

# Small Modular Reactors

**SMRs are an opportunity to leverage an additional 60 years of safe nuclear generation in Canada.**



- Can generate 300 MWe equivalent or less
- Designed with modular technology using factory fabrication
- Could be coupled with other energy sources, including renewables
- Are well-suited to off-grid applications
- Allow for incremental deployment
- Have a competitive and predictable Levelized Cost of Energy
- Can be used in hard to decarbonized sectors (i.e. heavy industry applications, district heating, etc.)
- Microreactors (MMRs) can generate up to 10 MWe. These units are ideal for remote and smaller communities.

# Multiple Markets for SMRs



## **ON-GRID**

likeliest on existing, licensed nuclear sites, or replacing coal-fired units

## **MINING**

electricity (+heat) for remote mining sites

## **DATA CENTERS**

reliable, sustainable, and scalable electricity deployable on site or as part of localized grid

## **PROCESS HEAT**

for industrial processes

## **REMOTE COMMUNITIES**

electricity (+heat) for hundreds of remote towns dependent on hydrocarbon fuels



# Trends Driving More Bandwidth Demand



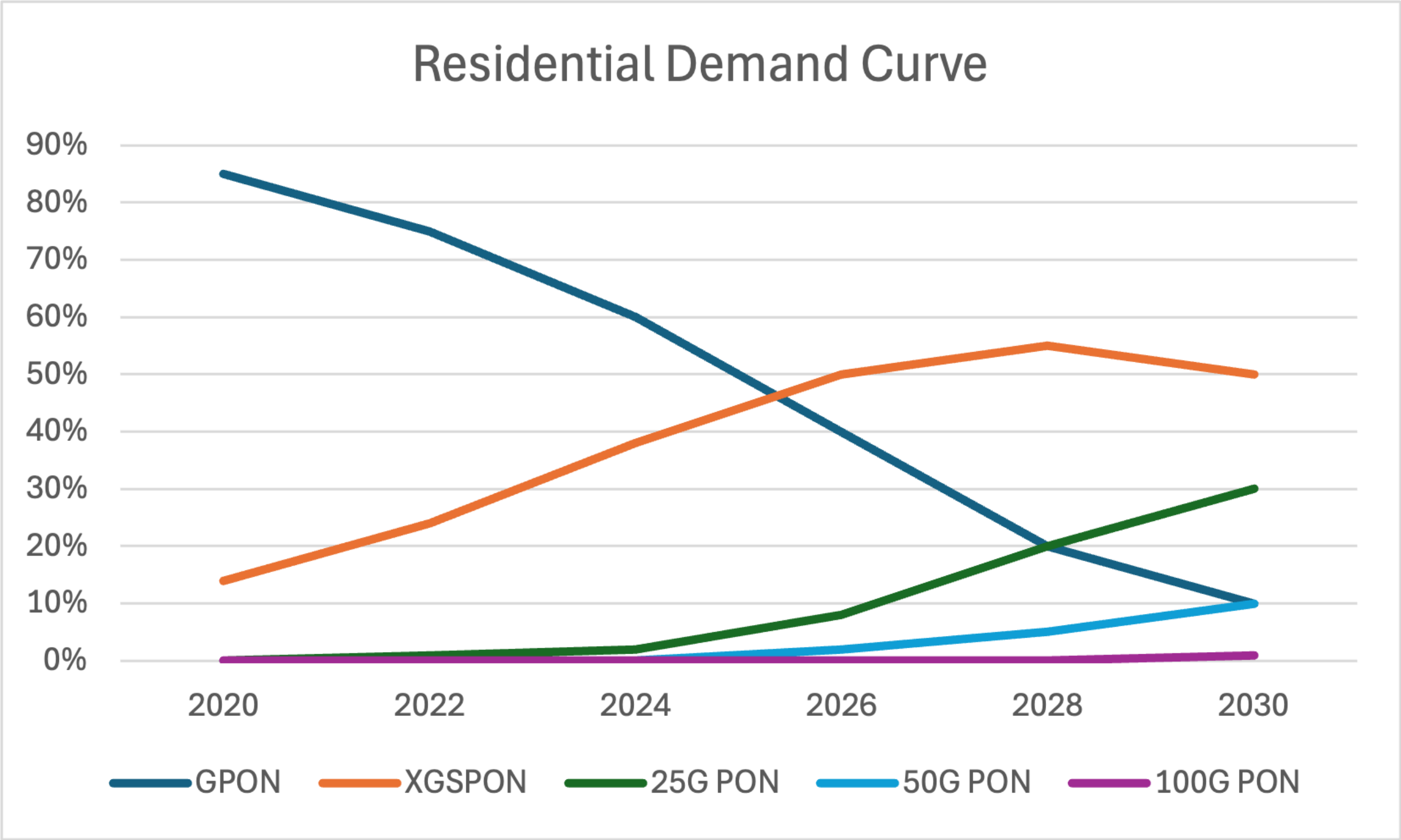
## Residential:

