Broadband Infrastructure
PLAYBOOK

Implementing BEAD and other
Broadband Deployment Programs

Fiber Broadband ASSOCIATION

NTCA THE RURAL BROADBAND ASSOCIATION

Cartesian®

Version 3.0 (2024)
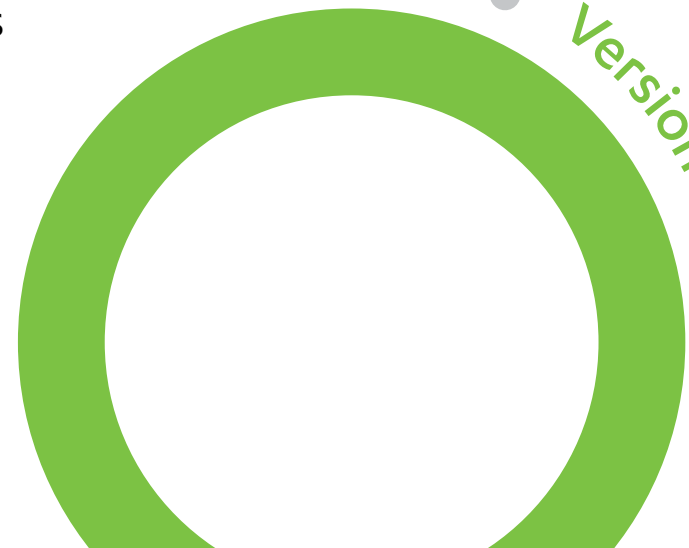
INTRODUCTION

Beginning in early 2022, the Fiber Broadband Association and NTCA–The Rural Broadband Association joined together and commissioned industry-leading consulting firm Cartesian to develop a Broadband Infrastructure Playbook. At the time, the National Telecommunications and Information Administration (NTIA) was just starting to consider how it would implement the $42.5 billion Broadband Equity, Access, and Deployment (BEAD) program created by the Infrastructure Investment and Jobs Act (IIJA), and our goal with the initial release of the Playbook was to give states and territories a head-start on BEAD implementation by identifying key issues and offering planning ideas. After NTIA released its BEAD Notice of Funding Opportunity, we released an updated version of the Playbook in July 2022, highlighting pathways to achieve the IIJA's ultimate goal, as articulated in the BEAD notice, of delivering future-proof connectivity to all Americans through this historic investment.

In the fall of 2023, we released version 3.0 of the Playbook in the form of several modules that covered some of the most pressing topics for consideration as broadband offices were racing to deliver "initial proposals" to NTIA for BEAD implementation. We published these modules digitally in serial form, and held a webcast to cover this information in further detail. Today, we are delivering to you the complied materials from these latest releases in the hope that this will prove helpful as states and territories begin to receive approval of their initial proposals from NTIA and move forward with program implementation. Issues covered in this version 3.0 of the Playbook include how to evaluate applications and establish the extremely high-cost threshold that will determine which broadband projects receive the priority mandated by the IIJA, how to streamline State

and local permitting processes to ensure BEAD projects will meet the aggressive deployment timelines established by NTIA, and how to promote effective and flexible cybersecurity and supply chain risk management planning by BEAD funding recipients.

As has been the case through our evolving publications of the Playbook, our goal is to provide a valuable resource to the states and territories to help them accelerate the availability of funding, provide best practices and promote metric-based decision-making, and help provide some consistency in the process nationwide. This once-in-a-generation funding opportunity warrants an effective and efficient approach that will deliver networks and services providing value for generations to come. We hope you find the information in this Playbook useful and that you reach out to our Associations and their members for our expertise in fiber broadband, the rural broadband market and what it takes to serve consumers – today and into the future.

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DETERMINING THE EXTREMELY HIGH COST THRESHOLD

What is an "Extremely High Cost per Location Threshold" (EHCT)?

In the BEAD program Notice of Funding Opportunity (NOFO), the National Telecommunications and Information Administration (NTIA) establishes the Extremely High Cost per Location Threshold (EHCT) – a foundational concept and requirement to achieving the program's goal of maximizing the deployment of fiber technology while seeking to provide broadband connectivity universally. Put simply, the EHCT is a cost threshold set by a State or Territory above which the prioritization or preference for fiber projects ceases and the Eligible Entity may consider use of an alternate technology on equal footing if it can meet the BEAD technical requirements.[1]

The EHCT is most relevant for determining whether and when to deploy fiber to locations in the hardest-to-reach places.

