

Enabling the Energy Transition

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Prysmian Group | A True Public Company

+50 Countries



108 Plants



26 R&D Centers



+29,000 Employees



+12 €B Annual Sales



Data refers to 2021



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Prysmian Group, Enabling the Energy Transition

Energy Transition: A pathway toward transformation of the global energy sector from fossil-based to zero-carbon by the second half of this century for a Sustainable World

- **Prysmian to act as enabler for accelerating the energy transition**
 - Technology Leadership
 - Increasing manufacturing capacity
 - Increasing installation capacity
- Products, systems and services for **Renewable Power Generation** and **Power Grids**
- Reduce carbon footprint of our processes
- A **Solution Provider** rather than a Cable Maker



Source: *Prysmian Group White Paper, Enabling the Energy Transition*
[Enabling the energy transition - Prysmian Group](#)

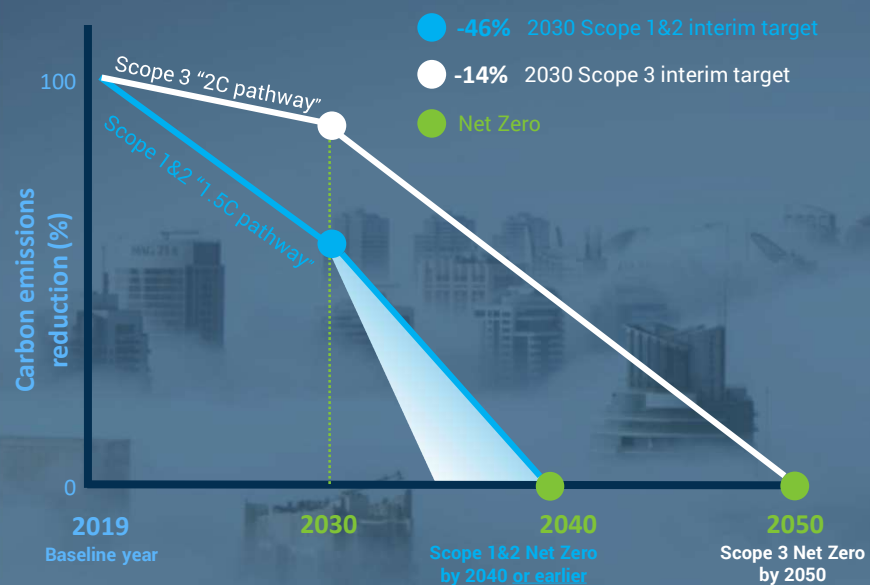
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Prysmian Climate Change Ambition and Targets

OUR NET ZERO CLIMATE AMBITION



Net Zero between 2035 and 2040 for our Scope 1&2 emissions, and by 2050 for our Scope 3 emissions

