Broadband Funding and the Future of Fiber

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About the Fiber Broadband Association

Our Mission

The Fiber Broadband Association's mission is to accelerate deployment of all-fiber access networks by demonstrating how fiber-enabled applications and solutions create value for network operators and their customers, promote economic development and enhance quality of life.

Our Vision

To be the voice for ultra high-speed wireline broadband deployment throughout the Americas.

State of Fiber Today:
Deployment is on the Rise

United States

- **41 Million** Homes Marketed
- **17%** Growth over 2018
- **18.6 Million** Homes Connected

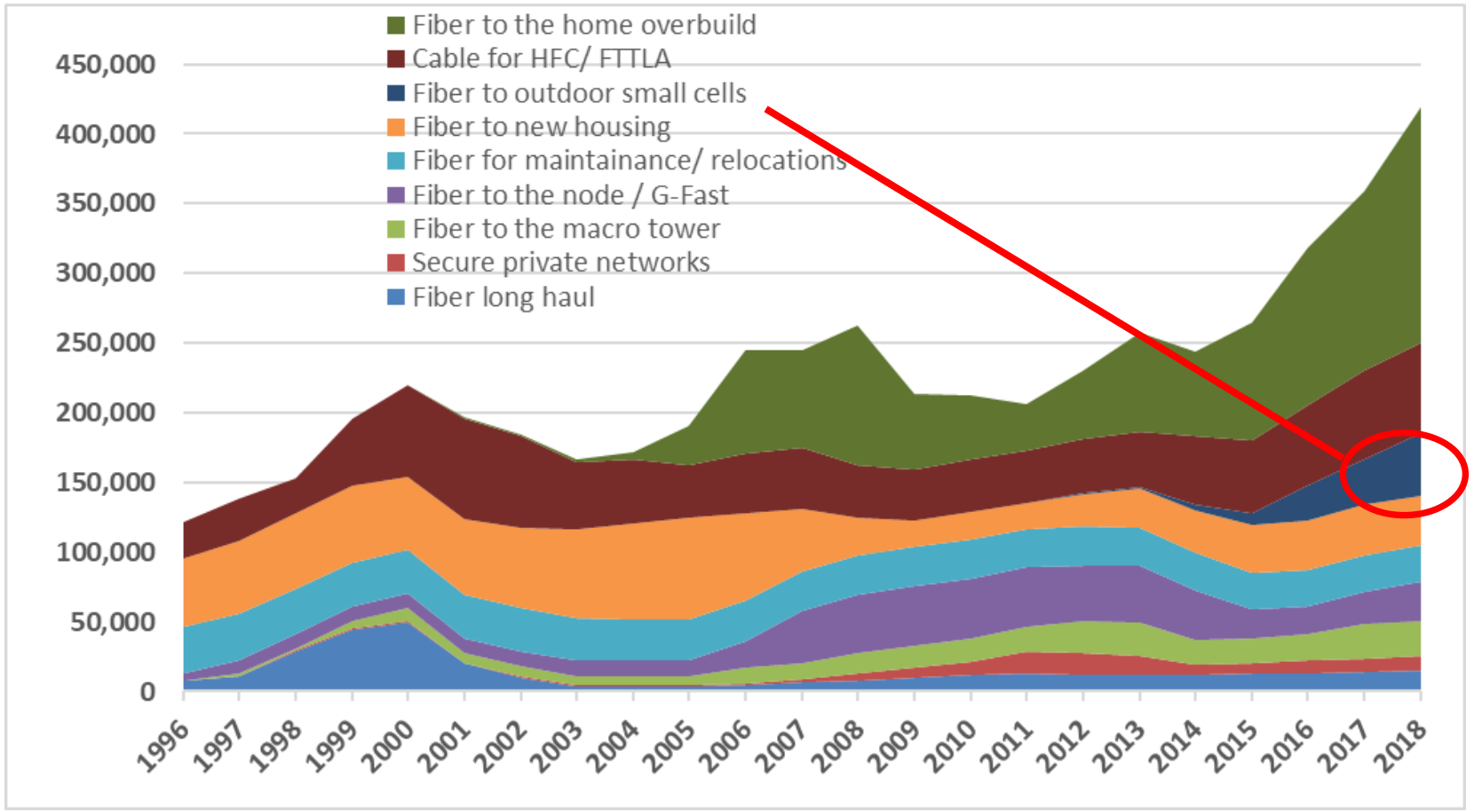
North America

- **59.9 Million** Homes Marketed
- **22% Growth** in 2018
- **23.8 Million** Homes Connected

