

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**THE ELECTRONIC APPLICATION OF )  
KENERGY CORP. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY )  
FOR THE CONSTRUCTION OF A HIGH-SPEED )  
FIBER NETWORK AND FOR APPROVAL OF THE )  
LEASING OF THE NETWORK'S EXCESS CAPACITY )  
TO AN AFFILIATE TO BE ENGAGED IN THE )  
PROVISION OF BROADBAND SERVICE TO )  
UNSERVED AND UNDERSERVED HOUSEHOLDS )  
AND BUSINESSES OF THE COMMONWEALTH )**

**Case No.  
2021-00365**

**KENERGY CORP'S RESPONSES TO  
ATTORNEY GENERAL'S INITIAL DATA REQUESTS**

**KENERGY CORP.**, ("Kenergy") responds to the Attorney General's initial data requests as follows:

1 . Discuss how this proposal will impact electric rates for Kenergy rate-payers.

**RESPONSE:**      **The plan is that construction of the smart grid will have no negative rate impact. The cost of the project is paid entirely by lease of excess capacity to Kenect which recovers all its costs via a sublease. Under the projection of revenue to Kenergy, rate pressure on electric rate payers will ease as money flows to Kenergy from Kenect.**

**WITNESS: Jeff Hohn.**

2. Discuss how this proposal will impact reliability and service for electric ratepayers.

**RESPONSE:** A smart grid network will enable Kenergy to provide at least as reliable and good service to its members. The long-term advantage for electric users will be in speed of two communications between the member and Kenergy.

**WITNESS:** Jeff Hohn.

3. Provide any additional support, beyond the analysis provided on pages 8-13 of the Application, which may be necessary to determine whether the proposal complies with all provisions of KRS 278.5464.

**RESPONSE:** KRS 278.5464(3)(a) allows broadband to be provided through an affiliate of a regulated electric utility. Kenect is a wholly owned affiliate of Kenergy.

Kenect will serve unserved and underserved areas. Nearly all of Kenergy's territory is unserved or underserved. While there may be small pockets of service in a census block, the bulk of all the census blocks are unserved or underserved.

Kenergy does not intend to capitalize Kenect but rather will build the smart grid with RUS funds and lease the excess capacity.

The concept of wasteful duplication is covered by the statute. The need for the electric regulated business is the long term need to have in place the electric utility communications to meet the future demands of distributed generation resource management and electric vehicles.

**As to cost allocation, nothing in the affiliate transaction rules prevent the affiliate from subsidizing the parent. While in the early stages of the project, Kenergy will not have much of the overall cost allocated to it. Kenergy will require Kenect to subsidize and be responsible for all of Kenergy's allocated costs.**

**WITNESS: Jeff Hohn with assistance of counsel.**

4. Explain how installation of a fiber optic network will allow it to better incorporate DSM / Demand Response, DER, and EV technologies respectively.

**RESPONSE: Existing radio frequency technology adequately transmits historical levels of basic member demand information. The challenge is that data usage needs are rapidly growing in all sectors. We therefore anticipate that, in the near future, technological advances in the communications capabilities of appliances and other large electric-consuming devices (electric car chargers, for example) will require us to manage a much larger bandwidth of two-way member data transmission, as members seek to leverage those technologies to better and more efficiently manage electricity usage in off-peak hours. By moving to a fiber optic smart grid, Kenergy will be able to best leverage these technological advancements for the benefit of its members. This is particularly true in the context of its ability to take full advantage of communication capabilities to level peak loads, thereby enhancing the efficiency of existing generation and further reducing pressures to secure additional generation.**

**The fiber network can be utilized to provide high bandwidth, high availability, low latency network connections to network components in the support of DSM**

**(Demand-Side Management) / Demand Response, DER (Demand Energy Resources), EV (Electric Vehicle), and future energy management technologies that rely on reliable always on data connectivity. As additional sensors, network monitoring, and network control components are incorporated into the electrical transmission and distribution network, fiber-based network connections will supply an abundance of network capacity for the transfer of information from and to those systems. The long reach and lower power requirements of fiber optic networks make them an ideal choice for networks spanning significant distances such as power transmission networks and rural areas.**

**The installation of a fiber optic network where network links up to 80 km can be economically achieved is ideal for power grid monitoring of electrical systems all the way from power generation plants and along high voltage long haul transmission lines and down to local power substations. Additional network monitoring capabilities can be installed from a local substation down the power transmission path all the way to the curb of the customer's home. It is foreseeable that future technical innovations could enable power utilities to monitor every power subscriber for power utilization and connectivity status allowing for automated real time monitoring of the electrical network and each subscriber's connectivity status to the power grid.**

**WITNESS: JEFF HOHN & JONATHAN CHAMBERS**

5. Discuss the life cycle of AMI meters and provide a detailed schedule for the replacement of the existing meters as discussed in paragraph 11 of the Application.



Please include the type and age of the meter at the time of the proposed replacement, together with the projected amount of stranded costs.

a. Explain whether the proposed fiber-based network infrastructure would eliminate the need for a separate radio frequency communications network with regard to the future roll-out of smart-meter and/or smart grid ("SM/SG") infrastructure.

b. Explain how O&M costs related to SM/SG operations of the proposed fiber-based infrastructure would be accounted for separately from O&M costs related to the telecommunications/broadband services to be provided by the same fiber-based infrastructure. Explain also the ratepayer responsibilities for both such operations. Include in your explanation: (i) whether customers of telecommunications/broadband services would receive a separate bill for those services, and (ii) how the O&M costs related to the telecommunications/broadband services would be reflected in bills for telecommunications/broadband services.

c. Provide a discussion regarding the cybersecurity measures that will be deployed to prevent users of telecommunications / broadband services from potentially interfering with or otherwise interrupting the SM/SG-related operations of the fiber-based network infrastructure.

**RESPONSE:**        5. The AMI system (which consists of meters, routers, and collectors) was capitalized in June, 2015. Currently Kenergy has \$9,677,662 in gross plant on its books and accumulated depreciation of \$3,965,735, which results in a current net book value of \$5,711,927. The system is currently depreciating \$725,825 per year, so the system will be fully depreciated in about 8 years. As long as the

**current meters are viable, Kenergy does not plan to change them out until they are fully depreciated, so there would be no stranded costs related to the meters.**

**WITNESS: TRAVIS SIEWERT.**

- a) Yes, the proposed fiber based network infrastructure would eliminate the need for a separate radio frequency communication network. As fiber is extended to each substation, the microwave frequency communication network could be removed. Some portion of the microwave network would stay in place until the fiber network is completed throughout the system.**

**WITNESS: ROBERT STUMPH**

- b) The lease payment paid by Conexon Connect to Kenect then to Kenergy is designed to cover the entire cost of the smart grid system, including any O&M Kenergy may incur. Conexon Connect will be responsible maintaining and repairing the network. Kenergy's only requirement is to temporally affix fiber to any pole that may be damaged or replaced. So, broadband subscribers will be paying for 100% of the O&M cost (whether incurred by Conexon Connect or Kenergy) and Kenergy's electric rate payers will not pay any of the O&M costs. Kenergy will establish a separate O&M account to record any O&M expense Kenergy may incur on the fiber infrastructure.**

**Conexon Connect will be the broadband provider and will issue bills to subscribers. The bill will include the monthly rate for the service. It will not include a breakout of Conexon Connect's expenses.**

**WITNESS: TRAVIS SIEWERT.**

c) **The cybersecurity measures to be deployed are measures that are in place today. The enhanced security referenced in the CPCN is the medium itself. Radio spectrum communication is susceptible to being intercepted. With fiber, there is no way to detect the data being transmitted through the fiber cable.**

**WITNESS: ROBERT STUMPH**

6. Discuss whether future additions of SM/SG infrastructure will reduce the bandwidth of the fiber-based infrastructure intended to be devoted to telecommunications/broadband services. If so, discuss cost implication for both ratepayers and users of the telecommunication / broadband services.

a. Include in your discussion whether any future expansions of SM/SG infrastructure that in any manner diminish the bandwidth of the fiber-based infrastructure will include a CPCN for a separate communications infrastructure (such as radio frequency), and if so whether a cost-benefit analysis will be included in the Company's CPCN filing supporting the future SM/SG infrastructure expansion.

