

INSIGHT

PRYSMIAN GROUP MAGAZINE

ISSUE 03 | 2021

**Climate Ambition
and Social Inclusion.
OUR WAY TO IMPACT.**

**Why Innovation
is driving change.**
*An interview with
Prysmian's R&D chief
Srinivas Siripurapu*

**Future trends and
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INNOVATION **A Strategic Necessity**

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Focus On

Innovation as a Strategic Necessity

We all know by now that innovation is key to the success of any company. But it's not just what you do in the lab that counts.

In 2021, Prysmian Group innovated its sustainability strategy, setting a demanding new net zero target for 2030 and adding more depth to its commitment with its Social Ambition.

This issue offers a close-up look from top management at their plans to get to 2030, and shows how innovation is a strategic necessity in all areas.

Read on for a full report from the 2021 Sustainability Day, a chilling look at the future of climate change from IPCC's Carlo Carraro, and what US utility ConEdison is going to get its grid ready for the growing demand for electrification.

Continue reading on the following pages

Prysmian Group intensified its sustainability commitments in 2021, making important pledges to achieve the energy transition and social equality.

CLIMATE AMBITION AND SOCIAL INCLUSION. **OUR WAY TO IMPACT**

Top management met with stakeholders online on November 23 to share these new targets, and get feedback from investors and suppliers, in an event called "Climate Ambition and Social Inclusion. Our way to Impact."

This year it became clear that the effects of climate change such as rising sea levels, changes in rainfall patterns, and higher temperatures are already unavoidable even if the world succeeds in reaching the 2050 zero-carbon emissions targets. That's why Prysmian Group responded to this urgent need for action with its Climate Change Ambition, committing at the beginning of 2021 to reduce absolute Scope 1 and 2 GHG emissions by 46% by 2030, from the 2019 baseline. It also committed to reducing absolute Scope 3 GHG emissions from purchased goods and services and from the use of sold products by 21% within the same timeframe. Last but not least, the Group has brought its own net zero emissions target forward to 2035 and will be investing €100

million to meet this goal. These targets were approved by Science-Based Targets Initiative (SBTi) in September 2021.

"We have the privilege to lead the sector which plays a strategic role in the fight against climate change," explained Maria Cristina Bifulco, Prysmian Group Chief Sustainability Officer & Group Investor Relation Director, in her welcome address as she kicked off the annual Sustainability Day. "But that means we also feel the responsibility to play a proactive role."





ENERGY TRANSITION

CLIMATE CHANGE

Inclusion

Engagement

The other key 2021 milestone in Prysmian Group's sustainability journey was the launch in July of its Social Ambition, which sets specific targets on efforts to improve diversity, equality and inclusion (DE&I), digital inclusion, community empowerment, employee engagement and upskilling. The new 2030 targets further align the Group with the United Nations Sustainable Development Goals.

Prysmian Group's top management gave a 360-degree overview about the group priorities and initiatives in the Environmental, Social and Governance space at the annual stakeholder engagement event, now held online.

Chief Executive Valerio Battista discussed the vital importance of innovation for more sustainable power grids and their role in the energy transition, in a dialogue with Italian power grid operator Terna CEO Stefano Antonio Donnarumma. Achieving Europe's CO₂ reduction targets by 2030 will require upgrading our infrastructure to support the energy technology of the future, Battista said. Prysmian Group is playing a role by developing the innovative, robust cables systems needed for tomorrow's flexible and smart energy grids.

“Prysmian Group is committed to supporting the needs for new power transmission infrastructures, by developing cable systems with higher transmission capacity over longer distances, operating at higher voltages and capable of being installed at higher submarine depths,” Battista said.

Enhancing the energy infrastructure is a key driver to achieving the energy transition, said Prysmian Group COO Massimo Battaini in an overview of how the group is implementing an ESG strategy in the cables industry by setting targets, investing, and innovating. “Our actions are two-fold,” he said. “On one hand, we need to be very brave in investing in capacity, and we are deploying almost €500 million in the next five years to increase capacity. Secondly, we are working on cables innovation, to develop a new solution for cables that transmit more power, more voltage, to transmit more energy, to make the energy transition more viable from an economic point of view.”

Develop new cable
solutions that transmit

**MORE POWER
MORE VOLTAGE
MORE ENERGY**

Battaini said that feedback from customers about these significant investments has been strongly positive, because “they know we can help them achieve their goals to reduce their emissions.”

Sustainability is not an abstract concept at Prysmian Group. As Maria Cristina Bifulco said, “it is part of what we are.” People working at Prysmian and in the communities where the group does business are a central part of this effort, said Chief HR Officer Fabrizio Rutschmann. The Group’s Social Ambition 2030 goals aim to make it a more inclusive workplace, accelerate training and increase gender equality. They are “a mission statement about how we want to see our company in 2030,” he said.

Rutschmann illustrated the group’s targets in each of the plan’s five areas: Inclusion & Diversity, Local Empowerment, Digital, Engagement & Upskilling, and Health and Safety. These 16 targets build on those of 2022 and extend them to 2030, while also adding new goals such as measuring local impact and reaching zero workplace injuries. For example, among the new targets is the goal that 50% of desk workers, 25% of its global workforce and 30% of its management be female in 2030.

“We set very detailed targets and indicators to measure our ability to put specific plans into action, and to measure the progress,” said Rutschmann.

16 TARGETS | 5 AREAS

- ✓ Inclusion & Diversity
- ✓ Local Empowerment
- ✓ Digital
- ✓ Engagement & Upskilling
- ✓ Health and Safety

To make sure that Prysmian Group translates these ambitions into actions and behaviors, the company has put governance structures in place at board level and across the Group to cascade these goals around the world.

In addition to a board-level Sustainability Committee, the Sustainability Steering Committee and the Diversity, Equality and Inclusion Steering Committee include executives from the main corporate functions as well as the regional CEOs.

The two Committees work hand in hand, and also work with local and business ambassadors.

Sustainability is a core responsibility of the board and plays a key role in the board agenda, explained Maria Letizia Mariani, Lead Independent Board Director and Chair of the Sustainability Committee.

“I see two different phases when I look at the board,” said Mariani. “A first phase is to provide help and support, and to create focus so that sustainability is seen as a strategic element. When this is done -- and this is clearly the case of Prysmian -- the role of the board is to continue to challenge and raise the bar to create value.”

Prysmian’s progress was recognized only days before the November 23 event, when it was ranked first with 87 points in the ELQ Electrical Components & Equipment sector on the Dow Jones Sustainability World index, according to the 2021 annual review conducted by S&P Global CSA. Prysmian is the only pure cable maker included in the most recognized sustainability index at global level.

“The progress is really impressive,” she said.

Prysmian Group’s decision to bring its net zero emission target forward to 2035 means that every region must do its part to ensure they implement Prysmian’s ESG strategy worldwide.

Yet the gap between developed and developing countries about the timetable to achieve climate change goals is starker than ever after COP26. Sustainability Day 2021 was therefore an important moment to hear from executives in North America, Latin America and Turkey about the perceptions of ESG issues in their region.

Saskia Veerkamp, Prysmian Group North America CFO, noted that the Biden agenda is giving a big boost to climate change efforts, and the group is playing a strong role in a few of the country's biggest infrastructure projects that will shape the energy grid of the future.

She pointed to the \$900 million SOO Green award announced in June linking the energy grid in the Midwest connecting two of the country's largest energy markets as an example.

"The Vineyard Wind project off the coast of Massachusetts (one of the largest cables contracts ever awarded in the United States – Ed.) has just entered the execution phase, and is a fascinating process," she said. "And the Dominion Energy project off of the Virginia coast, just recently announced, is one of the biggest submarine cable projects in the US ever."

Latin America CEO Juan Mogollon pointed out that Latin America is a continent with over 30 countries, and this wide range of economic development results in differing views of the energy transition. Some countries such as Mexico continue to emphasize investment in fossil fuels, while others such as Chile are out in front in renewable energy.

"I think companies like Prysmian Group make a big difference," Mogollon said. "That's where we become enablers, through technology and products, and collaborating with the local communities, to align the agenda with initiatives of sustainability."

Mogollon highlighted the importance of working with the local community in LATAM, where the company continues to make investments to promote digitalization to bring quality and fast internet to rural areas of this vast continent.

"In the last 18 months, we have invested over \$20 million in Mexico and Brazil to bring fiber optic to local communities," he explained.

Turkey's critical geographical position between Europe and Asia gives it a unique perspective on the energy transition, said Turkey CEO Ulku Ozcan.



LATIN AMERICA

Investments
in Mexico and Brazil

\$20 M



The Biden agenda is giving a big boost to climate change efforts, and the group is playing a strong role in a few of the **country's biggest infrastructure projects that will shape the energy grid of the future.**

Saskia Veerkamp
Prysmian Group North America CFO

UNIQUE PERSPECTIVE ON THE ENERGY TRANSITION

renewable energy, as well as being an important bridge for energy transportation between Europe and Asia.”

