

World Optical Fiber & Cable Conference 2022

Leveraging specialized fiberoptic cables as drivers for sustainability



An independent company

Established in 1996



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Product Manager

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What is a FIMT?

(Fiber In Metal Tube)

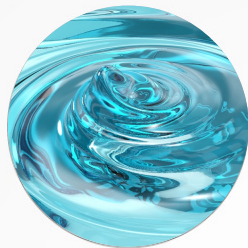


Overview



Metal

+



Filling Compound

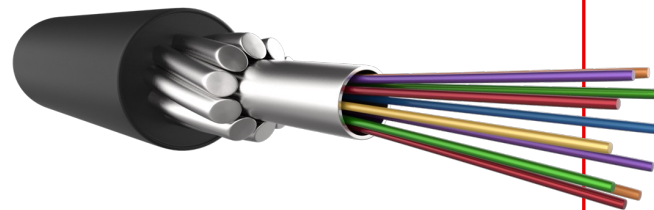
OPTIONAL

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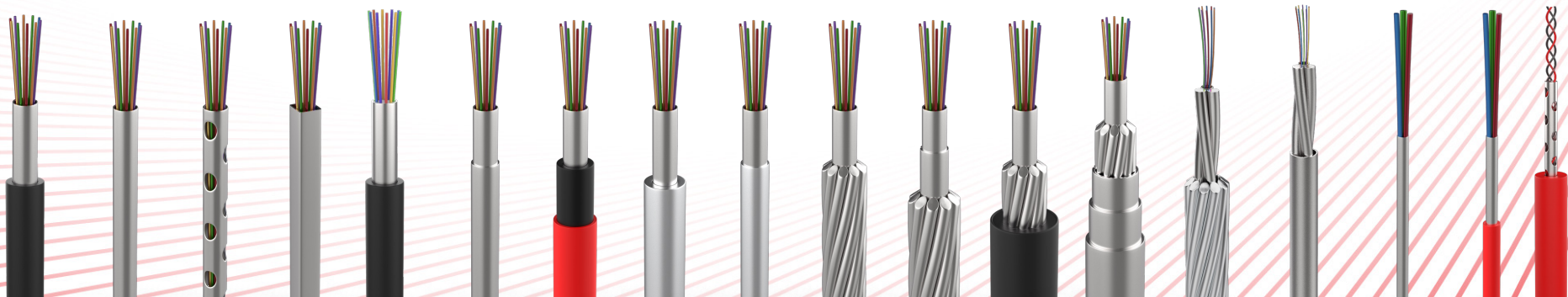


Optical Fiber

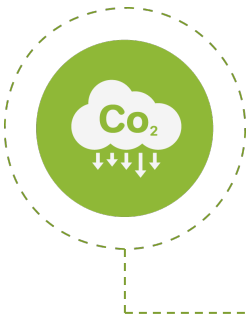
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FIMT



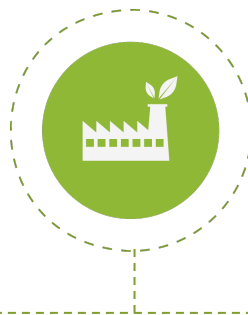
Revolutionising industries with fiberoptics



**Reduction of CO₂
emissions**



**Reduction of wasted
resources**



**Increased lifetime
of assets**



**Increased quality of
life**



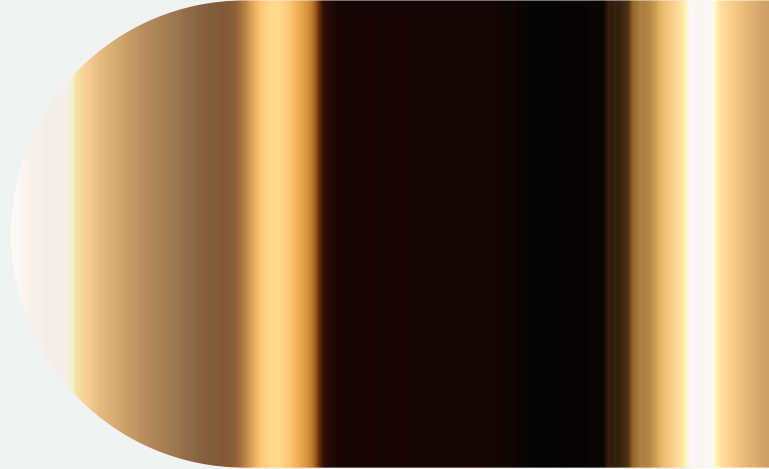
Key industries

- Conventional Energy – Pipeline
- Conventional Energy – Smart Grid
- Alternative Energy – Offshore Wind
- Construction – Structural Health Monitoring





