ACOME INSIDE

Connection makers

#2 Carbon transition

Getting ready for a carbon neutral future

Decarbonising our industry

Supporting our customers in their carbon transition

ACOME

ACOME INSIDE #2 Carbon transition

While its first issue looked at innovations in 2020, ACOME Inside magazine is now focusing on the carbon transition, a theme that is central to global concerns.

As an industrial player and a supplier to industrial sectors committed to the transition to carbon neutrality, we are doubly affected by this subject.

In this special issue we will examine our vision, commitments and actions more closely. Environmental concerns are not new at ACOME, but they are taking on a new dimension.
We are adapting our processes and products and supporting our customers in their transitions.

To facilitated the discussion, we asked experts from our main automotive and telecoms markets to further clarify their own issues.

We hope that this special issue will communicate our vision, commitments and ambitions for sustainable development and a carbon neutral future.

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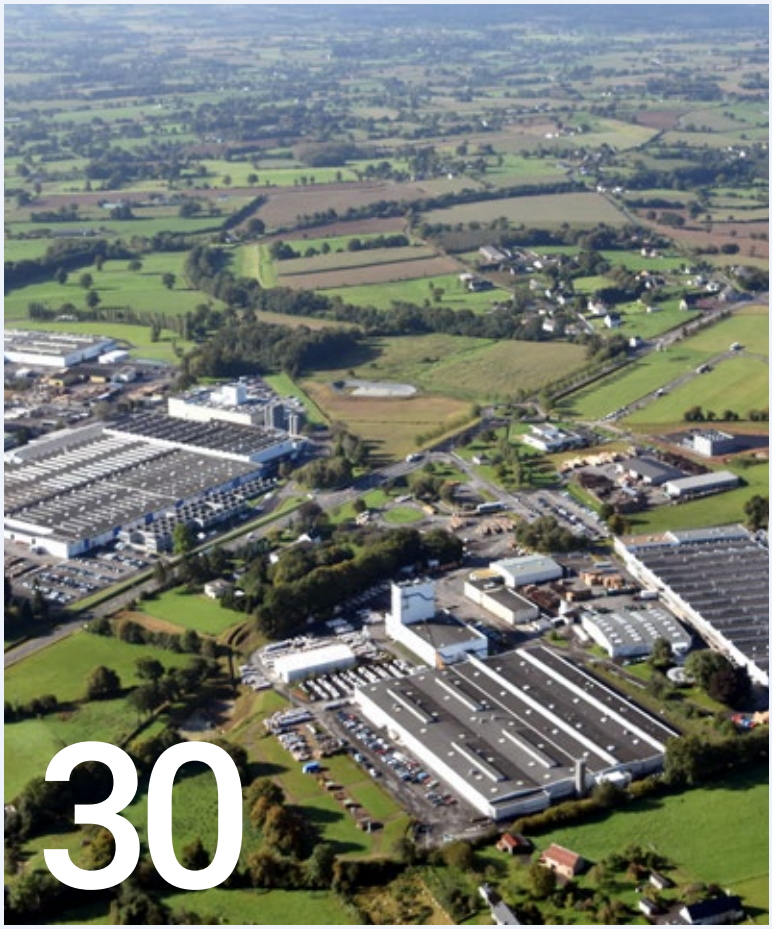

Contributors

Environmental concerns are grounded in the practices used by ACOME's staff. The contributors come from a wide range of Divisions – R&D, production, HSE, marketing, etc. – and several sites. ACOME's commitment to reducing its carbon footprint knows no bounds.

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● Editorial

Reducing the carbon footprint of ACOME and its customers

Jacques de HEERE
Chairman and Chief Executive Officer of the ACOME Group

//////////////////////// We are a SCOP, a cooperative and participative company. This is a fundamental factor in our approach to energy, the environment and the climate transition: corporate social responsibility is written in to our Articles of Association.

From the early 1990s, the environment became an integral part of our corporate responsibility strategy. Over the years we have taken numerous initiatives to promote CSR and to design environmentally-friendly products, we also helped to found the PEP Eco© association. As such, we are committed to reducing the impacts of our cables over their entire life cycle.

Taking action to address the environmental challenges of our industry

ACOME is on track to become a carbon-neutral company by 2050. This will be achieved in stages. The first step is to integrate the goal into the ACOME 2025 strategic plan and each strategic project. Our roadmap for 2025 will clearly describe this goal. We are careful to avoid greenwashing and to make sure our words result in actions.

ACOME is reducing its emissions by improving the energy efficiency of its industrial facilities and gradually decarbonising its sector. The last plant built by the Group in Morocco received praise for its sustainable environmental practices, which approach "zero carbon", "zero emissions" and the recycling of raw materials. This environmentally-responsible approach is in effect at all our industrial sites in Europe, Asia and South America. Carbon offsetting is also implemented through our involvement in the Normandie Forêver association, of which ACOME was a founding member in 2013.

Taking action to support our customers in their carbon transitions

ACOME takes consistent action to reduce the environmental impact of its products.
Innovation is at the heart of our strategy to help meet the environmental challenges facing our ecosystem. Research into new bio-sourced materials, the development of zero-smoke insulation, the recycling of cables, the conservation of natural resources and the optimisation of logistics are the main drivers.
We work in close partnership with our major customers, who are also setting out roadmaps for their low-carbon strategies.

