Advanced Cable Monitoring

February 2022

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Light speed system awareness

- Reduces capital cost and carbon footprint of instrumentation
- Reduces outage time and repair cost
- World first: Distributed Electromechanical Sensors (DES)
- **Passive** sensors networked by light, not data

Some of our customers

Statnett
equinor
sse Renewables
Scottish & Southern Electricity Networks
TATA POWER
Rte
DEME
VATTENFALL
DB
SP ENERGY NETWORKS
RED ELÉCTRICA DE ESPAÑA

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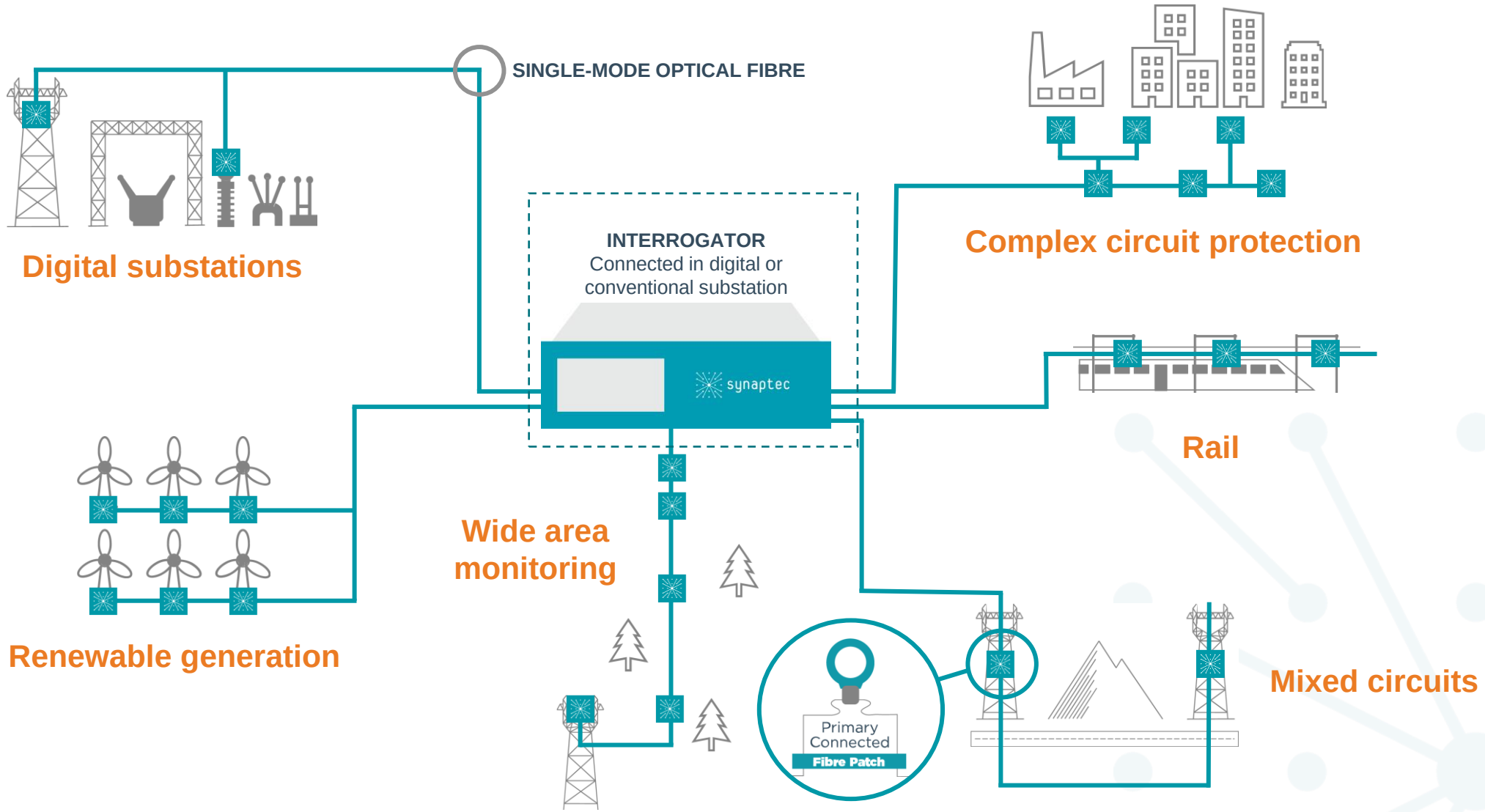
More sensors, better data, smarter decisions