4k/8K Video Streaming  
Cloud Gaming, Xbox, NVIDIA GForce  
NOW, Xbox Cloud, PS NOW  
Work From Home Video calls Cloud  
Collaboration  
Smart Home IoT/Security Systems  
Wi-Fi 6/7 Gateways

## Business & Enterprise Services:

Fiber to the Business FTTB (higher speeds)  
MDU/Multi Tenant Complexes  
Remote work Access  
5G sites require min 10G+ per site uplink  
capacity  
Small Cell and Dense Urban Deployments  
Future 6G bandwidth demands

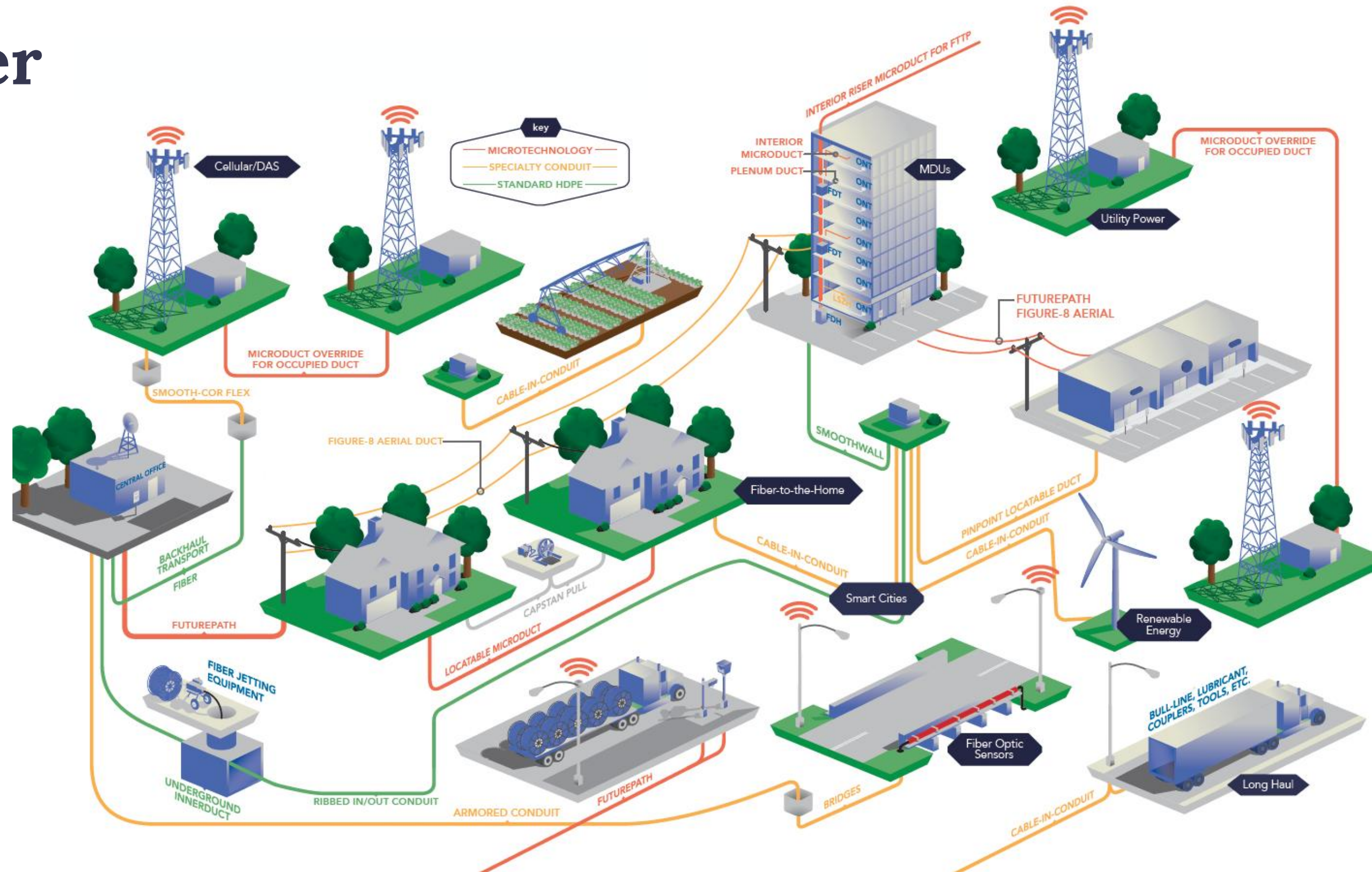
It is no longer just about download speeds. It's about symmetrical scalable, reliable, multi-service fiber access networks that can support everything from smart homes to 5G backhaul, to small business gigabit, and cloud gaming all over the same infrastructure.