How is an EHCT set?

The NOFO provides the following guidance on setting the EHCT:

1. **Eligible Entities must submit a proposal to the NTIA about their chosen threshold.** Initial proposals to the NTIA should include the proposed EHCT or a method for choosing it, which will give NTIA an opportunity to ensure an Eligible Entity's approach is reasonable to achieve the program's goals.
2. **The EHCT should be set as high as possible.** High thresholds will bring fiber to as many households as possible, ensuring that the most future-proof technology is built wherever reasonable.
3. **The chosen EHCT will affect provider participation.** Providers will generally contribute at least 25% of project costs. A higher EHCT means that providers will need to increase their match, which may limit participation.

What are the consequences of setting an EHCT too low or too high?

If an EHCT is set **too low**, fewer homes will receive fiber connectivity. Fiber has long been recognized by providers investing their own capital as the most reliable, capable, and scalable high-speed broadband technology. Thus, to ensure consumers and businesses at unserved and underserved locations are not left behind, an Eligible Entity should strive to deploy fiber to the greatest extent possible. By contrast, if an Eligible Entity does not maximize fiber deployments, it will almost certainly need to eventually invest in more robust and capable networks yet again later. This is the reason setting the EHCT right will make all of the difference in leveraging the historic financial resources made available in BEAD.

If an EHCT is set **too high**, the most remote unserved and underserved locations may remain under-connected. With a too-high EHCT, it is possible that resources could be depleted before every location is served.

What are the most important factors to consider when setting an EHCT?

There are three critical features that Eligible Entities should weigh in their decision process:

1. **Fiber build costs.** What is the range and distribution of fiber costs per location? These costs will vary, sometimes significantly, depending on location density, regional terrain, and the proximity of existing infrastructure.

2. **Service provider economics.** Providers must determine the economic feasibility of a project for themselves. Thus, Eligible Entities should consider factors including potential revenue, number of potential customers, expected return on investment and payback period, and use of existing network assets. The provider match also informs the provider's business case. In addition, there may be areas where certain providers are more willing to provide service based on factors such as the presence of multi-dwelling units and the provider's existing infrastructure in the area. These and other factors all influence providers' willingness to pay, and thus influence where an EHCT should reasonably be set.

3. **Overall build goal.** An Eligible Entity should identify its goal for using BEAD funding consistent with the NOFO's guidance to bring fiber to as many locations as reasonable while supporting universal connectivity. Is it to maximize performance quality and avoid the need for significant rebuilding of networks in the near future, for example, or to reach as many locations as possible with a minimum level of performance? The Eligible Entity should design its EHCT with that goal in mind.

How can an Eligible Entity establish a reasonable EHCT?

1. Determine a reasonable estimate for **fiber cost**. Fiber cost can be estimated based on the miles of plant to be built, local labor and permitting costs, geography and terrain, and other economic factors. The number of miles of fiber needed to reach a location can be estimated by finding the shortest path along roads that connect unserved and underserved locations to existing fiber networks.

2. Build realistic **business cases** for providers who would participate in the BEAD grant application process, including an assessment of the factors that impact provider economics such as borrowing costs and market rates of return.

3. Test different **deployment scenarios** using various EHCTs and assess the modeled outcome from each.

4. Identify the EHCT that leads to the deployment scenario that **meets the Eligible Entity's goals** and BEAD requirements most comprehensively.

One Path of Many

Each Eligible Entity's actual calculation to set an EHCT must look at economic considerations on a per location basis and will require unique inputs specific to that Entity and its unique goals.

Following a subgrant award and prior to deploying infrastructure, subgrantees will need to secure permits from State and local governments for access to public rights-of-way and infrastructure, as well as complete reviews required by the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). Obtaining these permits will be critical to expeditious deployment, meeting BEAD timelines. NTIA's Initial Proposal Guidance (at 72) requires that Eligible Entities provide a solution for permitting issues in their Initial Proposals.