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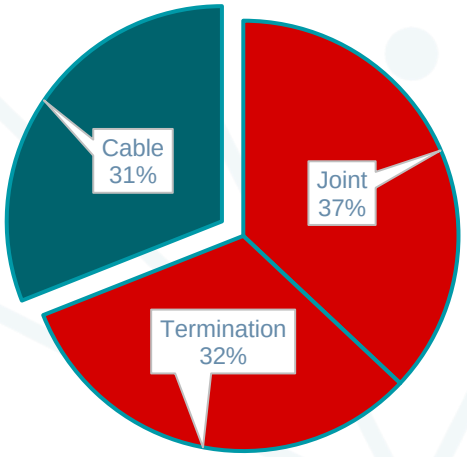
Underground monitoring limitations

- Lack of online asset management, condition monitoring data despite increased global use
- Conventional monitoring misses 69% of failures modes, locations and time before failure

- DTS £0.1-0.2M RTTR, misses terminations, limited fault detection
- DAS £0.1-0.2M 3rd party interference, limited fault detection
- PD £1.0-2.0M for 10 joints, failure seen too late, equipment space and cost
- Manual low frequency inspection inefficient, unlikely to catch early signs of failure

IMPACTS	TYPICAL EXAMPLES		
ELECTRICAL	TRANSIENTS	POWER QUALITY	VARIABLE LOAD
ENVIRONMENTAL	WATER INGRESS	FLOODING	CORROSION
MECHANICAL	IMPERFECT INSTALLATION	OHMIC OVERHEATING	STRAIN



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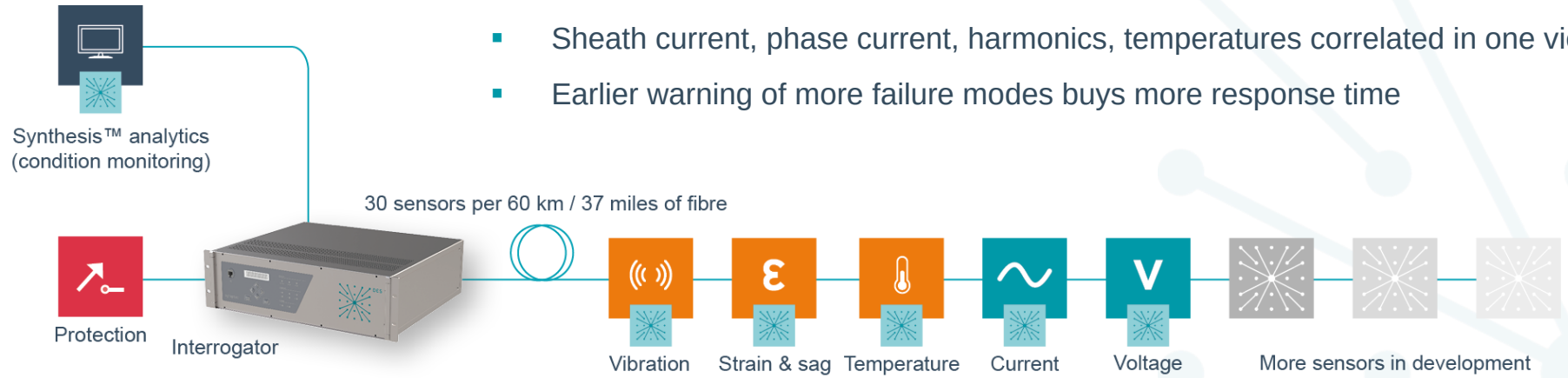
Source KEMA/DNV http://www.jicable.org/TOUT_JICABLE/2015_slides/2015-D9-2_slides.pdf

One passive monitoring platform, three levels of benefit

TIME

	Improves	Application	Benefits
Years	Asset Performance Management	Multi-point comparative analytics	Condition- based maintenance decisions Earlier warning of more failure modes
Minutes	Real-time monitoring	RTTR	More accurate systemic thermal rating for the circuit
		Alarms and ampacity	Instant warning of overheating and losses Works where 4G / IoT cannot
<2 ms	Multi-zone protection	Mixed Circuit Protection	Auto reclose on overhead faults, block reclose on faults in underground cable sections



- Permanent, synchronous monitoring for inaccessible and remote HV assets
- Sheath current, phase current, harmonics, temperatures correlated in one view
- Earlier warning of more failure modes buys more response time

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Summary

Capex
Opex
Risk

Safety
Control
Resiliency

- Zero power, zero comms, zero data, zero maintenance sensors
- More operational insight without traditional limitations
- Earlier failure warnings for remote HV assets to avoid outage
- Safely optimised capacity and scheduled maintenance

Can we help your business?


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