# Conduit and Fiber are Everywhere!

- There is sensing potential in every pathway
- Sensing has benefits for a multitude of applications and stakeholders
- Dura-Line is a proud member of:





# What Can Fiber-Optic Sensing Do?

Detect, classify, track, and continuously monitor things like:



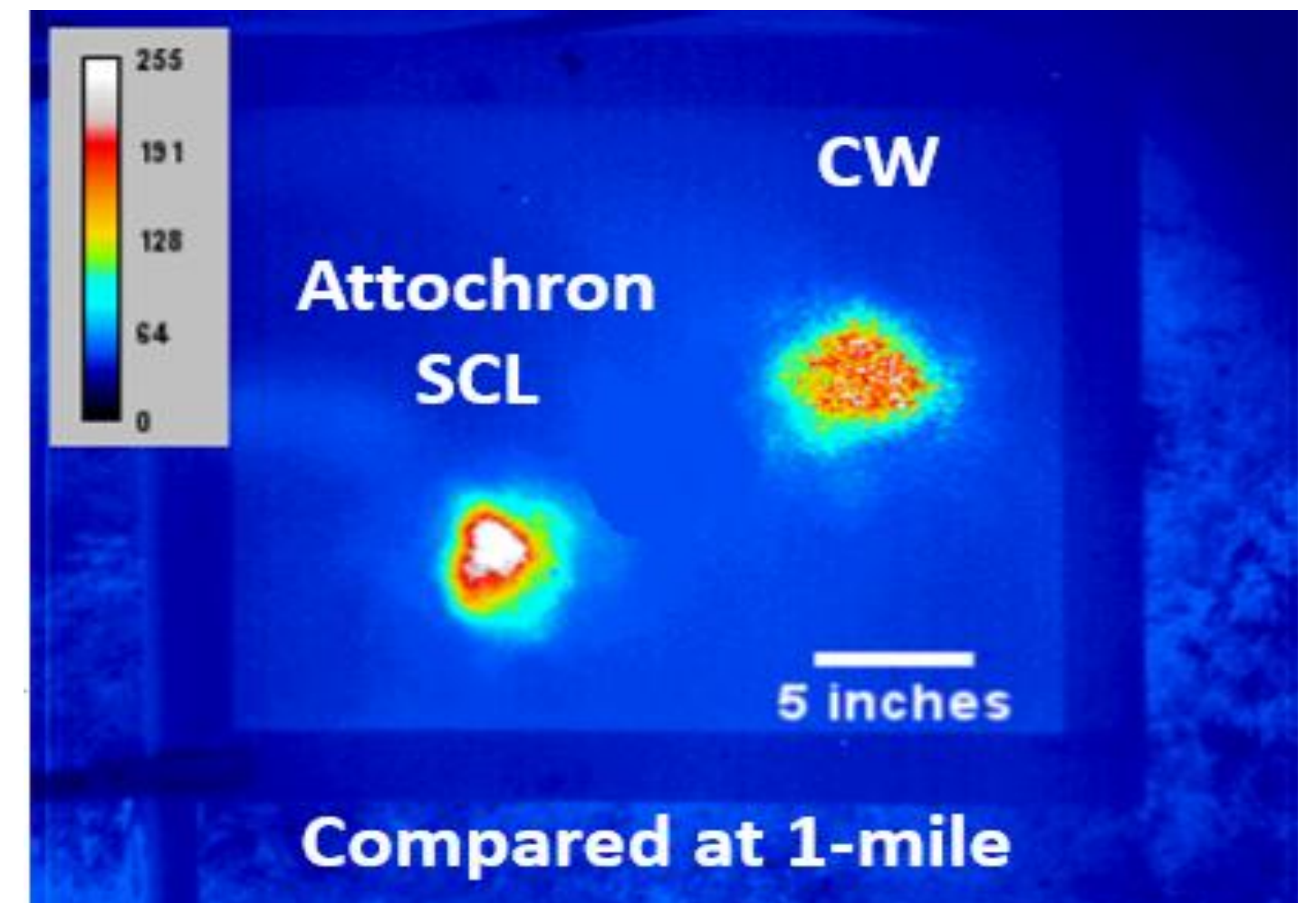


# The **ATTOCHRON™** Difference

Free-space optical (FSO) communication is a wireless technology that uses light to transmit data through air, space, or water without the need for fiber optics or other optical systems. FSO systems use a high-powered laser to convert data into pulses that are then sent through a lens system. FSO research from 1998 to 2006 in the private sector totaled \$407.1 million, divided primarily among four start-up companies. All four failed to deliver products that would meet telecommunications quality and distance standards

**Attochron uses short coherence length (SCL) light sources, not the continuous wave (CW) lasers from all other FSOC companies**

Attochron's disruptive and patented approach uses lasers with an extremely *short coherence length* (~100um) to avoid the barrier to ALL OTHER FSOC solutions, which is air scintillation, which results in poor signal availability and high bit error rates (BER)



# CLEAR AIR Scintillation/Turbulence Physics



## Air Turbulence 1-Mile

(Scrambles CW lasers but not Attochron)