**RESPONSE: Smart Meter (SM) and Smart Grid (SG) infrastructure is not anticipated to materially impact the availability of Telecommunications / Broadband and/or voice services. Existing SM/SG technology heavily relies on wireless networks for data transmission with relatively low transport rates when compared to fiber optic networks capabilities. Assuming that SM/SG traffic is transported within the same**

**network transmission paths (secured from other network traffic), the overall ratio of SM/SG traffic when compared to all other transport traffic would be extremely small. Alternatively, SM/SG traffic could also be segmented into a physically separate fiber network from the telecommunications/broadband networks via the use of a minimal (as low as one or two fiber strands) dark fiber(s) from a cable path of a 144-count fiber bundle (or larger). In this architecture the SM/SG network traffic and bandwidth utilization would be fully independent of the telecommunications/broadband network, and hence have no impact on the bandwidth of the telecommunications/broadband network capacity.**

**In either of these cases the cost implications to the users of the telecommunications/broadband services network are negligible to non-existence and there would be no expectations of either higher prices or reduced service for the telecommunications/broadband network. There is no logical reason to assume that the implementation of SM/SG technology, in either architecture, would result in a reduced service offering to telecommunications/broadband network subscribers such as a 1 Gbps service being reduced to anything less than 1 Gbps.**

**Fiber networks have been in service for decades and seen a constant increase in bandwidth and services provided over each single strand of glass. For example, PON (Passive Optical Network) speeds have consistently evolved to increase network transport as shown.**

- **BPON 622/155 Mbps (Megabits per second) downstream/upstream**
- **GPON 2.4/1.2 Gbps (Gigabits per second)**



- XGS-PON 10/10 Gbps
- 50G PON 50/25 Gbps

For fiber-based Ethernet transport a similar pattern has occurred over time with link speeds increasing:

- 1 Gbps
- 10 Gbps
- 25 Gbps
- 40 Gbps
- 100 Gbps
- 400 Gbps

While network speeds have constantly increased, cost per bit of network transport has decreased as shown in the DrPeering.net table below:

Internet Transit Prices (1998-2014) U.S.  
Internet Region

Year	Internet Transit Prices (in Mbps, min commit)		% Decline
1998	\$1200	per Mbps	
1999	\$800	per Mbps	33%
2000	\$675	per Mbps	16%
2001	\$400	per Mbps	40%
2002	\$200	per Mbps	50%
2003	\$120	per Mbps	40%
2004	\$90	per Mbps	25%
2005	\$75	per Mbps	17%
2006	\$50	per Mbps	33%
2007	\$25	per Mbps	50%
2008	\$12	per Mbps	52%
2009	\$9.00	per Mbps	25%
2010	\$5.00	per Mbps	44%
2011	\$3.25	per Mbps	35%
2012	\$2.34	per Mbps	28%
2013	\$1.57	per Mbps	33%
2014	\$0.94	per Mbps	40%
2015	\$0.63	per Mbps	33%

Source: DrPeering.net

**In conclusion, telecommunications and broadband networks are expected to increase in transport capacity over time. While optical electronics on the ends of the fiber network may require periodic upgrades, the fiber network consisting of the physical infrastructure of fiber optical cables run along poles or underground would not be expected to need any replacement to achieve those increases in speeds or services delivered. SG/SM technology would be expected to be one of many services delivered along those fiber links.**

a. Include in your discussion whether any future expanses of SM/SG infrastructure that in any manner diminish the bandwidth of the fiber-based infrastructure will include a CPCN for a separate communications infrastructure (such as radio frequency), and if so whether a cost-benefit analysis will be included in the Company's CPCN filing supporting the future SM/SG infrastructure expansion.

**There is no material impact in the networks ability to offer telecommunications/broadband services at current and anticipated future data rates due to the expansion of SM/SG infrastructure. As detailed above, fiber optic network capacity exceeds SM/SG network capacity needs today and has growth projections from currently announced and implemented network transport standards to absorb future SM/SG network transport needs.**

**WITNESS: JONATHAN CHAMBERS**

7. Provide detailed cost estimates for the installation of 7,200 miles of fiber optic cable across the Kenergy service territory over the next four to six years.

**RESPONSE:** The following schedule summarizes the 4-year estimated capital cost to construct the smart grid network. These totals can also be found in the Cash Flow Summary provided in SIEWERT EXHIBIT 1 filed under Petition for Confidentiality.



**WITNESS: TRAVIS SIEWERT**

8. Discuss the status of financing the project with RUS or any other lender and provide copies of all correspondence exchanged related to that financing.

**RESPONSE:** RUS approved Kenergy’s Smart Grid Fiber work plan amendment on September 17, 2021. See attached Amendment To Current Approved Construction Work Plan and e-mail correspondence from our RUS GFR. Kenergy can now begin preparing the RUS loan application.

**WITNESS: TRAVIS SIEWERT**

9. Discuss whether the fiber optic cable industry has been impacted by supply chain issues of late and, if so, whether that could or will impact the timing of the proposed installation.

**RESPONSE: Conexon currently manages approximately 1,000 miles of fiber optic cable construction each week. It manages its supply chain by long-term forecasting, planning, and purchasing, the use of multiple materials distributors who are required to maintain inventory, and by frequent, regular meetings with manufacturers. Conexon has established long-term relationships and commitments with trusted vendors. While Conexon is not in a position to speak to other companies' supply chain issues, Conexon has not experienced any problems that could or will impact the timing of the proposed installation.**

**WITNESS: JONATHAN CHAMBERS**

10. Provide detailed schedules for projected installation costs as compared to revenues generated by lease payments.

**RESPONSE: Please reference SIEWERT EXHIBIT 1 FILED UNDER PETITION FOR CONFIDENTIALITY. The installation cost can be found in both pages titled "Kenergy KY Connect FTTH Model: Preliminary Summary" and "Kenergy KY Connect FTTH Model: Projected Cash Flow Summary." The fiber lease revenues can be found in the pages titled "Kenergy KY Connect FTTH Model: Projected Income Statement."**

**WITNESS: TRAVIS SIEWERT**

11. Discuss whether the terms discussed in paragraph 18 of the application fully protect Kenergy's member-owners from risk of loss related to the project.



**RESPONSE:** No, I do not think Kenergy can ever eliminate 100% of the risk for any project. In requesting a parent guarantee, Kenergy is attempting to further protect the guaranteed lease payments that are designed to cover the full cost of the fiber network. The ultimate goal is to provide affordable broadband service to all of Kenergy's membership, improve Kenergy's communication at no cost the electric ratepayers, and do so in a way that minimizes the risk to Kenergy's member-owners as much as possible.

**WITNESS: TRAVIS SIEWERT**

12. Provide detailed proof supporting Conexon's financial stability and ability to meet the terms of its sublease.

**RESPONSE:** Conexon is the leading implementer of rural fiber networks with electric cooperatives with a 6-year track record of successfully servicing cooperatives. Conexon is a profitable and growing company that has been recognized on the Inc. 5000 list of fastest growing private companies for both 2020 and 2021 (#325 and #313 respectively, and #13 and #4 in the telecommunications industry) while serving a growing list of electric cooperative clients. As Conexon has grown, it has been able to diversify with additional services and sources of revenue including fiber splicing and network operations. This suite of support services creates a stable foundation from which Conexon will continue to grow.

Conexon remains conservatively capitalized with limited use of debt, but in preparation of future needs, has engaged in conversations with numerous potential

**capital partners that are interested in providing additional funding if / when Conexon decides to pursue additional capital to fuel growth.**

**Conexon also has a successful track record of sourcing funding as it has secured over \$1.3 billion in funding from government programs for rural broadband including over \$490 million for Conexon's own behalf in the Rural Digital Opportunity Fund auction, of which, over \$20 million is to provide service in Kentucky.**

**In March 2021, Conexon Connect, LLC was granted Eligible Telecommunications Carrier authority by the Kentucky Public Service Commission (see attached). In November 2021, Conexon Connect became the largest RDOF applicant approved and authorized for funding by the FCC to date. The authorization followed a 9-month review process by the FCC, which the FCC describes as: "We have reviewed the long-form applications associated with each of the winning bids identified in Attachment A. These applications were reviewed to determine whether they met all legal, financial, and technical requirements. Based on the representations and certifications in each relevant long-form application, we are prepared to authorize support, subject to submission of the required letter(s) of credit and Bankruptcy Code opinion letter(s), for each of the winning bids identified in Attachment A." (see attached FCC Public Notice and Attachment A, pages 8-59) Conexon Connect has provided the requisite letters of credit and Bankruptcy Code opinion letters, which have been accepted. In the areas where it has been awarded RDOF funds, Conexon Connect is the only company qualified by the FCC and Kentucky PSC to be eligible on an**

**ongoing basis for both high-cost and low-income subsidies. This matter has become particularly relevant with the passage of the Infrastructure Investment and Jobs Act, which creates a new enhanced \$75 monthly broadband benefit for low-income households located in high-cost areas. In Kenergy's electric service territory, we project that over half the households qualify for the new \$30 monthly benefit under the new Affordable Connectivity Program, and most of those living in unserved areas will likely qualify for the enhanced \$75 monthly benefit.**

**WITNESS: JONATHAN CHAMBERS**

13. Describe the due diligence Kenergy has completed related to its operations with Conexon and provide copies of all documentation related thereto.