Ozcan filled in listeners about the four pillars in her region’s “Sign It” sustainability plan aligned with Prysmian Group’s ESG targets.

“Turkey’s top policy priority is to secure its energy supply and keep up with the demand to continue its economic growth, as its population is also increasing,” she explained. “Being a border country between Europe and Asia, Turkey has a critical role in both the transition from fossil fuel to

“Our intention as Prysmian Turkey is not a stand-alone strategy,” said Ozcan. “It is aligned with the strategy of the group. Therefore, I can say that we are committing to producing low-polluting products, and to cutting down on emissions and waste. We also aim to build a Zero and Beyond culture that integrates safety and health.”

PRYSMIAN GROUP EDITORIAL STAFF

Prysmian Group's Chief R&D Officer and Chief Innovation Officer Srinivas Siripurapu explained how energy transition, digitalization, sustainability and mass electrification are changing.

WHY INNOVATION IS DRIVING CHANGE

Srinivas Siripurapu, Prysmian Group's Chief R&D Officer and Chief Innovation Officer, grew up in southern rural India, where he saw how important it was to have factories with responsible production processes. Trained as a chemical engineer, he has been driven from the beginning of his career by his love for science and innovative materials, and the urge to solve environmental problems -- seeing the first as a lever to help the latter.



Srinivas Siripurapu
*Prysmian Group's Chief
R&D Officer and Chief
Innovation Officer*

What does innovation mean for Prysmian Group?

“For us, innovation means understanding and addressing the continuously changing needs of our customers and of the community we’re living in. The way we are dealing with energy and communication is changing. How we heat our houses, how we cook our food, how we drive, how we work, how we interact with each other: all these things will change because of the energy transition, digitalization, sustainability and mass electrification.

They’re driving innovation for us. That’s why it’s a great time to be in Prysmian Group’s R&D: it’s a challenge as well as an opportunity, as we can create new products and solutions for these macro trends.

A FOCUS ON CLIMATE CHANGE AND THE NEW COP26

At Prysmian Group, everybody really values innovation as a lever that can be used -- along with cost management and customer proximity -- to drive this change and contribute to something bigger that our communities and the world will find useful. The focus on climate change and the new COP26 targets are adding a sense of urgency on this topic, accelerating things coming together.”

What are the most innovative projects you are working on?

“We are working on several breakthrough concepts through an innovation strategy that is balanced in the short and longer term to address our customer needs.



ENERGY TRANSITION WITH P-LASER HVDC TECHNOLOGY

Regarding energy transition, our two main drivers are interconnectors and offshore windfarms, and we expect to also see floating wind farms scale starting 2025. For interconnectors the name of the game is to push more power safely and reliably to reduce the environmental footprint of cables. For example, for the first time we are using our P-Laser HVDC technology in the German Corridors project where cables will be able to transmit 2GW per cable (a number increasing over the years). We have to manufacture 1,000 km of these cables in the next four years. That is a significant innovation milestone for the industry. We are talking about a fully recyclable 525kV high voltage DC land cable, but in the future we will also use it for submarine interconnectors. P-Laser permits a more efficient cable production, carries more power and has a lower carbon footprint. So it is a win-win-win for operations, performance, and the environment.

The other interesting development is that we will be able to install submarine cables at a very high depths. This capability has enabled projects in the Mediterranean Sea, such as the Tyrrhenian Link developed for Terna: for the first time a single core HVDC cable will be deployed at more than 2,200 meters below sea level. The previous world record was 1,650 meters. How can we do this? By replacing the cables' stainless-steel armour wires with Kevlar fibers. We tested this technology last year installing three-core cables under the Greek sea between the islands of Evios, Andros & Tinos and between Crete and Peloponnese. And there is the possibility of the Eurasia Tunnel, a submarine link that will be built in the future with cables installed at the record depth of 3,000 meters."

What about digitalization?

"Several aspects of our life are being enriched by all things digital. By 2050 the aim is to have digital inclusion across the entire world population. For digitalization, our main drivers are telecom infrastructure, smart buildings and hyperscale datacenters. I should mention our FlexRibbon technology, where we can pack up to 7,000 fibers into a cable enabling faster installation. Telco networks are all about densification. We have launched the industry's first 180 micron bend insensitive fiber and we use it in our Sirocco Extreme microduct cables with fiber density exceeding 10 f per square mm.

I am excited about the integration of our Prysmian Electronics and our newly acquired Omnisens teams. With over two decades of in-depth expertise in electronics and optical sensing, we will become a one stop shop for sensing and monitoring solutions for a wide host of industrial applications. We have also recently launched PRY-CAM HOME, a compact solution for real-time monitoring and managing of power safety and efficiency in homes. Stay tuned for more advanced solutions from this team."

Do you also work on sustainability solutions?

"Yes, for the past five years we have linked our innovation efforts more strongly to sustainability. We are on a continuous journey to conserve precious natural resources, and develop better products in a more efficient manufacturing environment. To that extent we have launched ECOCABLE the industry's first comprehensive green label focused on six acknowledged and measurable criteria (carbon footprint, recycle content, circularity, reducing hazardous substances, environmental benefit and efficiency in use). We are focused on decarbonizing both our factories (Scope 1&2) and the entire value chain (Scope 3).

We are investing through an open innovation model on several longer term disruptive ideas for mass electrification. High power megawatt charging of electric vehicles, Hypermobility for low carbon fast transport and Electric highways with dynamic wireless power transfer to name a few. We have developed automated solutions using advanced robotics to reduce manual intervention in hazardous work around high power electricity. We are always scouting for the next big thing together with our customers, new technology providers and top universities world wide."





THE STRATEGIC ROLE OF **ENGAGEMENT**

The continuous engagement with our stakeholders is a key pillar of our Sustainability approach and strategy.

Maria Cristina Bifulco
Prysmian Group Chief Sustainability Officer & Group Investor Relation



Directly listening to the voice of our shareholders, suppliers, customers and colleagues helps us to continue to improve, to align expectations and introduce innovation.

This approach has allowed us to earn Prysmian Group recognition from investors (especially ESG investors) and ratings agencies, said Maria Cristina Bifulco, Prysmian Group Chief Sustainability Officer & Group Investor Relation Director, during the company's **Climate Ambition**

and Social Inclusion. Our way to Impact annual Sustainability Day event.

Sustainability at Prysmian Group is a 360-degree strategy that embraces engagement with customers, suppliers, people, local communities, innovation, and shareholders. In this interview, Bifulco explains in detail how it works.

What is the role of stakeholder engagement for Prysmian Group's sustainability strategy?

As a widely-held public company with no controlling shareholder, interacting with stakeholders has always been a key part of Prysmian Group's business strategy. That means Prysmian was able to respond quickly to an increasing attention to sustainability issues, thereby implementing policies that led to concrete actions. This engagement has created a sort of "snowball effect" that has attracted new ESG investors. In 2021, nearly one in two investors in Prysmian Group is ESG-driven, up from 16% in 2017. Thanks to the stakeholder engagement review, we have been able to launch some extremely relevant initiatives.

Can you give us a few examples?

The launch of the "Side by Side" diversity program back in 2016; the decision to connect ESG criteria to variable remuneration in 2018, and setting up a dedicated board committee in 2020 to advocate for ESG issues to be translated into concrete action across the company's operations. And ahead of this year's board review, Prysmian Group identified ESG competencies as a core skill in the board skill matrix.

Prysmian Group made some big strides in its sustainability strategy in 2021. What are the most important developments?

Prysmian Group accelerated its sustainability commitment in 2021 with two major new initiatives. It launched its Climate Change Ambition, reflecting a growing concern among investors about global warming. Prysmian Group has now committed to reducing absolute Scope 1 and 2 GHG emissions by 46% by 2030, from the 2019 baseline. It also committed to reducing absolute Scope 3 GHG emissions from purchased goods and services and from the use of sold products by 21% within the same timeframe. The Net Zero emission target has been brought forward to 2035. These targets were approved by Science-Based Targets Initiative (SBTi) in September 2021. To meet these goals, the Group will be investing €100 million in the next 10 years.

-46%
reduction of
GHG emissions

What role do social issues play in this strategy?

There cannot be sustainable growth without people at the center. That's why in July Prysmian launched its Social Ambition, which sets specific targets on efforts to improve diversity, equality and inclusion (DE&I), digital inclusion, community empowerment, employee engagement and upskilling. The new 2030 targets support the achievement of Prysmian's Social Ambition objectives and further align the Group with the United Nations Sustainable Development Goals.

How do you measure your results, in addition to the targets the Group has set?

Over the years we have been seeing the growing role of ESG investors, to the extent that today almost one out of two investors are ESG-driven, which is a guarantee of the high level of sensitivity we have on these issues. Prysmian Group's sustainability journey has also been reflected in its improved index rankings. In 2021, Prysmian Group ranked first with 87 points in the ELQ Electrical Components & Equipment sector on the Dow Jones Sustainability World index, and was the only pure cable maker included in the most recognized sustainability index at global level, covering over 5,300 companies.