As a responsible manufacturer and leader in the sector, our mission is to provide sustainable solutions in the development of networks. We work to ensure that the company remains sustainable by upholding our fundamental cooperative values.

Our raison d'être has been enshrined in our Articles of Association since 2019 (PACTE law). It guides our entire strategy.

● Interview

Firmer commitments to carbon neutrality

Alban ERACLAS
ACOME's Group Performance, Quality and CSR Director
His mission: to lead the Group in its carbon transition through the decarbonisation of its industrial facilities, reducing the carbon footprint of its products and raising awareness among its stakeholders.

How does the ACOME Group address the environmental transition in its strategy?

Alban ERACLAS: Sustainable development and corporate social responsibility are at the heart of our strategy; they are inherent in our status as SCOP. The ACOME 2025 strategic plan stipulates that all strategic programs and projects must demonstrate that they contribute to an overall reduction in the company's environmental footprint and they enhance sustainable development.
Many players are taking a position in our sector. We have decided to submit the expected results of our action plan to the Science Based Target Institute (SBTi) before releasing them.
Obviously, we did not wait until 2021 to take action. ACOME has become a pioneer in many areas of CSR. The position of Environment Manager was created in 1992, and we received the 1st regional environmental prize, awarded by Mrs Corinne Lepage, Minister of the Environment, in 1996. It is a matter of pride, and responsibility above all. We have continued to make progress since then, with the first ACOME manufacturing facility in France receiving ISO 14001 certification twenty years ago. All our international subsidiaries are now certified to the latest version of this standard. Since 21 October 2005, the Group has been adhering to the ten principles of the Global Compact, and it joined the French Business Climate Pledge in 2021.

How is the environmental transition reflected at the Group's industrial sites?

A. E.: We are continuously adapting our production methods and reducing our energy consumption and emissions. Our goal is to create an industrial system that consumes as little energy and natural resources as possible. We have defined a set of best practices for the operation of our industrial buildings, which we apply to all new constructions. The Tangier plant (Morocco) is a good example in terms of energy and waste, and it was awarded ISO 14001 certification, 2015 version, just two years after it was commissioned. In terms of responsible management, our industrial site in Irati (Brazil) was awarded the Paranà State label in 2019 and again in 2020, highlighting the measures and action plans we implemented to reduce greenhouse gas emissions.

How do you incorporate it into product design?

A. E.: We launched the ecodesign approach, which includes life cycle analysis, in 2006. We were one of the first cable manufacturers to publish environmental profiles for our products (PEP). These define the carbon footprint of each product according to a certified methodology. Over the years, we have declared 86 PEPs for 413 products. We were one of the founding members of the PEP Ecopassport© association and we are helping to roll it out at the European level. We also pioneered

the marketing of cables with fireproof zero-halogen sheaths for buildings in 1998. Our approach to innovation continues unabated with the aim of reducing the consumption of materials, recovering production waste and developing recyclable plastics.

"ACOME has been a pioneer since the 1990s, it continues to be a pioneer and is determined to continue to progress."

What part do you play in spreading these messages outside the company?

A. E.: We strive to take the lead within our sphere of influence. As we have 9 companies in Normandy, we created the Cercle Drakkar, the first network of companies to take sustainable development issues into account in their strategies and management processes. The network promoted the SD 21000 guide, which became the ISO 26000 standard in 2010. When the first Global Compact circle in France was created in Normandy, ACOME immediately became an active member.

We are looking to change behaviours both within the company and externally. Several families of employees took part in the Positive Energy Families challenge and we created the Normandie Forêver association in 2003. The association, of which ACOME is a founding member, has overseen the reforestation of some thirty hectares of wasteland and to offset a large amount of GHGs through these carbon sinks.

ACOME 2025 GOALS

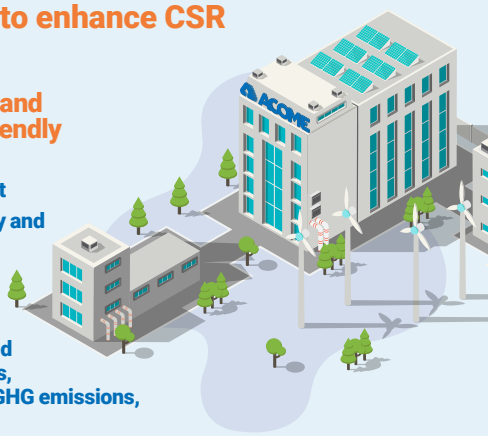
Our social commitment

"All projects and action plans must demonstrate their contribution to an overall reduction in the company's environmental footprint and an enhancement of sustainable development."

Materiality analysis: 4 priority areas to enhance CSR

A reliable, efficient and environmentally-friendly manufacturer

- Resource management
- Preserving biodiversity and anchoring activities in the regions
- Improved environmental performance (water and atmospheric emissions, energy consumption, GHG emissions, industrial waste, etc.)



A responsible offering that takes the needs of customers and partners into account

- Eco-design
- Eco-responsible products and services

Placing people at the heart of the company

- Health and safety at work
- Education
- Quality of life at work
- Organization and sustainability

Values and ethics

- Sharing of values
- Risk management and oversight
- Responsible purchasing
- Certifications and accreditations

● Dashboard

Goal: integrating climate issues into our CSR strategy

ACOME has been voluntarily formalizing its commitments for over 30 years. Conserving resources, energy and materials in order to reduce emissions and the environmental footprint is at the heart of all employee actions. Through its strategic plan for 2025, the Group is making significant commitments towards carbon neutrality.