**RESPONSE: Conexon works strictly with Rural Electric Cooperatives. Kenergy found that Conexon is/has assisted nearly 200 Rural Electric Cooperatives nationwide. About 50 of those are currently deploying fiber networks throughout their service territories. Conexon has also designed over 200,000 miles of fiber and builds more than 35,000 miles annually. Conexon formed the 90 Member Rural Electric Cooperative Consortium, of which Kenergy was a Member, and was awarded \$1.1 Billion in funding from the RDOF auction.**

**WITNESS: JEFF HOHN**

14. Describe whether Conexon has obtained or will be required to obtain any form of financial assurance which would protect Kenergy's member-owners from risk of loss.

**RESPONSE:** Conexon will be required to supply a Parent Guarantee to back the lease with Conexon Connect.

**WITNESS: JEFF HOHN.**

15. Provide a projection of revenues related to the broadband installation for the initial lease term of thirty years. Compare those projected revenues to the lease payments Kenergy will receive.

**RESPONSE:** The lease rate is sufficient to make Kenergy EBITDA and Net Income positive in the first and all years after accounting for operating expenses, interest expense, and depreciation. The lease rate has been designed to be approximately [REDACTED] of the total capex spend which ensures that Kenergy will recoup its capex within ten years and will receive an additional twenty years of lease payments. See Siewert Testimony with the Application, Exhibit 1 filed under Petition for Confidentiality.

**WITNESS: JONATHAN CHAMBERS**

16. Discuss what rights, if any, Conexon will have to continue to operate the system after the initial lease term. Discuss specifically whether Kenergy will have the opportunity to terminate the lease at that time and lease the operation to an alternative lessor who would be willing to provide greater consideration for the opportunity to operate the system should it prove more lucrative than anticipated.

**RESPONSE:** Within ninety (90) days of the expiration date of the initial lease term, Kenergy can notify Conexon Connect, in writing, of the intent to terminate the lease.

**WITNESS: JEFF HOHN**



17. Provide a detailed description of Conexon's organization, ownership, and management team.

**RESPONSE: Conexon, LLC is a limited liability corporation organized in the state of Missouri with partners Randy Klindt and Jonathan Chambers both owning 50% of the membership interest. Conexon, LLC has two wholly owned subsidiaries Conexon Construct, LLC (the fiber splicing business) and Conexon Connect, LLC (the internet service and telecommunications provider).**

**In addition to Randy and Jonathan, the Conexon executive management team includes the following team that has decades of collective experience with electric cooperatives, fiber network construction, and telecommunications. A short bio for each is also included:**

**Andy Burger – SVP Operations**

**Jeff Fincannon – SVP Outside Plant Construction**

**Michael Byrne – SVP Information Systems**

**Terie Hannay – SVP Telecommunications Services**

**Abby Carere – SVP Sales & Marketing**

**Carl Meyerhoefer – SVP Business Development**

**David Girvan – VP Operations for Conexon Connect**

**Matthew Blain – Chief Financial Officer**

**Randy Klindt – Partner previously led two of the nation’s most successful electric cooperative FTTH initiatives: Co-Mo Connect and OzarksGo – the first two co-ops to exceed 20,000 broadband subscribers.**

**Co-Mo’s rural Missouri service territory was one of the most underserved areas in the state. In 2010, Randy launched a pilot project that leveraged an innovative architecture that lowered initial capital requirements but allowed success-based growth for capacity. In less than 12 months, the pilot project was completed on time and 20% under budget. Co-Mo Connect today has over 55% penetration rate. The Co-Mo project was the first project to bring privately funded fiber to the home to serve 100% of its members. Under his leadership, Co-Mo Connect launched the first gigabit residential service in rural America. The Co-Mo network became profitable in its 5th year without subsidy or grants.**

**After Leading Co-Mo Connect, Randy served as GM of OzarksGo, where he developed the 6-phase plan and led the project through the second phase of 1,100 miles of construction and connecting 10,000 subscribers. While at OzarksGo, Randy tested XGS-PON and NGPON2 technologies and 10gbps service as a first in rural America.**

**Randy formed Conexon in 2015 to assist rural electric cooperatives with FTTH project decisions and implementations. The company has assisted nearly 200 cooperatives with FTTH business plans resulting in 50 project launches and growing. The capabilities at Conexon are enabling clients to connect 15,000 subscribers each month.**

**Jonathan Chambers – Partner** For most of the past twenty-five years, Jonathan has worked with cable television, wireless companies, and electric cooperatives; always in the early stages of planning, designing, constructing and operating telecommunications and internet networks. Since early 2016, Jonathan has worked exclusively with electric cooperatives, assisting over 200 cooperatives to date, to plan, fund, design, construct and operate fiber-optic networks to bring much-needed broadband services to rural America. Jonathan has also spearheaded two of the most successful bidding consortiums in FCC history winning more than \$186 million in 2018's Connect America Fund (CAF) II and more than \$1.1 billion in 2020's RDOF auction.

Jonathan was one of the original employees at Sprint PCS, where he was Vice President of Public Policy and Associate General Counsel. In Europe, he worked with Telenet (Belgium), Ono (Spain), and Ish (Germany). He was General Counsel of TVGateway, a company formed by Comcast, Cox and Charter to develop an electronic program guide. Jonathan was Chief Strategy Officer, General Counsel and a founder of Movida Communications, Inc. an MVNO focused solely on the Hispanic market.

Between 2012 and 2016, Jonathan served as the Chief of the Office of Strategy and Planning and Policy Analysis for the FCC. In that capacity, he was part of the senior leadership at the FCC that reformed the \$12 billion in annual federal spending on telecommunications services, including the rural and high-cost fund, the e-rate fund, and lifeline fund and the telecommunications relay services program.

**At the start of his career, Jonathan worked at the in the U.S. Senate as a staff member of the U.S. Senate Select Committee on Intelligence, and as the Republican staff director of the U.S. Senate Committee on Commerce, Science, and Transportation. During his time on the Senate Commerce Committee, the Committee drafted most of the laws that still govern the telecommunications industry, including the wireless, cable, telephone and internet access industries.**

**Andy Burger – SVP Operations offers unmatched operational expertise in the rural broadband market with experience that extends from project launch through deployment and post-install customer experience. Andy’s fiber-to-the-home career began at Missouri’s Co-Mo Connect as the cooperative’s first outside hire, initially serving as the Network Administrator and Network Operations Manager to oversee network design, architecture, and operations for the co-op’s Internet, Voice and IPTV networks.**

**In December 2015, Andy took over as the General Manager of Co-Mo Connect, responsible for all aspects of deployment and operations including outside plant, marketing, and customer service, as well as a continuing critical role with the network architecture and performance. Under Andy’s leadership, Co-Mo became the first electric cooperative in the country to make gigabit fiber-to-the-home service available to every one of its members.**

**From Co-Mo Connect, Andy joined Conexon, where he established its industry-leading Network Operations Center and call center to serve Conexon’s electric co-op clients. He works with co-ops on their SCADA and smart grid systems. In 2021, he**



oversaw the creation and launch of Conexon's internet service provider arm, Conexon Connect.

Jeff Fincannon – SVP Outside Plant Construction brings more than 40 years of hands-on construction experience and management of cable and fiber to the home deployments. His construction experience includes work as a lineman, splicer, supervisor and business owner. Most recently at Conexon, Jeff has launched the company's splicing division, offering client and partner cooperatives access to best-in-class construction and fiber splicing practices and expertise.

Throughout his career, Jeff has managed large-scale cable and fiber construction projects across the country with multiple employees, contractors, and crews for Comcast, Charter, Time Warner and, since 2016, for Conexon.

Currently, Jeff manages the team at Conexon responsible for fiber design and construction at over 30 electric co-op projects in more than a dozen states. Each project is set at a pace of 1,000 miles of construction a year. Week in and week out, Jeff's team produces more miles of fiber design and manages more miles of fiber construction than any company in the country.

