

# INSIGHT

01/2018 QUARTERLY MAGAZINE

TARGETS  
ACHIEVED  
GROWTH  
CONTINUES

A milestone  
merger deal

---

Fast Track to  
Industry 4.0

---

The new  
wind frontier

**Prysmian**  
Group

- 
- 4** FOCUS ON  
A growth milestone
  - 8** GLOBAL SCENARIO  
Prysmian's 'Fast Track' to Manufacturing 4.0
  - 10** QUARTERLY OVERVIEW  
Stable organic growth in 2017 markedly improving in Q4
  - 16** MARKET & TRENDS  
Oil industry and services out of the woods?
  - 18** TRACKING THE FUTURE  
The future is now
  - 22** DOING BUSINESS  
Safety secured at the Louvre Abu Dhabi  
Strategic power grid connection in Bahrain  
The wind farm new frontier
  - 26** GETTING THINGS DONE  
EIB €110 million financing to support Prysmian R&D  
Submarine cable asset management gets smarter  
Milestone link celebrated 50 years
  - 30** PEOPLE  
Prysmian is hiring talents worldwide  
Enhancing digital transformation through smart working

# A TIME OF GROWTH FOR THE GROUP

*Editorial Team  
Insight*

Once again, Prysmian Group achieved its guidance targets for 2017 as Submarine cables and Telecom posted significant margin improvements. The Group is now looking to the future from an even stronger market position, thanks to the acquisition of General Cable (US) – which will be closed by the third quarter of 2018.

The story of growth continues. In this issue of INSIGHT, we FOCUS ON the General Cable merger agreement, which will result in combined sales of more than 11 billion euros and adjusted core earnings of about 930 million euros, thanks to high complementary geographical presence with major exposure increase in North America, along with expansion in Europe and Latin America.

In our GLOBAL SCENARIO section, we'll discuss Industry 4.0, and the unprecedented transformational opportunities it may offer manufacturers. We'll also discover how Prysmian plants will become more efficient as well as more sustainable, optimising production and processes while leveraging human expertise and increasing quality.

In MARKETS & TRENDS, we'll discuss whether or not the global Oil & Gas industry is out of the woods as the recovery in prices gives investors confidence to revisit project plans to compensate for the lack of sanctioning in recent years; while in TRACKING THE FUTURE, we'll look at the latest digital revolution offerings to come out of the Las Vegas CES and FTTH Council Conference.

In DOING BUSINESS, we'll tell you all about Prysmian's recent work in Abu Dhabi, where the Group cabled the iconic Louvre Museum with 500 km of enhanced fire-resistant cables to ensure maximum safety to visitors and protection to priceless art works. In the same issue, we'll report on important contracts secured in Bahrain, the Philippines, and in Italy – where we connected the Isle of Capri to the mainland, while exploring the new frontier of floating offshore wind generation in the North Sea.

Last but not least, in GETTING THINGS DONE, we report that the European Investment Bank is supporting Research & Development at Prysmian with 110 million euros of financing, allowing the Group to boost innovation in the areas of ultra-fast telecom networks and smarter, more sustainable power grids.

# A GROWTH MILESTONE

**Prysmian Group set a further path towards growth and strengthened its global leadership with a merger deal sealed with General Cable.**

**O**n 4 December 2017, Prysmian Group and General Cable Corporation announced they have entered into a merger agreement that represents a unique opportunity in the Group's plan to enhance its worldwide leadership. The deal will see Prysmian Group acquire the U.S. company for USD 30.00 per share in cash for approximately USD 3 billion. This, combined with the company's net debt and other liabilities, is expected to generate combined sales of over 11 billion euros, and adjusted EBITDA of about 930 million euros.

The combined group, which will be present in more than 50 countries with approximately 31,000 employees, will also result in high geographical presence with a major exposure increase in North America, along with expansion in Europe and Latin America.

The combined group is expected to generate run-rate pre-tax cost synergies of approximately 150 million euros within five years, following closing mainly from procurement, overhead costs savings and manufacturing footprint optimisation. Further synergies are expected.



*Through the combination of two of the premier companies in the cable industry, we will be enhancing our position in the sector, by increasing our presence in North America and expanding our footprint in Europe and South America".*

Valerio Battista,  
Prysmian Group CEO

One-off integration costs are estimated at approximately 220 million euros.

“The acquisition of General Cable represents a landmark moment for Prysmian Group and a strategic and unique opportunity to create value for our shareholders and customers” – said Prysmian Group CEO Valerio Battista. He continued: “Through the combination of two of the premier companies in the cable industry, we will be enhancing our position in the sector by increasing our presence in North America and expanding our footprint in Europe and South America.”

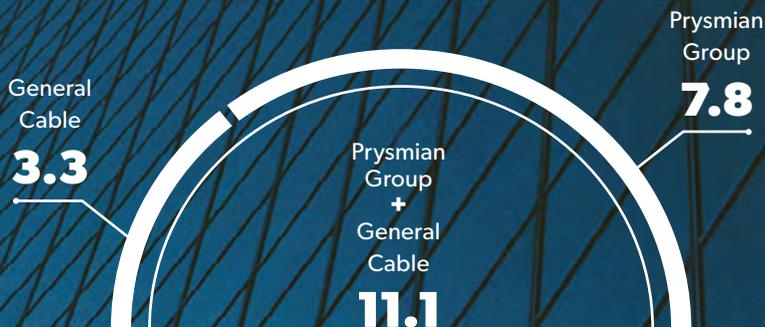
The combination is seen by Michael T. McDonnell, General Cable President and Chief Executive Officer, as “an ideal strategic fit that ensures we meet future opportunities and challenges in the dynamic and

evolving wire and cable industry”. According to McDonnell, the combined entity “will be able to deliver a robust portfolio of products and services and new product innovation across the full breadth of the wire and cable industry globally”. He stresses that Prysmian Group and General Cable “have a shared vision and highly compatible cultures founded on similar values”.

*one-off integration costs are estimated at approximately*  
**€220**  
*million*

On 16 February 2018, a Special Meeting of the General Cable Corporation shareholders, attended by approximately 75.34% of the share capital entitled to vote, returned a vote of some 99% in favour of the acquisition. The completion of the acquisition is expected to take place by the third quarter of 2018, subject to regulatory approvals and other customary closing conditions.

**ENHANCING PRYSMIAN’S WORLDWIDE LEADERSHIP**  
 COMBINED SALES (€BN)



# POWERFUL INDUSTRY AGGREGATOR

**T**he Prysmian history is one of growth, both organic and through the acquisition of top cable manufacturers across the world. In recent times, this journey accelerated through a strong campaign that included the acquisition of brands such as Siemens Energy Cables, Metal Manufacturers, NKF Holland, Nokia Finland and BICC General.

In 2010, as Prysmian became a full public company listed in the Milan Stock Exchange, it decided to combine with the Dutch player Draka, creating a global leader in the cable industry.

The assets and the know-how capitalised by the two allowed the new Prysmian Group to embark in a drive of renewed growth in the world’s high-value cables and systems market. The new journey was rewarded with increasing profitability and the appreciation of investors and financial markets.

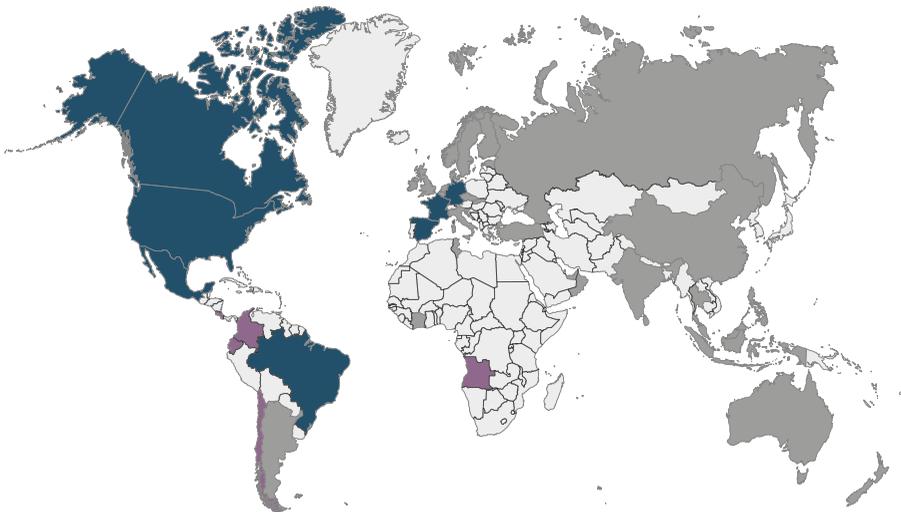
In the following years, further important acquisitions were made: in September 2015 Prysmian acquired US company Gulf Coast Downhole Technologies, further strengthening the existing presence in the Oil & Gas sector.