Sustainable development and CSR: firm commitments

Without waiting for the Paris Climate Agreement to be ratified, ACOME has incorporated the concepts of corporate social responsibility and the ecological transition into all its action plans. The illustration below shows the timeline of its commitments, which are often made in advance of the corresponding directives and regulations.

1992
Creation of the position of Environment Manager

1996
1st Regional Environment Prize awarded by the Minister of the Environment, Corinne Lepage

1998
ACOME becomes the leading manufacturer of zero-halogen green products, wires and cables

2000
ISO 14001 certification of the Mortain, then Wuhan, Xintai and ACOME do Brasil sites

2004
ACOME and 9 other companies in Normandy embark on an initiative, led by AFNOR, to lay the foundations for a CSR policy (Cercle Drakkar)

2005
Membership of the UN Global Compact

ACOME pursues its goal to be recognised as a major player in the environmental transition,

both at its sites and terms of the solutions it offers to its customers, and to be ranked among the most responsible companies in the world. ACOME is the first mid-cap to be ranked in the top 250 most responsible French companies (208th place in the 2021 rankings published by Le Point magazine on 12 November 2020).
As part of the ACOME 2025 strategic plan, the Group is accelerating its carbon neutral plan: each project and action plan must demonstrate a contribution to an overall reduction in the environmental footprint and to an enhancement of sustainable development.

Coordination of CSR themes and SDGs

These commitments are rooted in our support for the UN Global Compact and the 17 Sustainable Development Goals (17 SDGs) included in it. They are based on the sustainable development guidelines published by the Global Reporting Initiative (GRI-G4).

03. HEALTH AND WELL-BEING

- Placing people at the heart of the company

04. QUALITY EDUCATION

- Placing people at the heart of the system

05. GENDER EQUALITY

- The ACOME model: values and ethics

06. CLEAN WATER AND SANITATION

- A reliable, efficient and environmentally-friendly manufacturer

07. AFFORDABLE AND CLEAN ENERGY

- A reliable, efficient and environmentally-friendly manufacturer

08. DECENT WORK AND ECONOMIC GROWTH

- Placing people at the heart of the company
- The ACOME model: values and ethics
- A reliable, efficient and environmentally-friendly manufacturer
- A responsible offering that takes the needs of customers and partners into account

09. INDUSTRY, INNOVATION AND INFRASTRUCTURE

- A responsible offering that takes the needs of customers and partners into account

10. FEWER INEQUALITIES

- The ACOME model: values and ethics

12. RESPONSIBLE CONSUMPTION AND PRODUCTION

- A responsible offering that takes the needs of customers and partners into account

13. MEASURES TO COMBAT CLIMATE CHANGE

- A reliable, efficient and environmentally-friendly manufacturer

15. TERRESTRIAL LIFE

- A responsible offering that takes the needs of customers and partners into account

16. PEACE, JUSTICE AND EFFECTIVE INSTITUTIONS

- The ACOME model: values and ethics
- A responsible offering that takes the needs of customers and partners into account

17. PARTNERSHIPS IN THE COMPLETION OF GOALS

- The ACOME model: values and ethics

Key:

- ACOME's CSR strategies correspond to those of the SDGs

2006

Launch of the Ecodesign approach. Life cycle analysis (LCA) during the new product development stage

2007

Sustainable development charter and 1st sustainable development report. 1st PEP (Product Environmental Profile)

2009

ACOME, a founding member of the PEP Ecopassport© association

2010

Presentation of the responsible purchasing policy and 1st awareness-raising meeting with suppliers

2012

1st evaluation of the CSR policy by EcoVadis

2013

Creation of the Normandie Forêver association for local reforestation and the carbon transition in Normandy

Key figures on the use of resources

(ACOME consolidated data)

		2020	Variation 2020 / 2018
Water	% of industrial water in total water consumption	75%	+5%
	Industrial water	49,556	+9%
	Mains water	16,704	0%
Industrial waste	% of waste recovered in France	79%	+1%
	% of industrial waste recovered	79%	-4%
Raw materials	Quantity of waste copper in tonnes	1,395	-18%
Energy	Total electricity consumption (in MWh)	53,702	-13%

ACOME certifications and recognition by international ranking

Since 2019, all the industrial cable manufacturing sites have been ISO 14001 certified, 2015 version. All quality, safety and environmental certifications were confirmed or renewed in 2020 (see map) and ACOME Morocco obtained its Health and Safety at Work certification in accordance with ISO 45001. This means that the entire quality, environment and health/safety management system at the Tangier subsidiary has been certified according to the latest applicable standards in barely three years.

IDEA OPTICAL, a subsidiary specialising in the design and manufacture of optical patch and connection equipment, has in turn initiated the certification process for its own management system.

The independent international organization EcoVadis has been assessing ACOME's CSR performance since 2012. In April 2020, ACOME achieved an overall score of 64/100. ACOME is now in the top 4% of companies working in the "Manufacture of cables and cabling devices" sector according to Ecovadis.

AFNOR also assessed ACOME's CSR performance based on the Acesia framework for the first time in 2020. It was awarded a score of 97/100.