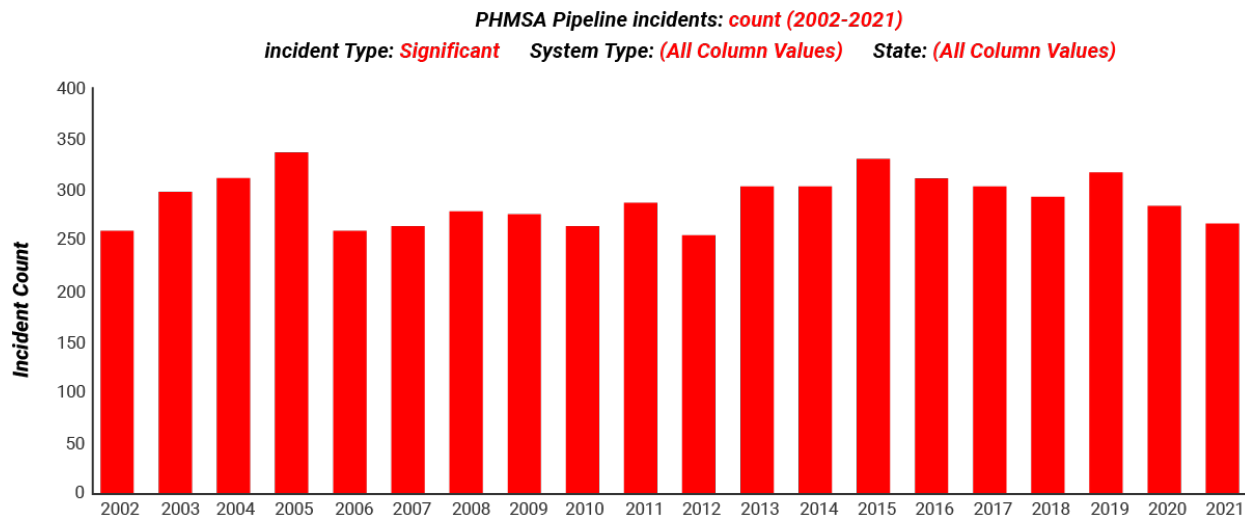
Pipeline



Pipeline Significant Incident 20 Year Trend

Source: US Department of Transportation

	2022 Year-To-Date
Incidents	203
Fatalities	10
Injuries	16
Total Cost	\$226,231,172

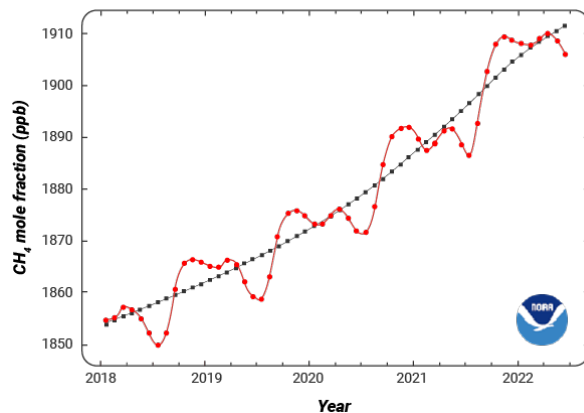


Calendar Year	Number	Fatalities	Injuries	Year Dollars
2002	258	12	49	\$139,976,472
2003	297	12	71	\$184,250,580
2004	309	23	56	\$349,020,406
2005	336	16	46	\$1,635,983,811
2006	257	19	34	\$175,249,568
2007	264	15	46	\$167,339,939
2008	278	8	54	\$656,827,912
2009	275	13	62	\$201,388,211
2010	264	19	103	\$2,048,357,034
2011	285	11	50	\$495,425,846
2012	255	10	54	\$259,661,615
2013	303	8	42	\$414,791,313
2014	302	19	94	\$350,570,020
2015	330	9	48	\$382,046,399
2016	309	16	86	\$407,495,450
2017	303	7	30	\$343,302,192
2018	292	6	78	\$2,027,352,557
2019	317	11	35	\$356,261,246
2020	283	15	40	\$384,036,831
2021	267	11	31	\$193,849,081
Grand Total	5,784	260	1,109	\$11,173,186,481

Source: Global Monitoring Laboratory

Methane is a major contributor to climate change, responsible for a significant share of the climate disruption people are already experiencing. That is because it is **82.5 times more potent than carbon dioxide** at absorbing the Sun's heat and warming the Earth.

