Request for Proposal
Washington Electric Cooperative, CVFiber, ECFiber, NEK Broadband, Kingdom Fiber
High-Level Design

1. INTRODUCTION

Washington Electric Cooperative (WEC) along with CVFiber, ECFiber, NEK Broadband and Kingdom Fiber are seeking to contract for a High-Level Design for its FTTP network for the 800+- miles of WEC distribution territory. (See Map) We estimate that there are approximately 10,000 premises in this network. The Communication Union Districts, WEC and Kingdom Fiber have bonded together as a means of leveraging construction for both broadband telecommunications infrastructure and electric smart grid monitoring to serve the premises of the WEC members. The State of Vermont has promoted the development of Communication Union Districts and public-private partnerships throughout the state in order to achieve broadband universal access.

2. Washington Electric Coop Area

Founded in 1939 to bring electricity to rural Vermont communities and to provide their members with a voice in their energy future, Washington Electric Co-op today unites their founders' pioneering spirit with a commitment to the environment, their communities, and to their member/owners. WEC is not only committed to providing their members with energy from clean and renewable sources, but also with the technologies to assist the members in using energy efficiently and wisely with the help of smart grid technologies. WEC also recognizes the need for reliable, scalable, and affordable broadband for its community members and is partnering with local Communication Union Districts to provide this service and to support advanced metering infrastructure to monitor and support effective and efficient use of energy. Appendix A shows a map of the area in which broadband infrastructure will be deployed. It represents about 800 miles of distribution network to around 10,000 premises.

3. Proposal Information

All communication with regards to this proposal will be in the form of emails. Other forms of communication, specifically telephone calls or text messages will not be accepted.

The committee representing WEC, CVFiber, ECFiber, NEK Broadband, and Kingdom Fiber reserves the right to:

- Accept or reject any or all responses, or any part thereof;
- Waive any informalities or technicalities contained in any response received;
- Conduct discussions with respondents and accept revisions of proposals after the closing date;
- Make an award based upon selection criteria defined in this RFP;

● Request clarification from any respondents on any or all aspects of its proposals;
● Cancel or re-issue this RFP at any time;
● Retain all proposals submitted in response to this RFP; and/or
● Invite some, all, or none of the respondents for interviews, demonstrations, presentations, and further discussion.

4. CALENDAR

May 14, 2021	RFP Issued
May 21, 2021 at 5:00 PM ET	Last day of respondent questions submitted via email
May 26, 2021 at 5:00 PM ET	Answers to all questions distributed and posted
June 2, 2021 at 5:00 PM ET	RFP Responses submitted via email
June 11, 2021	Interviews complete
June 16, 2021	Response selection

5. CONTACT INFORMATION

Please send all questions and RFP responses to hld-rfp@googlegroups.com.

6. VENDOR INFORMATION
    a. Vendor name, address, telephone number, email and website
    b. Submission contact person: name, title, phone numbers and email address
    c. Company overview, including a brief history, mission, number of employees, and number of years in operation.
    d. If an independent consultant: your full name, address, phone number, email, and years working as an independent consultant.
    e. Describe experience working for municipal, non-profit, and commercial clients.
    f. Two recent references concerning your experience with the work described in this RFP. Indicate the reference's name, a brief description of the services provided, and the name, title, and contact information.
    g. The selected vendor will carry liability insurance in the amount of one million dollars ($1,000,000) per occurrence, errors and omissions insurance in the amount of one million dollars ($1,000,000), and worker's compensation insurance as required by law. The selected vendor will provide Certificates of Insurance as a condition of acceptance.

7. SCOPE OF WORK

Create and deliver a high-level XGSPON FTTP network design. The high-level design shall conform to the technical standards in Appendix B. It shall specify the suggested locations of the central nodes and the cable routes that would extend the GPON network from these nodes to the service area. The high-level design will also specify the sizing of the fiber optic cable necessary to provide current and future capacity to serve all premises, optimize the connectivity from central nodes to middle mile and long haul needs of the network, and plan capacity for

growth and performance (speed) enhancements over time to serve the areas within the towns not served by WEC.

