liability for any damage to the
6 attachment or Charter's system and that Charter will pay all costs incurred
7 by Blue Ridge in removing the attachment. It should be noted that Charter,
8 in the 2003 Pole Attachment Agreement with Blue Ridge, agreed to an
9 unauthorized attachment fee, [BEGIN CONFIDENTIAL] [REDACTED]

10 [REDACTED]¹⁵ [END
11 CONFIDENTIAL]

12 **5. Maintenance and Transfers.** The agreement should
13 require Charter to bear all costs associated with a pole replacement that is
14 necessitated by the presence of a Charter attachment.

15 **6. Timely Transfers.** Blue Ridge may replace or relocate
16 poles for a number of reasons, including without limitation when existing
17 poles have deteriorated, when new attachers require additional pole space,
18 and when poles must be relocated at the request of the North Carolina
19 Department of Transportation, another governmental body or a private
20 landowner. When it is necessary for Charter to transfer an existing
21 attachment to another pole, Charter should bear the cost associated with
22 such transfer. Additionally, in the interest of Blue Ridge's obligation to

¹⁵ 2003 Pole Attachment License Agreement, Art. 10; 2008 Pole Attachment License Agreement, Art. 10.

1 provide adequate and reliable service to its members, Charter should be
2 required to make such transfer within a time certain in order to minimize
3 interference or disruption to Blue Ridge's provision of electric service. In
4 the interest of not impairing Blue Ridge's right and obligation to maintain
5 and operate its system safely and reliably, the agreement should authorize
6 Blue Ridge to make such transfer without incurring liability to Charter, if
7 the transfer not timely performed by Charter, and: (i) assess the
8 unauthorized attachment fee; and (ii) recover from Charter all costs
9 incurred in making such transfer.

10 I am aware that Charter's failure to timely respond to transfer requests is a
11 persistent problem. Based on data pulled from the NJUNS system this
12 summer in response to Charter's data requests, Charter had failed to
13 respond to 139 currently outstanding transfer requests, for which it was the
14 next to go, which represents 29.8% of all of the requests issued to Charter.
15 A quarter (24.5%) of the 139 transfer requests Charter has failed to
16 complete have been outstanding for more than three years. Fifty-nine
17 percent (59%) have been outstanding between 3-6 months, even though
18 the 2008 pole attachment agreement requires Charter to complete transfers
19 in sixty (60) days.

20 **7. Permit Application and Fee.** To protect Blue Ridge and
21 its members from the risks imposed by Charter's attachments to its poles,
22 Charter should be required to submit permit application for each and every
23 pole to which Charter seeks to attach. In addition, in order for Blue Ridge

1 to recover costs associated with processing the application (including all
2 technical and administrative work), Charter should be required to pay a
3 permit application fee for each permit application. It should be noted that
4 Charter, in the 2003 Pole Attachment Agreement with Blue Ridge, agreed
5 to pay a permit application fee per pole, [BEGIN CONFIDENTIAL] ■

6 ■¹⁶ [END
7 CONFIDENTIAL]

8 **8. Disputed Invoices.** Disputes related to invoices from Blue
9 Ridge may arise from time to time during the term of the new agreement.
10 In order to deter Charter from disputing any amount owed to Blue Ridge
11 and from working less than efficiently to resolve disputes, Charter should
12 be required to pay all amounts, whether disputed by Charter, pending
13 resolution of the dispute.

14 **9. Insurance.** The RUS has provided loans to Blue Ridge to
15 finance the construction of its infrastructure, including poles, and these
16 financing arrangements obligate Blue Ridge to provide certain insurance
17 coverage. Therefore, as the RUS has financed Blue Ridge's infrastructure
18 to which Charter seeks to attach and obligates Blue Ridge to provide
19 certain insurance coverage, Charter should be required to provide the
20 coverage required by RUS, as well.

¹⁶ 2003 Pole Attachment License Agreement, Art. 5; 2008 Pole Attachment License Agreement, Art. 5.