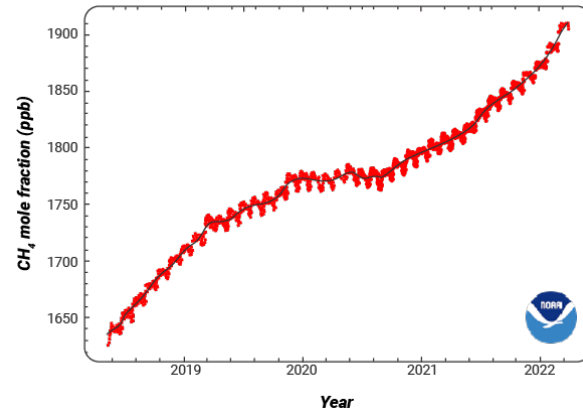
Trends in Atmospheric Methane Global CH₄ Monthly Means



June 2022: 1906.11 ppb
June 2021: 1888.47 ppb

Last updated: Oct 05, 2022

Global Monthly Mean CHA



Net Zero methane emissions by 2030

Source: The Economist

Oil and Gas Climate Initiative, which includes a dozen of the world's biggest energy firms, from ExxonMobil to Shell to Saudi Aramco.

ExxonMobil



أرامكو السعودية
Saudi Aramco

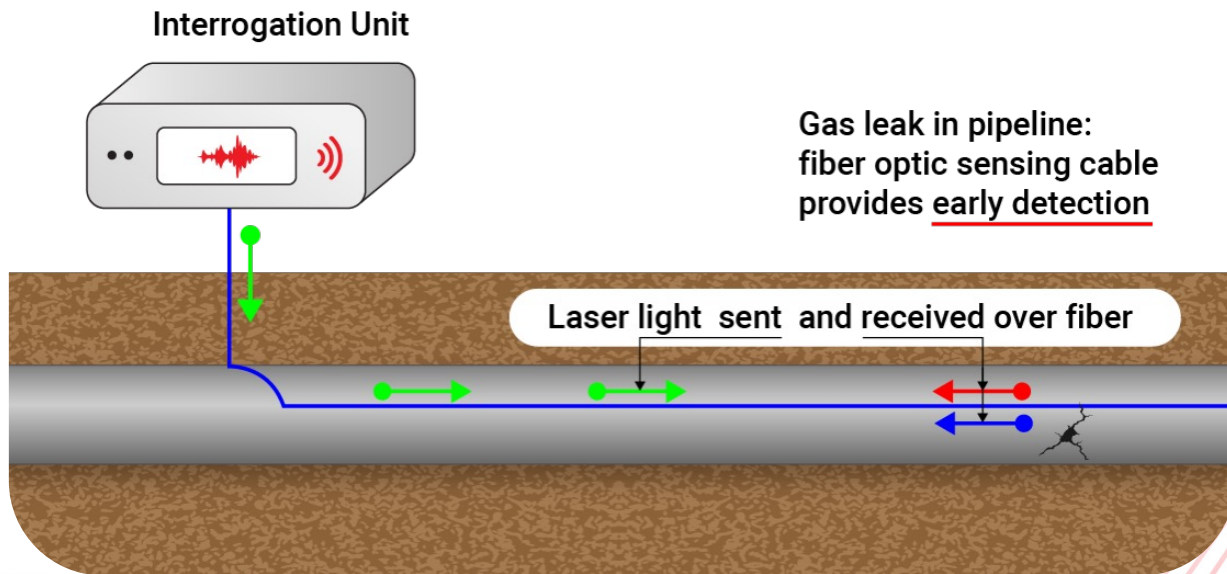


Distributed Temperature Sensing



- Permanent monitoring system – continuously real-time
- Leaks detected before environmental damage or safety incident
- Leak is located to within meters – minimizing excavation costs
- Costly inspection programs can be reduced
- Intrinsically safe – can be used in hazardous zones (Gas/LNG)
- Non-intrusive, no delay to production
- Improved asset reliability
- Increased lifetime of assets