2015 OHSAS 18001 certification for the Mortain site

2016 Construction of a plant in Tangier (Morocco) using solutions impacting energy use and environmental issues

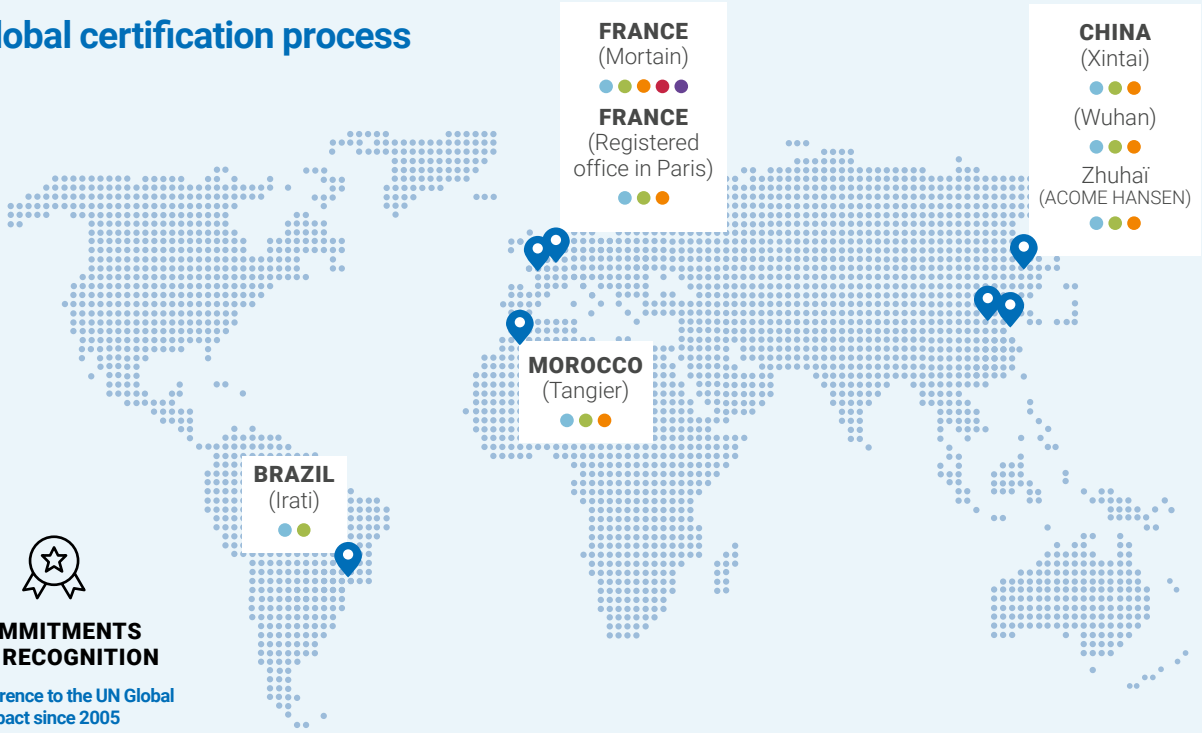
2016 ACOME's CSR approach certified "GOLD" by EcoVadis.

2017 OHSAS 18001 certification for the Mortain site

JAN. 2017 ACOME makes the cable sector's 1st voluntary declaration regarding the environmental and health performance of its products (FDES) in the INIES database for buildings

APRIL 2017 ISO 14001 certification, 2015 version, of the Xintai, Wuhan, Irati, Mortain and Paris sites

A global certification process



COMMITMENTS AND RECOGNITION

- **Adherence to the UN Global Compact since 2005**
- **EcoVadis label**
  In 2020, ACOME was ranked in the top 4% of companies in the «Cable and cabling device manufacturing" sector
- **PRS Green label**
- **CLIMATE PARANÀ label**
  (ACOME Do Brasil)
- **Normandie FORÊVER**
  Creation of a carbon sequestration fund through reforestation of poor plots of land
- **AEO Authorised Economic Operator**
  ACOME has obtained this European quality label for customs and safety-security processes, which is recognized internationally

FIRE TEST LABORATORY

- **Cofrac accreditation: fire test laboratory**
  ISO CEi 17025:2017
  Accreditation No. 1-1114.
  Scope available at www.cofrac.fr

CERTIFIED MANAGEMENT SYSTEM

- **Quality management**
  ISO 9001 version 2015
  IATF 16949 version 2016
- **Environmental management**
  ISO 14001 version 2015
- **Occupational health and safety management**
  Safety standard (China)
  ISO 45001 (France, Morocco)

A recognised CSR approach

Adherence to the UN Global Compact since 2005

EcoVadis assessment: 64/100

ACOME ranks in the top 4% of all cable and wiring device manufacturers who have been evaluated

Acesia assessment 2020: ACOME performance 97/100

DEC. 2017 – "Safety standardization" certification of Xintai and Wuhan

SEPT. 2018 – Materiality analysis and formalisation of the Group's CSR strategy

NOV. 2018 – Regional Best Practices Jury Award for the "Positive Energy Families" Challenge for ACOME employees

2019 – External audit of the new Declaration of Non-financial Performance (DPEF)

2020 – ISO 45001 certification for the Tangier site

2021 – ISO 45001 certification for the Paris and Mortain sites

2021 – Adherence to the French Business Climate Pledge and FRET 21 commitments to limit GHG emissions related to transport

Ready for a zero-carbon future?

Achieving carbon neutrality by 2050 has become an essential objective for industry. What are the challenges we face? How does our ecosystem deal with the challenges associated with global warming? We called upon major players in our markets to formulate a response.