What role do suppliers play?

They are a key partner in Prysmian Group's ESG strategy. We engage with our suppliers. They are extremely relevant to drive the decarbonization of our supply chain. We integrate our ESG KPIs into the selection process of our suppliers, and a constant engagement with customers and suppliers drives our innovation in our supply chain.

How important is governance in implementing the Group's sustainability strategy?

To make sure that Prysmian Group translates these ambitions into actions and behaviors, the company has put governance structures in place at board level and across the company to cascade these goals around the world.

In addition to a board-level Sustainability Committee, the Sustainability Steering Committee and Diversity, Equity and Inclusion Steering Committee include executives from the main corporate functions as well as the regional CEOs. The two Committees work hand in hand. The Group appointed a Diversity, Equity and Inclusion Director in 2019. These Committees work with local and business ambassadors. In each region, the Group has a Sustainability Ambassador to make sure our voice reaches the local communities, and that we listen to their voice. The same thing happens with the business: we have sustainability ambassadors for each business to make sure that we are able to tailor sustainability to the specific requirements.

Even if the world reaches its goal of cutting carbon emission to net zero in 2050 – which it is not on track to achieve -- the future impacts of climate change will be disruptive, said Carlo Carraro, the Vice Chair of Working Group III at the UN’s International Panel on Climate Change (IPCC), at Prysmian Group’s Sustainability Day on November 23.

A LOOK INTO THE FUTURE OF **CLIMATE CHANGE**

The impacts of climate change such as rising sea levels, changes in rainfall patterns, and higher temperatures are already partly unavoidable, even if the world succeeds in reaching the carbon emissions targets set at Glasgow that would limit warming to an increase of 1.8-2.0 degrees centigrade by the end of the century with respect to pre-industrial levels, said Carraro in a presentation called “The Impacts of Climate Change: A Look into the Future.”

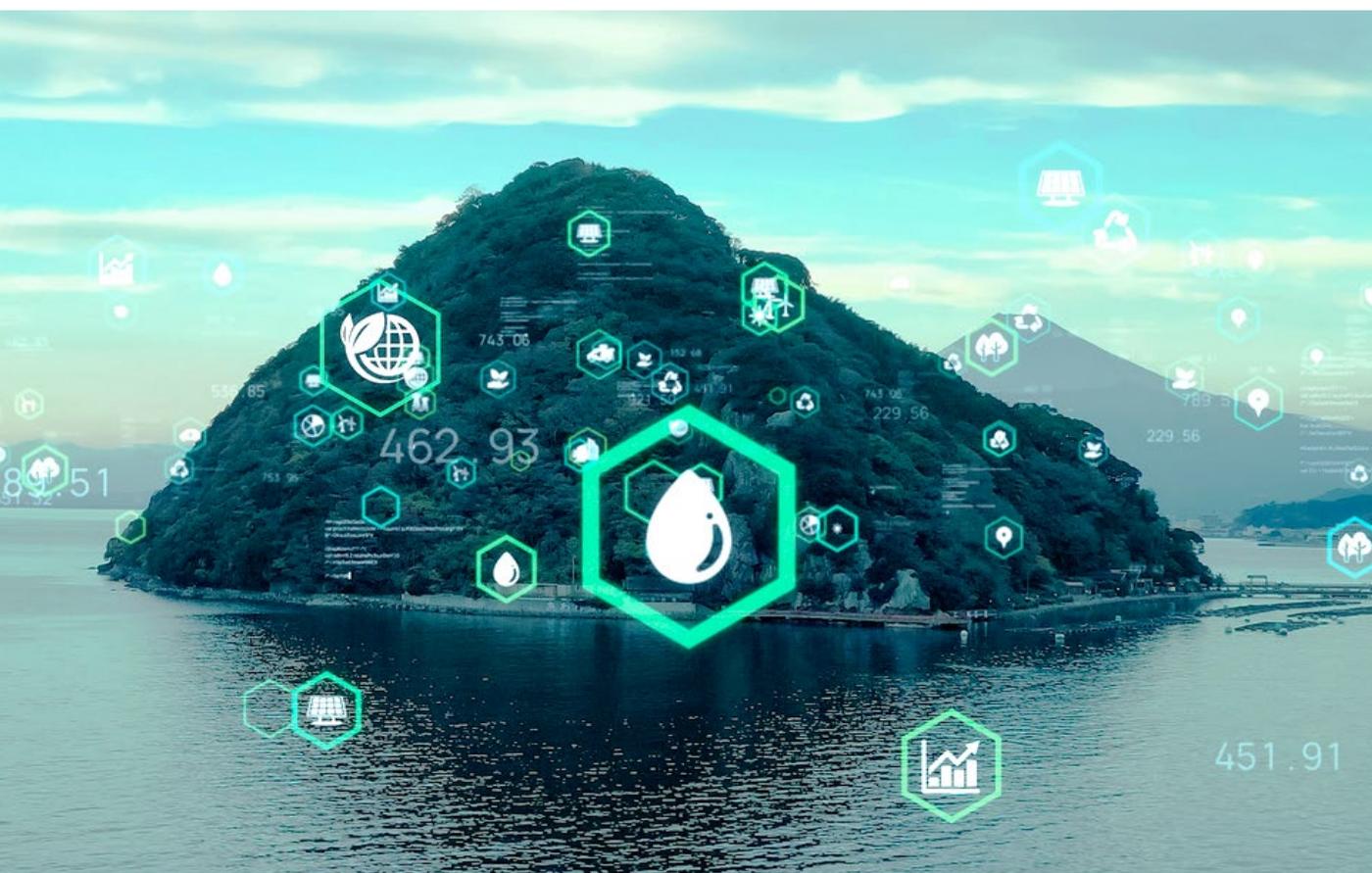
Carraro said that temperatures will reach 1.5C above 1850-1900 levels by 2040 in any future mitigation scenarios, causing an “unprecedented” frequency of extreme weather events “even at warming of 1.5C.” The world is currently on track to reach +2.7C and the best that can be obtained by fully implementing the Glasgow commitments is a temperature increase between 1.8C and 2.0C, according to the International Energy Agency. Additional efforts would be needed to stabilize temperature increase at 1.5C.

“We have already changed the climate, and some of the impacts will be unavoidable -- which implies that it is urgent to keep these impacts from being worse than what they will already be,” said Carraro, who is also Professor of Environmental Economics at Venice University. “We need to intervene on both sides: we need to reduce emissions, to avoid an even worse situation; and adapt to climate change, because unavoidable impacts may highly damage many regions of the world, the poorest in particular.”



Carlo Carraro
Vice Chair of Working Group III at the UN's International Panel on Climate Change (IPCC)





The year 2021 will be remembered mainly for the Covid-19 pandemic. But it was a key year for climate change as well. In August 2021, the IPCC's 6th Assessment Report – widely seen to be the most authoritative and up to date source on the topic -- asserted that it is indisputable that climate change is caused by human activity. As a result, 197 countries subscribed to the statement that “Recent changes in the climate are widespread, rapid, and intensifying, and unprecedented in thousands of years.”

In October 2021, 197 negotiating parties met in Glasgow at the COP26 summit and explicitly committed to reducing the use of coal, and over 140 countries set net zero targets. The Glasgow Climate Pact reaffirms the Paris commitment to limit the temperature increase to 1.5C by the middle of this century.

COP26 SUMMIT

when
October 2021

where
Glasgow

negotiating parties

197

countries to set net zero targets

over 140

But the planet risks temperature increases much higher than that. The world is on track right now to hit +2.7C of warming by 2100, the UN said in October. Europe, is currently at +2.2C.

Every additional increment of global warming increases the projected changes in extreme weather, he said. For example, even if temperature increase is limited at 1.5C, the frequency of events that would have occurred once every 10 years increases to a likely 4.1 times every decade, and at 2.0C a once-in-10-year event would occur 5.6 times more frequently.

For events occurring once on an average of every 50 years, the increase is even more marked. At 1.5C, the event would be likely to occur 8.6 times more frequently, rising to 13.9 times at a global warming level of 2.0C.



Five main sectors attracting technology investment

- \ Industry and transport
- \ Agriculture
- \ Power grid
- \ Hydrogen production
- \ Carbon capture

Climate change is already an economic problem, said Carraro. A study from the University of California at Berkeley estimated that global economic losses from global warming in 2017 was already about \$190 billion, or 0.25% of global GDP. The expected loss in the EU could reach 2%-2.5% of GDP in 2050, he said.

What can be done? All models suggest the same strategy: energy efficiency in all sectors, including building and transport; electrification of heating, transport and industries; decarbonization of electricity generation through renewables, hydrogen, nuclear power and CO2 removal.

Emissions must now be reduced more rapidly than they have been in the past, Carraro said, pointing to the IPCC's conclusion in its August report that "unless there are immediate, rapid, and large-scale reductions in greenhouse gas emissions, limiting warming to 1.5C will be beyond reach."