According to a 2018 study from RVA, LLC

Total Fiber Deployment at Record Levels

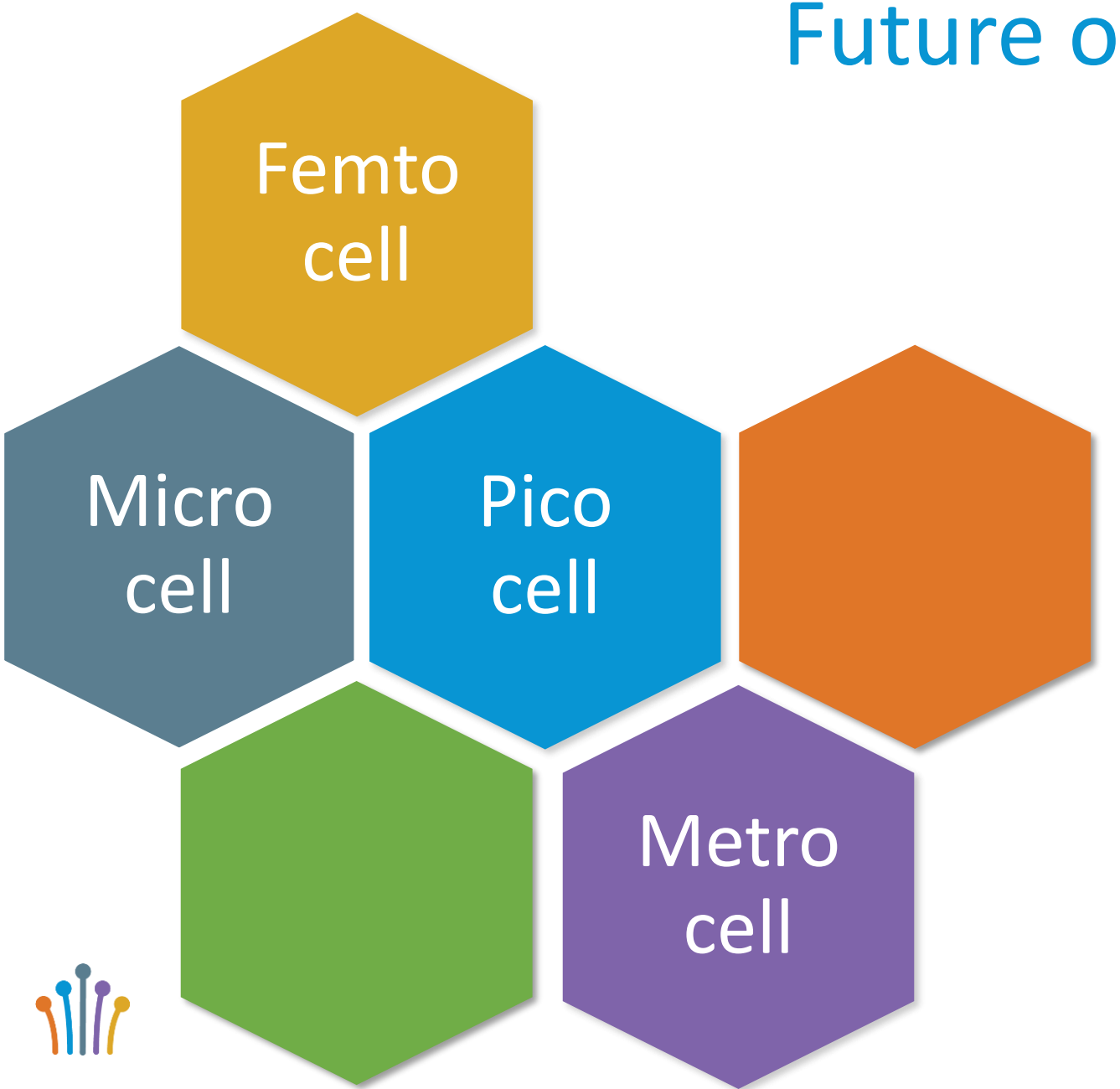
And Small Cell is Just Beginning



Reviewing fiber route miles, i.e. the number of linear miles fiber is deployed overhead or underground – whether single or multiple fiber strands/ lines.