Distributed Temperature Sensing



Anomaly in temperature profile at leak event



Offshore wind



US Offshore wind market projections

Source: Source: Office of Energy Efficiency & Renewable Energy

2011



3.3 MW

Wind turbine
capacity installed

2020



7.6 MW

Wind turbine
capacity installed

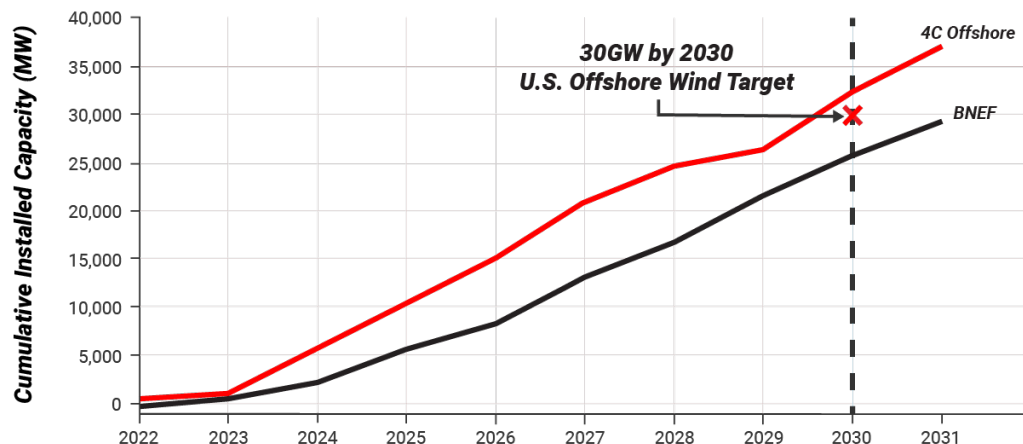
2021



7.4 MW

Wind turbine
capacity installed

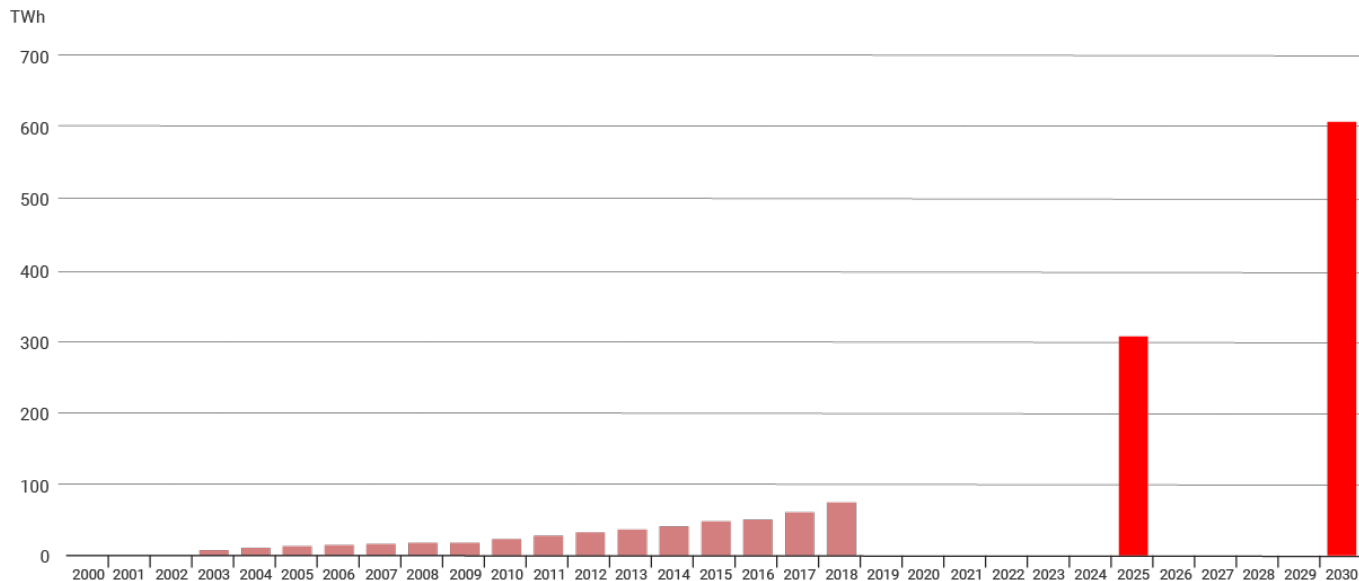
The industry continues its trend toward larger turbines to reduce per-megawatt project costs. The **average offshore wind turbine capacity** installed in 2021 was 7.4 MW, slightly down from 7.6 MW in 2020, but still significantly higher than 3.3 MW in 2011.