“Europe, which is the best in the world from this point of view, has reduced emissions from 1990 to 2020 by 20%,” he said. “And now in another 30 years, we need to reach minus 55%. That’s a further 35% in 30 years. So the speed of reduction must be at least two times the speed of reduction that we had in the past. This is very challenging, because of the required deep change in the energy system, but also the society and the economic system at large.”

THE KEY TO SUCCESS

Fortunately, the lower cost of renewable energy is one of the enabling and accelerating factors that can help us achieve the energy transition, he said. Technological innovation, digital transformation and green finance are the three tools that can help companies and governments meet the challenge.

Regarding technology, there are five main sectors that could attract \$2 trillion of capital investment by 2025. They are concentrated in electrification of industry and transport, agriculture, the power grid, hydrogen production, and carbon capture.

Digital transformation is key because it enables the changes that need to happen in all sectors and technologies, from energy efficiency to digitalized energy networks to forest protection and advanced monitoring of livestock.

Finance is the most important of these three enablers right now, he said. “The good news from Glasgow is that it’s clear that the financial sector is ready to move very important resources into this direction,” he pointed out. “The goal is twofold: redirect investment to focus on renewables and other low carbon sources, and increase green investment to what we will need in the next 10 years in order to achieve the 2030 and 2050 targets.”

At COP26, it was clear that public policy will not be among the enabling factors to achieving the goal of limiting global warming to 1.5C per year, said Carraro. Developed and developing nations are still far apart, and all countries in general have problems in setting and approving short term goals. More will be needed from companies if governments are not up to the task.

“We need more than what we decided in Glasgow,” he said in conclusion. “We must rely on technological change, and company strategies. The contribution of companies is very important to get to zero emissions in 2050-2060 in the main world countries, e.g. the G20s, which is what we need to keep temperature increase below at least 2C by the end of the century.”

PRYSMIAN GROUP EDITORIAL STAFF

NEW PRYSMIAN TURKEY CEO OZCAN **off to a fast start on ESG goals**



**Prysmian Group
Around the World**

**Ulku Ozcan,
Prysmian Group Chief
Executive Officer at Türk
Prysmian Kablo**

*Ambitious environmental
and social targets for a
country that bridges East
and West*



Prysmian Group Turkey is off to a fast start on its “Sign It” program that sets environmental, social and economic targets for 2030, said CEO Ulku Ozcan at the annual Sustainability Day event on November 23.

“We started in 2020 knowing that sustainability is a journey rather than a destination,” she explained a speech during the online event. “Prysmian Group sees that the challenges in business, society, and the environment can only be overcome by making sustainability the core of the business and making the necessary cultural transformation.”

After an initial pilot phase of “Sign It,” Ozcan and her team analyzed trends, defined their vision, assessed impacts, established roles and came up with a detailed sustainability plan and targets.

THE PILLARS

The plan is based on four pillars, and Prysmian Turkey has developed KPIs for each one, she explained. These pillars are eliminating footprints, circular resource use, enhancing the business model, and developing employees and the community.

Prysmian Group’s Climate Change Ambition calls for it to reduce absolute Scope 1 and 2 GHG emissions by 46% by 2030, from the 2019 baseline. It has also committed to reducing absolute Scope 3 GHG emissions from purchased goods and services and from the use of sold products by 21% within the same timeframe. The Net Zero emission target has been brought forward to 2035. That means every region must do its part to ensure that this important goal is achieved.

Accordingly, Prysmian Turkey has an ambitious target to reduce its carbon emissions by 30% by 2030. "With the projects completed in 2021, we will have reduced more than 1,000 tons of CO2 by year-end" she said. "With the deployment of these projects, we enabled a reduction that could only be offsetted by trees covering an area of 280 football fields.

We will continue to benefit from the early savings from our projects, which is estimated to correspond to 26% of our target, until 2030. On the other hand, we recognize our responsibility to do more in the coming years and commit to work hard."

THE STRATEGY

Ozcan's strategy for Turkey is fully aligned with the group's global ESG efforts. In 2020, Prysmian Turkey committed to producing low polluting products, cutting down on emissions and waste. It also aims to build a "Zero and Beyond" culture that integrates workplace health and safety with the goal of becoming injury-free. And it will continue its strong progress made in the field of gender diversity.

Under former CEO Cinzia Farisè Prysmian Turkey won external recognition as a Diversity & Inclusion center of excellence. Half of Istanbul-listed Prysmian Turkey's board of directors is female, and so are 35% of white-collar employees and 25% of its senior managers. Prysmian Turkey's achievement was recognized by the "Women Empowered Board of Directors" award by Sabancı University Corporate Governance Forum in 2020 during the "Turkey Women Directors Conference."

Ozcan, who was named CEO in June 2021, shares her predecessor's focus on female empowerment.

"Equality is one of the most critical subjects now being discussed all over the world, and I believe inequality in business life and daily life is the biggest challenge we face as we work towards sustainable development," she said.

"The climate crisis is also worsening inequality in many dimensions. Disadvantaged groups like poorer people, women and girls are struggling for survival. Despite its critical importance, social equality has not been resolved, nor is it improving. On the contrary, the gap between the privileged and the rest are widening. The UN's Sustainable Development Goals are some of the most important tools we have to tackle this inequality."





Social Ambition 2030

Improving diversity,
equality and inclusion

DIVERSITY NEW 2030 TARGET

desk workers

50%

global workforce

25%

management

30%

In July, Prysman Group launched its new Social Ambition for 2030, which includes commitments to improving diversity, equality and inclusion (DE&I); digital inclusion; empowerment of communities; and employee engagement and upskilling.

New 2030 targets support delivery of Prysman's Social Ambition objectives and further align the Group with the United Nations Sustainable Development Goals. The new target calls for 50% of desk workers, 25% of its global workforce and 30% of its management to be female in 2030.

PRYSMIAN GROUP EDITORIAL STAFF

Tracking the Future

BELIEVING IN HUMANITY'S COLLECTIVE ABILITY TO ACHIEVE THE **ENERGY TRANSITION**

metaLAB at Harvard University's founder and director Jeffrey Schnapp shares his insights about a future of sustainability and broadband connections in rural areas, smart agriculture and supercomputers.

Jeffrey Schnapp is an academic, founder and faculty director of metaLAB at Harvard University, co-director of the Berkman Klein Center for Internet & Society, and co-founder and Chief Visionary Officer at Piaggio Fast Forward. Originally trained as a medievalist, he focuses on digital humanities.



Jeffrey Schnapp
*Founder and faculty director of
metaLAB at Harvard University*

How do you evaluate the massive digitalization that the pandemic has forced us to accelerate?

“Digitalization had been underway for several decades now in nearly every sector of cultural, social, and economic life: the pandemic multiplied the pace. Think of the online shopping/home delivery economy which exploded as stores and restaurants shut down and people throughout the world confronted the challenges posed by lockdowns. There are positive and negative effects, and one of the latter stands out in particular: the continuing growth and consolidation of the great transnational empires of our time, the Amazons, Googles, Facebooks. The democratic promise of the World Wide Web as a civic space is unlikely to be fulfilled unless this consolidation is counterbalanced by more adequate legislative and regulatory frameworks, particularly in the social media and www infrastructure domains.”

What can we learn from these pandemic times?

“Humility in the first instance, but I hope that the greater lesson will lead to an overcoming of anthropocentrism as humanity confronts the future.

The pandemic reminds us that human beings are part of nature, which means not the subjugators of nature but the subjects of nature: just one living creature in a world brimming over with other living creatures with their own legitimate claims on the natural world. The sort of tech saviorism that fills the pages of newspapers and magazines, that tenders promises that humanity will innovate its way out of every long-term problem (from aging and disease to climate change) or that this or that quantum leap “will change everything” and “is right around the corner” is mostly marketing nonsense.”

How do you imagine the future?