Interim 2030 science-based targets, against a 2019 baseline

Signed the **Business Ambition for 1.5C Commitment Letter**⁽¹⁾

Already working for an earlier delivery on carbon reduction targets

1 Decarbonise 80% of our Scope 1&2 carbon footprint

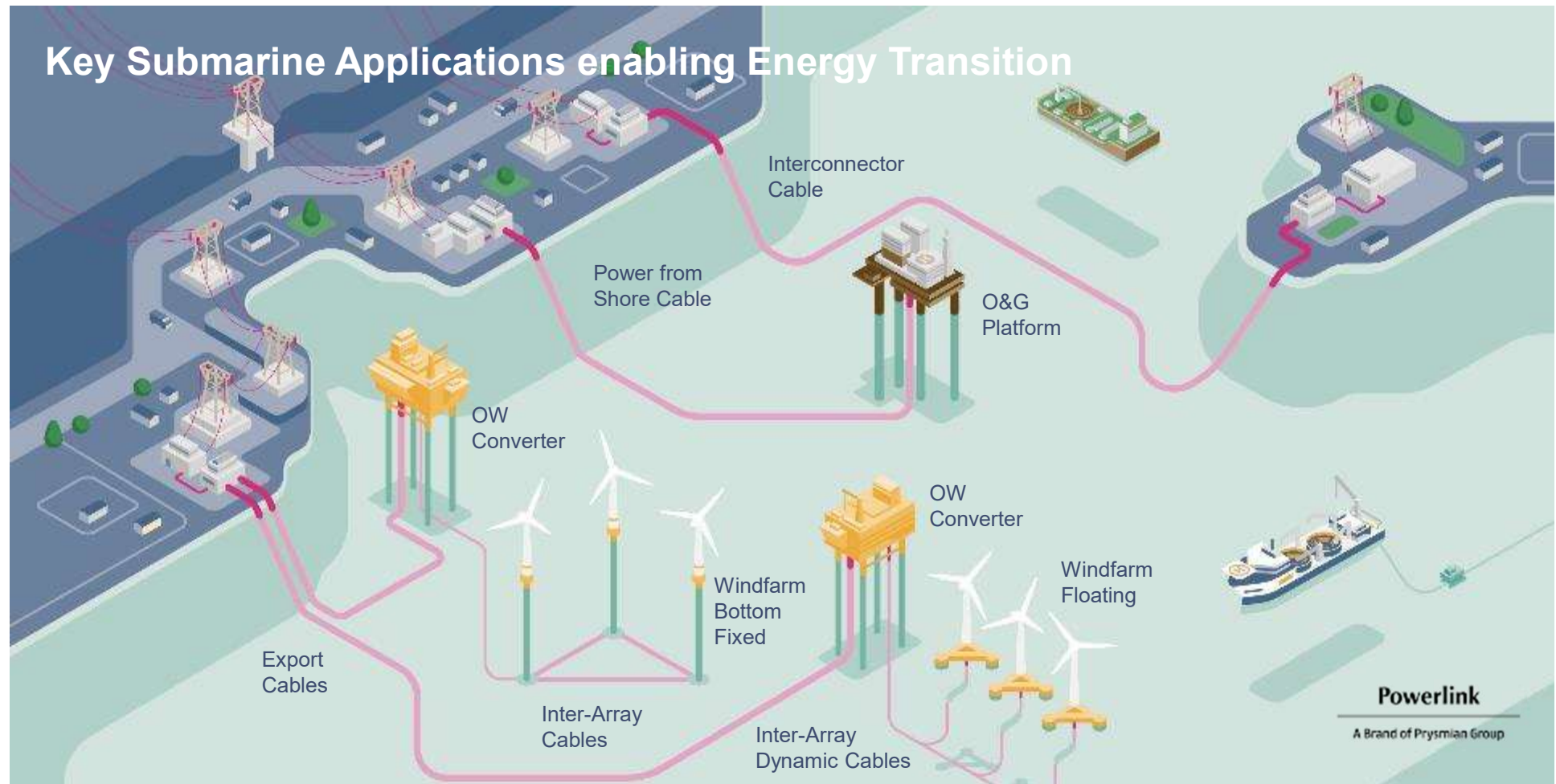
- phasing out SF6 emissions
- 100% renewable energy for electricity

2 Approx **100 €M** of Capex

- Over the next ten years
- Across our global operations of over 130 sites

(1) The Business Ambition for 1.5°C is a campaign led by the Science Based Targets initiative in partnership with the UN Global Compact and the We Mean Business coalition.

Key Submarine Applications enabling Energy Transition



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Reinforcing Submarine Capacity to further enable Energy Transition

> 450 M€
Investments

Strengthening Production Capacity to Double Submarine Yearly Output

Arco Felice (Italy)



Brayton Point (USA)



Pikkala (Finland)



Nordenham (Germany)



Drammen (Norway)



The Largest Integrated Installation Capacity



Ulysse



Giulio Verne



Leonardo Da Vinci



Cable Enterprise



Barbarossa I

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Submarine cable plant in Pikkala upgraded to reduce carbon footprint in production

Existing natural gas-fired **heating solution** of Pikkala replaced with a new **renewable biomass-based solution**:
cuts annual CO2 emissions by 100% and reduces annual energy costs



- **New solid biomass-based energy plant** with a full-service (Build, Own, Operate) energy partner
- **Reduction of annual CO2 emissions** by around 2.500 tonnes (100%) from Q2/2022 onwards
- **Support circular economy targets:**
>50% of the fuels used in energy production are Prysmian's own by-products



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Leonardo da Vinci is the most advanced cable laying vessel in the world allowing efficient and sustainable project execution

Reduced transportation time and overall improved project efficiency thanks to 2 carousels of 7,000 and 10,000 tonnes, highest carousel capacity in the market

Capability to perform complex installation operations and support a variety of burial tools thanks to the bollard pull in excess of 200 tonnes