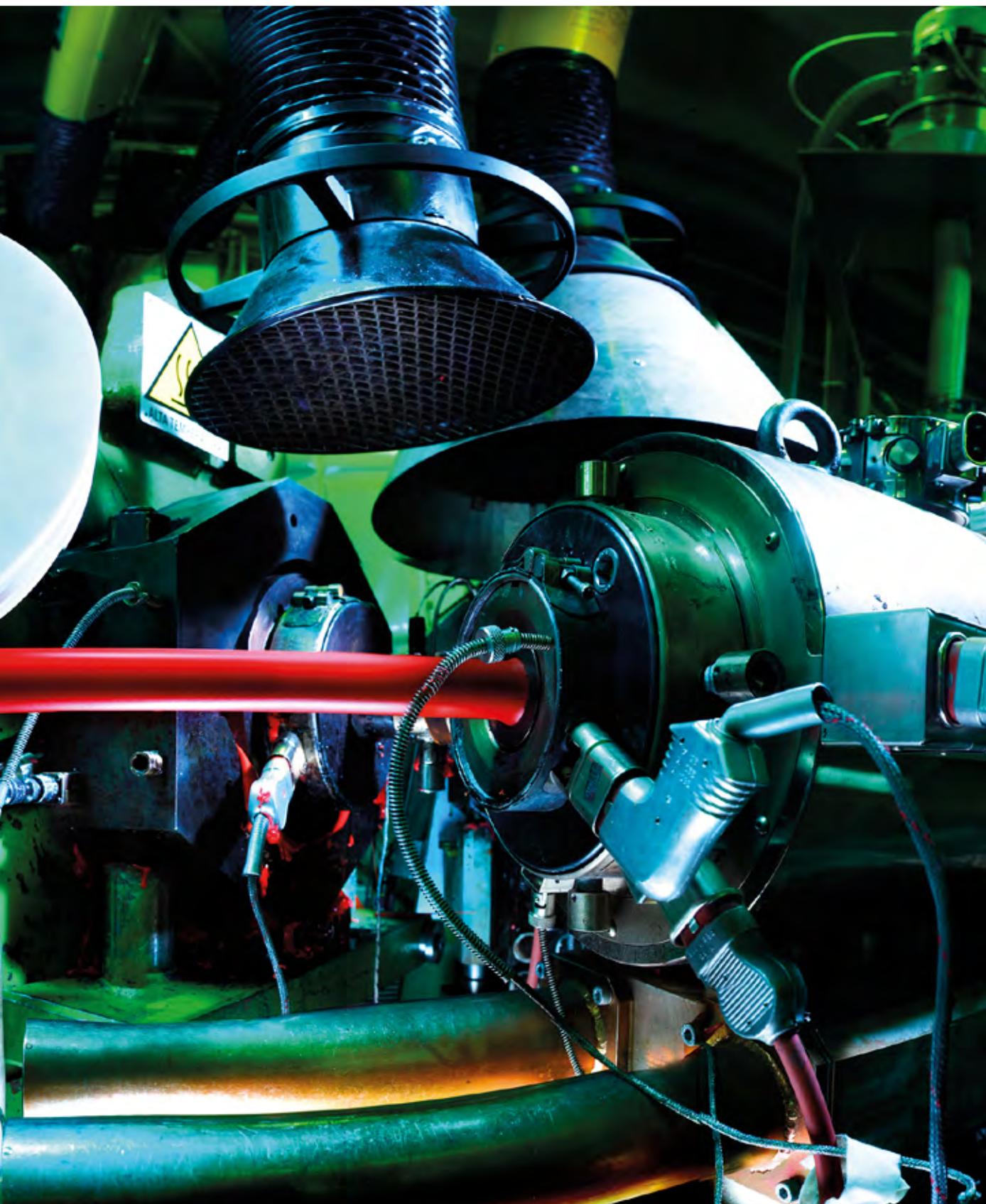
In December 2015, it gained the majority stake in Oman Cables Industry, the top cable manufacturer in the Gulf area – and one year later, acquired the assets of the Shen Huan Cable shifting to an independent high voltage offer in China.



*The combined entity will be able to deliver a robust portfolio of products and services.*  
 Michael T. McDonnell,  
 General Cable President and CEO

## PRYSMIAN AND GENERAL CABLE WORLD PRESENCE





GLOBAL SCENARIO

# PRYSMIAN'S 'FAST TRACK' TO MANUFACTURING 4.0

*This initiative allows Prysmian to leverage its best-in-class practices for digital manufacturing operations management, ready for the deployment of Internet of Things (IoT) technologies and big data analytics.*



# A transformational opportunity

Andrea Pirondini, Prysmian Group COO sees a natural evolution of the Group's industrial footprint, while Stefano Brandinali, Prysmian Group Global CIO tells how plants will become more efficient, as well as more sustainable.

**T**he challenge of Industry 4.0 may offer unprecedented opportunities to manufacturers; optimise production and processes while leveraging human expertise and increasing quality. Prysmian is entering this new era of manufacturing with an ambitious project named Fast Track, run in partnership with the French software provider Dassault Systèmes. This initiative allows Prysmian to leverage its best-in-class practices for digital manufacturing operations management, ready for the deployment of Internet of Things (IoT) technologies and big data analytics.

Prysmian's Fast Track project is designed to support the full traceability of all manufacturing activities and materials, while managing events that could affect production processes and providing all the relevant real-time information needed to identify root causes of emerging issues and possible solutions. "Efficiency for Prysmian is like oxygen for a person. If you don't have enough of it, the game is over. But if you think life is about breathing, you're really missing something. Our solid reputation is the result of a truly customer-centric approach", says Pirondini, confirming that Industry 4.0 represents a crucial task for the Group.

He continues: "This is a transformational opportunity, allowing us to streamline the way we work and support a sustainable use of resources. It's not just a matter of getting the best from state-of-the-art technology, but the chance to move forward fast enough to enhance our competitive edge". A Fast Track pilot project, started in Prysmian's Calais plant (a beacon of organisation and efficiency in the Group), will provide the benchmark model for progressively deploying Factory 4.0 solutions – including increased automation and digitalisation – across all facilities worldwide.

"The Fast Track project – and all other similar initiatives – could be used to schedule machine maintenance, making our plants safer and more efficient, and showing any deviation at an early stage", commented Brandinali. "We are changing our approach to problems and critical issues, preventing them from occurring rather than just reacting to them. Technology will be key in this, particularly the use of the IoT among others".



***Efficiency for Prysmian is like oxygen for a person".***

Andrea Pirondini,  
Prysmian Group COO



***We are changing our approach to problems and critical issues, preventing them from occurring".***

Stefano Brandinali,  
Prysmian Group Global CIO



# STABLE ORGANIC GROWTH IN 2017 MARKEDLY IMPROVING IN Q4

**Profitability also improved with Adjusted EBITDA up 3.1% to €733 million, and higher margins for Energy Projects and Telecom.**

**T**he Board of Directors of Prysmian Group has approved [the results for financial year 2017](#), which has closed in line with expectations, reporting stable organic sales with an improvement in the fourth quarter. CEO Valerio Battista, commenting on the growth in profitability, with Adjusted EBITDA rising to €733 million, underlined the “significant improvement in margins” for the higher value-added businesses of Energy Projects and Telecom.

The robust order intake for submarine cables and systems of approximately one billion euros confirms the Group’s technological and market leadership. The CEO noted that the Group has won important projects, like the cabling of the first offshore wind farms in France and the IFA2 interconnector between Britain and France. The progress in Energy Projects margins has been fostered by the insourcing of installation activities, including the new installation vessel “Ulisse”.

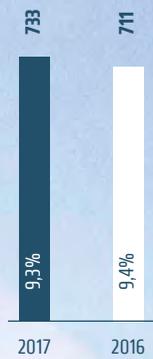
The Telecom business continued to report strong growth in demand for optical cables, supported by the development of broadband networks and investments in preparation for 5G.

The combined positive performances, stated the CEO, “have allowed us to achieve our guidance targets once again in 2017 and to propose our shareholders a dividend of €0.43 per share”. Looking to the future, Mr Battista reiterated the satisfaction for the General Cable shareholders’ approval of the acquisition proposal that has confirmed the expectation of closing the transaction by the third quarter of 2018.

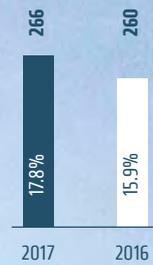
The €500 million capital increase being submitted for shareholders’ approval is intended to maintain sufficient financial flexibility for the Company.



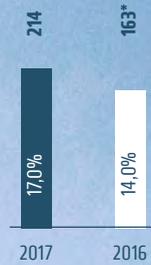
Adj. EBITDA / % of Sales  
(€MN)



Energy projects



Telecom



\* 2016 Adj. EBITDA includes €8m bad debt provision in Brazil

Sales

amounted to €7,901 million, posting an organic variation of -0.1%. Fourth-quarter performance was of particular note, with organic growth of +2.9% reflecting strong sales of optical cables and gradual recovery for the E&I and Industrial & Network Components businesses.

Adjusted EBITDA

climbed to €733 million, up 3.1% from €711 million in the previous year despite adverse exchange rate effects of €11 million. The largest contribution came from excellent performances by Energy Projects and Telecom. The margin on Energy Projects sales improved to 17.8% from 15.9% in 2016, while the Telecom segment's margin increased to 17.0% from 14.0%

Net profit

amounted to €223 million (€227 million attributable to owners of the parent) compared with €262 million in 2016 (€246 million attributable to owners of the parent).