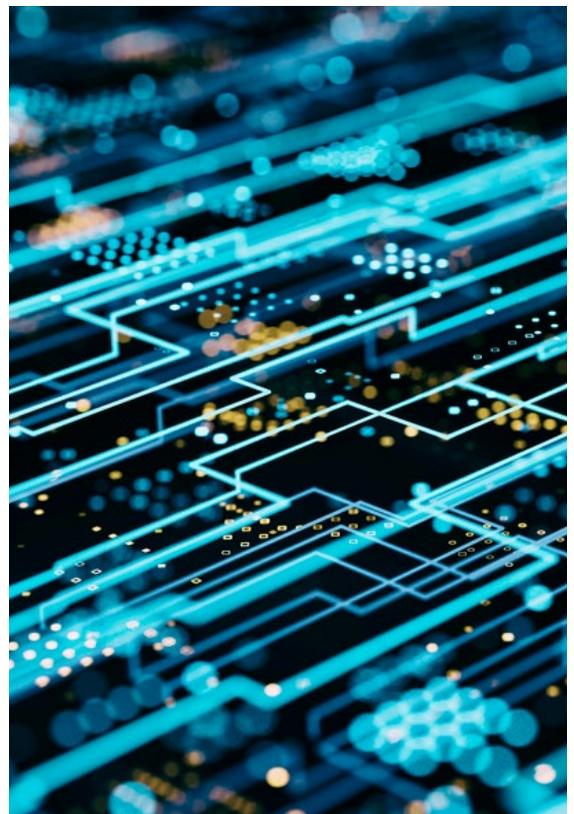
“As both rosy and terrifying. I am optimistic about humanity’s collective ability to transition to renewable energy sources and to incrementally improve upon many aspects of the contemporary consumerist economy. I am particularly interested in the future of rural areas as broadband becomes available within these extra-urban settings: this future encompasses everything from “smart agriculture” to sensor-equipped national parks to what one might describe as the “wired” natural landscape. I’m less sanguine about so-called “smart cities.” A city is not a computer and, contrary to what is presupposed

in much of the conversation regarding smart cities, the reality of future urbanization will consist in the formation of massive third world megacities where traditional infrastructure challenges will be daunting, if not overwhelming. Huge population movements, many driven by climate change, will place the system of nation states and controlled borders under intense pressure.”

What are the technologies that are mostly changing our way of life?

“The obvious answer is the connected supercomputer that homo digitalis carries about with him or her. With the proliferation of 5G networks, that device will be promoted to an even more central role in the governance of every aspect of life: like it or not, it will become the control center, dashboard for every IoT device (and these are already proliferating), and social lifeline: the access point to our online and offline experiences and passions, a constant companion even as we move around the world. AI- and machine learning-based applications will allow for even higher degrees of personalization of these control centers.”

PRYSMIAN GROUP EDITORIAL STAFF



IT'S TIME TO BUILD A GREENER GRID

ConEdison's Patrick McHugh sees a lot of electrification coming down the pike in the future. Because of that, utilities should focus both on a bigger energy distribution network and cleaner sources of energy.

Patrick McHugh is Senior Vice President of Electric Operations at US utility ConEdison. Founded in 1823 as the New York Gas Light company, it provides energy for the 10 million people who live in New York City and Westchester County.

What changes is your company facing right now?

“We had a key changing point from a technology perspective: many new technologies have been added from advanced metering infrastructure (AMI) to geographic information system (GIS) to supervisory control and data acquisition (SCADA), everything is really reaching a critical mass. A lot is changing about how we deal with our customers. We're trying to meet their expectations from a customer service perspective, but also from a reliability perspective, as we are typically about eight times more reliable than other utilities in the country. So we are looking for quality products that allow us to keep providing that reliability.”



What are the biggest challenges being brought by energy transition?

“I put climate change and green and clean energy at the front of all our challenges. We see a lot of electrification coming in the near future. We see this in transportation as well as heating. This transition is going to require an extensive growth of the electricity system, which will require a big effort both from the distribution side -- to distribute power to all these new type of consumers -- to the transmission side, finding new sources of energy.

Energy is going to be produced in different parts of our system than it has before, such as the Atlantic Ocean. Currently there are plans to install up to 9,000-megawatt of offshore wind generation in the Atlantic Ocean off Long Island, just south of New York City. We also continue to see more large solar producers in upstate New York.

The building out of the electric system will require products that comply with the need for high reliability such as materials that have long duration between mean time to failure, easy to install and overall low failure rates such as the ones that Prysmian Group provides on the medium voltage distribution splice, for example. We see cables and splices as an important part of the building out our system going forward. ConEdison has the largest underground distribution network of any utility right now in the US: 85% of our system is underground, serving 3.5 million customers. It just gives us the reliability that we spoke about. In the underground network system, the medium voltage splice is the weak link in the system and leads to the majority of our major events, typically on very hot and humid days in NYC.”

85%
of system
underground

3.5M
user served

Are there any specific innovations you are excited about?

“Overall I think that electric utilities are behind the game. We continue to connect critical parts of our system together in the field with man-made splices. At these locations we connect machine made cable, that

comes with high quality control and we then rely on people to connect these cables together, and in the end humans are humans. And this will create the weak link in the system. I compare us to the telecom industry, which operates a fibre optic network, and to the gas industry which now uses high density plastic for their pipelines. They both have well-trained employees using machines to join their cables or pipes together. The technology advancement especially in the area of robotics and machines has been significant. The electric utility companies need to think the same way and have highly precise machines making the splice location.

These machines will be operated by highly trained field professionals, similar to how doctors use machines and robotics for surgery today. One day we will have a machine that makes the splices on our system and these locations will no longer be viewed as the weak link in the system. These splices will perform much better than the ones that people presently make. It will also be safer, since currently the utility workers are required to touch copper wires that could inadvertently become energized at tens of thousands of volts.”

What about sustainability?

“We’re 100% behind that. We are investing about \$700 million to add three underground transmission feeders to three different load pockets in our system to allow for the retirement of the peaking units in these areas. These peaking units will no longer be required to operate during peak summer days. That’s an example of the greening of the grid and addressing climate change. We’re also have significantly increased our spending in supporting customers in the energy efficiency space as well as incentivizing companies to install public electric vehicle charging stations by covering part of their costs to install these charging stations”.

PRYSMIAN GROUP EDITORIAL STAFF

A festive group of people from Prysmian Group, client RTE and subcontractor ABCO gathered at the French city of Fécamp's historic Palais Bénédictine for a special dinner to celebrate an important achievement together: zero accidents at the submarine cable installation for one of France's first large-scale offshore windfarms at almost halfway through the project.



PRYSMIAN GROUP ACHIEVES **ZERO INJURIES** **IN 20 MONTHS AT FÉCAMP**

Highlighting HSE results as Prysmian Group moves towards its 2030 Social Ambition.

“This was a unique experience in terms of projects we have done so far,” said Giovanni. “We had to keep the maritime traffic in mind while working in the port's navigational channel, and coordinate our activity in such a way as not to impact the passage of merchant and fishing vessels”.

Giovanni Ghirardelli
Project Director

Occupational health and safety of its staff and subcontractors at worksites is one of the three areas that Prysmian Group and its stakeholders say is important for the company's sustainable growth. Prysmian Group has set a “zero injury” target as part of its 2030 Social Ambition – which is another reason why the achievement at Fécamp is so exciting. To work towards this “zero injury” goal, Prysmian Group has also set precise safety targets for 2022, and injury rates are included among the ESG criteria linked to the variable remuneration of relevant managers.



"The key to safety in such a busy environment was close coordination with port authorities and the coast guard. There was an alternating phase of being able to work or not. This was closely coordinated on a daily basis with the coast guard, and the Port Authority. We became a team – us, the client, the authorities and our supplier. We had to coordinate our schedules well ahead of time."

Carlo Rivero
HSE manager

Workplace safety is more than “just” about achieving goals and targets. It’s a tangible demonstration of Prysmian Group’s commitment to the communities where it does business. This was especially important at Fécamp, where the Group is a newcomer to the area. The 500 MW Fécamp offshore wind farm is made up of 71 turbines installed between 13 and 22 kilometres off the Normandy coast. Offshore construction on the project is scheduled to start in 2022 and the wind farm is expected to be fully commissioned by the end of 2023.

The Fécamp windfarm is being developed by Eolien Maritime France (a joint venture between the French company EDF Energies Nouvelles and the Canadian company Enbridge). Fécamp is one of three windfarm projects being carried out by Prysmian in France, along with Saint Nazaire and Courseulles-sur-Mer.

Every work site has its own challenges. The formidable, sweeping Normandy cliffs near Fécamp were the site of the Allied landings during World War II, and they draw hundreds of thousands of tourists each year. For Project Director Giovanni Ghirardelli and his team, these white cliffs represented an obstacle much as they did during World War II. Because of the cliffs, there were not a lot of suitable approaches to make landfall at the site. The only choice was to install the cable by entering Fécamp’s ancient port. This resulted in considerable

safety risks from both the aging infrastructure at the port, and the heavy boat traffic in and out. Clearly, special precautions needed to be made.

Along with health and safety, Carlo Rivero’s challenge was to protect the marine environment of Fécamp, which has been an important fishing center since the 11th century. Fécamp’s fishermen used to travel as far as Canada to net their catch of cod, and the city was France’s main center for salt cod (a popular protein in the days before refrigeration) throughout the 19th century. The Group protected Fécamp’s flora and fauna from damage by installing an environmental monitoring system, he said.

Lastly, cable landfall was adjacent to Fécamp’s beautiful pebbly beach, which has been painted by Monet (a frequent guest at the nearby town of Honfleur). Rivero took special steps to reduce water murkiness in order not to disturb swimming during the holiday season.

Risk evaluation workshops with staff and close field supervision was another key to achieving 20 months without an injury, said Rivero. As Prysmian Group moves forward towards its “zero injury” goal in 2030, their experience will certainly be a “lesson learned.”