According to a 2018 study from RVA, LLC

Future of Fiber: 5G



Use Cases Demand 5G

Enhanced mobile broadband capacity/speed
Low latency-gaming and AVs
Massive machine-to-machine communication
Many IoT devices

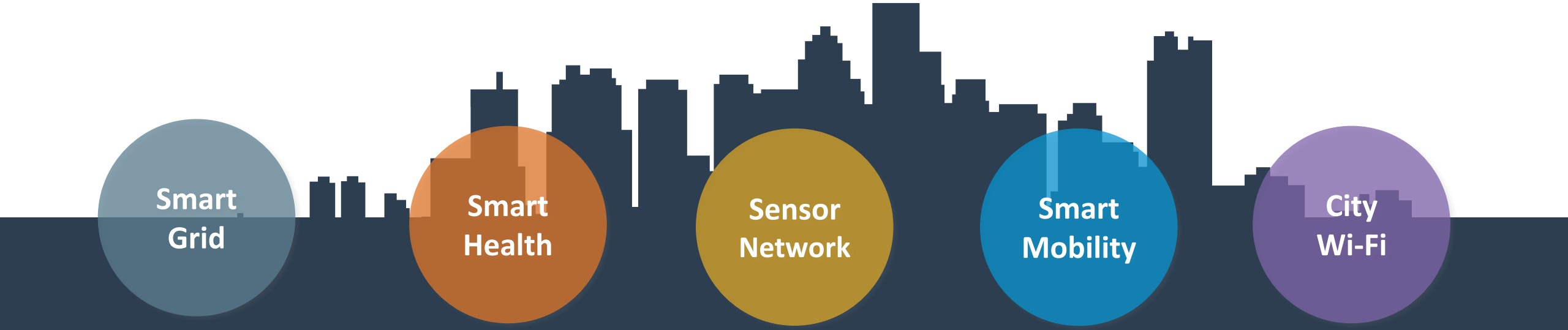
Fronthaul/Backhaul/Midhaul

More fiber needed with 5G architecture
Fronthaul – computing/processing in centralized place. Backhaul – transmit information to final destination.

Wireless Growth Demands Fiber

To meet 5G/wireless demands: estimated 1.4 million miles of fiber needed in top 25 US metros. A $150-180 billion investment in the US in new fiber over 5-7 years.

Future of Fiber: Smart Cities



Energy Efficiency

EPB in Chattanooga built out a fiber network to reliably manage its energy and electrical systems

Healthier Cities

Hiawatha Broadband in Minnesota piloting project to use its fiber as a platform for home monitoring of patients with dementia

Civic IoT

US Ignite and cities around the U.S. (and the world) are developing a smart city app store predicated on big bandwidth

Safer Streets

Verizon and the City of Boston are using sensors and advanced traffic signal controls to measure traffic, improve safety

Connected Community

Santa Monica City Net provides fiber-supported Wi-Fi to its residents in public places