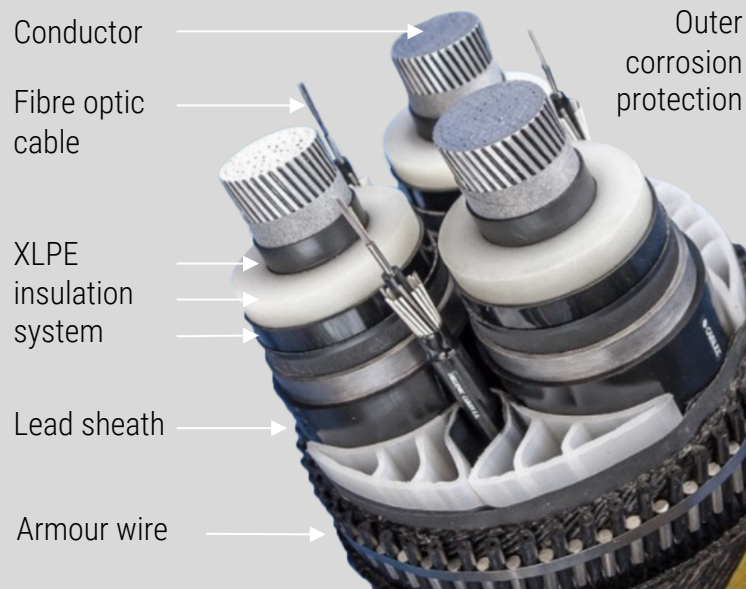
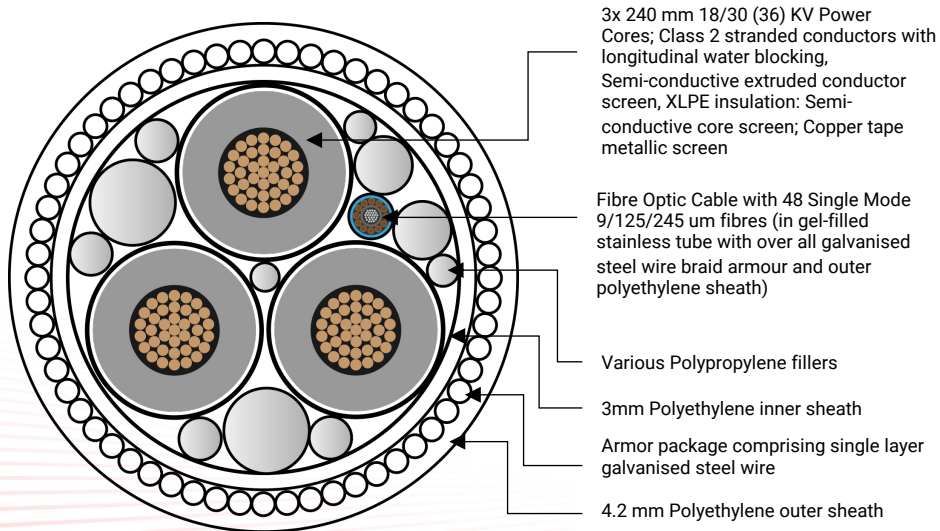
Global offshore wind market projections

Source: IEA

Offshore wind power generation in the Sustainable Development Scenario, 2000-2030

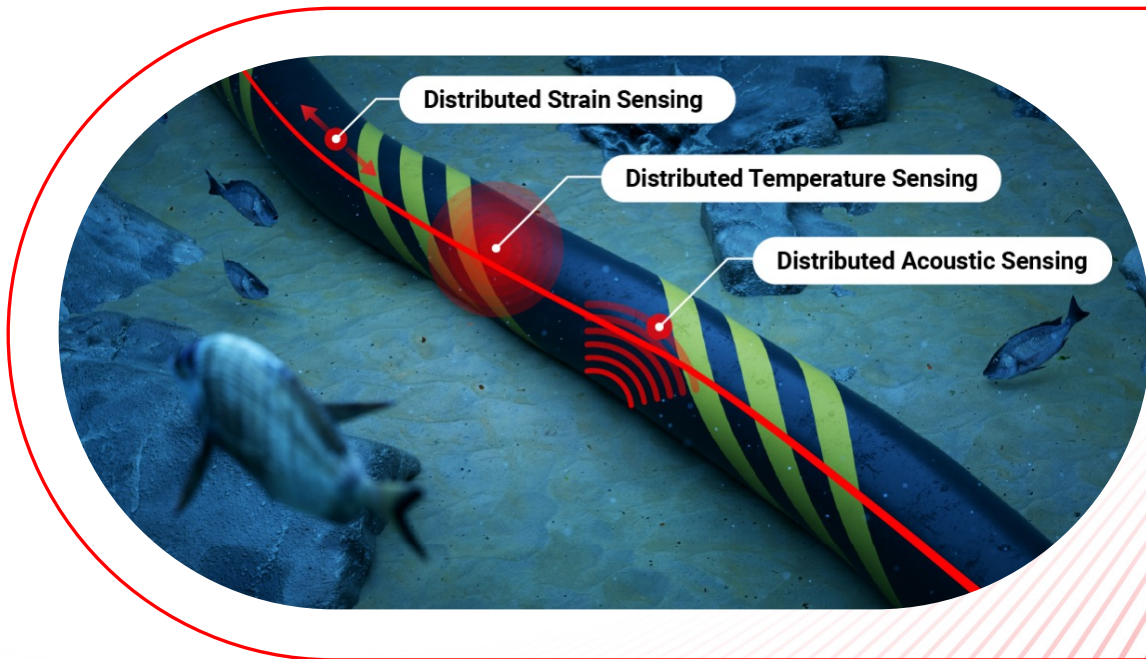


Offshore cables for both AC and DC rely heavily on FIMT



“HVDC technology is ideally suited to support and improve the sustainability, efficiency, and reliability of power supply systems.”