Doing Business

WHITE PAPER

SUPPORT **BANDWIDTH-HEAVY AND LOW LATENCY** DEPENDENT TECHNOLOGIES WITH **CORD DEPLOYMENTS**

As more bandwidth-heavy and low latency dependent technologies become commonplace, CORD deployments need to be equipped to provide the necessary space and services required to handle these technologies in an efficient and effective manner. CORD is an acronym for Central Offices Re-architected as Data Centers. CORD was introduced by the Open Network Foundation (ONF) in 2017 with a mission of providing Telco Operators a foundation of understanding and supporting emerging technologies in the Central Office network. In addition, it sought to bring data center economies of scale and cloud agility to the Central Office. The network architecture being supported by CORD is a spine-leaf design utilizing enterprise data center compute and network equipment, both of which are foreign to most traditional Telco Operators.

Panduit and Prysmian Group have collaborated to discuss CORD and how to effectively deploy physical infrastructure. Both companies bring expertise in the enterprise, data center, and Telco marketplace to contribute to the development of the CORD initiative. This paper will review the development of CORD through ONF and the drivers that allow new technologies such as 5G, Internet of Things (IoT), Artificial Intelligence (AI), Virtual Reality (VR) and Augmented Reality (AR), etc. to move forward. This is the first paper of a three-paper series on CORD. Later papers will discuss the physical infrastructure products that are required to have a successful CORD solution, as well as how to efficiently install and utilize these products.

WHAT IS CORD?

In the last decade, global telecom revenue (average revenue per user), has been stagnating or flattening. In that time period, traffic demands have increased exponentially to support millions of devices that are being connected, such as high definition video streaming and future applications including VR and AR. These demands have experienced a major spike during the recent pandemic period (COVID-19) when most office workers are required to do work activities remotely. This “pandemic bandwidth” has stressed Telco and ISP networks to the limit of their capacity. This trend and global events further widen the revenue and traffic gap (Figure 1).

Telco companies have been under increasing pressure to create efficiencies in both their capital expenditure (CapEx) and operational expenditure (OpEx). The central office is one of the key elements of a Telco network and consumes a big portion of expenditures. Technological convergence is pushing “open” data center technologies and architectures. These technologies and architectures have been deployed for many years in data centers. They provide major CapEx and OpEx efficiency, as well as improve business velocity and automation. The Telco industry will benefit greatly from both.

A pioneering initiative of disaggregating and virtualizing Telco networks, centered at their central offices, is being led by an organization called Open Network Foundation (ONF). The main goal of this initiative is to bring cloud economies to the Telco central offices, focusing on simplicity and system interoperability. CORD projects

deployed in the last few years have relied heavily on data center spine-leaf network architecture. This architecture is drastically different than how legacy Telco networks have traditionally been structured. At the very foundation of legacy Telco networks, 23” wide Telco racks, DC powered Telco equipment, and singlemode fiber connections have been the norm. With the shift to CORD, more traditional data center equipment will be utilized, opening a whole different section of infrastructure products. Some of these products are multimode fiber, AC power, UPS equipment, and Out-of-Band (OoB) management over category copper cabling.

Why Implement CORD?

CORD is essential to providing high bandwidth and low latency (Fronthaul and Backhaul) networks in traditional Telco Operator space. These networks are vital to the success of many new and emerging technologies.

Below is a list of drivers/technologies that could benefit from using these CORD networks:

Revenue Opportunities

CORD can present additional revenue opportunities for Telco providers. The evolution of network equipment with a smaller footprint has reduced the white space consumption by a significant amount (Figure 2). Telco providers are now presented with revenue opportunities through repurposing of this space. Some examples for additional revenue include edge colocation, 5G deployment colocation space, and many ancillary services that would be required (i.e.: remote hands, cross-connects, etc.).

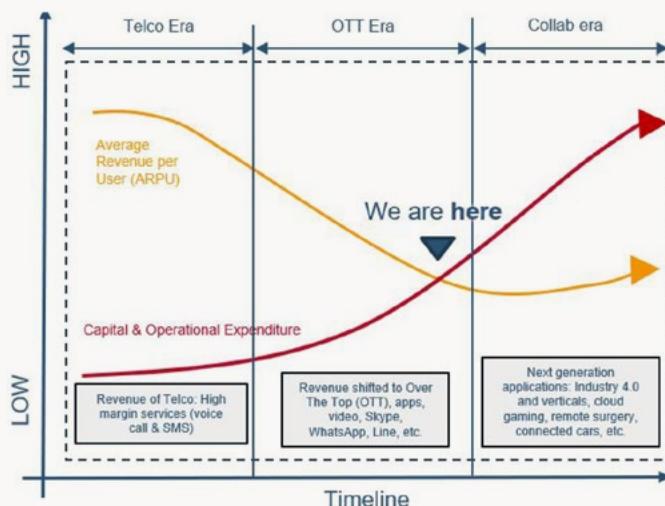


Figure 1

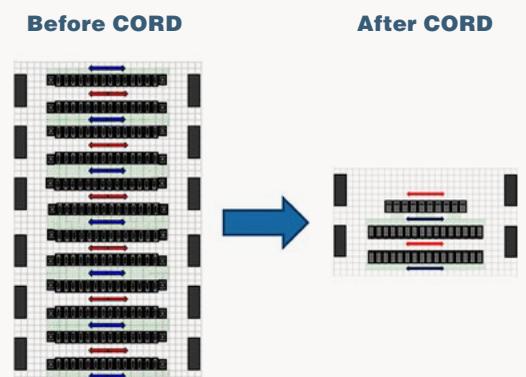


Figure 2

Speed of Delivery

These networks utilize 25/40/100 Gbps to support the new technologies and information-heavy exchanges to and from the end user. Below are some of the reasons CORD deployments in Telco CO's are well positioned for speed of delivery:

- \ Brick and mortar data center-like space already built and available
- \ Modularization for fast deployment
- \ Networks can easily support a mixed use of applications

A Telco managed edge will be an exchange point for information as current networks are not fast enough to make it to/from the data center to support AI and Industrial IoT applications.

Low Latency

Latency is the delay between a user's action and a web application's response to that action. The question is, how do we minimize it? This is achieved by locating key compute resources closer to end users. This reduces latency by presenting the shortest round trip "time of flight" through the network.

Examples where Low Latency is Important:

Online Gaming/Interactive Experience — Placing CORD facilities in municipalities where clusters of players are located enhances game experience by reducing player lag disadvantage for regional users.

Cost Savings and Revenue Generation — If the handful of most popular shows/movies streaming from a hyperscale facility can be cached in CO-based pods/containers located in remote key markets, all users will stream content more efficiently because streaming sources are disaggregated and closer to all users. This results in far less data back to the cloud which saves and/or generates substantial revenue for transactional businesses.

Latency in 5G Experience — The target latency for 5G digital business transformation is in the realm of 10-20ms (Figure 3). This can be achieved by carriers for their municipal customers by deploying CORD, hence mitigating buffering delays which occur in a large percentage of end devices.

The challenge for carriers providing CORD will be to guarantee highly available low latency services, particularly for enterprise customers who will need to depend on the network for mission critical applications. Minimizing latency by hosting applications closer to customers, CORD will enable reliable low latency networks from distributed data sources, across varied infrastructure and devices for FTTx, 5G, and carrier-grade Ethernet network services.

Ease of Future Scalability

Enterprise networks have a few things going for them that makes them easier to install/deploy, manage, and upgrade. Adopting these attributes will improve the ease of future scalability for Telco providers transitioning to CORD.

- \ Equipment is more readily available and from a wider selection of manufacturers
- \ Equipment is mostly AC powered with standardized plugs
- \ Network connections use LAN style cabling that is easily sourced and allows using pre-manufactured cables
- \ Enterprise network racks and cabinets allow 19" wide equipment rather than 23" wide, making for more efficient use of data center/CO space

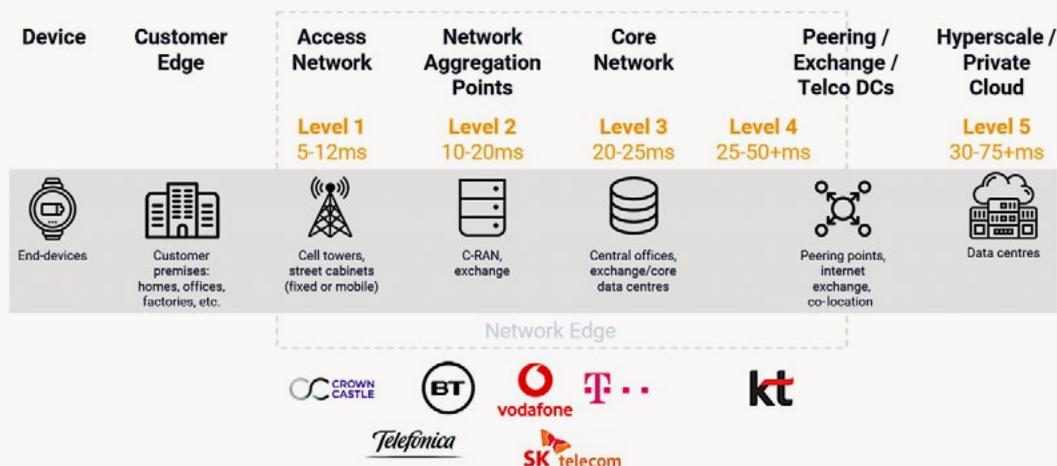


Figure 3
 Disruptive Analysis,
 Dave Burstein,
 STL Partners

CORD ECOSYSTEM

Open Networking Foundation (ONF)

The Open Networking Foundation (ONF) is a user-driven nonprofit organization focused on promoting the adoption of software defined networking (SDN) through open standards development. ONF has defined a reference design, encapsulating a group of operators interested in an assembly of components to build a platform.