Mike Byrne – SVP Information Systems brings a wealth of geospatial analysis expertise to Conexon electric co-op clients and a passion for advancing public policy through the use of transparent information. Mike has 30 years of geospatial design, analysis and implementation experience in the private and public sectors.

He served as the first Geographic Information Officer for the Federal Communications Commission (FCC), where he led the creation of the first-ever

**National Broadband Map, an interactive and searchable online map showing broadband availability nationwide, in many cases in block-by-block detail.**

**This game-changing tool produced a never-before-available clear and accurate picture of the national broadband footprint. The map served as an invaluable resource for the FCC in accurately determining where broadband was or was not available. Mike's work helped form the foundation of the Connect America Fund (CAF) and enhanced the collective understanding of where investments were needed to fulfill a connected America vision. He was awarded a Service to America Medal, the highest award given to government employees, for his work.**

**Mike developed and coded Conexon's proprietary design software, which converts electric network GIS data into a distributed tap fiber architecture. This software tool allows Conexon to design rural fiber networks with unparalleled speed and accuracy. Mike leads the software development team, which focuses on improving network construction and operations through tools specific to the electric coop market.**

**Terie Hannay – SVP Telecommunications Services offers more than 20 years of operational experience and expertise in deploying communications technologies including residential, commercial VoIP, and broadband services, as well as regulatory, billing, taxing, business procedures, business processes and provisioning integration.**

**Terie began her career in telecommunications operations at one of the nation's early competitive local exchange carriers (CLEC), serving more than one million**

customers before moving into a customer care leadership role with a top-tier cable provider.

Terie puts her years of experience to work leading Conexon's telecommunications service and support strategy. She upholds an exceptional reputation among co-ops for her ability to successfully incorporate telecommunications services in their network offerings, with unrivaled expertise analyzing the profitability of voice service for Conexon Connect co-op partners. She also serves as a regulatory, billing and business process support resource to the company's electric co-op clients.

Abby Carere – SVP Sales & Marketing was among the first in the industry to recognize the broadband potential and role of the nation's electric cooperatives for rural America. Over the seven years in which she has worked with co-ops, she has guided dozens to successfully deploy broadband internet, voice and TV services in their markets.

Abby began her career in direct business-to-business telecom sales in one of the nation's most competitive telecommunications markets before stepping into leadership and overseeing a direct sales team she led to top performance.

Under Abby's sales leadership, Conexon's client base has grown exponentially. In her dual role as head of marketing, she leveraged her years of expertise to spearhead an end-to-end marketing resource specifically designed for electric cooperatives, and the Conexon Marketing Hub proprietary software platform debuted in 2020. Abby's visionary goal of providing all resources co-ops need for broadband marketing

success now results in a full suite of services ranging from branding and web development to best-practice oriented communications, break-through creative and expert advice for electric co-ops from a team of marketing managers.

Carl Meyerhoefer – SVP Business Development has been working in the telecommunications industry for over 25 years helping service providers successfully deploy fiber-to-the-home networks. Leveraging a strong understanding of telecommunications technology and architectures coupled with keen understanding of customer and market needs, Carl has successfully developed and grown over \$300 million in new business revenue while working for industry-leading organizations such as CommScope and Calix.

Over the past several years, Carl has concentrated on developing greenfield emerging markets with a focus on electric utilities. He was an early advocate and catalyst for the electric cooperative broadband movement. At Conexon, Carl will be working with new and existing clients to drive new business growth for Conexon. His focus on developing Smart Grid solutions will allow electric co-op clients to leverage the power of a high-bandwidth, low-latency fiber connection all the way to the member's home.

David Girvan – VP Operations / Conexon Connect joined Conexon from one of the nation's most successful electric cooperatives, United Electric, where he served as Chief Operating Officer. Though United's electric service territory encompasses an area with less than 3 electric meters per mile, David launched a fiber network and led the co-op to success with a focus on the aggressive deployment of commercial and



residential fiber services. Under his leadership, the fiber business grew from a 7,000-member cooperative to one now serving more than 17,000 members and customers with fiber broadband subsidizing the electric operation.

Matthew Blain – Chief Financial Officer is a versatile finance professional with nearly 20 years of diverse financial and operating experience that has included investment banking, corporate finance, management consulting, and most recently prior to Conexon, consultant CFO services. He has played key roles in executing strategic growth plans for clients in a variety of industries including the energy and telecommunications sectors, from early-stage tech start-ups to mature manufacturing companies.

Matthew specializes in dynamic solutions in functional areas such as financial modeling, analysis and planning, mergers & acquisitions, divestitures, capital sourcing, and strategic planning. At Conexon, he looks forward to developing resources to poise the company to continue its rapid growth that will bring connectivity to underserved parts of America.

**WITNESS: JONATHAN CHAMBERS**

18. Identify whether any person who holds an ownership stake in, or is in a management role with, Conexon or a Conexon affiliate, has a personal and/or legal connection to management personnel employed by Kenergy.

**RESPONSE: No current board member or employee of Kenergy holds an ownership stake in, or is in a management role with Conexon or a Conexon affiliate.**

**Nor does any Conexon or Conexon affiliate have any personal and/or legal connection to any current board member or employee of Kenergy.**

**WITNESS: JEFF HOHN**

19. Discuss the process undertaken by Conexon to select Ervin Cable Construction as its prime contractor?

**RESPONSE: Conexon undertakes a vigorous RFP process in partnership with our cooperatives and Ervin Cable Construcion has been selected by numerous cooperatives as the construction vendor. A sample RFP is attached.**

**WITNESS: JONATHAN CHAMBERS**

20. Provide the basis for the statement in the Testimony of Jonathan Chambers at page 4 that, "the fiber optic infrastructure will last for decades."

**RESPONSE: The following is from a Corning publication showcasing the benefits of their invention (page 7 of attached PDF):**

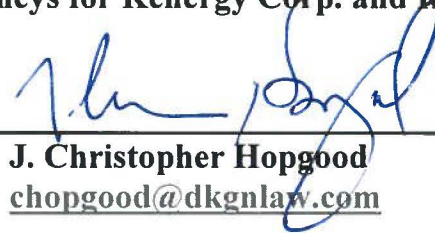
**There is no "theoretical lifetime" for optical fiber. The fiber optic cables manufactured and installed 40 years ago are still in use today, and we know our newest cables are even stronger. Our Outside Plant (OSP) cables, for example, are designed to withstand environmental extremes. They offer clear signal performance over a wide range of temperatures while resisting water ingress and years of the sun's ultraviolet radiation.**

And by carrying light instead of electricity, OSP cables are safe from lightning strikes or electrical faults. Fiber is the clearest choice today, and its rugged durability is showing us that we have every reason to believe we'll be relying upon it for many years to come.

WITNESS: JONATHAN CHAMBERS

**DORSEY, GRAY, NORMENT & HOPGOOD**  
318 Second Street  
Henderson, KY 42420  
Telephone (270) 826-3965  
Telefax (270) 826-6672  
Attorneys for Kenergy Corp. and Kenect, Inc.

By

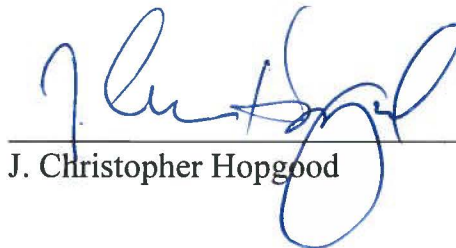


\_\_\_\_\_

**J. Christopher Hopgood**  
chopgood@dkgnlaw.com

**CERTIFICATE OF SERVICE**

I hereby certify that the foregoing was served by electronic filing to the Kentucky Public Service Commission, 211 Sower Blvd., Frankfort, KY 40602 with a copy served electronically to the Kentucky Attorney General, Office of Rate Intervention, 700 Capital Avenue, Suite 20, Frankfort, KY 40601-8204, and James W. Gardner and M. Todd Osterloh, Sturgill, Turner, Barker & Maloney, PLLC, 333 W. Vine St., Suite 1500, Lexington, KY 40507, on this 2nd day of December, 2021.