The Eligible Entity must identify steps to reduce costs and barriers to deployment, including through the following: promoting the use of existing infrastructure and/or promoting and adopting dig-once policies, streamlined permitting processes, and cost-effective access to poles, conduits, easements, and rights of way, including the imposition of reasonable access requirements. The Eligible Entity is not required to address each of these; rather, the Eligible Entity may indicate which barriers it intends to address.

Thus, Eligible Entities have an opportunity to address an issue that has been long identified as a key gating factor in getting broadband service delivered, ensuring that eligible locations promptly receive connectivity. This will allow for ambitious deployment objectives of the BEAD program to be met.

To that end, Eligible Entities should take action on the recommendations found below (and encourage, if not mandate, local governments to do the same) in the context of processing State and local permit applications:

1. **Establish a single point of contact** in the State/Territory for subgrantees to interact with that will support and facilitate all necessary permitting approvals by State/Territory and local government agencies.

2. **Provide transparency on their permitting** processes and standards for approval, including by:

   a. Posting on government agency websites the forms and underlying documentation or other requirements (such as environmental or engineering studies) necessary to obtain permits (and include links to such materials on the state broadband office website).

   b. Posting on government agency websites the fee schedules and tutorials/FAQs explaining permitting processes applicable to that agency (and include links to such materials on the state broadband office website).

3. **Provide sufficient resources** to process permit applications in a timely and cost-effective manner, attempting in particular to identify any questions or concerns as early in the process as possible and to minimize the need for multiple rounds of requests for supplemental information from applicants.

4. **Create "common forms"** that all government agencies should use to review and issue a permit allow subgrantees to file all forms electronically, and enable providers to check the status of applications via the online portal.

5. **Review and approve applications** within a reasonable time.

6. **Adopt "cost-based" fees** for applications and access to public rights-of- way (whether one-time or recurring); these should be tied directly and only to the costs incurred by government agencies in the acts of issuing permits and restoring disturbed areas to their pre-construction status.

7. **Utilize the guidance provided by NTIA** that includes various resources such as permitting "best practices," references to State/ Territory statutes that include application approval timeframes and cost-based fees, and tips on implementing many of the recommendations made here, as well as detailed tutorials on federally required NEPA/NHPA processes.[2]

8. **Look to the "State Model Code"** created by the Federal Communications Commission's Broadband Deployment Advisory Committee[3] for ideas and even draft legislation that, if adopted, can streamline state and local permitting processes.

In addition to securing permits from State/ Territory and local government agencies, subgrantees will coordinate with State/ Territory broadband offices as well as NTIA to complete the NEPA/ NHPA processes. These federal review processes have historically been time-consuming and costly for broadband providers. Eligible Entities should work with NTIA and other federal agencies to obtain the expertise necessary to advise subgrantees on how to successfully navigate NEPA and NHPA requirements. Eligible Entities also should hire or otherwise retain experts versed in NEPA and NHPA processes to assist subgrantees in their efforts to complete these requirements.
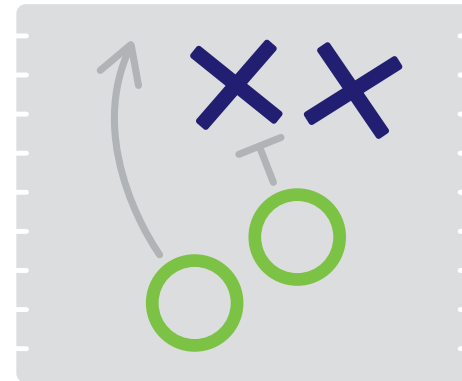
The Notice of Funding Opportunity ("NOFO") released by the National Telecommunications and Information Administration ("NTIA") requires each Eligible Entity to ensure that prospective subgrantees of Broadband Equity, Access, and Deployment ("BEAD") funding attest that they meet certain cybersecurity and supply chain risk management requirements. These requirements are often combined into a single Cybersecurity and Supply Chain Risk Management Plan (C-SCRM Plan).

We summarize below the NOFO's cybersecurity and supply chain risk management baseline requirements to which prospective subgrantees must attest and then provide recommendations on how Eligible Entities can work with subgrantees to meet these requirements.