Net Financial Debt

amounted to €436 million at the end of December 2017, having improved from €537 million at the close of 2016. The principal factors influencing the balance were €613 million in cash flow provided by operating activities, €104 million in tax payments, €254 million in net operating capital expenditure, €101 million in dividend pay-outs and €100 million to buy back the Company's shares.



# Energy Projects

## Better Submarine profitability



**The business posted sound order intake and better profitability. Change in scope in China depresses High Voltage underground. Order book at €2,450 million.**

Energy Projects sales stood at €1,490 million in 2017, declining 4.8% organically on 2016, while profitability was sharply up, with Adjusted EBITDA climbing 2.3% to €266 million with the margin rising to 17.8% from 15.9% underpinned by the higher level of vertical integration in installation and by sound execution.

**S**ubmarine Cables and Systems secured a number of important contracts not only to build interconnectors, such as the IFA2 submarine link between Britain and France and the project for a new interconnection in the Philippines, but also for offshore wind farm connections, like the projects to link three offshore wind farms to the French electricity grid.

The robust order intake of around one billion euros confirms the Group's undisputed technological and market leadership in the submarine business. Higher profitability has been supported by the growing vertical integration of installation activities and by sound execution. The segment of High Voltage Underground power transmission saw a sharp uptrend in sales in South East Asia and a solid execution of turnkey projects in EMEA and the Middle East. EBITDA was affected by the change in scope in China and by weak performance in Britain, the Nordics and Russia, while positive results were recorded in Asia Pacific and France. The new Prysmian Technology Jiangsu is now up and running in China, making it possible to offer a wide range of cable voltages and technologies.

The Energy Projects order book stood at €2,450 million as of 31 December 2017.

# Energy Products

## Moderate sales growth

**Trade & Installers continued to benefit from CPR, marginal retreat for Power Distribution Industrial & NWC. Sales grew organically by 0.9% to €4,880 million attributable to positive performance in North America and Asia, while volumes contracted in some countries in Central and Southern Europe and in North America. Adjusted EBITDA amounted to €244 million.**

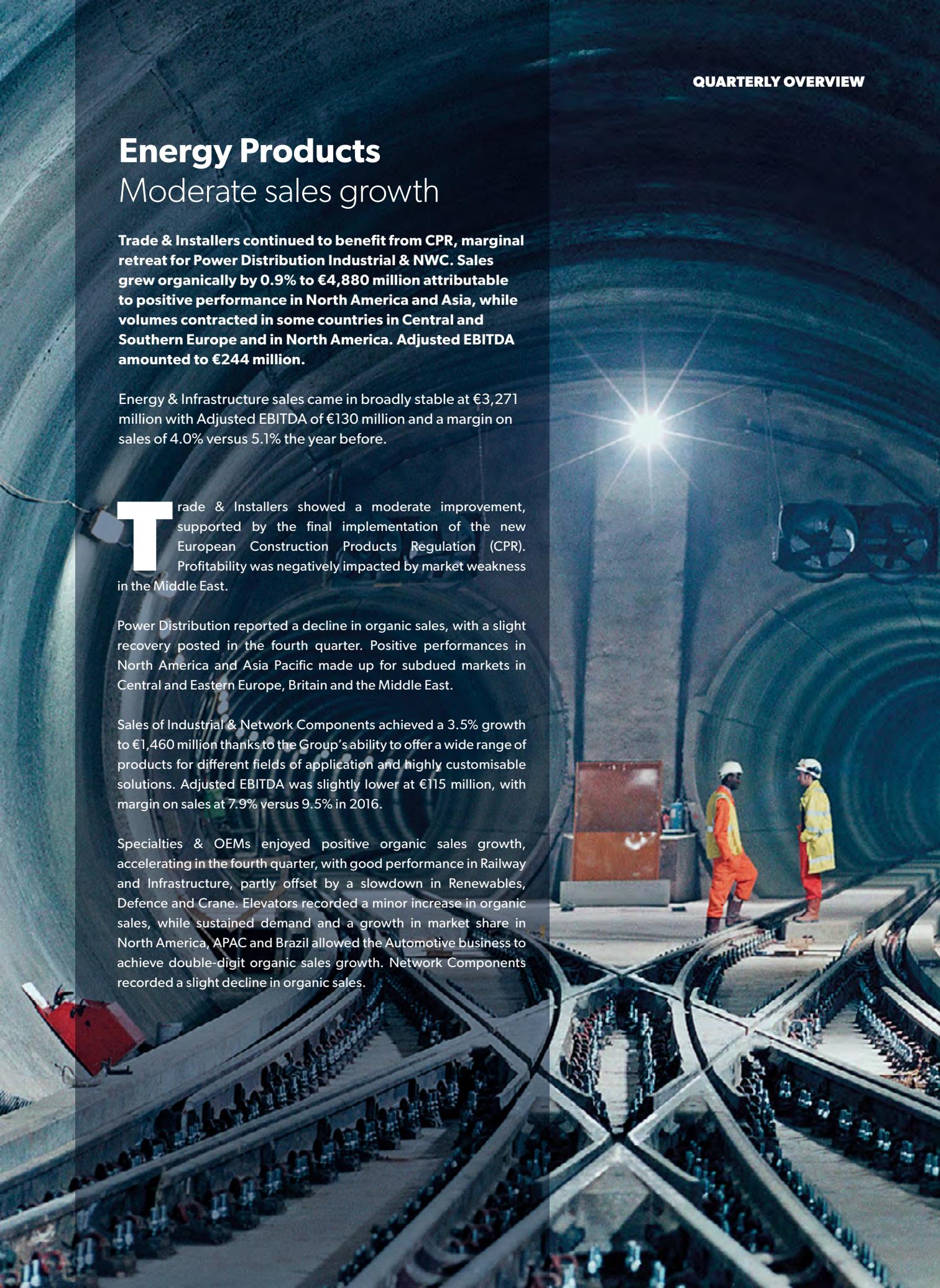
Energy & Infrastructure sales came in broadly stable at €3,271 million with Adjusted EBITDA of €130 million and a margin on sales of 4.0% versus 5.1% the year before.

**T**rade & Installers showed a moderate improvement, supported by the final implementation of the new European Construction Products Regulation (CPR). Profitability was negatively impacted by market weakness in the Middle East.

Power Distribution reported a decline in organic sales, with a slight recovery posted in the fourth quarter. Positive performances in North America and Asia Pacific made up for subdued markets in Central and Eastern Europe, Britain and the Middle East.

Sales of Industrial & Network Components achieved a 3.5% growth to €1,460 million thanks to the Group's ability to offer a wide range of products for different fields of application and highly customisable solutions. Adjusted EBITDA was slightly lower at €115 million, with margin on sales at 7.9% versus 9.5% in 2016.

Specialties & OEMs enjoyed positive organic sales growth, accelerating in the fourth quarter, with good performance in Railway and Infrastructure, partly offset by a slowdown in Renewables, Defence and Crane. Elevators recorded a minor increase in organic sales, while sustained demand and a growth in market share in North America, APAC and Brazil allowed the Automotive business to achieve double-digit organic sales growth. Network Components recorded a slight decline in organic sales.



## Oil & Gas

### Sales in the Core pick up

**But decline in SURF sales continued to affect the segment. Focus on optimising manufacturing footprint and supply chain efficiency.**

The segment continued to be penalised by the adverse performance of the SURF business, while sales in the Core Oil & Gas Cables picked up. Sales came in at €273 million, with an organic decrease of 10.8%, but with signs of easing in the fourth quarter, down 4.3% on one year earlier. Adjusted EBITDA improved to €9 million from €8 million with margin on sales also up to 3.4% from 2.7%.

**S**ales of the Core business recovered thanks to resumed demand for onshore projects in the Middle East, Russia and United States, while the offshore market remained weak. Profitability benefited from resurgence in volumes, optimisation of the manufacturing footprint and reduction in manufacturing costs.

In the SURF business, umbilicals were affected by the deterioration in volumes and margins in the wake of low order intake in 2016 and price pressure in the Brazilian market, which remained extremely challenging.

## Telecom

### Margins hit all time high

**Optical cables posted continued double-digit organic growth. Marked improvement in profitability.**

Sales climbed organically by 5.3% to €1,258 million while Adjusted EBITDA jumped 31.1% to €214 million with margins also improved to 17.0% of sales from 14.0% - the highest ever level - benefiting from the investments to improve fibre manufacturing efficiency, from the growth in volumes and the contribution of YOFC.



**T**he optical cables business posted double-digit organic growth underpinned by favourable market conditions, notably in North America and Europe, specifically France and Italy, where strong demand was supported by investment spending on broadband and preparations for the introduction of 5G technology.

In North America a three-year agreement was secured to supply optical fibre cables starting from January 2018 to major operator Verizon. The Group will increase the production capacity of its North American plants to support the growth trend.