\_\_\_\_\_

J. Christopher Hopgood



COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

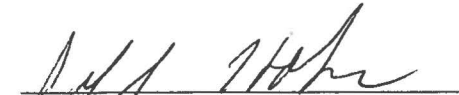
In the Matter of:

THE ELECTRONIC APPLICATION OF )  
KENERGY CORP. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY )  
FOR THE CONSTRUCTION OF A HIGH-SPEED )  
FIBER NETWORK AND FOR APPROVAL OF THE )  
LEASING OF THE NETWORK'S EXCESS CAPACITY )  
TO AN AFFILIATE TO BE ENGAGED IN THE )  
PROVISION OF BROADBAND SERVICE TO )  
UNSERVED AND UNDERSERVED HOUSEHOLDS )  
AND BUSINESSES OF THE COMMONWEALTH )

Case No.  
2021-00365

( Attorney General Data Requests – Items 1,2, 3, 4, 13, 14, 16 & 18)

I verify, state and affirm that the data request response attached hereto and filed with this verification is true and correct to the best of my knowledge and belief formed after a reasonable inquiry, and I ask that I be added as a witness for this information.

  
\_\_\_\_\_  
Jeff Hohn

STATE OF KENTUCKY  
COUNTY OF Daviess

The foregoing was signed, acknowledged and sworn to before me by  
JEFF HOHN this 22nd day of October, 2021.

My commission expires 5-24-23

  
\_\_\_\_\_  
Notary Public, State of Kentucky at Large

(seal)

# 623317

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION


In the Matter of:

THE ELECTRONIC APPLICATION OF )  
KENERGY CORP. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY )  
FOR THE CONSTRUCTION OF A HIGH-SPEED )  
FIBER NETWORK AND FOR APPROVAL OF THE )  
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UNSERVED AND UNDERSERVED HOUSEHOLDS )  
AND BUSINESSES OF THE COMMONWEALTH )

Case No.  
2021-00365

( Attorney General Data Requests – Items 5, 7, 8, 10, and 11)

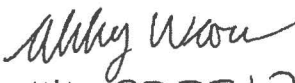
I verify, state and affirm that the data request response attached hereto and filed with this verification is true and correct to the best of my knowledge and belief formed after a reasonable inquiry, and I ask that I be added as a witness for this information.

  
\_\_\_\_\_  
Travis Siewert

STATE OF KENTUCKY  
COUNTY OF Henderson

The foregoing was signed, acknowledged and sworn to before me by TRAVIS SIEWERT this 22 day of October, 2021.

My commission expires 4/20/2025

  
KVN P27712  
Notary Public, State of Kentucky at Large

(seal)

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE ELECTRONIC APPLICATION OF )  
KENERGY CORP. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY )  
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PROVISION OF BROADBAND SERVICE TO )  
UNSERVED AND UNDERSERVED HOUSEHOLDS )  
AND BUSINESSES OF THE COMMONWEALTH )

Case No.  
2021-00365

( Attorney General Data Requests - Item 5)

I verify, state and affirm that the data request response attached hereto and filed with this verification is true and correct to the best of my knowledge and belief formed after a reasonable inquiry, and I ask that I be added as a witness for this information.

Rob Stumph 10/22/21  
Robert Stumph

STATE OF KENTUCKY  
COUNTY OF Henderson

The foregoing was signed, acknowledged and sworn to before me by ROBERT STUMPH this 22 day of October, 2021.

My commission expires 04/20/2025

Abby Uva  
KYNP27712

Notary Public, State of Kentucky at Large

(seal)

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**THE ELECTRONIC APPLICATION OF )  
KENERGY CORP. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY )  
FOR THE CONSTRUCTION OF A HIGH-SPEED )  
FIBER NETWORK AND FOR APPROVAL OF THE )  
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PROVISION OF BROADBAND SERVICE TO )  
UNSERVED AND UNDERSERVED HOUSEHOLDS )  
AND BUSINESSES OF THE COMMONWEALTH )**

**Case No.  
2021-00365**

( Attorney General Data Requests B Items 4, 6, 6(a), 9, 12, 15, 17, 19 & 20)

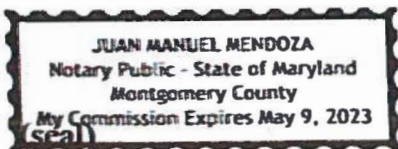
I verify, state and affirm that the data request response attached hereto and filed with this verification is true and correct to the best of my knowledge and belief formed after a reasonable inquiry, and I ask that I be added as a witness for this information.

  
Jonathan Chambers

STATE OF Maryland  
COUNTY OF Montgomery

The foregoing was signed, acknowledged and sworn to before me by JONATHAN CHAMBES this 2 day of December, 2021.

My commission expires May 9, 2023



Notary Public,  
Notary Public ID#: \_\_\_\_\_

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**THE ELECTRONIC APPLICATION OF )  
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PROVISION OF BROADBAND SERVICE TO )  
UNSERVED AND UNDERSERVED HOUSEHOLDS )  
AND BUSINESSES OF THE COMMONWEALTH )**

**Case No.  
2021-00365**

**KENERGY RESPONSES TO ATTORNEY GENERAL'S DATA REQUESTS  
ATTACHMENT TO REQUEST 8**

**Amendment To Current Approved  
Construction Work Plan**

Amendment #: 2021-1  
Borrower Designation: KY 65  
Work Plan Period: 2020-2024

Change Proposed

**Add code 616 – Smart Grid Fiber**

Build fiber optic cable plant along distribution lines to provide high speed communication for system operation and control. The entire Project will extend fiber throughout Kenergy service area which includes approximately 7,478 miles from 49 substations. The build includes the design and installation of fiber optic cable, distribution boxes, splices, terminations, drops, network terminal units, communication huts, and other ancillary fiber plant equipment plus all attachments and hardware required for installation.

Reason(s) for Change(s): Kenergy must have high speed communication across the system to optimize its electric system operation and control. Before fiber, the cooperative used radio communication that is not completely reliable to stations and no downline communication. With reliable fiber communications, Kenergy will improve system monitoring, system security, and system operation. Smart grid applications can be implemented and intelligent controls can be placed into service throughout the system. Distributed resources and smart home devices can be integrated into the system. Load management, voltage control and other power supply strategies can be implemented to reduce power costs. System losses can be reduced. The benefits to Kenergy will only grow as new technologies are implemented to better serve members. All (14) of Kenergy served counties would be affected: Daviess, Henderson, Hancock, Ohio, Webster, McLean, Hopkins, Muhlenberg, Union, Breckinridge, Crittenden, Caldwell, Lyon and Livingston.

Kenergy will also use the fiber to make broadband internet available to its members. Internet availability will transform the Kenergy service territory, maintaining and increasing load through growth in residential development and new business locations. Broadband internet communications in today's world are as critical to quality of rural life as electricity in the 1930's.

Method of Financing                      Loan Funds     X      
  General Funds \_\_\_\_\_  
  Contributions in Aid/Grant \_\_\_\_\_

Status of Borrowers Environmental Report: Attached

Estimated Cost        \$143,825,355

Engineering Support Attached    NA

Engineer Rob Stumpf                      19340                      Date: 9-17-2021  
  Vice Pres. of Engineering                      P.E. Number

Requested By Jeff Hoken                      Date: 9-17-2021  
  President/CEO

Approved By: Mike Norman                      Date: 9-17-2021  
  RUS, GFR

Subject to BER approval? Yes  No

Status of Construction: Proposed 2022

## Travis Siewert

---

**From:** Norman, Mike - RD, Lexington, KY <mike.norman@usda.gov>  
**Sent:** Wednesday, October 13, 2021 1:30 PM  
**To:** Travis Siewert  
**Subject:** RE: [External Email]Smart Grid Work Plan Amendment

**CAUTION: This email originated from outside of Kenergy. Do not click links or open attachments unless you recognize the sender and know the content is safe.**

YES

---

**From:** Travis Siewert <TSiewert@kenergycorp.com>  
**Sent:** Wednesday, October 13, 2021 2:23 PM  
**To:** Norman, Mike - RD, Lexington, KY <mike.norman@usda.gov>  
**Subject:** RE: [External Email]Smart Grid Work Plan Amendment

Thanks. Does that mean we can now begin working on the loan application?