Increased operative flexibility thanks to independent laying lines

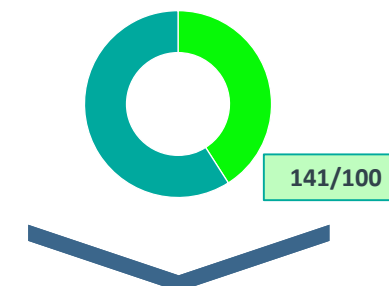
Reduced number of cable installation campaigns thanks to the high cable load capacity and navigation speed



Deep water installation capabilities
Installation for depths of more than 3,000 m also thanks to a new generation cable technology armoured with lighter materials

Leonardo da Vinci has been awarded with the **Green Plus additional notation** by **RINA**, gaining an **environmental index equal to 141**, that outnumbers the standard threshold set to 100

RINA - Environmental Index



Overall **decrease in CO2 emissions** and a **reduction in fuel consumption** of approximately **40%** compared to a traditional cable-laying vessel

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Focus on technology and innovation





Innovation Figures

107M€ Invested in R&D
in 2021

5,6K Patents covering
the main innovations

298 New Product families
launched in 2021

50 Collaborations with research
centers and universities

26 Research
Centers



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Technology Trends in Submarine and High Voltage applications



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Industry Best Technologies Suite for submarine applications

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HVDC Technologies



XLPE

± 600 kV | 3000 MW



MI

± 525 kV | 2400 MW



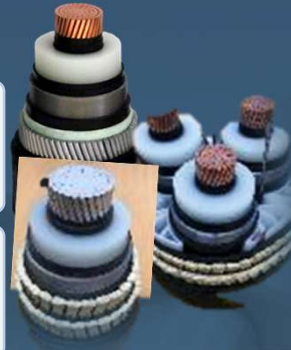
P-LASER

± 600 kV | 3500 MW



MI-PPL

± 700 kV | 3400 MW



HVAC Technologies



XLPE

± 275 kV | 500 MVA



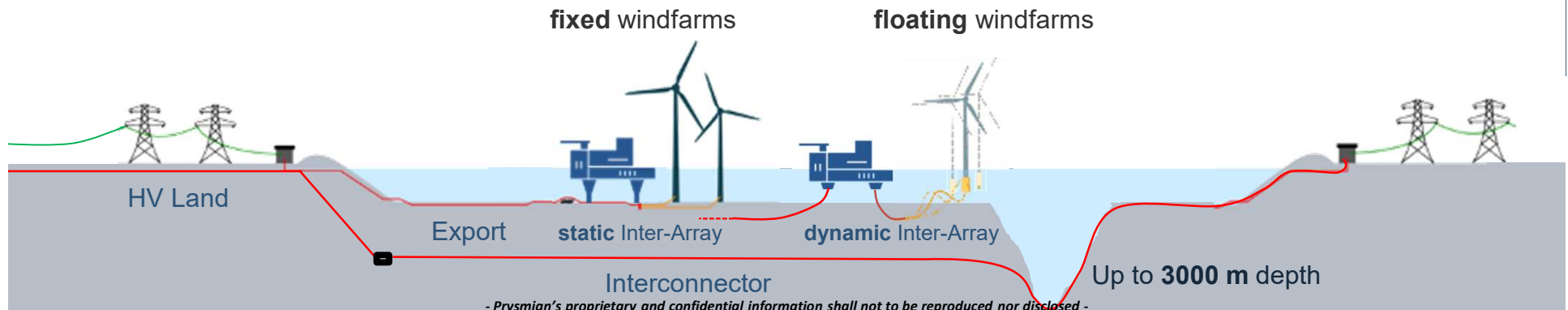
XLPE

± 420 kV | 1200 MVA



EPR

± 72.5 kV | 90 MVA





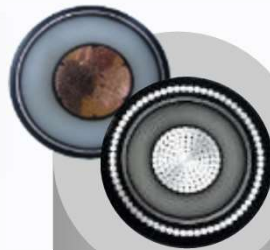
HVDC solutions portfolio

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HIGHEST VOLTAGES

- 525kV XLPE
- 525kV PLaser
- 525kV MI
- 700kV MI-PPL



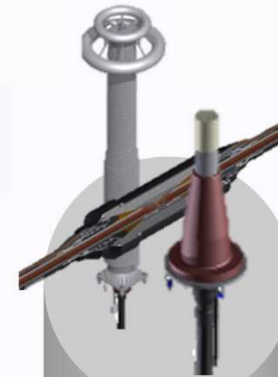
LARGEST X-SECTIONS

- 3500mm² Al
- 3000mm² Cu



HIGHEST DEPTHS

- 1650m world record water depth
- Composite armour design up to 3000m



IN-HOUSE ACCESSORIES DESIGN

- Sustainable (e.g. SF6-free solutions)
- Safe (e.g. explosion proof)