The weakness of the copper cable business, in line with expectations, was mainly due to conclusion of the National Broadband Network project in Australia. The high value-added business of optical connectivity accessories performed well thanks to the development of new FTTx networks in Europe, specifically in France and Britain. The recent tender by China Mobile for the procurement of optical cables confirms the sustainability of market growth also in 2018.



**THE MARKET REACTION**

FY 2017 results were substantially in line with market expectations, thanks to strong margin growth by Telecom and Energy Projects, offsetting the slowdown in the Middle-East (OCI) and negative forex impact. Organic growth in Q4 was better than expected, driven by the continued solid trend in Telecom and the gradual recovery of the E&I and Industrial segments. Net Financial Debt as of 31 December 2017 was the main positive surprise to the market, being substantially lower than expectations thanks to strong cash generation during Q4.

Following the results, a few analysts adjusted their Target Price for Prysmian, without changing their investment recommendation. In particular, both Bank of America-Merrill Lynch and Morgan Stanley confirmed their positive view on the stock, leaving their Target Price at 34 Euro/share and 33 Euro/share respectively.

Kepler-Cheuvreux reiterated its "BUY" recommendation following the results, focusing on the potential upside deriving from the possible integration with General Cable. Among the more prudent views were Equita and Barclays, which have stuck to their "NEUTRAL" rating, as according to the brokers, the potential upside deriving from the possible acquisition of General Cable has already been factored into the current market price.

## Submarine and Telecom to consolidate leadership

The Group expects higher demand for building wires with stronger demand in Europe, while HV underground is seen to make a moderate recovery.

The global macroeconomic cycle gained steam in 2017, with all the main areas improving, driven by the Eurozone and a resumption of growth in certain emerging countries, such as Brazil and Russia. In the U.S., growth has become steadily stronger thanks to positive effects of the tax bill. China's growth was solid throughout the year, outperforming expectations.

In such a context, the Group expects in 2018 that demand in the cyclical businesses of building wires and industrial applications will be higher, reflecting stronger European demand as partially tempered by weakness in the Middle East, while demand for medium voltage cables for utilities should be stable, reflecting a mixed performance between the different areas. With market expansion forecast,

**in 2018**  
*the business of building wires will be higher*

Prysmian Group's Energy Projects segment anticipates consolidating its leadership in Submarine cables and systems while boosting the business's profitability through the strategy of insourcing installation activities. The Group also expects High Voltage underground cables and systems to make a moderate recovery, with steady improvement anticipated in China thanks to the new manufacturing footprint. In the Oil & Gas segment,

cable demand for onshore projects is seen stable, while the SURF business is forecast to remain weak due to price pressures in the Brazilian market.

The Telecom segment should see solid sales growth, sustained by strong demand for optical cables in North America and Europe, while copper cables can expect to lag further due to declining

demand in Australia. Prysmian Group will continue in 2018 to rationalise its activities with the objective of achieving projected cost efficiencies and greater competitiveness in all areas of its business.

# OIL INDUSTRY AND SERVICES OUT OF THE WOODS?

The recovery in oil prices is giving the industry confidence to revisit project plans and players across the industry are investing to recover ground lost in recent years

2018 has started on a positive note for the global oil and gas industry. Global demand for energy is steadily developing and together with the combined effect of OPEC cuts to production volumes and the postponement of investment decisions, the industry is experiencing an upwards trend in crude oil prices. Energy industry stocks are strengthening on the back of major players reporting healthier results and this renewed confidence is prompting

a resurgence in industry investment that has been suppressed since the oil price collapsed in late 2014. GEIDCO has agreed to outline plans with the United Nations Department of Economic and Social Affairs; the UN Economic and Social Commission for Asia and the Pacific; the Arab League; the African Union, and the Gulf Cooperation Council Interconnection Authority.

## Prysmian prepares to deal with a more challenging market

**P**layers in the U.S. unconventional sector are leading the return to growth and are increasing their exploration and production activities. This is reflected in most other oil producing regions of the world. Oil Field Service companies, such as Schlumberger, Halliburton and BHGE, who provide the equipment and expertise to explore and complete new wells, are positioned to benefit from this new market environment.

Prysmian Group, the worldwide leader in the cable industry, is also seeing increased activity across all segments of the O&G industry. Prysmian Oil & Gas is working with National and International Oil Companies (NOCs & IOCs) and are supporting major Engineering, Procurement and Construction (EPC) companies as they plan major industry infrastructure projects.

NOCs and IOCs have used the period of lower energy prices to review their cost structures and have found ways to reduce their project breakeven prices. This means that they are now able to invest to bring marginal fields into production.

However, there has been significant consolidation and job cuts across the industry - it is estimated that headcount has reduced by 35% in the upstream segment since the 2013/14 peak – that will clearly impact the speed of recovery, but over the longer-term, commentators believe that this will encourage the development of advanced technology to drive cost efficiency and reliability.

Prysmian is responding to this demand. The company is working across our global manufacturing network to reduce lead-times and costs and are introducing new solutions that offer reliability, enhanced performance and extended service life.

Electrical Submersible Pump (ESP) cables are a good demonstration of this effort. ESPs are used to artificially lift and increase the flow of oil from a production well. It is critical that the pump motor has a reliable electrical power supply, so the ESP cable must perform over an extended operating life.

Prysmian has pioneered the development of reliable ESP cables for more than thirty years and its success in the market with major oil field service companies has been a product of the continuous stream of innovations from the Group's research and development teams. In a continuously challenging market, extended operating lifetime of an ESP cable is critical to ensure economic production.

Prysmian has created a family of products that operate in the harshest environment and we are committed to invest to help operators extend the operating life of our ESP cables.

### The industry

*is experiencing an upwards trend in crude oil prices*





# THE FUTURE IS NOW

All the latest from the Las Vegas CES and FTTH Council Conference

New product introductions and research findings presented at key industry events are an excellent indicator of wider trends and developments that have a marked effect on power and communications networks. For this edition of Insight, Prysmian visited two key events: The CES 2018, held in Las Vegas, and the FTTH Conference in Valencia. What new developments stood out – and how might they affect the ways in which we interact with energy and data networks?

## CES

[The International Consumer Electronics Show \(CES\)](#) is a major technology trade show in Las Vegas. The show has been held annually since 1967 and offers product previews and product announcements. The show is sponsored by the Consumer Technology Association (CTA), a standards and trade organization for the US consumer electronics industry.

One thing seems to be clear from this year's event: Smart Home, the Internet of Things (IoT) and electric and self-driving vehicles are taking off and the 'next big thing' may well be robots and AI. Of course, this introduces a range of new challenges when

it comes to cabling to process all that data and keep a fast-growing range of devices powered.

### Robotics and AI

CES featured a number of interesting robotics-related presentations. French company Navy explained its plans to deploy 'robo-taxis' worldwide. Honda presented its 3E Robotics range, which consists of several small robots, each designed with a specific function in mind.

LG also presented a family of function-oriented automated companions: a luggage-carrying hotel robot, a food service robot and a shopping cart robot. Blue Frog Robotics' Companion Robot Buddy, winner of a CES 2018 Innovation

## MOBILITY

Chinese start-up Byton showed a car with a gigantic dashboard touchscreen using facial recognition to engage user-specific settings. Yamaha introduced a self-driving motorcycle and NUVIZ showed its motorcyclist Head-Up Display, incorporating navigation, cameras, infotainment and call management. Marked advances are being made in drone technology: Nuaviation's Hyperlift 200E can carry objects weighing up to 200lb (91kg) at high speeds, which may open up new delivery possibilities in construction. The Whill Model Ci Personal Electric Vehicle allows people who have difficulty walking to lead a more independent, connected lifestyle. In one of the show's most futuristic moments, Surefly presented its passenger octacopter. Connecting cars appears to be a popular topic, which can enhance road safety, but also allow vehicles to exchange info on free parking spaces. Drive IX and Xavier are introducing gesture control and facial recognition, native virtual assistants and natural language recognition into vehicles, opening the way for IoT applications.

## Energy

There is a great deal of development at the crossroads of energy and digital services. Fairwind from Belgium constructed a scale model of its 100% recyclable small wind turbine that has a span of 11 - 15 metres and has been designed for use by farms and SMEs. Plug-and-play solar panels from Dutch start-up Supersola can be installed by anyone in fifteen minutes. This type of small-scale energy generation requires a new approach to energy grids and (local) storage and exchange.

award, can be a personal assistant, communicate with smart home devices, monitor your house and play with children.

This innovation provides a personalized interaction hub. It is not inconceivable that compact service robots will lower the bar for bringing robots and AI into the home and workplace, heralding a much larger wave of adoption. Another example is ElliQ's award-winning active aging companion, an AI-driven social robot designed for older adults, which proactively promotes an active and engaged lifestyle.

In the field of Artificial Intelligence, the Intel® Movidius™ Neural Compute Stick stood out. The world's first USB-based deep learning inference kit and self-contained artificial intelligence accelerator delivers dedicated deep neural network processing

capabilities to all kinds of host devices. Another CES award winner hinted at the possible computing power upcoming devices. AMD's Ryzen Threadripper 1950X supports 16 cores and 32 threads, delivering world-class performance built around AMD's powerful 'Zen' architecture.