How can we contribute to carbon neutrality?

Integrating the challenge of global warming

Climate change affects all countries on all continents, it disrupts national economies and threatens lives and regions. Rising sea levels, more extreme weather events and biodiversity loss are other consequences of rapid climate change.

The Paris Climate Agreement, adopted in 2015, aims to strengthen the global response to the threat of climate change by maintaining the rise in global temperatures this century to below 2°C compared to pre-industrial levels. It calls for society to achieve carbon neutrality in the second half of the 21st century and sets an initial target of reducing greenhouse gas emissions by 45% by 2030.

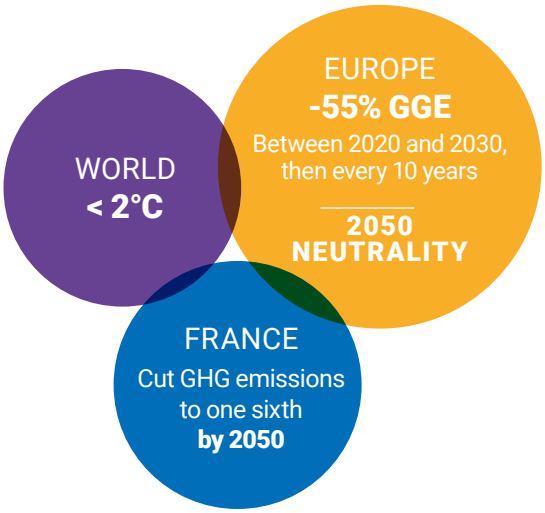
2015 Paris Conference on climate change.

PARIS2015
COP21·CMP11

In December 2019, the European Commission unveiled its Green Pact for Europe, a plan to make Europe climate neutral by 2050.

With 2019 being the second warmest year on record and CO_2 and other greenhouse gas levels reaching new records, long-term systemic changes are needed to change the trajectory of atmospheric CO_2 levels. Being energy-intensive, industry remains one of the main emitters of greenhouse gases worldwide. The challenges are considerable!

Climate: a political challenge and a global industrial challenge



"2020 was one of the three hottest years on record."

continued

Definition

Carbon neutrality

Carbon neutrality implies a balance between greenhouse gas emissions and the absorption of carbon from the atmosphere by carbon sinks.

A carbon sink is a system that absorbs more carbon than it emits. In nature, these include soil, forests and oceans. It may also involve industrial processes for CO_2 capture and storage.

IDATE

"The Digital Domain is becoming more aware of its impacts"

In that technology is both a tool and a challenge for the carbon transition, tech firms are now becoming aware of their responsibilities. Mathieu Bec and Prune Esquerré, two experts from the European think tank IDATE DigiWorld, share the conclusions of the "Digital and Ecological Transition" White Paper published by IDATE DigiWorld, they go on to analyse the environmental impacts of digital technology, which can also provide solutions to the crises we are experiencing.

What are the impacts of technology on the environment?

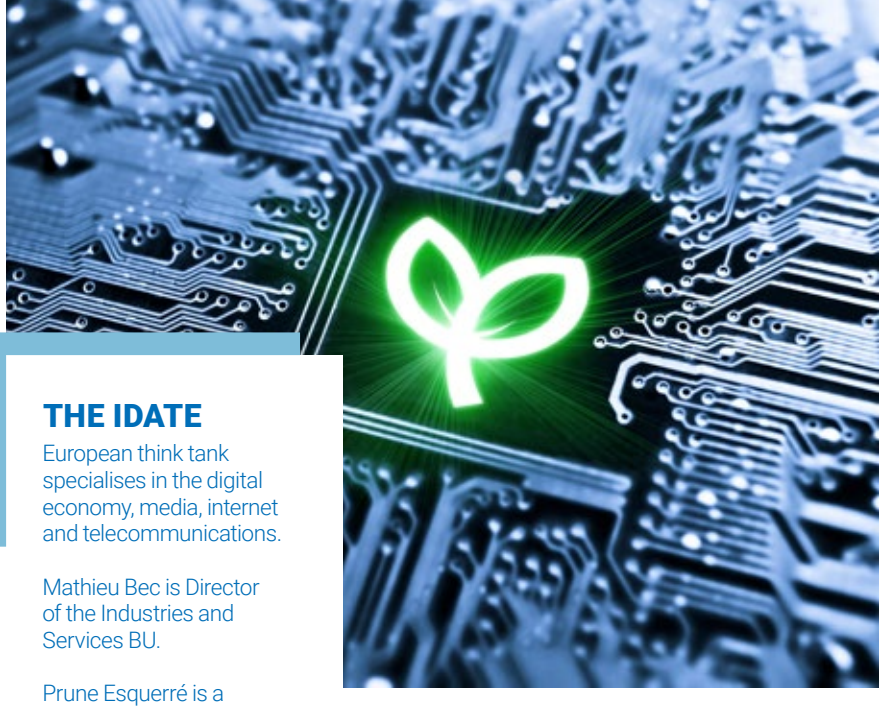
Prune Esquerré: It is estimated that digital technology accounts for 2-4% of GHG emissions and 4-9% of electricity consumption worldwide. It leads to the depletion of certain natural resources such as rare metals, as well as the water needed to extract these metals and produce energy. For example, a computer requires 1.5 tonnes of water during its manufacture. Computer components include cases, the small OMT boxes connecting the fibre and the terminals. Their manufacture and use have greater impacts than the network infrastructure itself. The manufacture of terminals alone accounted for 76% of the total tech sector GHG footprint in France in 2020, according to the Green IT study.