Despite major development on the reference design of the projects, especially on the software side, Telco operators worldwide report they don't have a grasp of the physical infrastructure requirements for CORD projects. Upgrading legacy CO infrastructure to data center-like infrastructure is not straightforward and comes with unique challenges.

Major questions from Telco operators regarding physical infrastructure:

- \ What kind of future-proof infrastructure is required?
- \ Are there any integrated platforms based on CORD reference architecture that can be easily and readily deployed?
- \ How do we reuse or monetize the saved space of central office?

Currently, the ONF community consists of vendors that are focused on layer 2/3 infrastructure manufacturers (as in the OSI model) that are specifying the white box switches and routers, and system integrators that customize the reference design based on the customer's needs. System integrators and local installation teams, share that there is missing information on the physical infrastructure (layer 0), including on what kind of cabling system should be used, as well as cabinet/rack solutions, AC-powered equipment, etc.

Carriers/Operators

Carriers/Operators are the major decision makers/drivers behind the CORD initiative. Companies like AT&T, Comcast, T-Mobile, Verizon, NTT, Telefonica, and others are members of the ONF and are actively transitioning to CORD. Below are some of the physical infrastructure challenges that these carriers/operators are having to consider when moving to CORD:

- \ Differences in the infrastructure racks/cabinets and network cabling
- \ AC power and HVAC requirements
- \ Environmental and operational issues such as: building access, selling space and services, allowing customers to do their own installs

System Integrators (SI)

Carrier CORD deployments can be accelerated by System Integrators and custom professional services, which are provided by companies like WWT (World Wide Technology) and Radisys. Typical services offered by these entities are as follows:

- \ 'Reference' Pod designs
- \ System-level experimentation, testing and design verification
- \ Switch, server/storage integration, and validation
- \ Custom software design/certification, development, and integration/support including system automation and monitoring
- \ Assessment of support network, remediation design and development
- \ Installation, on-site testing/certification, and decommissioning



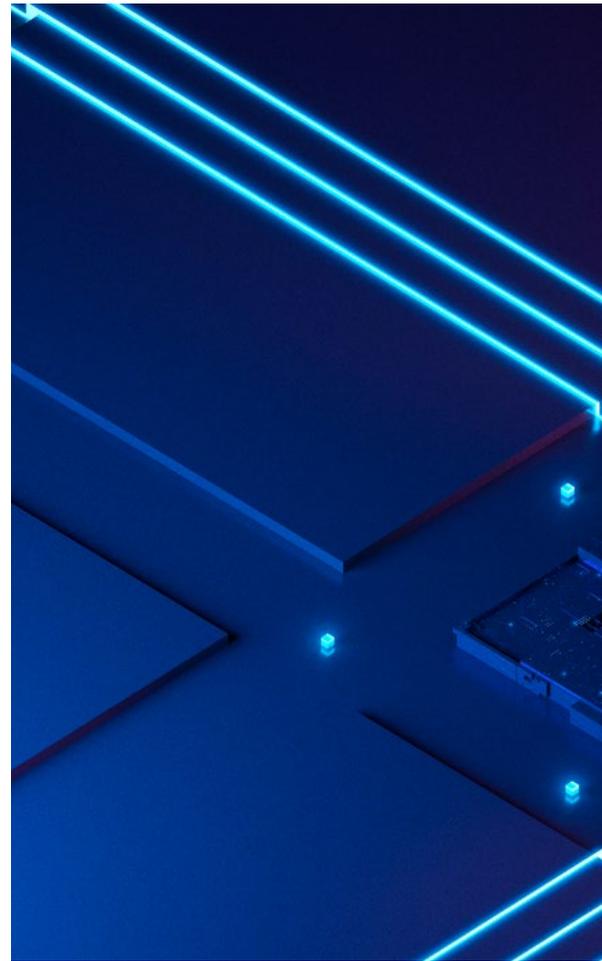
CORD based Infrastructure and Projects

CORD brings data center economics and cloud agility to the Telco central office by combining Network Function Virtualization (NFV) and Software Defined Networking (SDN). The open model for CORD uses commodity servers, white box switches, and open source software to deliver an extensible platform that supports a variety of application domains (e.g., enterprise, residential, and mobile), based on a common infrastructure. The following projects build the network infrastructure and services with CORD principles, allowing capex and open saving for service provider, while at the same time offering more services and future proofing their network deployments.

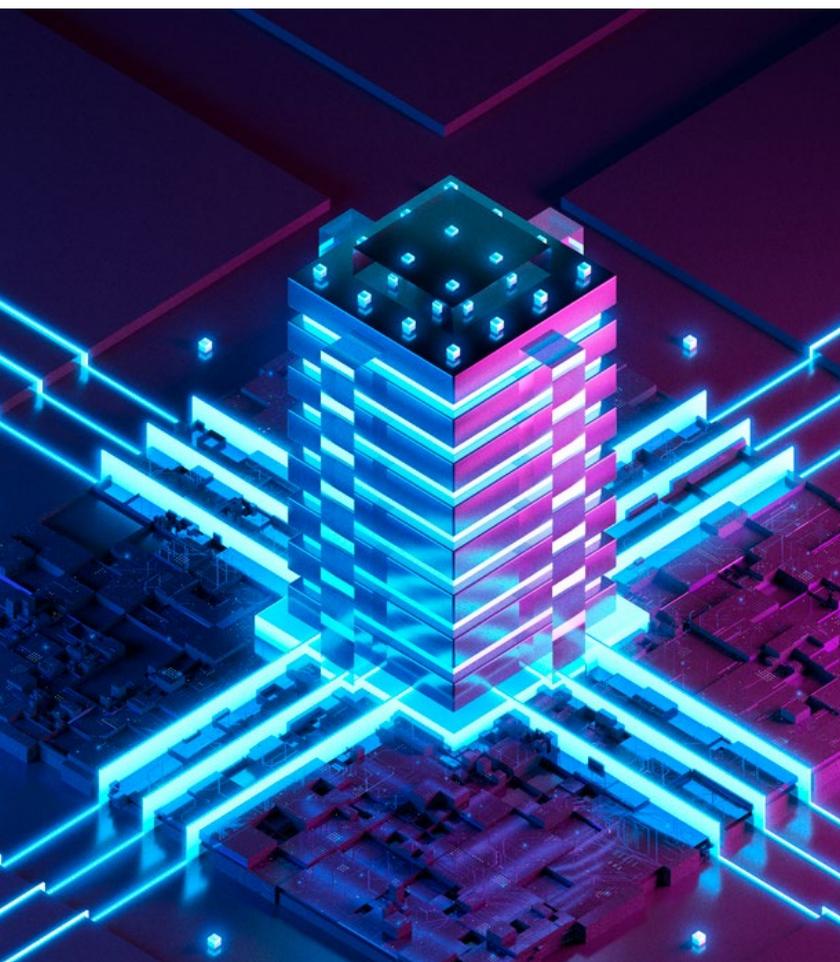
Trellis — A leading open-source multi-purpose leaf-spine fabric supporting distributed access networks, NFV and edge cloud applications. Trellis™ acts as the foundation of the CO deployment and is built using bare-metal switches with merchant-silicon ASICs. Trellis is currently deployed in production networks by a Tier-1 US network operator. Trellis provides classic-SDN Control with ONOS to achieve L2 forwarding (Bridging) within server-racks and L3 forwarding (Routing) across racks, MPLS Segment routing for better scale and reduced programming and control plane functionality with Trellis vRouter for external connectivity. High Availability and N-way redundancy is also provided.

SEBA — **SEBATM** is a lightweight platform for broadband access that supports a multitude of virtualized access technologies at the edge of the carrier network, including PON, G.Fast, and eventually DOCSIS and more. SEBA supports both residential access and wireless backhaul and is optimized such that traffic can run ‘fastpath’ straight through to the backbone without requiring VNF processing on a server. SEBA is comprised of VOLTHA, ONOS with Trellis and NEM (Network edge Mediator). VOLTHA, Virtual OLT Hardware Abstraction, currently provides a common, vendor agnostic, PON control and management system, for a set of white-box and vendor-specific PON hardware devices. On its northbound interface, VOLTHA abstracts the PON network to appear as a programmable Ethernet switch to an SDN controller. Major operators such as DT and Turk Telekom have SEBA and VOLTHA in production, others such as NTT, TIM, Telefonica and AT&T are at different stages of trials.