**Attochron Laser: NOT 'SPECKLED' by Turbulence**  
**CW Laser: HIGHLY-SPECKLED (poor BER)**

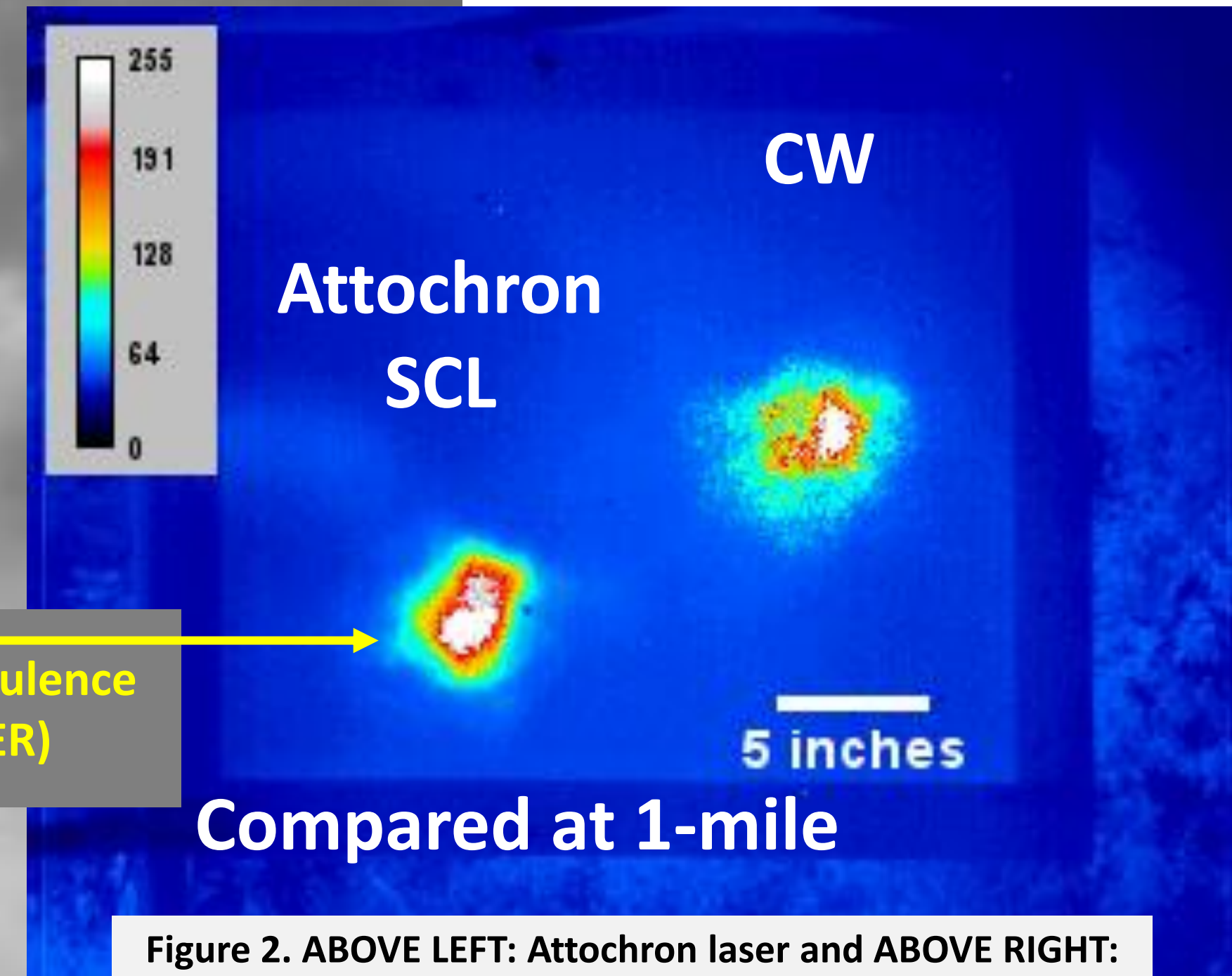


Figure 1. Infrared camera video (looped as a GIF) of 'what a 1550nm laser sees' (over Attochron's 1-mile testbed) when trying to connect through average scintillation; varying refractive indices in air scatter light along the path creating different path lengths for an optical beam travelling through it.

Figure 2. ABOVE LEFT: Attochron laser and ABOVE RIGHT: Continuous Wave (CW) laser compared at 1-mile distance. Scintillation-driven coherent interference effects on the CW are apparent. Brightness legend is in the upper left corner with white being most bright.





WORLD'S ONLY CARRIER-GRADE  
OPTICAL WIRELESS COMMUNICATIONS™

### Use cases

- “Last / Middle Mile” connectivity
- Fiber backup
- RF link back up
- Tower backhaul
- Rural network extension
- Military applications
- Satellite communications
- Temporary installations
- Rapid installations
- Disaster recovery
- Healthcare applications



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### Advantages

- Ease of deployment—both time and cost
- Operates on rooftops, towers or thru windows
- Can be used to power devices
- License-free long-range operation (in contrast with radio communication)
- High bit rates, Low bit error rates (BER)
- Interference free
- Immunity to electromagnetic interference
- Full duplex operation
- Protocol transparency
- Increased security with narrow beam(s)
- Reduced size, weight, and power consumption compared to RF antennas
- Eye safe (meets ANSI Z136.1 standard)