The Design shall:

a) Include the WEC service territory in the following WEC member towns:

   Barre, Berlin, Bradford, Cabot, Calais, Corinth, Duxbury, East Montpelier, Elmore, Groton, Marshfield, Middlesex, Montpelier, Moretown, Newbury, Northfield, Orange, Peacham, Plainfield, Roxbury, Ryegate, Stannard, Topsham, Walden, Williamstown, Washington, Wheelock, Woodbury, Worcester.

b) Include excess fiber strand to accommodate whole town design.
c) Without sacrificing future performance growth, the high-level design shall minimize build and operating costs and shall optimize use of existing aerial routes but may include limited lengths of underground routes.
d) Incorporate available existing fiber assets including First Light, VELCO etc., where their use is feasible, and any known passive infrastructure that could be leased rather than built new.
e) To the degree possible, situate electronics in proximity to government buildings or near areas of greater population density.
f) Clearly describe a strategy and rationale for design architecture.
g) Describe anticipated required permits and civil works, along with estimated costs.
h) Include OLTs and ONTs in quantities and locations that are consistent with technology constraints, strand counts, and population densities. The design shall also specify the proposed service area and capacity for each OLT.
i) Divide the initial service territory into Fiber Service Areas, and shall provide approximate types, costs, and locations of other gear needed to provide services such as splice cases, MSTs, splitters, hand holes, and other types of material that may be required.
j) Be expandable in a manner as efficient and effective as possible to increase capacity and to accommodate advances in technology as may reasonably be expected to become available over the life of the network (at least 20 years). The design should include sufficient fiber capacity in the backbone and distribution routes to accommodate potential future expansion.
k) Adhere to all current and generally accepted technical standards, building codes, construction practices, and other regulations, specifications, and standards as may apply in the broadband networking industry.
l) Clearly indicate strand counts for each discrete cable specified.
m) Provide an estimated bill of materials including labor, and materials, including all active and passive equipment with quantities and capacities (where applicable) provided for each item, along with one-time and recurring expenses, such as maintenance, repair, and replacement.
n) When completed be based in a Geospatial Information System and shall be provided in a format that can be integrated into other (ESRI) GIS systems. A numeric version of the

design, listing lengths, quantities, and other specifications shall be provided in a format that is readable by Microsoft Excel. Two full sets of architectural D size scale drawings subject to Owner approval shall be provided.

o) The successful vendor shall include 14 hours of technical support services to facilitate interpretation of the completed high-level design and support Owner's next infrastructure deployment steps.

8. EVALUATION CRITERIA
    a. Municipal Broadband Experience and Capacity (25%)
    b. Client List and References (25%)
    c. Pricing (50%)

9. PRICING

Include a per-mile high-level design rate in the event additional towns are added to the network. The rate must be valid for a minimum of one calendar year from the date of selection, and the response must specify the proposed inflation-related adjustment after that period. A firm fixed price is preferred, including data and requirements collection, design, documentation, and support.

Where appropriate, include list prices and discounted prices. If licenses are involved, provide sufficient detail that will allow informed decision making.

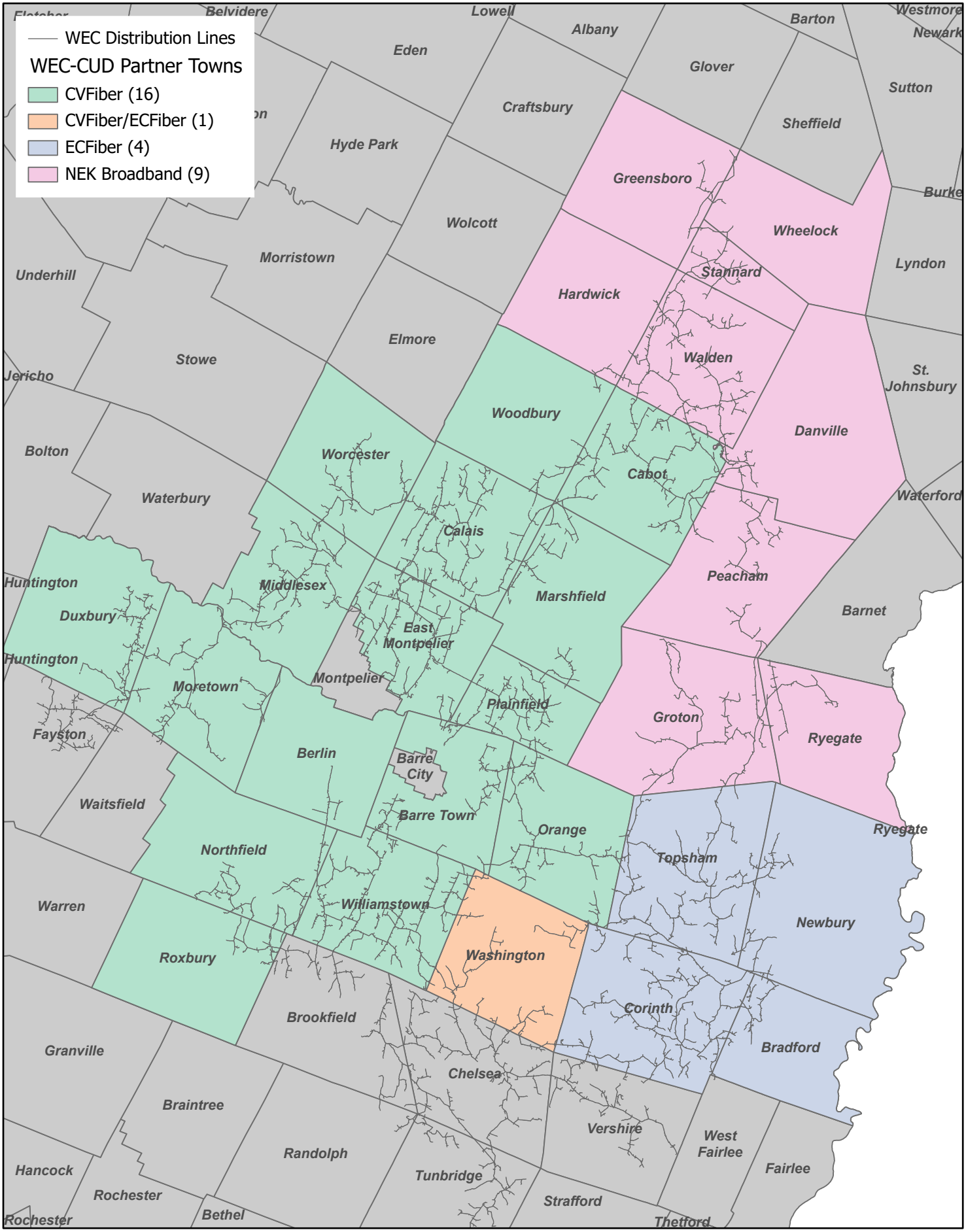
10. FORM OF PROPOSAL
    a. Introduction
    b. Scope of work narrative
    c. Compliance statement
    d. Timeframe to complete the work
    e. Caveats, assumptions, if any
    f. Vendor background and qualifications
    g. Narrative description of relevant experience
    h. Two references including contact information
    i. Pricing