Should technology be considered a climate hazard?

P. E.: Comparisons are often erroneously made with civil aviation, which accounts for around 2% of global GHG emissions. The big difference is that 12 million people take flights each day, while technology is used by nearly 5.1 billion people every day. Positive externalities must also be balanced at the societal level – particularly in terms of inclusion – and even the environmental level. Some applications, such as mobile banking in Africa, for example, save a lot of emissions due to journeys saved.

Can it also be considered as a solution to the environmental crisis?

Mathieu Bec: Digital technology provides many opportunities to overcome environmental challenges. Connected objects, sensors, smart grids and smart meters can promote the ecological transition. Digital technology is a formidable measurement tool, the possibilities of which are enhanced by big data and artificial intelligence. It can enable us to



THE IDATE

European think tank specialises in the digital economy, media, internet and telecommunications.

Mathieu Bec is Director of the Industries and Services BU.

Prune Esquerré is a Consultant within the Industries and Services BU/

better understand the environment and the major sustainability challenges we face, and has other impacts such as smart energy systems, smart transport systems, smart cities and smart homes with connected objects, sensors, smart grids and smart meters, as long as a responsible approach is taken to technology.

How should we approach the digital duality?

M. B.: Innovation should not be hindered. For example, thanks to the automatic standby function in 5G base stations, and the use of AI to optimise network management based on real-time traffic, 5G antennas consume ten times less electricity and energy than 4G antennas for identical data volumes. Upstream of potential gains in terms of energy efficiency, however, we also need to conduct life cycle analyses* and ask questions about impacts incorporating the principles of utility, sustainability and sobriety into the design of digital services.

Are operators now stepping up to their responsibilities?

P. E.: They are aware of the issues in play and many of them are looking to produce and use green energy, to increase recycling, to use sequestration and offsetting of their GHG emissions... To do better while aiming to achieve a zero-carbon digital economy by 2050, we need to be able to involve suppliers in these approaches and also to act collectively when required. According to the Shift Project, extending the life of laptops from 3 to 5 years would reduce GHG emissions by around 40%. Digital sobriety also covers – above all – the use of technology!

*The Life Cycle Analysis (LCA) is used to assess consumption and emissions from the extraction of raw materials to end use.

2 to 4%

of global GHG emissions are related to technology, which is used by 5.1 billion people each day.

ACOME

3 questions

Gabriel Flichy

Director of fibre deployment and engineering at Orange

"To achieve our carbon targets we need to have creative suppliers"

How are you incorporating the 2050 carbon neutrality target into your business?

Orange has announced it is aiming for carbon neutrality by 2040, ten years earlier than the sector through the commitment made by the GSMA*. To achieve this, we are initially focusing on effective emissions reductions by adapting our activities and offsetting our fixed emissions. The challenge is that the biggest block – indirect emissions – are more difficult to reduce.

What are your priorities?

We have identified five priorities: reducing electricity consumption in our networks, developing renewable energies, optimising travel, reducing CO_2 emissions in interventions, using the circular economy and supporting our customers towards more responsible uses of digital technology. By 2025, our goals include reducing our CO_2 emissions by 30% compared to 2015 and sourcing 50% of our electricity from

* global industry representative for mobile phone operators.

continued

renewable sources. Furthermore, all Orange products will be environmentally-friendly and we will collect 30% of mobiles at the end of their life.

What commitments do you expect to obtain from your suppliers?
They should be taking initiatives in terms of ecodesign, repairability, waste management and logistics optimisation. More generally, they must identify the right questions affecting the use of resources and must be proactive. There are a number of areas in the cable sector in particular (technologies that are less intensive in terms of raw materials, the impact of drum storage, recycling of materials, etc.). We need to talk about it together to ascertain those practices that are most virtuous. This is particularly the case with ACOME's Carbon Day.

AUTOMOTIVE

"The automotive sector is facing many climate challenges"

The automotive industry is now at the crossroads of several major trends and is subject to an increasing number of environmental constraints. Éric Espérance and Emmanuel Fages, two experts from the firm, Roland Berger Paris, agreed to explore the challenges surrounding this upheaval and to discuss how car-makers could or should seek to reposition themselves.

What are the current drivers in the automotive sector?

Éric Espérance: The automotive industry is currently struggling with GHG emissions regulations on all continents: CAFE standard in the United States, WLTP in Europe, CAFC in China. These standards set limits, particularly in terms of CO_2 emissions, which constrain manufacturers in very specific ways. One European manufacturer, whose fleet still emitted on average 121 g/km WLPT instead of the 95 g of CO_2/km tolerated in 2021, received €1.8 billion in fines, i.e. the equivalent of the group's earnings between 2019 and 2021. This trend is significant because the WLTP standard will drop to 81 g of CO_2/km in 2025 and many cities have announced a ban on combustion vehicles in 2030.

How do these constraints materialize in the market?

E. E.: Of the four factors driving the transformation of the sector that we have identified (mobility / autonomy / digitisation / electrification), some depend directly on them. Limits on CO_2 emissions dictate manufacturers' efforts to reduce vehicle weight and to electrify them. The advances in this area has been striking: the market share of elec-

tric vehicles, currently at 30%, is expected to jump by 2% by 2030 in Europe. Many manufacturers say they will simply no longer sell combustion-engined vehicles from 2025. Other underlying trends such as digitisation – to which connected mobility is very closely linked – and autonomous vehicles also require a significant amount of R&D, even though the fantasy of a 100% autonomous car is fading, for the moment at least.