HIGH TEMPERATURES

- PLaser 90°C
- Cross-linked 80°C and 90°C



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Submarine cable systems for offshore wind farms

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275 kV export cables

Subsea cables



- Long distance power transmission (up to 500MW over 120km, at 50Hz)
- Tailored solutions for OWF industry – **Cable and accessories**
- **Market readiness:** completed Pre-qualification and Type Test

66 kV EPR array cables

Subsea cables



- **Cost-effective, reliable, higher transmission capability**
- Prysmian EPR insulation technology **continuously developed since 50 years**
- Completed installation of world's **biggest offshore wind farm** (>1.3 GW) expected to become **operational by the end of the year**



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Dynamic submarine cable systems

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Dynamic cables for Floating Wind are expected to unlock large energy potential all over the world

Current State

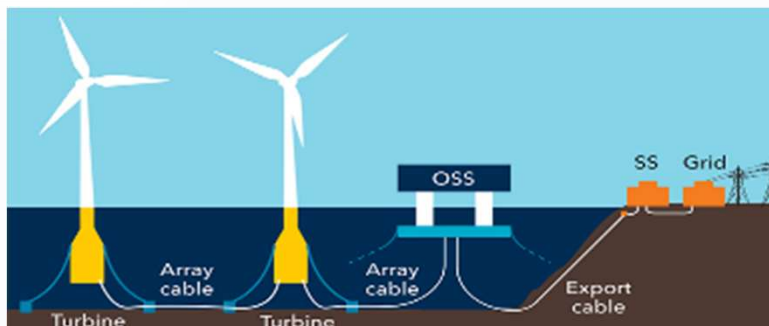
- ❖ Floating Off-shore Wind includes demo projects up to 50 MW
- ❖ Export cables **66 kV**
- ❖ Array cables **66 kV**
- ❖ 66 kV dynamic cable systems are **market ready**

PRYSMIAN MARKET LEADER

Mid term – 2025 onwards

- ❖ Floating Off-shore Wind will include projects up to approx. 1 GW
- ❖ Export cables **220 kV**
- ❖ Array cables **66 kV**
- ❖ **220 kV** under development & qualification

PRYSMIAN READY to MARKET in 2025



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Cables for Wind Turbines and platforms

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Windflex



Felflex

Windflex and Felflex EPR insulated cables provide outstanding mechanical performances!



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A full range of products for photovoltaic applications

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		Description	Standards
PV Cables TECSUN PRYSUN SUNGEN		PV Cables designed for the interconnection of various elements in photovoltaic systems, including panel interconnection, between panels and string boxes or from string boxes to the inverter. They are suitable for applications indoor and/or outdoor, resistant to UV and harsh environments.	Main standards of PV cables globally, including IEC 62930, EN 50618 and UL 4703
LV Cables		LV cables up to 3 kV, single core or multi conductors, aluminium or copper conductors, with different insulation and outer sheath compounds, armoured options and additional protection for harsh conditions as required	IEC standards and most local standards
MV Cables		MV cables from 6 to 50 kV, single core or three cores, aluminium or copper conductors, with different insulation and outer sheath compounds, screened, armoured options and additional protection for harsh conditions as required	IEC standards and most local standards
Special Cables		Wide portfolio of fibre optic cables, data cables and control cables to cover different needs	IEC standards and most local standards



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EOSS: Electronics and Optical Sensing Solutions

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MONITORING SYSTEMS HVAC/HVDC CABLE SYSTEM				COMBINED MONITORING SYSTEM	
	PD	DTS + RTTR	DAS	PD + DTS + RTTR + DAS	
Installation Test	✓			✓	Enhanced testing
Failure Prediction	✓	✓	✓	✓	External Damage Risk Reduction
Optimized Operations		✓		✓	Increased Asset performance
Failure Location			✓	✓	Immediate fault detection