APPENDIX A

Materials provided:
ArcGIS Project Package (v2.7) with the following symbolized data:

- WEC Poles
- WEC Lines
- WEC/Other Utility Substations
- VELCO Fiber Network
- E-911 Occupied Sites
- Roads
- Town Boundaries
- CUD Boundaries
- WEC Boundary
- GMP Poles
- GMP Lines
- Potential HUB Locations

Contractor can also download data from the Vermont Center for Geographic Information at https://geodata.vermont.gov/



WEC-CUD Fiber Project Partner Towns

APPENDIX B
TECHNICAL SPECIFICATION

1. Ten-Gigabit Symmetrical Passive Optical Network (XGSPON) architecture for residential and small business use.
2. WEC pole location data and substation locations will be provided in a GIS format. The high-level design should attempt to follow pole paths to the extent possible with potential underground segments where there are no usable pole lines. Premises locations will also be provided in a GIS format.
3. Four or more spare fiber strands set aside for future direct connections from local hubs to serve large commercial businesses or to provide service to cell towers.
4. Sharing of optical feeder and port on the Optical Line Terminal (OLT) among as many subscriber terminals as possible, typically 28 subscribers per OLT port plus 4 spares.
5. Attachment of distribution fiber and customer drops on existing utility poles located at the roadside or in easements on private property.
6. Passive optical splitters to terminate the fiber and provide the optical connection to the Optical Network Terminal (ONT) at the customer premises.
7. Not less than two (three would be better) central hub locations to provide routing redundancy, one each in Southern and Northern areas of the District.
8. Local hub locations in many member towns as determined by distance requirements and the number of required local connections. If desirable, hub can co-locate at the electrical substation.
9. Generator availability at hub location and not less than 8 hours of battery back-up in each hub.
10. Optical line terminals (OLT) in each hub connecting to splitters in the field and connecting to each other in a ring topology.
11. Diverse and redundant connections to backhaul providers and concentration to ensure resilient connection to the internet.
12. Ensure the electrical substations are on the network.
13. Diverse backhaul connections to major co-location centers in two to three cities with sufficient upstream capacity and peering arrangements to support the peak load of fiber customers plus 20%.
14. To the extent possible, the design should provide for connections to the premises and installation inside each premises at nominal cost, provided that the connection from the nearest utility pole is aerial and up to 400 feet in length.
15. The network design will have sufficient flexibility to support substantial economic growth and a corresponding increase in the number of occupied premises by overlashing additional fiber from the hub to the additional locations and/or shortening the distance between splitters.