Travis Siewert | Manager of General Accounting  
(o) 800.844.4832 | (d) 270.689.6135  
PO Box 18, Henderson, KY 42419-0018



---

**From:** Norman, Mike - RD, Lexington, KY <mike.norman@usda.gov>  
**Sent:** Wednesday, October 13, 2021 1:08 PM  
**To:** Travis Siewert <TSiewert@kenergycorp.com>  
**Subject:** RE: [External Email]Smart Grid Work Plan Amendment

**CAUTION: This email originated from outside of Kenergy. Do not click links or open attachments unless you recognize the sender and know the content is safe.**

Travis. Approved 9-17-2021. Mike

---

**From:** Travis Siewert <TSiewert@kenergycorp.com>  
**Sent:** Wednesday, October 13, 2021 2:01 PM  
**To:** Norman, Mike - RD, Lexington, KY <mike.norman@usda.gov>  
**Subject:** [External Email]Smart Grid Work Plan Amendment



---

**[External Email]**

If this message comes from an **unexpected sender** or references a **vague/unexpected topic**;  
Use caution before clicking links or opening attachments.  
Please send any concerns or suspicious messages to: [Spam.Abuse@usda.gov](mailto:Spam.Abuse@usda.gov)

---

Mike, I am responding to a data request in our smart grid CPCN case with the Ky Public Service Commission. Can you give me an update on where the work plan amendment approval stands. I remember seeing the environmental review approval files you asked me to combine, but I didn't know if there are other approvals required.

**Travis Siewert** | Manager of General Accounting  
(o) 800.844.4832 | (d) 270.689.6135  
PO Box 18, Henderson, KY 42419-0018



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COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE ELECTRONIC APPLICATION OF )  
KENERGY CORP. FOR A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY )  
FOR THE CONSTRUCTION OF A HIGH-SPEED )  
FIBER NETWORK AND FOR APPROVAL OF THE )  
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TO AN AFFILIATE TO BE ENGAGED IN THE )  
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UNSERVED AND UNDERSERVED HOUSEHOLDS )  
AND BUSINESSES OF THE COMMONWEALTH )

Case No.  
2021-00365

KENERGY RESPONSES TO ATTORNEY GENERAL'S DATA REQUESTS  
ATTACHMENT TO REQUEST 19

*CONEXON FTTH RFP DOCUMENT FILED UNDER PETITION FOR  
CONFIDENTIALITY*

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**THE ELECTRONIC APPLICATION OF )  
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UNSERVED AND UNDERSERVED HOUSEHOLDS )  
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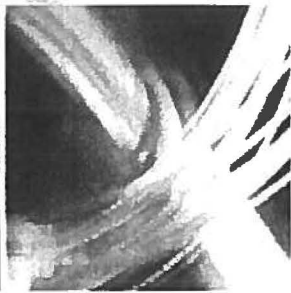
**Case No.  
2021-00365**

**KENERGY RESPONSES TO ATTORNEY GENERAL'S DATA REQUESTS  
ATTACHMENT TO REQUEST 20**

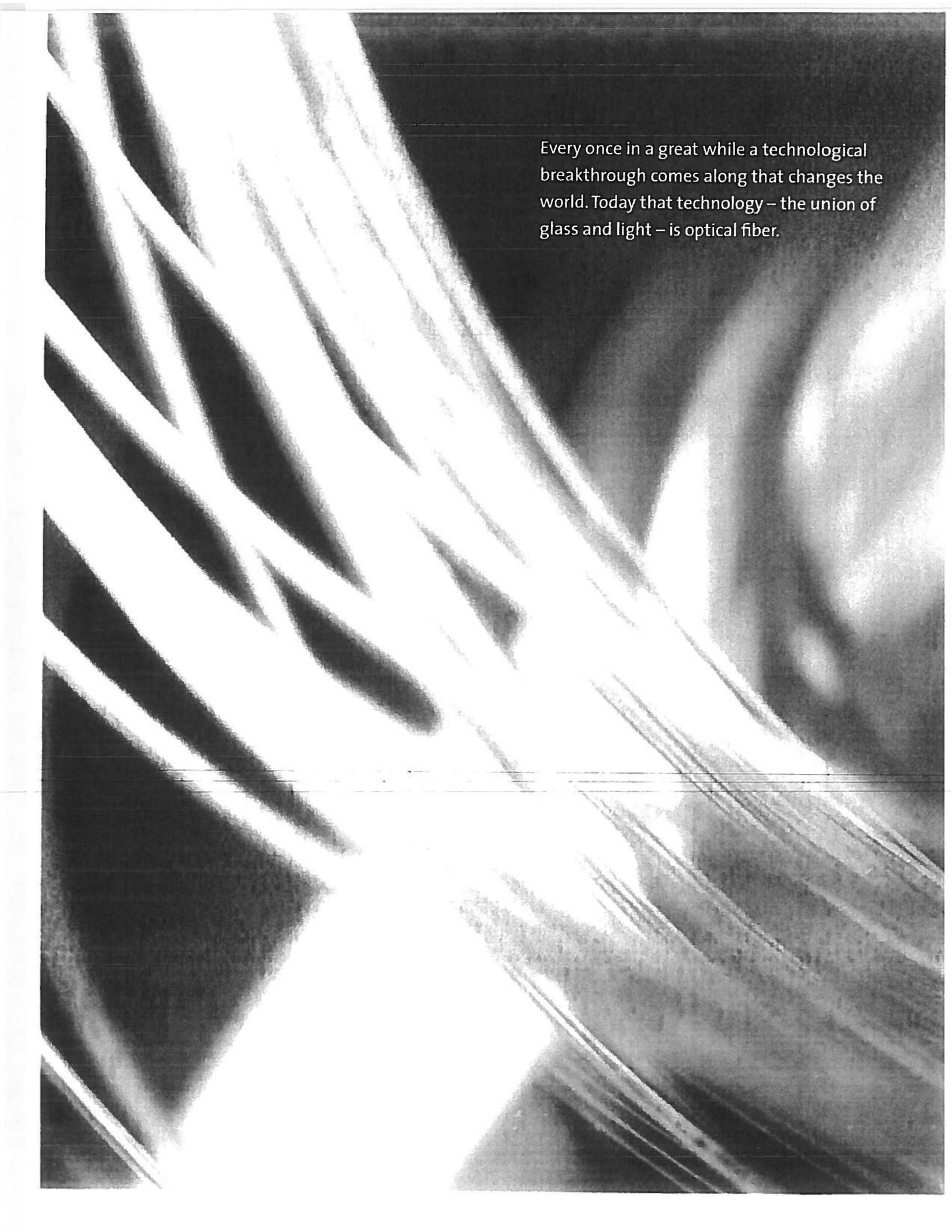
# GET THE FACTS ON OPTICAL FIBER!

This revolutionary technology invented by Corning connects our world literally at the speed of light.

Visit [www.corning.com](http://www.corning.com) to learn more.



**CORNING**



Every once in a great while a technological breakthrough comes along that changes the world. Today that technology – the union of glass and light – is optical fiber.