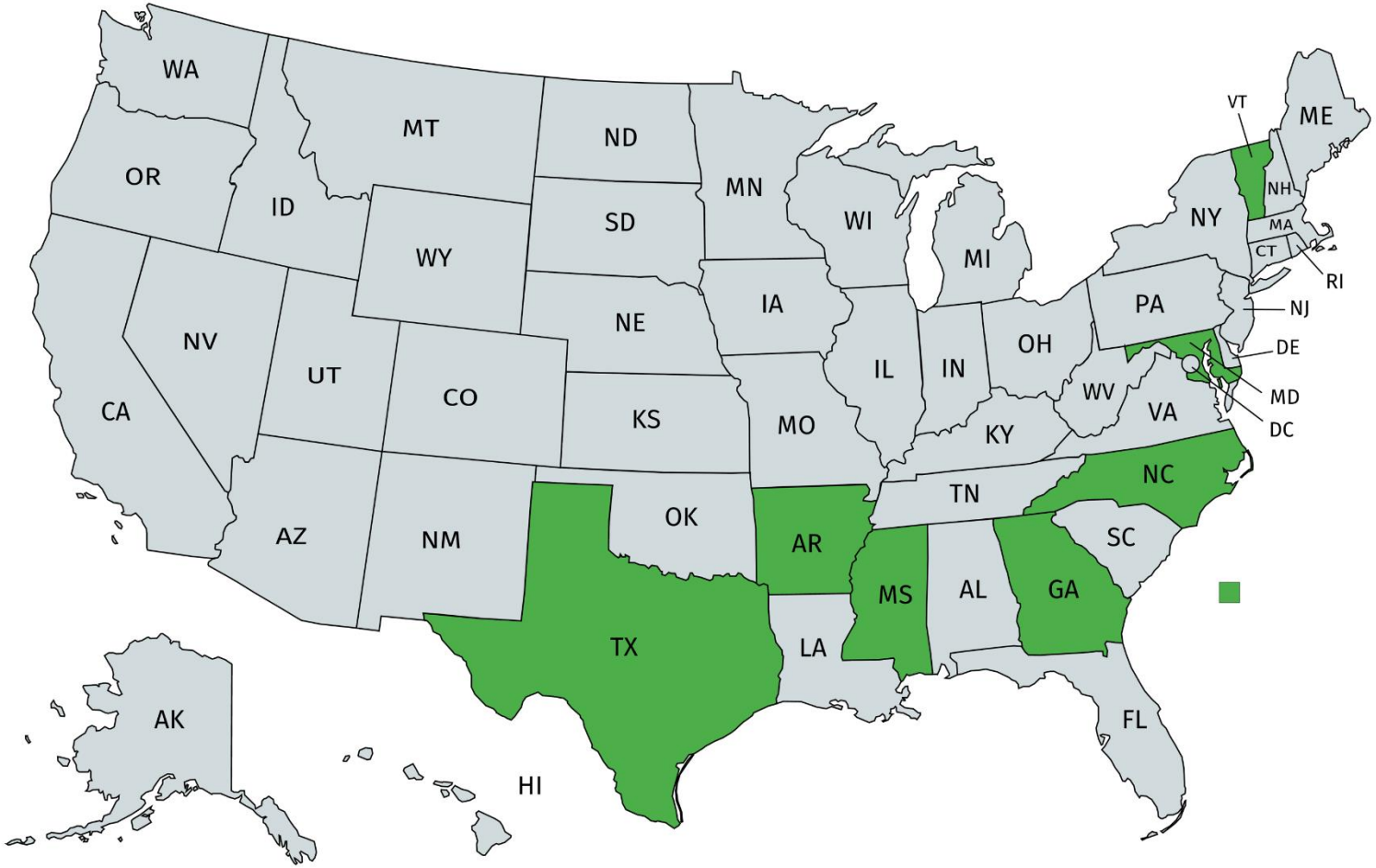
Future of Fiber: Small Cell Deployment

According to 2018 research from RVA, LLC:

Fiber Cities are more likely to be Smart Cities

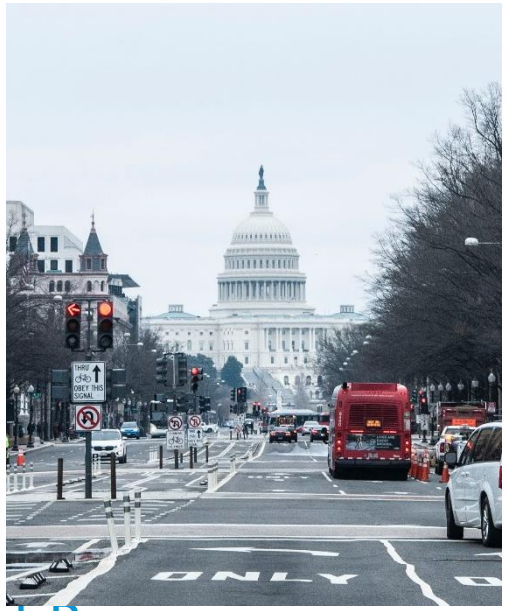
- Cities with fiber have, on average, 37% more deployed small cells and just over 35% more smart city applications
- 33% of cities without fiber report small cell activity, versus 60% of cities with fiber to the residence