NOFO Cybersecurity Baseline Requirements:

1. The prospective subgrantee has a cybersecurity risk management plan in place that is either:
   a. operational, if the prospective subgrantee is already providing service at the time of the grant; or
   b. ready to be operationalized, if the prospective subgrantee is not yet providing service at the time of grant award.

2. The plan reflects the latest version of the National Institute of Standards and Technology (NIST) Framework for Improving Critical Infrastructure Cybersecurity (formerly known as the NIST Cybersecurity Framework or NIST CSF; the current version is 1.1) and the standards and controls set forth in Executive Order 14028 and specifies the security and privacy controls being implemented.[4]

3. The prospective subgrantee will reevaluate and update the plan on a periodic basis and as events warrant.

4. The prospective subgranteee will submit the plan to the Eligible Entity prior to the allocation of funds. If the subgrantee makes any substantive changes to the plan, it will submit a new version to the Eligible Entity within 30 days.

NOFO Supply Chain Risk Management (SCRM) Baseline Requirements:

1. The prospective subgrantee has a SCRM plan in place that is either:
   a. operational, if the prospective subgrantee is already providing service at the time of the grant; or
   b. ready to be operationalized, if the prospective subgrantee is not yet providing service at the time of grant award;

2. The plan is based upon the key practices discussed in the NIST publication NISTIR 8276, Key Practices in Cyber Supply Chain Risk Management: Observations from Industry and related SCRM guidance from NIST, including NIST 800-161, Cybersecurity Supply Chain Risk Management Practices for Systems and Organizations and specifies the supply chain risk management controls being implemented;

3. The prospective subgrantee will reevaluate and update the plan on a periodic basis and as events warrant; and

4. The prospective subgrantee will submit the plan to the Eligible Entity prior to the allocation of funds. If the subgrantee makes any substantive changes to the plan, prospective subgrantee will submit a new version to the Eligible Entity within 30 days.

The NOFO also states that an Eligible Entity must ensure that, to the extent a BEAD subgrantee relies on network facilities owned or operated by a third party (e.g., purchases wholesale carriage on such facilities), the subgrantee obtains attestations from its network provider with respect to both cybersecurity and supply chain risk management requirements. An Eligible Entity may propose to NTIA additional measures that it deems are necessary to safeguard networks and users.

Recommendations for Eligible Entities to Support Prospective Subgrantees:

- Proactively offer stakeholders educational opportunities about the NIST Framework.

- Permit each subgrantee to combine its Cybersecurity Plan and its Cyber Supply Chain Risk Management plan in a single document (i.e., a C-SCRM Plan).

- Develop a process for collecting and maintaining copies of subgrantee plans.

  – Given the significant security risks that can arise from unauthorized access and review, ensure that plans can be submitted and maintained confidentially and will not be included in any public posting of applications or subject to any Freedom of Information Act (FOIA) requests.

- Encourage subgrantees to stay abreast of current cyber threats and mitigation measures through membership in a relevant ISAC (information sharing and analysis center), participation in Cybersecurity and Infrastructure Security Agency's (CISA) Automated Indicator Sharing (AIS), or other sufficient means.

- Because each cybersecurity risk management plan is specific to a company and cannot be judged in comparison to any other plan, not include the content of a plan as part of criteria to score deployment applications.

REFERENCES

1   The NOFO defines the EHCT as "a BEAD subsidy cost per location… above which an Eligible Entity may decline to select a proposal if use of an alternative technology meeting BEAD's technical requirements would be less expensive."

2   BroadbandUSA, National Telecommunications and Information Administration, Permitting Resources, available at: https://broadbandusa.ntia.doc.gov/assistance/permitting.

3   Broadband Deployment Advisory Committee, State Model Code for Accelerating Broadband, Infrastructure Deployment and Investment (Dec. 16, 2018), available at: https://www.fcc.gov/sites/default/files/bdac-12-06-2018-model-code-for-states- approved-rec.pdf.

4   Eligible Entities should be aware that NIST is in the process of updating this Framework and has released draft v. 2.0 for public comment.