How do these changes impact the strategic positioning of the players involved?

E. E.: Manufacturers are having to make very heavy investments to comply with green regulations. This requires the sale of non-strategic assets and significant consolidation – both among manufacturers and OEMs. Some are partnering with GAFAM to develop their operating systems, and with Chinese companies for the supply of batteries.

Emmanuel Fages: Alongside the extraordinary acceleration in embedded technologies, there is also a growing convergence between the automotive and energy sectors in terms of charging infrastructure. Vehicles will become a part of the network, requiring more power on the one hand, but offering solutions to store the grid's excess power, on the other. There are also major technical cooperation issues between manufacturers regarding battery types, energy management and payment software.

Is the zero-carbon horizon a realistic target for the automotive industry?

E. F.: Many manufacturers have already made zero-carbon commitments. It is not enough to focus on car emissions during their use and on batteries, we need to look at the entire life cycle analysis. This requires measuring the carbon required to manufacture the car itself, as well as interim consumption, as well as the energy efficiency of the manufacturers' factories and those of their suppliers... For a car that can be 98% recycled, the issue of recycling will be crucial. The goal of carbon neutrality will require stronger cooperation between manufacturers and their suppliers, who will have to make significant moves towards bio-sourced and/or renewable materials.

> "The goal of carbon neutrality will require stronger cooperation between manufacturers and their suppliers, who will have to make significant moves towards bio-sourced and/or renewable materials."

Given the upheavals in the sector, what specific challenges do you see for embedded cables?

E. E.: Increasingly rapid charging will require upgrades to the electrical grid and also larger cables in the cars themselves. The increasing use of AI in connected vehicles also requires more cables, although this can be offset by streamlining electronic architectures and reducing the number of computers and cables, as well as the cross-sections of cables. The issue of vehicle weight must also be taken into account, reducing the number of wires, or replacing copper with aluminium, can save up to 40% of the vehicle's weight. For ACOME, these topics are all avenues requiring innovation and development. Reducing vehicle weight remains a priority. The harness, which weighs between 110 and 120 kg, is the second heaviest component in a vehicle after the engine (150 kg for a C-segment). Supplying 20% lighter cables would save between 20 and 22 kg, which manufacturers are prepared to take advantage of. In this way we can better measure the challenges facing ACOME.

Roland Berger is the largest management consulting firm of European origin.

Established in France in 1990, the Paris office employs 300 people. It advises companies and public institutions on all issues ranging from strategic advice to operational implementation.

Éric Espérance is a partner in the Automotive Skills Centre; Emmanuel Fages is a partner in the Energy & Utilities Skills Centre.

What levers can be used to reduce the ecological impact of our business?

ACOME has historically been committed to reducing greenhouse gas emissions from its direct activities. The Group is also increasingly focusing on understanding its indirect impacts. These actions contribute to the global carbon neutrality targets for 2050.

Adapting our processes

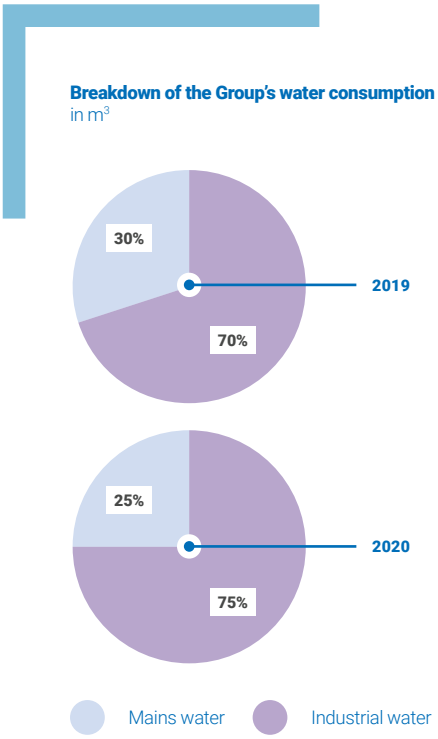
Producing environmentally responsible products at all our sites to reduce our carbon footprint

MAJOR TOPICS

The cable industry is very energy-intensive – particularly in regards to the extrusion process which requires high temperatures – and highly resource-intensive: water is essential in the wire drawing and extrusion processes and metals and polymers (compounds) are required to make the cables themselves.
Energy is the Group's 4th biggest expenditure item. Together with waste management and recycling, it is ACOME's main focus. The consumption of water and other resources – rare earth metals in particular – is also closely monitored.

HOW DO WE TREAT THEM?

ACOME's environment and energy policy is based on the use of different environmental management approaches at each site. Measuring consumption and its environmental impact is the primary goal of the policy. Energy consumption and atmospheric emissions are closely monitored. Industrial water supplies are used at all the Group's plants to save on urban water consumption. In 2020, 75% of the Group's water consumption was industrial water. Changes in waste production are also monitored by analysing the ratio between output and waste. These actions directly contribute to our understanding of our environmental footprint and help to mitigate it. In support of this programme, employees throughout the Group are informed about all environmental protection campaigns.
We also practice carbon offsetting through our involvement in Normandie Forêver.
These procedures are all assessed as part of the ISO 14001 certification process, which covers both the parent company and its international subsidiaries.