1 **10. Rights and Obligations in the Event of Default.** In light
2 of the impacts posed by Charter's attachments to Blue Ridge's system,
3 including the risks to safety and reliability, the pole attachment agreement
4 must clearly specify Blue Ridge's rights in the event of default by Charter
5 under the agreement. Specifically, the pole attachment agreement should
6 authorize Blue Ridge, among other remedies, to withhold permits for new
7 attachments in the event that there is an existing default by Charter under
8 the agreement. Such a provision is a necessary deterrent to Charter's
9 refusal to cure a default and provides reasonable protection to Blue Ridge
10 that defaults, which could involve safety risks and threats to Blue Ridge's
11 ability to provide adequate and reliable service, will not persist. To this
12 end, the agreement should provide that if Charter is in default under the
13 agreement and fails to correct such default within the specified cure
14 period, Blue Ridge may, at its option: (i) declare the agreement to be
15 terminated in its entirety; (ii) terminate the permit covering the pole(s)
16 with respect to which such default shall have occurred; (iii) decline to
17 permit additional attachments until such defaults are cured; (iv) suspend
18 Charter's access to or work on any or all of Blue Ridge's poles; (v) correct
19 such default without incurring any liability to Charter and with recovery of
20 fully loaded costs; and/or (vi) obtain specific performance of the terms of
21 this agreement through a court of competent jurisdiction. It should be
22 noted that Charter, in the 2003 Pole Attachment Agreement with Blue
23 Ridge, agreed to Blue Ridge's right to refuse to issue permits in the event

1 of default, [BEGIN CONFIDENTIAL] [REDACTED]

2 [REDACTED]¹⁷ [END CONFIDENTIAL]

3 **11. Confidentiality.** While Blue Ridge does not refute the fact
4 that North Carolina law grants Charter the right to access Blue Ridge's
5 poles, the agreement that governs this access involves market sensitive
6 information and is necessarily the result of compromise and the give and
7 take of the parties. For this reason, the terms and conditions of the new
8 agreement should be confidential. It should be noted that Charter, in the
9 2003 Pole Attachment Agreement with Blue Ridge, agreed to a
10 confidentiality provision, [BEGIN CONFIDENTIAL] [REDACTED]

11 [REDACTED]¹⁸ [END CONFIDENTIAL]

12 **12. Recovery of Space.** My experience with Charter, as well
13 as with communications providers across the industry, shows that
14 Charter's employees and contractors only know to allow 40 inches of
15 separation for the CWSZ. It is commonly misunderstood by cable
16 providers (or misapplied) that the 40 inches must be measured from the
17 bottom of the supply space and not from the bottom of the lowest electric
18 facility installed on the pole at the time the communications provider
19 makes its attachment, which typically happens. Therefore, when Charter
20 places its cable on a pole only 40 inches down from whatever electrical
21 facilities are present at that time, it often encroaches on the supply space,

¹⁷ 2003 Pole Attachment License Agreement, Art. 23; 2008 Pole Attachment License Agreement, Art. 23.

¹⁸ 2003 Pole Attachment License Agreement, Art. 30; 2008 Pole Attachment License Agreement, Art. 30.

1 thereby limiting (or at least complicating) Blue Ridge's ability to later
2 install its distribution transformer, underground risers, services, secondary,
3 or any other facilities because they have no available supply space.
4 Examples of actual Charter attachments that encroach on Blue Ridge's
5 electrical supply space are provided in the photographs of Exhibit GLB-3,
6 Section B. As Charter always attaches to the pole after Blue Ridge has
7 installed its facilities, any encroachment is necessarily caused by Charter.

8 It is Charter's responsibility to ensure that it leaves adequate room
9 on the pole below the supply space for the CWSZ, even if the supply
10 space is not being fully utilized by Blue Ridge at the time Charter makes
11 its attachments. Of course, if the pole is insufficient to allow for this much
12 space, Charter may either abandon that pole or pay for make ready so that
13 there is adequate space for Blue Ridge to use its poles, because Charter—
14 not Blue Ridge—is the party that requires the additional space. Thus, in
15 cases where Charter facilities have created a violation which would not
16 otherwise exist had it not encroached into the supply space, then that
17 violation is exclusively a Charter violation.