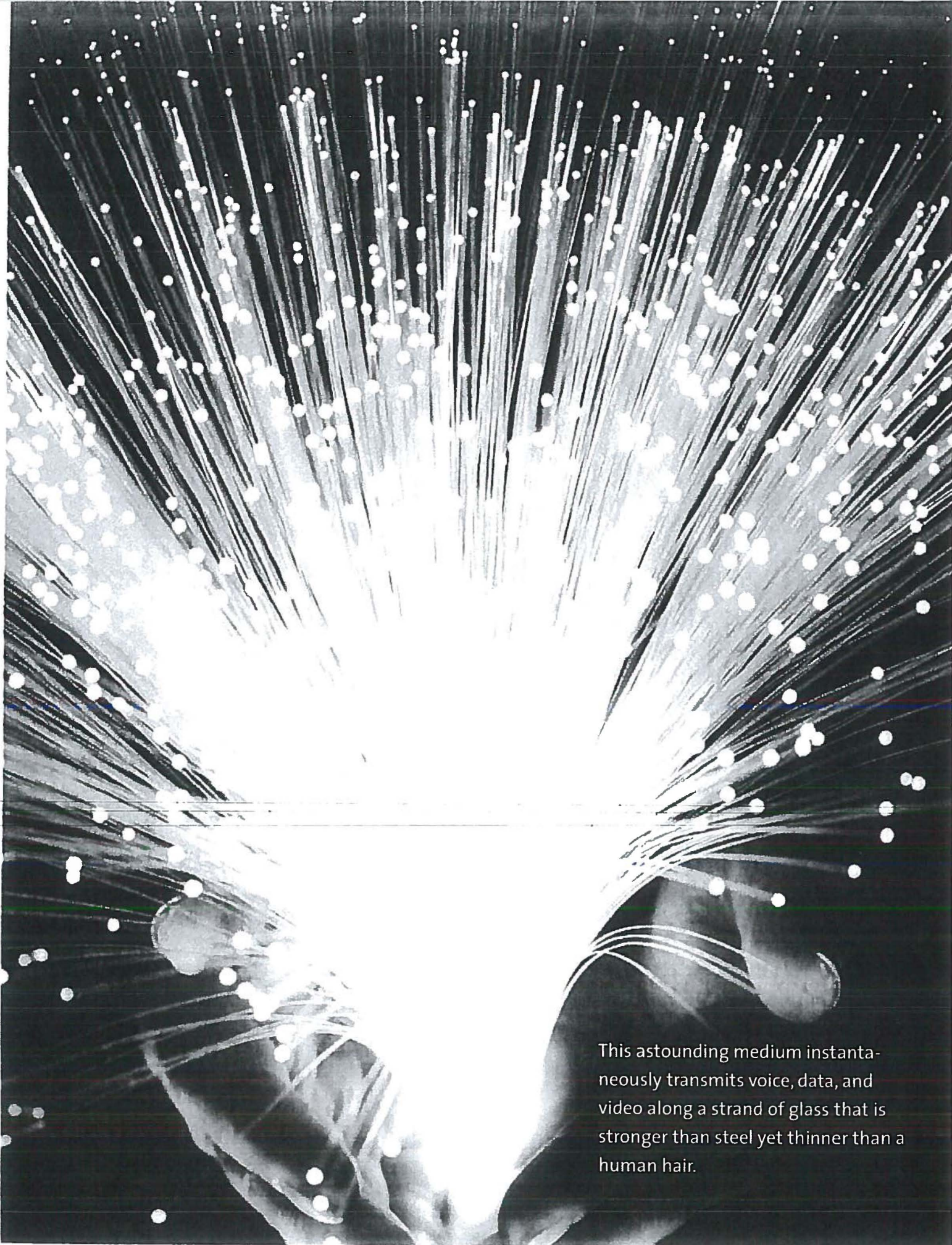
## CONNECTING AT THE SPEED OF LIGHT

Corning's product innovations continue to bring optical fiber closer to our homes and hands, transforming the ways we live, work and play and enabling service providers to deliver seamless, instant, and continuous connections to the Internet and other communications networks. This access has dramatically increased our entertainment options – HDTV, e-books, online shopping, and game systems; opportunities for social interaction, chat rooms, blogs; and job flexibility – remote e-mail access, teleconferencing, wireless laptops, and telecommuting. None of this – even wireless – would be possible without the consistent reliability, ongoing durability, and limitless bandwidth offered through optical fiber.

Likewise, educational institutions, healthcare facilities, and businesses are relying on optical fiber for their Data Centers and Local Area Networks (LANs). Fiber directly to the desk enables users to communicate over longer distances and reserve higher bandwidth for future expansion. From online courses to remote patient monitoring to international teleconferencing, optical fiber continues to increase productivity and profitability for organizations by streamlining the ways in which they provide services around the world.

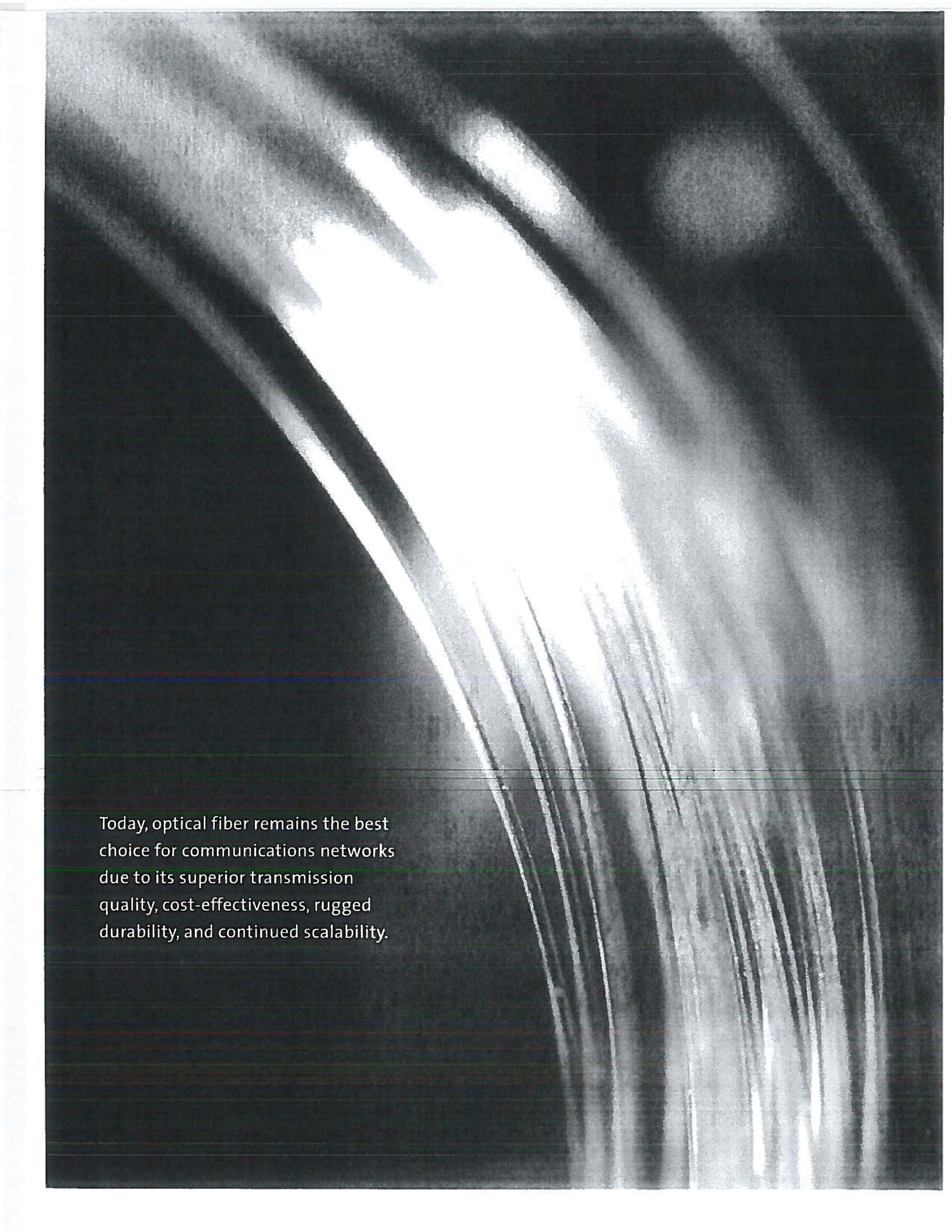






This astounding medium instantaneously transmits voice, data, and video along a strand of glass that is stronger than steel yet thinner than a human hair.





Today, optical fiber remains the best choice for communications networks due to its superior transmission quality, cost-effectiveness, rugged durability, and continued scalability.

## FIBER: THE CLEAR CHOICE

### **Quality Transmission**

Unlike copper cabling, optical fiber is immune to “electrical noise” (Electromagnetic Interference or EMI). When we’re frustrated by “static” on our phones or televisions, fiber’s reliable signal is a welcome convenience. But within industrial and military environments, clear data transmission is a vital necessity. Industries with loud production lines and heavy machinery have turned to fiber optics for their internal communications. Similarly, the United States military uses fiber to support time-critical communications because its signal is difficult to damage, tap, or jam.

### **Cost-effectiveness**

As of 2010, submarine cables now link all of the world’s continents except Antarctica. Copper networks need multiple amplifiers and repeaters to boost light signals and prevent signal loss. This additional equipment increases network cost over long distances. Corning’s new ultra-low-loss, large-effective-area submarine optical fiber, Vascade® EX2000, however, is designed for signal transmission over hundreds of miles before it needs to be amplified or regenerated, making it a cost-effective alternative to copper wire.

### **Rugged Durability**

Optical fiber may be made of glass, but inch for inch it’s stronger than steel and more durable than copper. At Corning’s Center for Fiber Optic Testing facility, we set the industry standard for performance testing. Every centimeter of optical fiber is strength tested at a minimum of 100,000 pounds per square inch to ensure its mechanical robustness.

There is no “theoretical lifetime” for optical fiber. The fiber optic cables manufactured and installed 40 years ago are still in use today, and we know our newest cables are even stronger. Our Outside Plant (OSP) cables, for example, are designed to withstand environmental extremes. They offer clear signal performance over a wide range of temperatures while resisting water ingress and years of the sun’s ultraviolet radiation. And by carrying light instead of electricity, OSP cables are safe from lightning strikes or electrical faults. Fiber is the clearest choice today, and its rugged durability is showing us that we have every reason to believe we’ll be relying upon it for many years to come.