Simens Energy

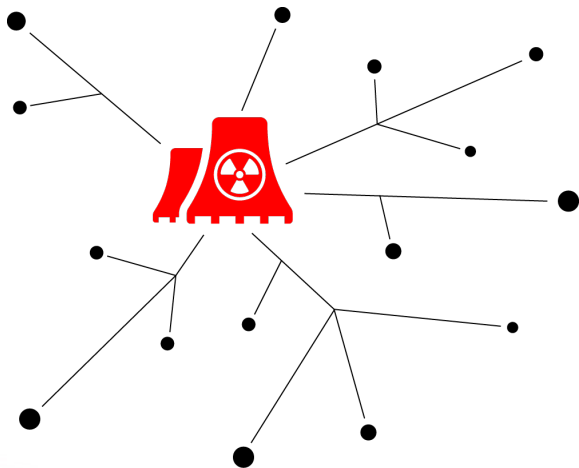




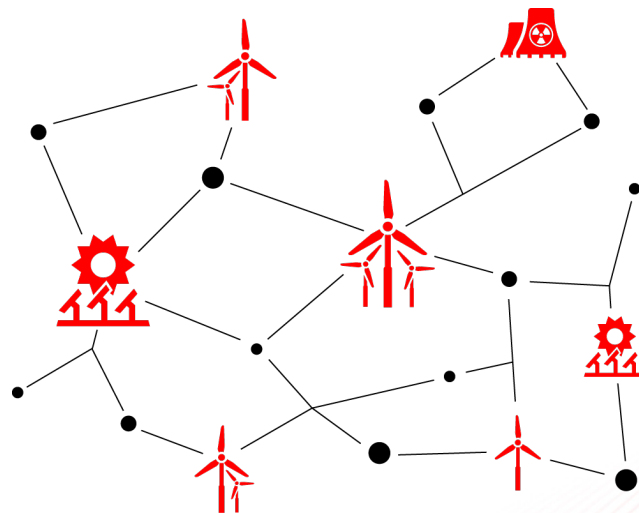
Smart Grid



Steady Increase of Power Consumption



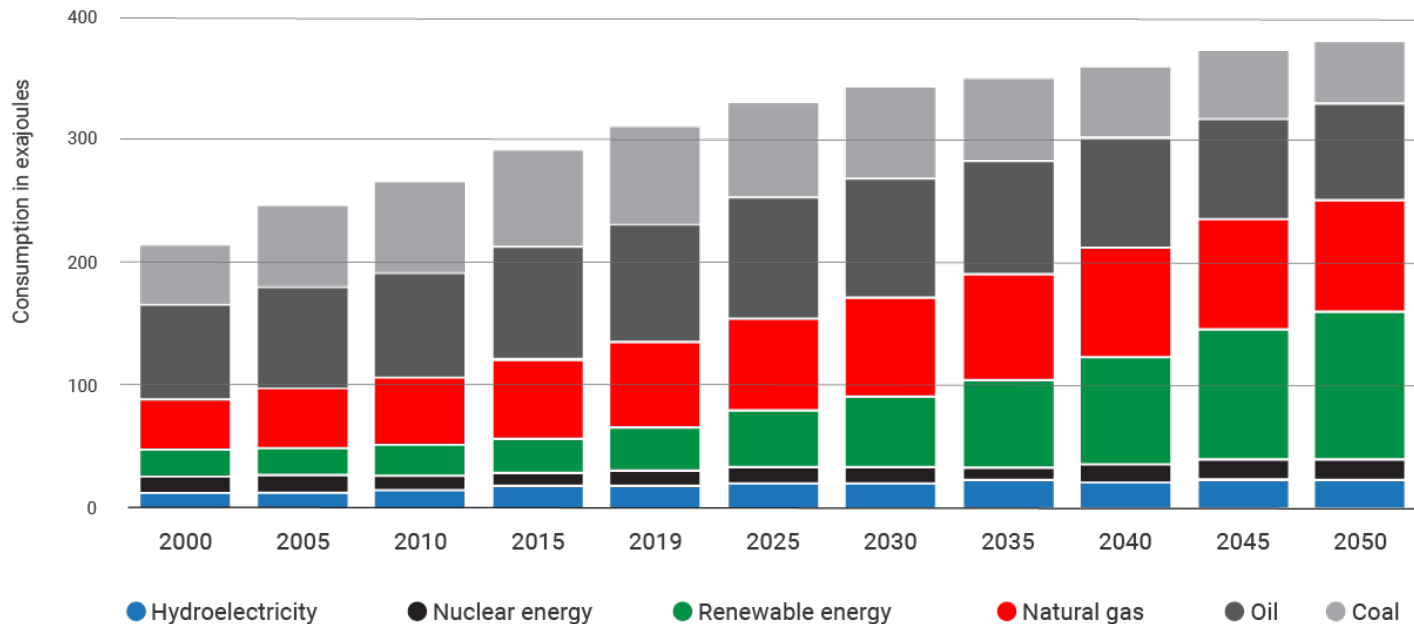
Power Grid in **2020**

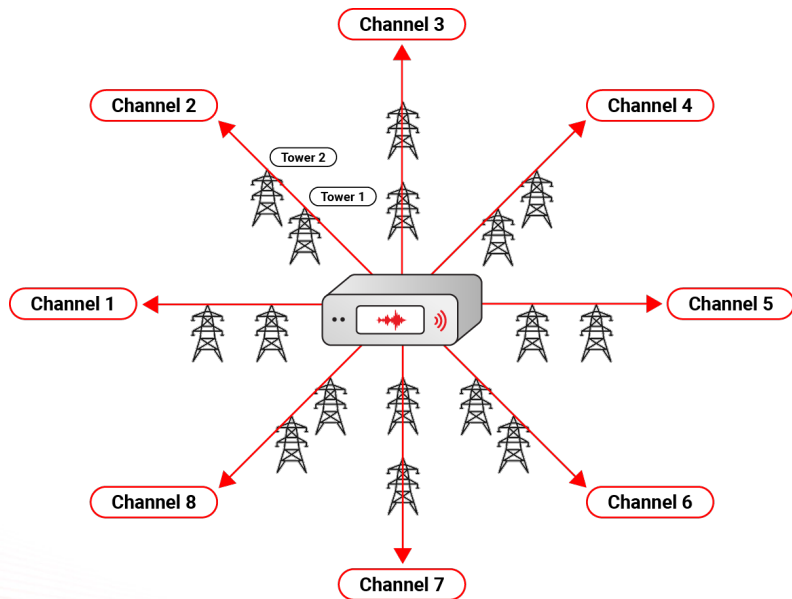


Power Grid in **2050**

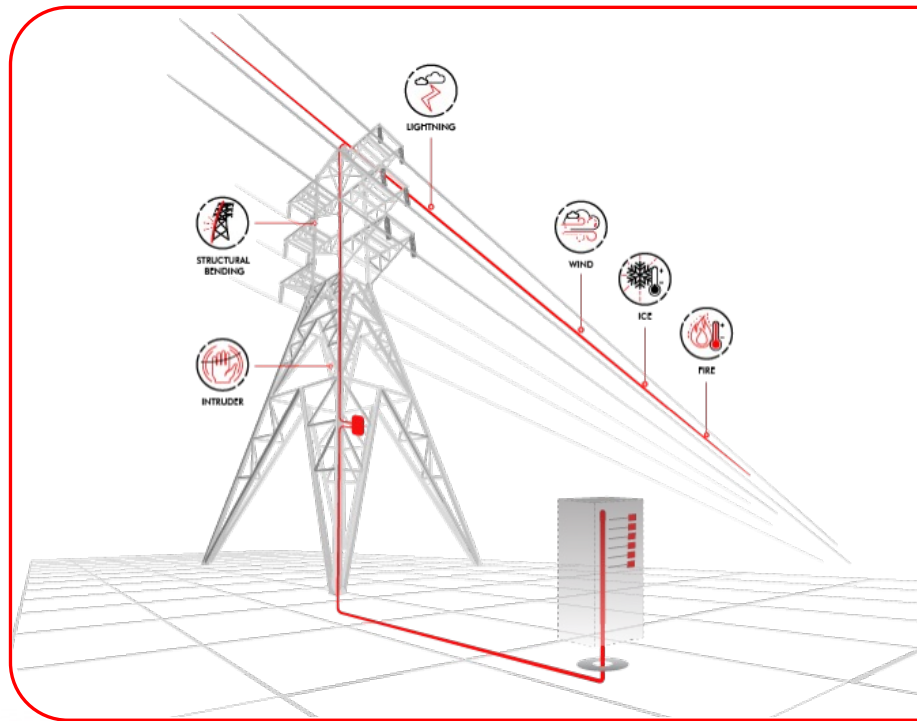