PD Partial Discharge | DTS Distributed Temperature Sensing | RTTR Real Time Thermal Rating | DAS Distributed Acoustic Sensing




Pipeline
Detect leaks, ground movement and deformation in pipelines



Power cable
Onshore & offshore power cables monitoring



Subsea
Flow assurance & condition monitoring in SURF subsea equipment



Reservoir
Reservoir temperature and casing strain monitoring



Test & Measurement
Test and measurement of optical fiber and cable



Structural Health
Structural health monitoring

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Some of our recent projects delivered or in progress





Remarkable Project Track Record

More than 400

Submarine Projects



More than 5000

HV Land Projects Completed



More than 50

Offshore Wind Farms



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Bespoke designs for unique project executions

Fécamp

- Connection of **the first wind farm in the Normandy sea**
- 2 x Submarine Cables 18 km
- 3 x 800mm² Cu + Al XLPE 225kV AC
- 2 x 48 FO
- **Duct installation** at landfall nearby city and touristic beach, **maintaining merchant ships and fishing vessels traffic**



Saint Nazaire



Submarine section (Pikkala)	2x333km
Land section (Gron)	6x27.5km
Submarine	1000mm ² Al offshore and Cu at landfall 2 x Optical fibre cable with 48 single mode fibres
Land Conductor Sizes	2000mm ² Al & Cu; 2500mm ² Al & Cu
Voltage Level:	AC 220 kV

MARINE INSTALLATION: CENT IN
SIMULTANEOUS LAY AND BURIAL WITH HDP:
AUG-OCT 20

CABLE PULLING TO OFFSHORE PLATFORM:
LEONARDO DA VINCI: OCT 21





Challenging Strategies for Installation Activities

NNG

- N. 2 circuits: HVAC 220kV & 400kV / 41 km route each
- **Fast track project:** award Nov '19 → main installation completed in '21
- Second project for SeaRex burial tool
- **Longest Sea-Land Horizontal Directional Drilling ever made by Prysmian** (650m each)



Eleclink

- HVDC 320kV link / 51 km route (Channel Tunnel)
- First cable compliant with Construction Products Regulation
- **First HVDC cable «exposed» in a train tunnel**
- A specialist, 500 m long, works train manufactured for the project to allow the HVDC cable to be installed



Viking Link



- HVDC 525kV link / 690 km route
- **World longest interconnector** (Denmark to UK)
- First project of **Leonardo da Vinci** (2x106Km HVDC cable laid in 8 days)
- Two of the most important European TSOs: National Grid & Energinet



Environmental friendly projects from the cable to the installation activities

Dolwin 5

In Summer 2022 43 km of Submarine Copper 1800 mm² cable will be installed by a spread composed by Ulisse, the new procured shallow water barge Barbarossa I and all supporting tugs and anchor handling boats



ULISSE IN FACTORY LOADING CONFIGURATION MODE

BARBAROSSA I IN CABLE LAYING MODE



The **installation** will be performed in the north sea in a special **National Park area protected by UNESCO** due to its high biological diversity called Waddansea.

PowerLink team will ensure the most **environmentally friendly and low impact installation campaign** to preserve the UNESCO heritage area.

German Corridors



2300 km
underground cables



93000 tons
cable production



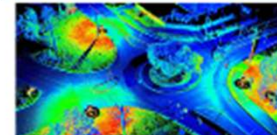
2000 people taking
part of the projects

CABLE HANDLING and FACTORIES DEVELOPMENT



New EQUIPMENT
ready in our
factories to handle
More than 1700
Drums

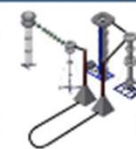
ENGINEERING PHASE



More than 2000 km
of road surveyed

More than 1000
route accesses
investigated

R&D and INDUSTRIALISATION



PRYSMIAN has
consolidated the P-Laser
industrialization and
made ready its factories
for the production with
consistent investment

CABLE MANUFACTURING



GRON (France)



MONTEREAU (France)



PIKKALA (Finland)



ABBEVILLE (USA)

CABLE DELIVERY



More than 1700 drums to be delivered by river and road across Germany



CABLE INSTALLATION

More than
2300 km of
cable to be
laid in open
trench and
pipe



Thank you

**Prysmian Sustainably Driving
the Energy Transition
Together with You**

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