### **Scalability**

Traditional copper cabling constantly struggles to meet growing bandwidth needs. As data traffic on wireless networks continues to explode (90,000 terabytes of traffic per month today is expected to hit 3,600,000 terabytes per month by 2014), optical fiber’s scalability makes it the clear choice for what’s now and what’s next.


## JOINING THE GLOBAL CONVERSATION

Once considered a personal convenience, being “connected” has now become an international priority. In today’s world, optical fiber is the core of connectivity, providing the medium through which commerce and culture are being simultaneously created and communicated on a personal and global scale.

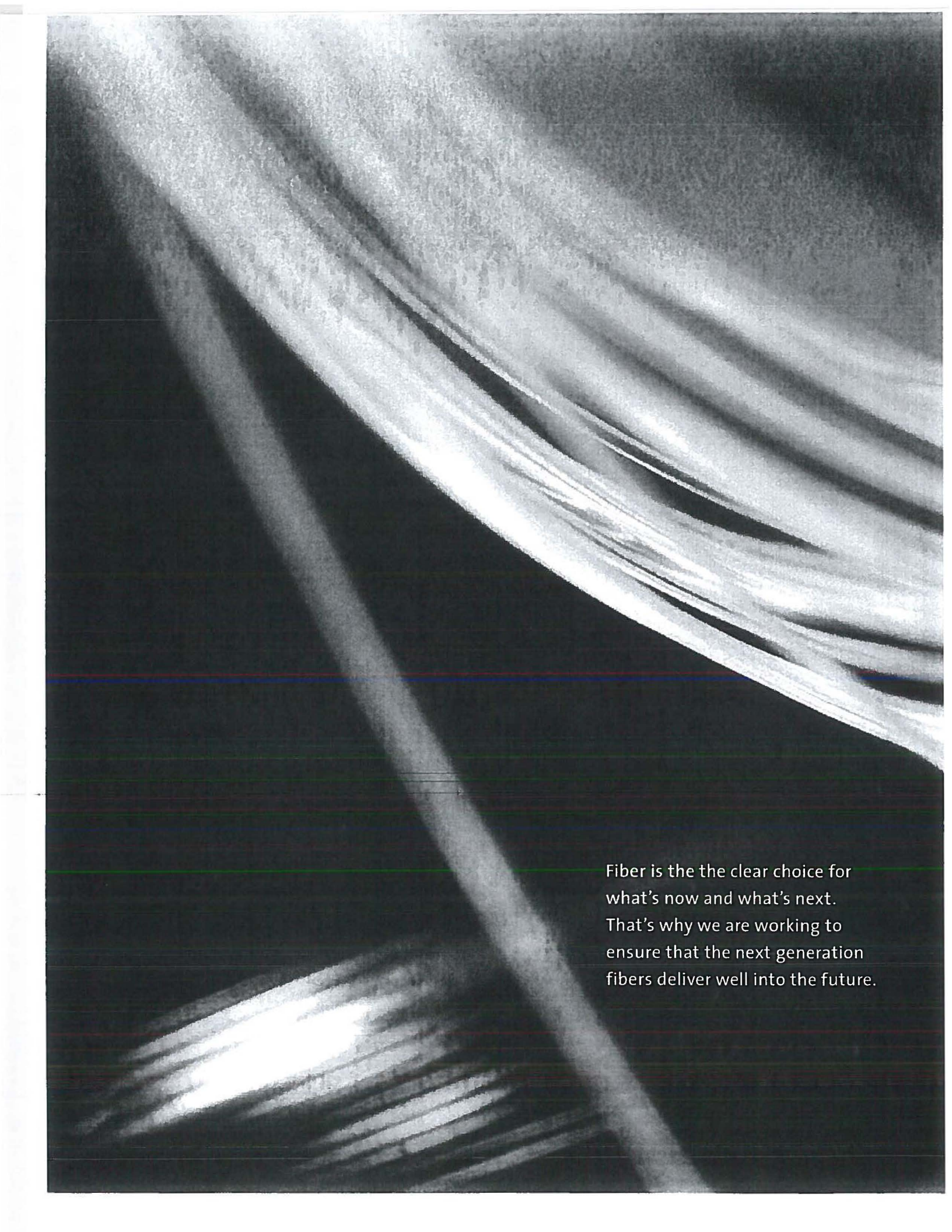
Corning led and continues to lead the development and delivery of the latest generation of optical fiber, making it practical for new applications and possible for burgeoning markets. As global telecommunications networks expand and evolve, Corning will lead the way forward in connecting each and every one of us at light speed, one strand of fiber at a time.







Corning continues to lead the  
development and delivery of the  
latest generation of optical fiber.



Fiber is the the clear choice for  
what's now and what's next.  
That's why we are working to  
ensure that the next generation  
fibers deliver well into the future.



#### FIBER IS FAST

Optical fiber can transmit 15.5 terabits of data per second over a distance of 7,000 kilometers. Translation? It would take approximately 25 seconds to send the entire iTunes catalogue from the sunny beaches of Florida to the bustling streets of London .

#### FIBER BENDS

While the glass we use every day seems inflexible, Corning's revolutionary ClearCurve® single-mode and multimode optical fiber is flexible enough to bend around tight corners, twist into hard to reach places and loop within smaller terminal boxes without sacrificing performance.

#### FIBER IS LIGHT AND EASY TO HANDLE

An optical fiber is only 250 µm diameter -- the size of a human hair. Fiber optic cables are orders of magnitude smaller and more flexible than the CAT5 copper cables that provide a fraction of the bandwidth.

#### FIBER'S CAPACITY BLOWS COPPER AWAY

When it comes to bandwidth, fiber is king. A single fiber is capable of transmitting 250 million phone conversations every second. One mile of fiber weighs about 1/4th of a pound whereas copper cable with the same information-carrying capacity would weigh 33 tons.

#### FIBER BRINGS US TOGETHER

Nearly two billion people are instantaneously and simultaneously accessing the Internet, thanks to optical fiber. We're able to exchange information, conduct business, learn, share, be entertained, and stay connected with family and friends almost anywhere, almost anytime.

#### FIBER MEANS BUSINESS

A one millisecond advantage in trading applications can be worth \$100 million a year to a major brokerage firm. (Information Week April 2007)

#### FIBER IS GREEN

Unlike traditional copper wiring, optical fiber doesn't generate excess heat while operating, reducing the load on power-hungry data center cooling systems. Businesses interested in internationally recognized Leadership in Energy and Environmental Design (LEED) certification are choosing optical fiber cabling systems to create more cost-efficient, environmentally friendly data centers.

#### FIBER IS MORE SECURE

Unlike copper wires, it is very difficult to tap or bug optical fiber. An attempt to tap into a fiber cable can cause the glass to break, likely triggering maintenance and/or surveillance alarms. The low power levels used for optical signals increases the system sensitivity to any invasive power loss.

#### FIBER IS COST-EFFECTIVE

Traditional copper cable requires repeaters to amplify signals every mile, whereas optical fiber systems need repeaters every sixty miles or more. This cost advantage was one of the key drivers in the installation of undersea cables that now connect every continent except Antarctica.

#### FIBER KEEPS GETTING BETTER

The first viable low-loss fiber invented by Corning in 1970 had an attenuation of 17 db/kilometer. Today, Corning's SMF-28® ULL fiber is 100 times better with signal loss of just 0.17 db/kilometer. And, we're working to ensure that the next generation fibers are better still.

## WANT TO KNOW MORE?

For a comprehensive overview on optical fiber, visit us on the Web at: [www.corning.com/opticalfiber](http://www.corning.com/opticalfiber).

Or, you may contact the Corning Optical Fiber Information Center (COFIC), the most extensive fiber-optic information resource in the world. With just a phone call or an e-mail, you can be in touch with a team of trained information specialists and technical experts who are ready to answer your questions and provide you with the information you need. Quick answers and a personalized information package can be sent to you within 24 hours. If you currently deploy optical fiber, are considering it for the future, or simply need information on fiber technology, contact COFIC by:

Phone: 607-248-2000

(8:00 a.m. and 5:00 p.m. EST, Monday through Friday)

e-mail: [opticalfbcs@corning.com](mailto:opticalfbcs@corning.com)



**CORNING**

One River Plaza  
Corning, NY 14850-0001  
U.S.A.

[www.corning.com](http://www.corning.com)

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