Established in 2001, and the only all-fiber trade association in the Americas, the Fiber Broadband Association (FBA) provides advocacy, education and resources to companies, organizations and communities who want to deploy the best networks through fiber to the home, fiber to the business and fiber everywhere. Our member-led association collaborates with industry allies to propel fiber deployment forward for a better broadband future here and around the world.

www.fiberbroadband.org

NTCA–The Rural Broadband Association is building a better broadband future for rural America. Proudly representing nearly 850 independent, family-owned and community-based telecommunications companies, NTCA's members build and deliver broadband connectivity and operate essential services in rural and small-town communities across the U.S.
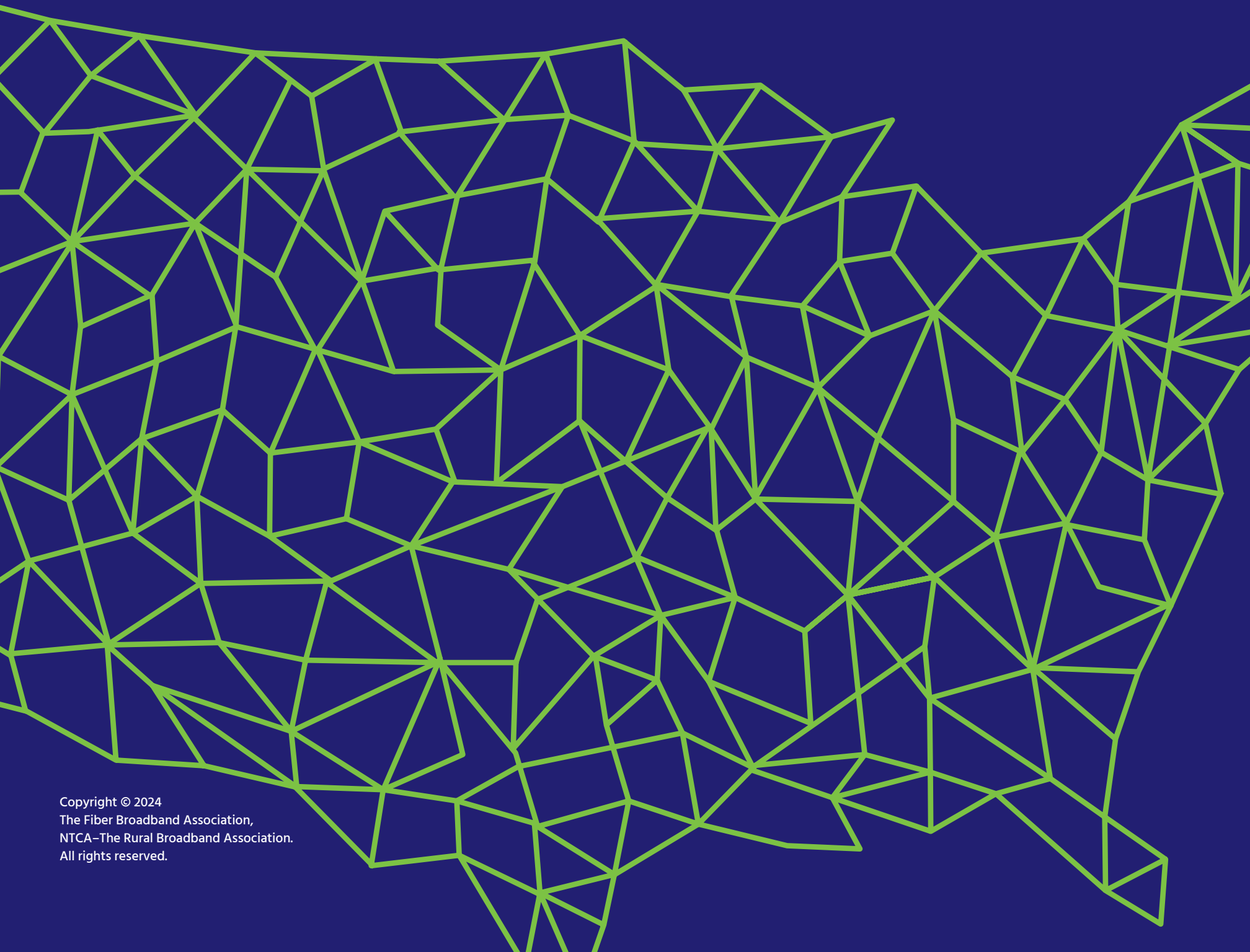
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