## Smart Homes

It would appear that advanced electronics in the home will become embedded to a degree that we'll hardly notice they're even there... Crownstone demonstrated a system in which a home's lights and plug sockets react to the presence of individual's smartphones and wearables, for example.



## CES 2018 Innovation award winner

*Blue Frog Robotics' Companion Robot Buddy can be a personal assistant, communicate with smart home devices, monitor your house and play with children.*

Award winner Wi-Charge's long-range wireless power for mobile and IoT applications allow mobile and wireless devices to seamlessly recharge themselves without requiring any action on the part of the user. Wi-Charge product delivers safely wireless power across the room and mobile devices that are placed with-in range are charged.

This neatly solves one of the challenges related to developing the sensor network on which IoT applications are built. An increasing number of bandwidth-hungry 4K devices – and even an 8K TV – were on show, such as the compact LG 4K UHD home cinema projector.

## Payments on the go

The award-winning Wallet Card™ from Dynamics Inc. is the first payment card with a network (Visa/Mastercard) certified core. All standard card information is presented on a display, and the card can present data from multiple card accounts. In this way, a hybrid is created between 'traditional' bank and credit cards and reliable, secure payment services previously associated with the online environment.

A prime example of how functionalities that were once fixed to a physical location transferred to the internet and are reaching even higher levels of virtualisation.

# FTTH COUNCIL CONFERENCE

**This 2018 edition of the annual FTTH Council Conference was held in Valencia last February. The conference is organized by The FTTH Council Europe, an industry organisation with over 150 member companies, which aims to accelerate ubiquitous fibre-based connectivity throughout Europe. This year's conference clearly demonstrated that fibre uptake is still on the increase, and that its widespread availability is essential in supporting of a wide range of technologies that bring vast potential benefits.**

## **5G, IoT and self-driving cars: not without fibre**

One recurring theme at the conference was the fact that many exciting new technologies won't be able to deliver on their promise without fibre connectivity. Bandwidth-hungry innovations in areas such as 5G, Internet of Things, cloud services and application, smart buildings, Virtual Reality and Augmented Reality, fintech and autonomous traffic are all dependent on high-bandwidth, low-latency, always-on wireless infrastructure – and that, in turn, requires high-bandwidth, low-latency, ubiquitous wired backbone. This has to be scaled to suit wireless connection speeds.

But although 5G is a mobile technology, it requires optical fibre networks. Without ubiquitous fibre coverage, the effectiveness and potential of 5G networks and the applications that run on these will be severely limited. Ensuring technology harmonization and framework conditions and incentives are in place to support deployment of underlying network infrastructures is part of the solution.



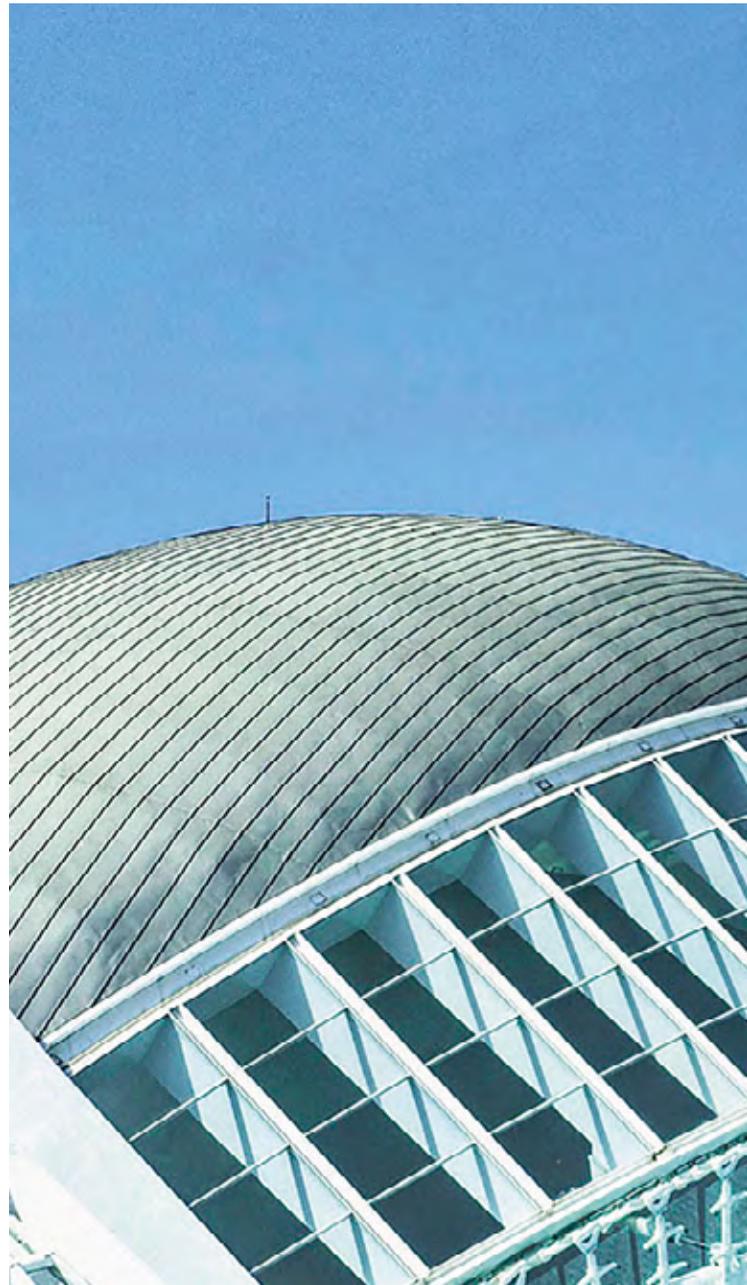
**87%**

*of the FTTH subscribers gave 'high bandwidth' as their main reason for getting an FTTH connection*

## **The Socio-Economic Impact of FTTH**

During the conference, results of research executed by WIK were shared. This study analysed the socio-economic benefits of FTTH in Sweden and The Netherlands.

The objective was to precisely understand the impact of fibre from the perspective of the end-users. 87% of the FTTH subscribers gave 'high bandwidth' as their main reason for getting an FTTH connection. One finding that particularly stood out is the fact that a vast majority of non-FTTH users want fibre. 94% of non-FTTH users indicated they would consider subscribing to FTTH if it was made available in their area.





**-88%**  
greenhouse  
gas emissions  
per Gigabit

In Europe, FTTH/B infrastructure is proven to have a positive impact on the environment with 88% less greenhouse gas emissions per Gigabit compared to other access technologies. There is also a correlation between economic growth and fibre: in France, for example, 4.8% more start-ups were created in municipalities equipped with ultrafast broadband compared to municipalities with slower access.



**+4.8%**  
start-ups  
created in  
municipalities  
in France

In the USA, A 2017 study by RVA; LLC for the Fiber Broadband Association linked widely available all-fibre networks to new business formation, a better economy and more jobs.

**+20.4%**  
FTTH and FTTB  
subscribers across EU

#### Increasing uptake

During the event, the FTTH Market Panorama (prepared by IDATE for the FTTH Council Europe) was presented. This shows that the number of FTTH and FTTB (fibre to the building) subscribers across the EU 39 countries increased by 20.4% between September 2016 and September 2017. That's 51.6 million new FTTH/B subscribers.

**51.6**  
million new FTTH/B  
new subscribers

The take-up rate also soared to 34.8% from 29.9% the previous year. Russia added 1,826,000 new FTTH/B subscribers. Spain saw considerable growth with 1,612,371 new FTTH/B subscribers and France added 1,067,780 new subscribers. The number of homes passed (homes connected with FTTH/B) in the region grew significantly, reaching more than 148 million.



DOING BUSINESS

# SAFETY SECURED AT THE LOUVRE ABU DHABI

**Prysmian cabled the iconic museum with 500 km of enhanced fire-resistant cables to ensure maximum safety to visitors and protection to priceless art works.**

**T**he Louvre Abu Dhabi, designed by Jean Nouvel, is the new must-see attraction in the Gulf area. Inspired by medinas and low-lying Arab settlements, it is the largest museum in the Arabian Peninsula – with its contrasting series of 55 white buildings, including 23 galleries, a temporary exhibition space, a children’s museum, a 200-seater auditorium, a restaurant, a café, and retail outlets.

Prysmian Group supplied over 500 km of FP fire-resistant cables for the museum to ensure maximum safety to visitors, and protection to priceless works of art. These enhanced fire-resistant cables – a mixture of both FP PLUS and FP PLUS FLEX cables – offer extended fire survival times, low flame spread and very low smoke and dangerous gas emissions in the event of a fire. This allows visitors a longer period of time to evacuate the building and ensures better operating conditions for the emergency teams. Moreover, fire-resistant cables ensure power supply and fire alarm system operation during a fire.

“We understand the crucial role our cables play in building safety”, said Antonio Chiantore, General Manager Prysmian Middle East.