Future of Fiber: New Opportunities for Deployment



Broadband Funding Sources

- FCC
  - RDOF/Connect America
  - E-Rate, Schools & Libraries, Rural Healthcare
- USDA RUS
  - Traditional Telecom Programs (Loans/Guarantees
  - Broadband Program (Grants, Loans/Guarantees)
  - Community Connect Programs (Grants)
  - Pilot Reconnect Program (Grants, Loans/Guarantees)
- State Funds – Universal Service or Broadband Deployment Programs
- Public Private Partnerships
  - Models Vary by Risk, Benefit, Control



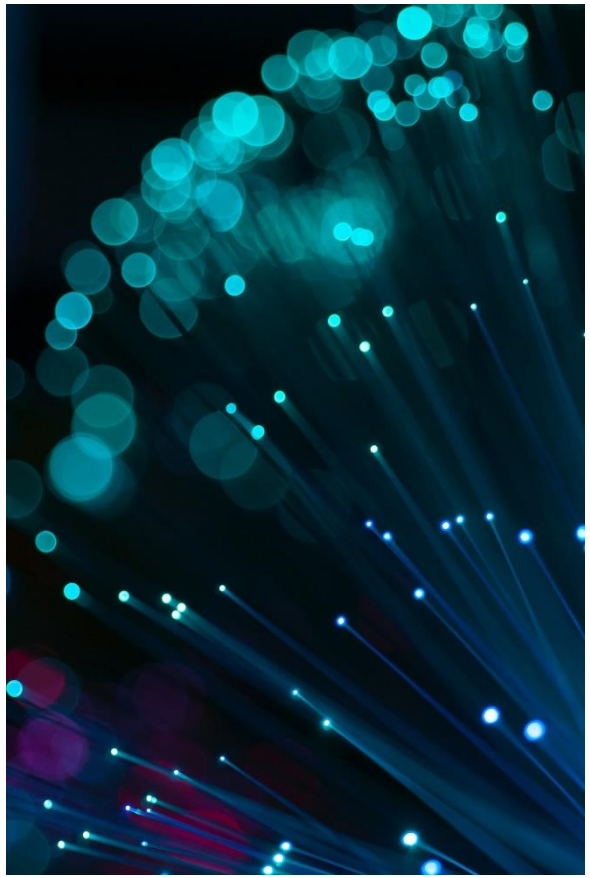
According to 2019 study from FBA and Cartesian

FBA Study – Deploying Fiber to 90% of US Households

- We can reach **90% of U.S. homes** with fiber broadband networks in the next 10 years.
- Reaching 90% of U.S. homes will cost approximately **$70B**.
- **We can achieve this** with:
  - Targeted government support
  - Muni builds
  - Private sector innovation
  - Public-private partnerships
  - Innovative deployment models

According to 2019 study from FBA and Cartesian

FBA Weighting Methodology to Improve FCC Auctions



- Our research shows that the FCC's **CAF II auction** penalized fiber broadband providers:
  - It **disincentivized participation by gigabit providers** and few areas saw gigabit bids.
  - It failed to consider the **socioeconomic benefits** produced by different access technologies — e.g., telecommuting, remote health and learning, e-commerce, and video streaming.
- To determine weights in future auctions, the FCC should use a **methodology** that accounts for the full benefits of different technologies.

According to 2019 study from FBA and Cartesian

Get Involved in the Fiber Future

Fiber Broadband Association Membership

- Join a Committee or Group
- Benefit from FBA's educational webinars and certification programs
- Network with key leaders in the industry; stay current on issues
- Learn more at: www.fiberbroadband.org/join

FBA Regional Meeting Nov 5, 2019, Fort Collins, CO

- Attend FBA's Broadband Starter Kit Workshop
- Learn from industry leaders about deploying and growing fiber networks
- Network with industry leaders
- Learn more at: www.fiberbroadband.org