AETHER — Aether is the first open source Enterprise 5G/LTE Connected Edge Cloud platform. Aether provides cloud managed mobile connectivity and edge cloud services for distributed enterprise networks. Aether is optimized for multi-cloud deployments, and simultaneously supports wireless devices over licensed and unlicensed (CBRS) spectrum. Aether is delivered on top of commodity hardware and enables enhanced performance 5G mobile edge computing experience with networks and services supporting a disaggregated/virtualized evolved packet core (EPC) and a programmable radio access network. A micr-service based SD-RAN deployment is included. Aether opens up the 5G edge to cost savings with better programmability, new services and deployment agility, while introducing visibility and verification.



The open model for CORD uses commodity servers, white box switches, and open source software to deliver **an extensible platform that supports a variety of application domains**, based on a common infrastructure.



CONCLUSIONS

Panduit and Prysmian Group have joined forces to discuss CORD. This paper is the first in a series to support CORD deployments. The intention of this paper is to introduce the topic and provide some base knowledge of the value of CORD. We reviewed the development of CORD through ONE, explored the market drivers that require CORD, and a few of the applications that require the decreased latency in the network that CORD can provide. We also discussed some of the physical infrastructure considerations involved in CORD. The next papers will discuss the products that are required to have a successful CORD physical infrastructure solution, as well as how to efficiently install and utilize these products.

Authors

Brian L. Kelly — Manager, Network Architecture Research for Panduit's Corporate Research and Development Team

Brian manages a team of engineers that develop new physical infrastructure products/solutions used in data center, enterprise, and industrial segments. He has worked in the Telecom/Data Center industry for over twenty years at companies like Cable & Wireless, XO Communications (now Verizon), SBC (now AT&T), and Server Central, prior to starting at Panduit in 2012.

Ilham Nandana — Telecom Strategy Manager at Prysmian Group

Ilham is a strategy manager with global experience and proven track record in new business development and strategy projects.

Robert Reid — Sr. Technology Manager for Panduit's Data Center Connectivity Group

Robert currently defines product development direction for Panduit's fiber optic structured cabling product line. He has been active in the fiber optics industry for over 35 years, in the development of passive optical components, optoelectronic, and specialty optics systems.

John Shuman — Global Product Manager Telecom and Data Center at Prysmian Group

John has over 25 years experience in data center design and construction, Telecom networks, and passive optical distribution component design.

PANDUIT®

Since 1955, Panduit's culture of curiosity and passion for problem solving have enabled more meaningful connections between companies' business goals and their marketplace success. Panduit creates leading-edge physical, electrical, and network infrastructure solutions for enterprise-wide environments, from the data center to the telecom room, from the desktop to the plant floor. Headquartered in Tinley Park, IL, USA and operating in 112 global locations, Panduit's proven reputation for quality and technology leadership, coupled with a robust partner ecosystem, help support, sustain, and empower business growth in a connected world.

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Results for the first nine months of 2021 **recovered sharply**

**RECORD ORDER BOOK AT €4 BILLION, ORDER INTAKE AT €2.3 BILLION YTD,
WITH AN ACCELERATION IN THE USA**

€725 M

Adjusted EBITDA
expected range

€282 M

Free Cash Flow
expected range

“The results for the first nine months of 2021 confirmed we have returned to pre-pandemic levels,” commented Chief Executive Officer Valerio Battista. **“The recovery was positive across all businesses at a global level, with signs of further improvement in the third quarter.**

In particular, the Energy segment continued to show resilience and good recovery capacity. Telecom improved as well, driven by the demand recovery, chiefly in the USA, and by a better demand-supply balance in China. Projects resumed positive organic growth, with projections for a strong recovery in the fourth quarter. The strong organic sales growth was accompanied by a marked increase in Adjusted EBITDA and an improvement of margins, achieved also thanks to our customer focus and operating efficiencies that limited the impact of the increase in raw material prices and shipping costs. The recent mega projects in the United States have brought the total value of projects acquired year-to-date to €2.3 billion, confirming the leading role our Group is playing in the energy infrastructure development and upgrade plans. Although we confirm the prudence inherent in our management approach, I am confident we will be able to achieve the high end of the Adjusted EBITDA target range (€920 million–€970 million) set for FY 2021”.

Valerio Battista
Chief Executive
Officer



SALES

€9,294M, organic growth at +11.4% vs 9M 2020 (+1.5% vs 2019)

TREND ACCELERATED IN Q3

with +13.2% organic growth

ADJUSTED EBITDA

jumped to €725M (+12.1)

ENERGY ADJ EBITDA

significantly above 2019 pre-pandemic levels

GROUP'S NET PROFIT UP

soared to 255M (+82.1%)

ACCELERATION TO NET ZERO

CO2 emission target increased in the LTI Plan

SOLID CASH GENERATION

LTM Free Cash Flow at €553M

FY 2021 TARGETS

Confident of achieving high-end of the FY2021 ADJ EBITDA range (€920M–€970M)

Group Sales amounted to €9,294 million, showing a +11.4% organic change compared to the first nine months of 2020, excluding the Projects segment, with a sharp recovery across all businesses and in almost all geographical areas. The sales growth trend was solid enough to also exceed pre-pandemic levels, with a +1.5% organic change compared to the first nine months of 2019. This trend was also confirmed by the acceleration reported in Q3 2021, when sales showed a +13.2% organic change compared to the same period of 2020. In particular, the Energy segment confirmed the resilience and growth potential it had shown in 2020. The Telecom segment also recovered, mainly driven by the demand for optical cables in the USA. The Projects segment was also back on a positive trend, reporting the first signs of recovery in Q3, with acceleration prospects for the fourth quarter fuelled by submarine project execution.

Adjusted EBITDA grew by 12.1% to €725 million. The operating efficiencies achieved, along with thorough price management, helped to offset the impact on profitability of cost inflation (raw materials and metals) and the exchange rate effect (negative by €19 million for the first nine months of 2021) on the result. The ratio of Adjusted EBITDA to sales was 7.8%, equivalent to 9.0% when considering the price of metals on a like-for-like basis compared with 2020, an increase compared to 8.6% of the previous year. In detail, the Adjusted EBITDA of the Energy segment exceeded pre-pandemic levels, confirming its crucial contribution to the Group's stability and growth potential.

EBITDA grew to €700 million (€601 million in the first nine months of 2020) including net expenses for company reorganisation, net non-recurring expenses and other net non-operating expenses totalling €25 million (€46 million in the first nine months of 2020).

Financial results

Operating Income jumped to €488 million compared to €294 million in the first nine months of 2020.

Net Profit attributable to owners of the parent rose by +82.1% to €255 million compared to €140 million for the same period of 2020.

Free Cash Flow In the past twelve months, the Group generated a Free Cash Flow of €282 million (excluding €80 million cash out for the dispute with antitrust authorities and €81 million relating to acquisitions). The increase in operating net working capital in the past twelve months remains limited, despite the strong negative impact of the increase in prices of metal and other raw materials.

The main factors that enabled the generation of the Free Cash Flow were:

- \ net operating cash flows (before changes in net working capital) amounting to €825 million;
- \ net cash flows generated by the €56 million increase in net working capital;
- \ net cash flows for payments related to restructuring amounting to €37 million;
- \ cash outflows for net investments amounting to €248 million;
- \ net finance costs paid amounting to €77 million;
- \ taxes paid amounting to €133 million.

Net Financial Debt at the end of September 2021 amounted to €2,663 million (€2,669 million at 30 September 2020)





Network infrastructures for power transmission and distribution and broadband and ultra-broadband telecommunications play an essential role in the global decarbonisation process.

CHALLENGES AND OPPORTUNITIES POSED BY THE **ENERGY TRANSITION AND DIGITALISATION**

The Green Deal in Europe and President Biden's Plan in the USA represent a strategic growth opportunity for Prysmian Group, with cable and optical fibre technologies able to satisfy the need for upgrading and developing network infrastructures. Forecasts call for significant growth in the demand for power transmission cables and systems, until reaching an average of over €7 billion projects a year in the 2020-2030 period, compared to an average of about €2.4 billion in the 2015-2019 period.

In order to face the major technological and industrial challenges ahead and grasp the related opportunities, the Group is planning important investments (CAPEX) of up to €350 million on average a year from 2021 to 2025, to include building a new submarine cable plant in the USA. Technology innovation, supported by R&D costs of over €100 million a year, is a distinctive strength of Prysmian, which is committed to developing environmentally sustainable cable systems with higher transmission capacity and able to cover record distances and sea depths.

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