“We ensure, through continuous investment in innovation, that we offer products that not only provide the best in functioning ability, but also meet the highest standards of product safety. That’s why, once again, our cables have been selected for one of the most innovative and iconic buildings in the world”.

This is not the first time Prysmian technology has been chosen to protect priceless works of art. The Group has installed its high-performance fire safety cables in the Guggenheim Museum in Bilbao, and in many other prestigious buildings around the world where safety is a critical requirement.

Among the particularly notable installations are: the Burj Khalifa in Dubai, the world’s tallest building; Drax Power Station in the United Kingdom, the world’s largest biomass fuel renewable energy project; The Shard in London, the tallest building in Western Europe.

Prysmian Group has a mission: to supply our customers with the most appropriate, innovative and technologically-advanced cables for every application.

# Strategic power grid connection in Bahrain

[Prysmian to develop a new 400 kV cable loop circuit](#) to improve energy infrastructures in the Gulf area.

Between  
**Saudi Arabia  
and Qatar**

**400 kV**  
Transmission Development program to improve its power grid.

Contract worth around  
**€80**  
million

Scheduled for completion in  
**2019**



**55** white buildings

**23** galleries

**1** temporary exhibition space

**1** children's museum

**1** auditorium

**1** restaurant

**1** café, and retail outlets

**B**eing an island country between Saudi Arabia and Qatar, the Kingdom of Bahrain has a great need for interconnections. In the last few years, The Electricity and Water Authority of the Government of the Kingdom of Bahrain (EWA), launched a strategic 400 kV transmission development program to improve its power grid. They awarded Prysmian Group a new contract worth around €80 million to develop a new 400 kV cable loop circuit as part of this development project.

The project which adds a crucial link to the infrastructure of the Kingdom of Bahrain and is the first 400 kV XLPE submarine cable to be installed in the GCC (Gulf Cooperation Council) Region. The contract involves the design, supply, installation and commissioning of a 400 kV AC power link, including a section of 400 kV XLPE submarine cable – a 'first' in the Gulf Cooperation Council (GCC) region.

Prysmian's state-of-the-art plant in Pikkala, Finland, will produce the submarine cables; the land cables will be produced in Prysmian's centre of excellence for extra high voltage land cables in Gron, France. Delivery and commissioning of the loop circuit is scheduled for completion in 2019.

# THE WIND FARM NEW FRONTIER

**Prysmian set a new important milestone in offshore wind technology, providing dynamic cable to connect Kincardine Floating Offshore Wind Farm Project, based in Scotland**



In 2017 Offshore wind in Europe saw a record 3,148 MW of net additional installed capacity, bringing the total installed offshore wind capacity in Europe to 15,780 MW. This corresponds to 4,149 grid-connected wind turbines across 11 countries.

In 2017, according to WindEurope, offshore wind in Europe saw a record 3,148 MW of net additional installed capacity, bringing the total installed offshore wind capacity of the continent to 15,780 MW. This corresponds to 4,149 grid-connected wind turbines across 11 countries.

This positive trend is set to continue also thanks to new floating foundations technology. Locating future offshore wind farms further from shore in deeper waters will give access to hitherto untapped wind resources, while minimising visual impact.

Prysmian Group, the leader in submarine cables business, [has been awarded a tender by Cobra Wind International Ltd](#) to provide a cable system connecting the wind farm to mainland UK.

A first for Prysmian, it foresees the design and supply of two export cables, as well as inter-array cables. The cable will also come equipped with all associated cable accessories in order to connect the turbines of the Kincardine offshore floating wind farm – situated approximately 15 km southeast

of Aberdeen – to the Scottish mainland power grid. The wind farm will have capacity to provide 218 GWh of electricity, which is the equivalent to powering over 55,000 homes in Scotland. Installation is planned over 2018 and 2019.

“The cable contract for the Kincardine Offshore Wind Farm Project is an important technological milestone for Prysmian, because it’s our first project for a floating offshore wind farm” says Alessandro Panico, Sales Team Manager – Offshore Wind, Prysmian Group. He continues, “We recognise the continued growth in this developing segment of the market, which is of particular strategic interest for our business”.

*equivalent to  
powering over  
**55,000**  
homes*

Prysmian will be responsible for the supply of each export cable, which is made up as a single cable length to run along an approximate 17 km route. Each route consists of a static cable design, combined with around 0.5 km of dynamic cable route section which will complete the connection to the floating turbine tower. The 33 kV three-core submarine cable will utilise an EPR insulation system throughout. The static section length will be finished with single-wire armouring; while the dynamic section will apply a double-wire armoured design.

The Group plants in Vilanova, Spain, and Drammen, Norway, will produce the submarine cables.

# SUBMARINE POWER LINK TO STRENGTHEN THE FILIPINO GRID

The project, worth more than €150 million, reinforces Prysmian Group's position in Asia.



**A** huge power transmission network with submarine cable links is a crucial asset to The Republic of the Philippines, which consists of about 7,641 islands. The Filipino grid operating company – [National Grid Corporation of the Philippines \(NGCP\)](#) – awarded Prysmian Group a contract worth more than €150 million for the design, supply, installation and commissioning of two submarine power cable connections between the islands of Cebu and Negros. This project is part of a larger development plan by NGCP, aimed at connecting the islands of Cebu, Negros,

**30 km**  
submarine  
route

and Panay with one another, while strengthening the overall Philippines power grid. The CNP-3 cable connection comprises six High Voltage Alternating Current (HVAC) 230 kV single core cables with XLPE insulation and double wire armouring, together with two separate fibre optic cable links along a 30 km submarine route.

The CNP-3 project is a backbone interconnection for the Philippines that will transmit 400 MW per circuit connection from Talavera CTS (Cebu) to Calatrava CTS (Negros). The cables will be produced in the Group's centre of excellence for submarine cables in Arco Felice, near Naples, Italy. The project is scheduled to be completed by the first half of 2019.

## CONNECTING TWO PEARLS OF SOUTHERN ITALY

[A new submarine cable connection will link two "pearls"](#) of Southern Italy: the isle of Capri and the coast town of Sorrento. The contract, worth around €40 million, has been awarded by Terna Rete Italia S.p.A. to Prysmian Group, following a European call for tender.

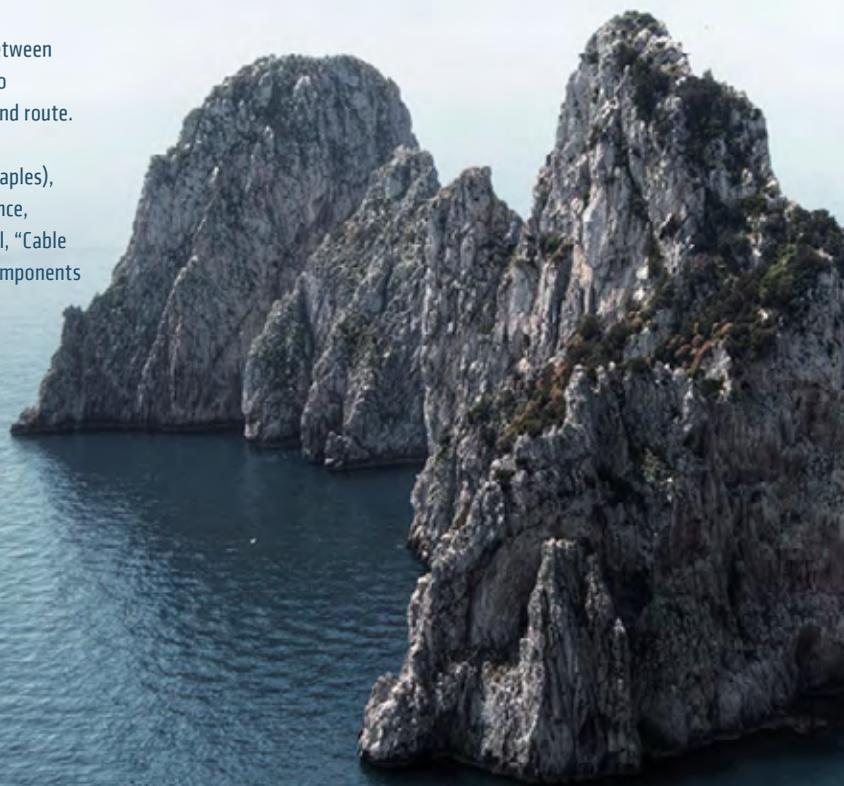
This new power link will complete the Capri connection ring, increasing the efficiency and reliability of the island's power system. The project, to be completed in 2019, involves the turn-key installation of an HVAC 150 kV power cable link between the power stations located in Sorrento and on Capri's Gasto Ecological Island, following a 16 km submarine and 3 km land route.

The cables will be manufactured in the Arco Felice plant (Naples), a Group centre of technological and manufacturing excellence, while cable laying will be performed by the Prysmian vessel, "Cable Enterprise" with Prysmian providing all related network components and the required specialist civil engineering works.