18 There are four basic principles which have always governed the
19 pole spaces and have been universally recognized. These are: (i) the poles
20 belong to Blue Ridge and were installed by Blue Ridge for the purpose of
21 serving its member/consumers and not for the use of others; (ii) Blue
22 Ridge follows the NESC and RUS standards, including pole top assembly
23 spacing standards, which means Blue Ridge will be using at least the top

1 8.5 feet of the pole for its minimum requirements of providing safe and
2 reliable service to its consumers; (iii) Blue Ridge has the expectation that
3 each pole it installs will eventually be used to serve a consumer; and (iv) if
4 Charter attaches its cable from 40 inches from the last electric facility on
5 the pole as opposed to 40 inches from the 8.5 foot supply space, as it often
6 does, it takes away a significant portion of Blue Ridge's useable pole
7 space.

8 Blue Ridge should not be faced with an argument—or, worse,
9 litigation—every time Charter disputes whether its attachments
10 encroached into the supply space. Simply put, if Charter were not on the
11 pole (or at least had bothered to set its attachments in way that allowed
12 ample space for Blue Ridge to have unfettered access to the supply space),
13 then no safety violation would be present.

14 In light of this, the pole attachment agreement should authorize
15 Blue Ridge to recapture its space immediately, and the effort and cost of
16 recapturing that space should be borne exclusively by Charter. If Charter
17 properly evaluated the line construction at the time it applies for a permit,
18 it would have determined it needs a taller, replacement pole and Charter
19 would pay for the “make ready” cost of this new, taller pole before making
20 its attachments. An explicit right to recapture space will encourage
21 Charter to undertake the permitting process instead of being faced with a
22 dispute much later in time regarding correction of the encroachment.

1 In addition, when this encroachment creates a NESC violation, the
2 pole attachment agreement should define the processes for remedying the
3 violation so that there is no dispute regarding who created the NESC
4 violation and make clear that the cost of correction is exclusively borne by
5 Charter.

6 Third, because there is such a systematic problem associated with
7 Charter's causing these violations, the agreement should make clear that
8 an encroachment constitutes an unauthorized attachment and is subject to
9 the unauthorized attachment fee.

10 **13. Reservation of Space.** To enable Blue Ridge to
11 accommodate future electrical facilities and make full use of the space
12 allocated to it, any pole attachment agreement must include a provision
13 specifying that all attachments made after the effective date of the
14 agreement should have at least 72 inches vertical clearance under Blue
15 Ridge's grounded neutral on the pole. It should be noted that Charter, in
16 the 2003 Pole Attachment Agreement with Blue Ridge, agreed to such a
17 requirement, [BEGIN CONFIDENTIAL] [REDACTED]
18 [REDACTED].¹⁹ [END CONFIDENTIAL]

19 Additionally, the agreement should provide that should Charter's
20 attachments encroach within the 72 inches Charter shall, upon receipt of
21 thirty (30) days' notice, either (a) vacate the space by removing its

¹⁹ 2003 Pole Attachment License Agreement, Exhibit B, Section D.12; 2008 Pole Attachment License Agreement, Exhibit B, Section D.12.

1 attachments at its own expense, or (b) if Blue Ridge decides to replace the
2 pole with a larger pole that can accommodate Charter's attachments, bear
3 the expense of such pole replacement and transfer its attachments to the
4 new pole.

5 **Q. IN YOUR PROFESSIONAL OPINION, ARE THESE CONTRACT TERMS**
6 **JUST AND REASONABLE?**

7 A. Yes.

8 **Q. IN YOUR PROFESSIONAL OPINION, ARE THESE CONTRACT TERMS**
9 **NECESSARY TO PROTECT BLUE RIDGE FROM THE "BUT FOR"**
10 **COSTS INCURRED AS A RESULT OF CHARTER'S ATTACHMENTS?**

11 A. Yes.

12 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

13 A. Yes, it does.