Steady Increase of Power Consumption

Energy consumption worldwide from 2000 to 2019, with a forecast until 2050, by energy source (in exajoules)



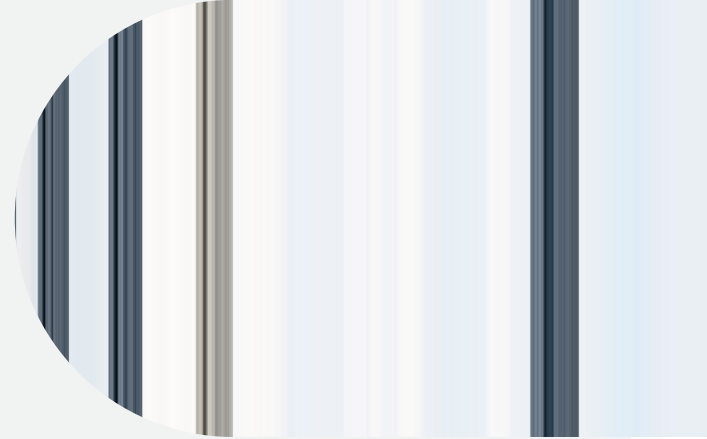


DTS as enabler for smart power management – boosting the efficiency by increasing load based on max. allowed temperature on cable.