**3 km**  
land route cables

**16 km**  
submarine cables

**€40**  
million contract worth



# EIB €110 MILLION FINANCING TO SUPPORT PRYSMIAN R&D

**The Group to boost innovation in the areas of ultra-fast telecom networks and smarter, more sustainable power grids**

**A** €110 million financing to be put towards: industrial research, innovation, experimentation and new product development. This is the commitment announced by the European Investment Bank (EIB) and Prysmian to support the Group's 2017-2020 R&D plans in Europe. The financing represents approximately 50% of the investments planned in Europe over the same period.

"Our Group's growth strategy revolves around our commitment to R&D, an area where we intend to increase our investments further, also thanks to the funding from the EIB," explained Prysmian Group CEO Valerio Battista.

"In particular, cable technology is proving that it can contribute decisively to the challenge of digitalisation and the development of more efficient and environmentally sustainable power grids. Innovative optical fibres, cables with a reduced environmental impact and higher capacity and voltage rating, and technologies for monitoring network conditions are just a few of the areas on which we are focusing."

The EIB financing will support projects to be developed at R&D centres in six European countries: France, Great Britain, the Netherlands, Spain, Germany and Italy, for which a significant share of the resources is intended, being home to Prysmian Group's headquarters and centre of excellence.

"The development of electrical and digital networks is one of the pillars of the EIB's financing programme," commented Dario Scannapieco, Vice-President of the EIB. "We at the EIB are very satisfied to be supporting Prysmian's investment plans also because they concern R&D laboratories located in six different European countries".

The financing will allow Prysmian to step up innovation in the areas of ultra-fast telecommunications networks and smarter, more sustainable power grids, with a particular focus on innovative materials involving the use of nanotechnology, systems for monitoring and managing land and submarine networks, and new product developments aimed at reducing power loss and increase transmission capacity for more sustainable solutions.



*The EIB financing will support projects to be developed at R&D centres in six European countries”*



*Prismian to step up innovation in the areas of ultra-fast telecommunications networks and smarter, more sustainable power grids”*



**PRYSMIAN GROUP JOINS U.S. EPA SMARTWAY® TRANSPORT PARTNERSHIP TO IMPROVE SUPPLY CHAIN SUSTAINABILITY**

Prismian Group recently announced that it joined the SmartWay® Transport Partnership, an innovative collaboration between the U.S. Environmental Protection Agency (EPA) and over 3,000 corporate partners and stakeholders to help measure, benchmark and improve logistics operations with the goal of reducing environmental impact.

“Around the world, Prismian Group is committed to protecting and conserving natural resources for our customers, our environment and our business,” said Hakan Ozmen, CEO of Prismian Group North America. “This partnership with SmartWay® will help us establish and improve the sustainability as we continue to implement responsible supply chain practices throughout our organization.”

Prismian Group North America will contribute to the SmartWay® Transport Partnership's goals of saving 215.4 million barrels of oil, \$29.7 billion in fuel costs and 103 million tons of air pollution (NOx, PM, and CO2). This is the equivalent of eliminating annual energy use in over 6 million homes.

**GETTING THINGS DONE**

# Submarine cable asset management gets smarter

Prysmian’s new enhanced asset management solution helps TSO and offshore operators preventing subsea cable damages, while minimizing downtime and costs in the event of an interruption of availability.

In an increasingly interconnected and decentralised energy environment, submarine connections play a critical role in enabling transmission via interconnector or power supply from offshore wind farms. Laid down in water depths varying from few to hundreds of meters beneath sea level, subsea cables are threatened by damaging devices, such as anchors and fishing gears– as proven by the 90 cable damages that have occurred over the last seven years, totaling over €350 million in insurance claims.

Preventing these kinds of events and being able to resolve problems quickly – while minimizing downtime – is crucial to transmission and offshore facilities operators, who could potentially suffer severe losses in the event of an interruption of availability.

To this purpose, the Group set up Power Link Cable Solutions aimed at providing complete, effective management of subsea cable asset lowering downtime and remarkably reducing long term asset risk and OPEX.

Advanced real-time monitoring systems and a fully-equipped maintenance marine base are key to predicting and detecting arising issues, while helping operators prepare for every kind of intervention to recover damaged cables.



### PROMPT REACTION

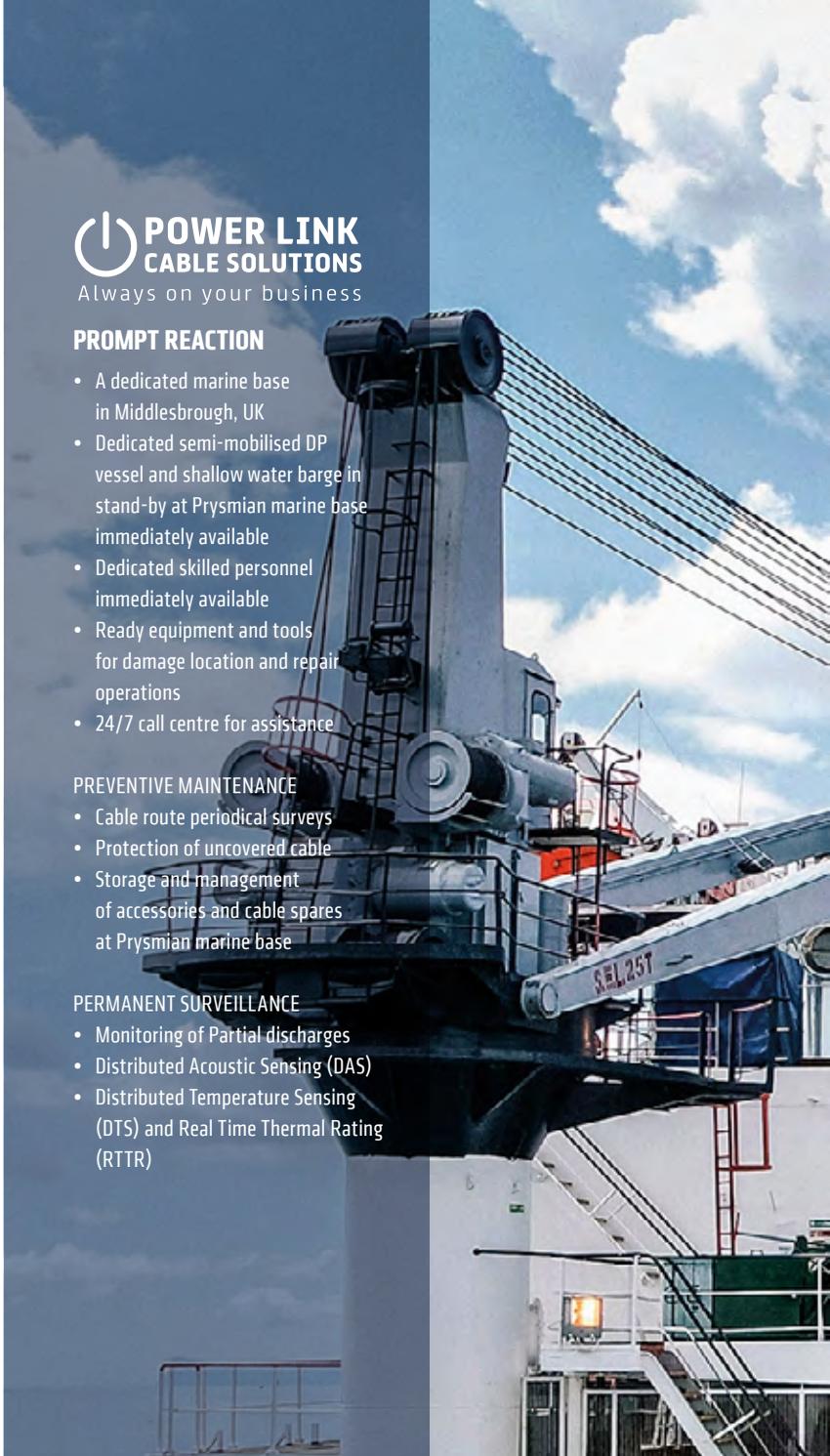
- A dedicated marine base in Middlesbrough, UK
- Dedicated semi-mobilised DP vessel and shallow water barge in stand-by at Prysmian marine base immediately available
- Dedicated skilled personnel immediately available
- Ready equipment and tools for damage location and repair operations
- 24/7 call centre for assistance

### PREVENTIVE MAINTENANCE

- Cable route periodical surveys
- Protection of uncovered cable
- Storage and management of accessories and cable spares at Prysmian marine base

### PERMANENT SURVEILLANCE

- Monitoring of Partial discharges
- Distributed Acoustic Sensing (DAS)
- Distributed Temperature Sensing (DTS) and Real Time Thermal Rating (RTTR)



**24/7**  
*remote control  
of subsea cables*

Power Link Cable Solutions is the result of the Prysmian Group’s subsea cables know-how and extensive experience, cutting-edge technology, superior installations capabilities all integrated in a one-stop enhanced solution able to provide the best holistic asset management for submarine cable assets available in the market

Based on PRY-CAM technology – Prysmian’s own cloud-based asset monitoring system – the solution



## GETTING THINGS DONE

### MILESTONE LINK CELEBRATED 50 YEARS

It was year 1967 when Prysmian took into operation of the HVDC submarine cable system built for the SA.CO.I. interconnection, linking Sardinia's electricity grid with mainland Italy. With an installed capacity of 300 MW and 450 metres marine depth reached, the project was a crucial milestone in the history of cable systems industry.

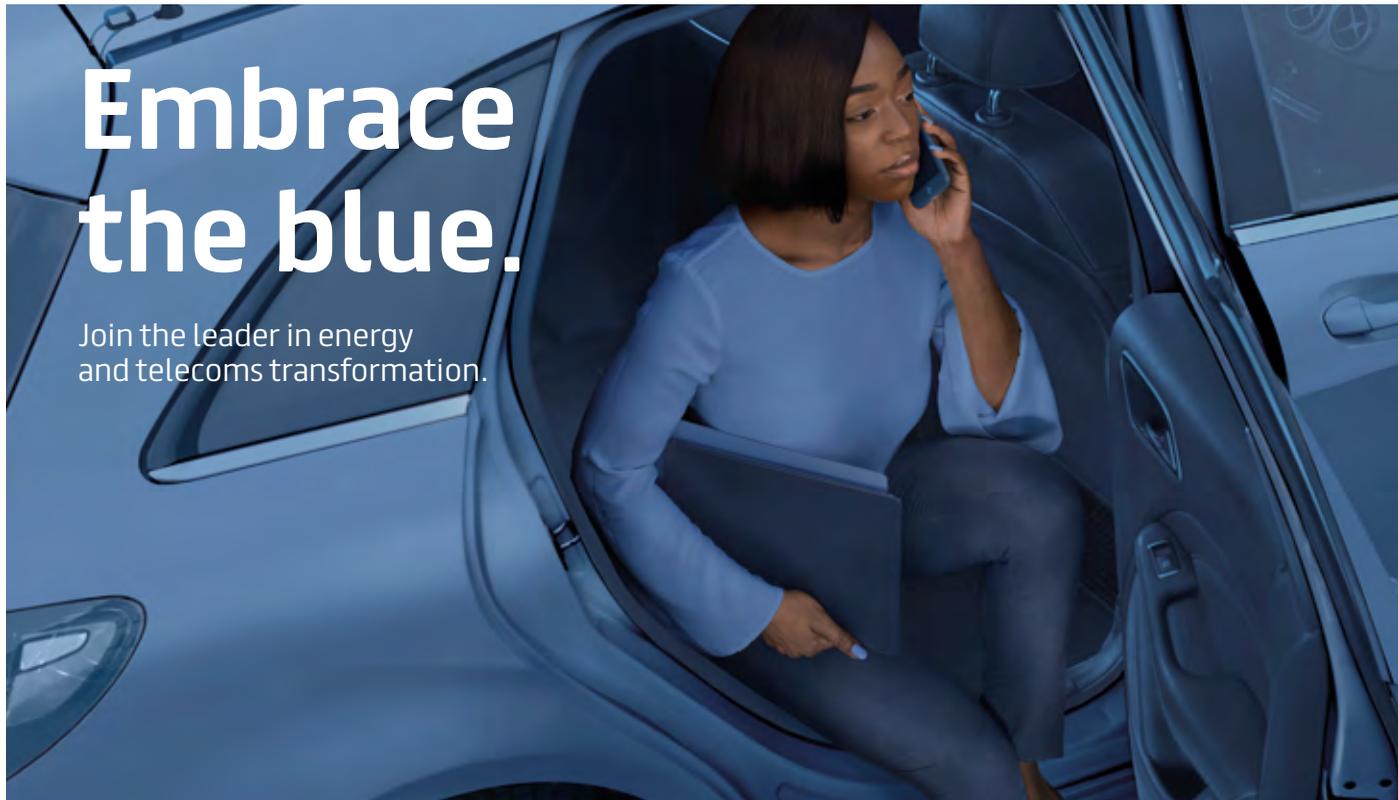
Late last year Prysmian Group celebrated the 50 years of the connection along with a new world record in its history: with half a century in operation, SA.CO.I. is also the longest in-service HVDC submarine cable link and continues to be an important energy interconnection between Sardinia and the continent.

guarantees 24/7 remote subsea cable control, featuring non-invasive measurement and deep diagnostic information, including programmed intervention to prevent any system malfunctions.

The base's location being just few days from all main Northern Europe offshore locations is strategic, since there will be 20,000 km of HVDC marine cable installed in Northern Europe by 2030, according to a European offshore grid infrastructure study. With an average range of 0.5-2.0 damages per 1,000 km

of installed subsea cable per year, there are likely to be between 10 and 40 cable repair required in the North Sea per year by that date.

Today, the average repair time of a submarine cable – from fault detection to full recovery – takes between 3 and 5 months, while costing several millions. The new service enhanced asset management solution halves cable outage times, leading up to a 50% total loss reduction.



# Embrace the blue.

Join the leader in energy and telecoms transformation.

## Prysmian is hiring talents worldwide

**P**rysmian Group is looking for 100 talented people from around the world eager to join the leader in the energy and telecom cables and systems industry.

The new editions of our recruiting programs: Make It, targeted at engineers; and Sell It, designed to recruit into the sales area, offer 50 engineers and just as many sales professionals a full-immersion journey in the Group's multicultural environment and high technological and innovative know-how thanks to a vibrant mix of training and work experiences.

**150 talents**  
*recruited in 2017*

"In 2017, through the Build the future, Make It and Sell It programs, we recruited 150 talented people out of 60,000 applications from around the world" commented Fabrizio Rutschmann, Chief Human Resources Officer of Prysmian Group.

Selected talents appreciated the international development schemes and quality of the training programs Prysmian's recruitments programs offered them. "Once enrolled in Make It, I could see that Prysmian was dedicated to my personal and professional development" says Cristina Elena Baisan, a Prysmian Production Supervisor leading a team of 50 people, when recalling her experience in the first edition of the Prysmian career program for manufacturing engineers.

"Sell It lets those ready and willing to embrace opportunity make the most of their talent and transform it into a powerful tool for selling something they can be truly proud of" commented Izumi Kobayashi, who applied to the program in 2017 after more than two years in the Microsoft Chilean branch.

Apply now. Visit [prysmiangroup.com/careers](https://prysmiangroup.com/careers) for more information.



**Smart working is a key project on our digital transformational path.**

Stefano Brandinali,  
Prysmian Group Global CIO

## Enhancing digital transformation through smart working

The Office 365 cloud platform has enabled Prysmian to improve the work-life balance while cutting cost and improving productivity in a sustainable fashion.

Imagine a company where people use only mobile devices to have more immediate and faster access to the company's tools and information resources, anywhere, any time. Where teams located all over the world can discuss projects using videoconferencing and share useful content through cloud-based communication and collaboration tools.

This is the new way of working at Prysmian, thanks to an all-round digital [transformation project based on a cloud-first strategy that launched in partnership with Microsoft](#). The cornerstone of this innovative path is smart working, a model that took shape when the Group moved to the new Milan Bicocca headquarters, a place designed around smart-working principles.

"Smart working is a key project on our digital transformation path", commented Stefano Brandinali, Prysmian Group Global CIO. He continued: "By adopting Microsoft tools, we can provide our users with an integrated, quality user experience. This is a gradual, but constant, revolution, with the aim of developing an ever-more mobile and virtualised working environment, and we are confident that smart working will be able to offer a competitive edge and support the Group's growth".

Microsoft has worked in close contact with the Group to put into effect the shared vision of a new type of productivity, in which people are more connected and motivated through technology. The adoption of Office 365 improved efficiency while reducing costs and environmental impact.

All PC desktops have been eliminated, as all employees were given mobile devices. Thanks to cloud-based Skype for Business communication and collaboration tools, people can meet virtually, thus improving work-life balance and reducing costs. The cloud makes it faster to install software packages – which are updated automatically – and allows the use of Yammer as a business social network.

Technological innovation has always been in Prysmian's DNA. Microsoft is the technology enabler, helping to shape a modern workplace and accelerate collaboration and lean working, while providing increased productivity, sustainability and efficiency.

### TWO DEDICATED PROGRAMS

**Make It** is a four year program targeted at engineers. Make it offers:

- a three-month local on-boarding, and a one-week induction in the Group's new Milan headquarters;
- one weeks' training at the Group's Manufacturing Academy in Mudanya (Turkey);
- a mentoring program designed to support and encourage the participants' learning, maximise their potential, develop their skills and improve their performance.

**Sell It** is a three year career development program for sales professionals, offering:

- a tailored local on-boarding program;
- a two week Group induction in Milan headquarters;
- tailored training at Prysmian Global Sales Academy, in partnership with the most renowned Business Schools worldwide;
- formal mentoring programs to help newcomers build relationships with role models, mentors and coaches.

## MAKE IT

A manufacturing career at Prysmian Group

## SELL IT

A growing path at Prysmian Group

Follow us



[prysmiangroup.com](https://prysmiangroup.com)

**Prysmian**  
Group

**Disclaimer**

The content of this publication is provided 'as is' without warranty of any kind, either expressed or implied, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement of intellectual property rights.

For further information please read the terms of use of this publication.