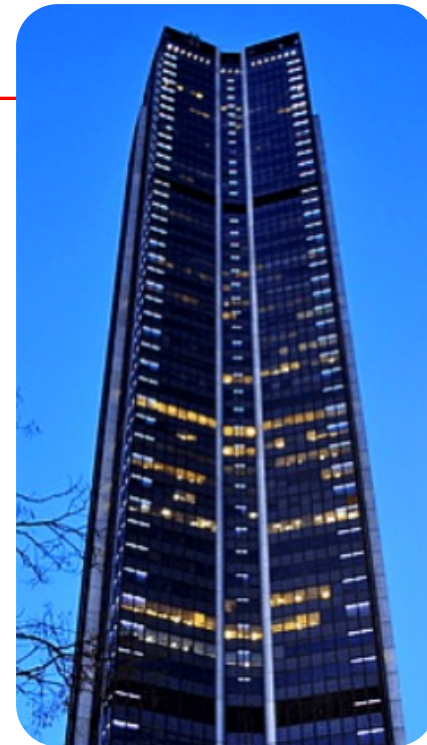
Structural Health Monitoring



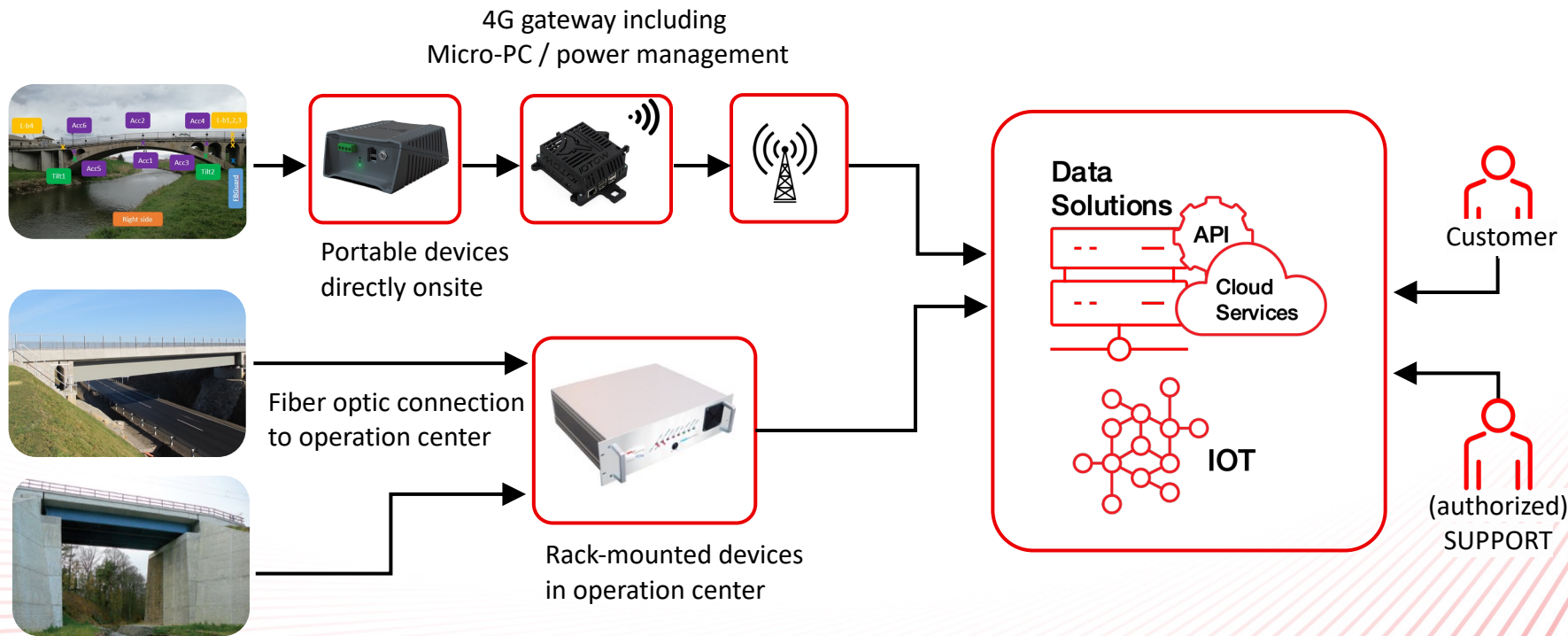
Keeping Critical Assets Safe



Fiber Optics as Sensor

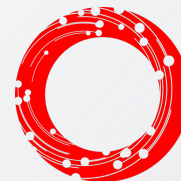


System Overview



THANK YOU

VISIT US ONLINE



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