Energy consumption savings

The specifications for new equipment must include energy performance requirements, even in the design of the manufacturing process. ACOME systematizes the use of high-efficiency engines when replacing equipment in order to reduce electricity consumption. These engines, which are less energy-intensive, provide 10% savings in terms of electricity consumption. Furthermore, the transformation of the cable industry from copper to fibre optics is also reducing consumption. Fibre cable production is actually more energy efficient.

continued

At Xintai, modifications to the compressors created 30% energy savings. The Group is also rolling out LED lighting at its various sites.
The hydraulic pumps at the two Wuhan plants have also been replaced with variable frequency pumps. These new units adapt to the water temperature (unlike the old pumps which ran continuously), halving electricity consumption for the wire-drawing, insulation and irradiation processes. This investment alone saved 2% of the site's overall consumption costs.

… and increase the share of renewable energies

The Mortain-Romagny site was fitted with a biomass boiler several years ago which is supplied mainly with waste wood, pallets and drums that have become unusable. Following a one-off shut-down in 2020 for upgrades, it is now back in service. The biomass boiler delivered around 2,000 MWh in 2021, i.e. most of the heating power for the site's industrial premises. In line with this, IDEA OPTICAL plans to install a wood boiler at its industrial site in Lannion by winter 2022/2023. In Morocco, the use of solar energy was promoted as soon as the plant was built. Solar water heaters provide sanitary hot water for the changing rooms and showers. These actions contribute to reducing the carbon intensity of the energy consumed by the Group.
Green electricity production (using photovoltaic panels) is also being planned at the Mortain-Romagny industrial site through the creation of new car parks outside the factory's perimeter.

Hunting for waste...

As part of its industrial performance approach, ACOME has deployed plans to reduce production waste at a number of sites. They are now showing their effectiveness. Over 56 tonnes of production waste were prevented at the Mortain-Romagny site in 2020.
Manufacturing changes are a sensitive point. Orders for small quantities – which are very common in the automotive industry – require changing reels more often and are therefore

Reduced environmental footprint
ACOME's plant in Morocco minimizes its environmental footprint and its consumption. It strengthens the Group's environmental commitments.

79%
of industrial waste
produced by ACOME in France is recovered.

10%
reduction in electricity consumption
using new high efficiency motors.

more likely to generate plastic waste related to colour purges. ACOME designs its processes such that product changes can be made as quickly as possible and with as little waste as possible. The company has also raised customer awareness of the adverse effect of zero stock practices.
In Wuhan, the optimisation of cross-sections and colours, which can now be planned and carried out more quickly, reduced the volume of waste by 13 tonnes (-2.2%) in 2020 while production increased at the same time.

... and ensure they are recycled

The Group is also pursuing a proactive policy of recovering raw materials to convert production waste to a resource for reuse in its processes, or to be recycled elsewhere. Waste sorting is organised at source, as it leaves the machine. They are then recovered through dedicated recovery channels: cables containing copper, PE purges, cardboard, plastic covers, hazardous waste, paper, wood, etc.

Thanks to a number of partnerships with waste recovery and processing companies, 79% of the industrial waste generated by ACOME in France was recovered in 2020. This figure is also very high for the subsidiaries, particularly in China where the regulations are extremely restrictive.

Enhancing our design processes to prevent waste

The data collected during the various stages of the life cycle of a cable is used to create digital models. This theoretical approach accelerates the development of new products and avoids the production of waste. Digital simulations are run before prototyping takes place. They are used to design cables and simulate their properties (conductivity, fire resistance, etc.) before being manufactured. Digital simulation is now one of ACOME's areas of expertise. Additive printing is also used to produce prototypes for testing, which again saves raw materials.

continued

The digital and environmental transitions

Pollution reduction is also anticipated thanks to the purchase and use of new equipment. For example, the lithium battery terminals installed at ACOME's manufacturing facility in France have been replaced with latest-generation units. The environmental gains are perceptible, both in terms of components and consumption.
Other actions to reduce consumables are also in place and are being monitored. In Wuhan, the digitisation of maintenance operations provided a 20% reduction in paper consumption in 2020, and a number of partnerships are being created to recycle ink cartridges.

Preserving natural spaces and biodiversity

The Group's sites comprise over 20 hectares of green spaces and wetlands, i.e. 37% of the total surface area of the sites. The Mortain-Romagny site alone has 16 hectares of wetlands.
ACOME has created a number of storm basins to collect and treat pollution caused by fire or spillages and to protect the natural environment from accidental pollution. Preserving these bio-diverse spaces in the site's industrial development project is therefore a complex equation. The company is adapting its projects in order to preserve wetlands and the natural environment. This is all the more important in that environmental analyses have highlighted the presence of protected species such as wall lizards and southern damselflies.

Positive energy families: Acome's employees rise to the challenge

19 families of ACOME France employees (7 in 2018 and 12 in 2019) took up the challenge of reducing their electricity and water consumption by 8% as part of the "Positive Energy Families" challenge. During five winter months they actually managed to save 14% of their energy and 6% of their water, without having to invest in special equipment. They simply adopted and pursued environmentally-friendly habits. In total, nearly 6 m^3 of water, i.e. the equivalent of 100 showers, and 12,840 kWh of electricity, i.e. the consumption of 3 RT 2012 houses of 90 m^2 for 1 year, were saved. The reduction in CO_2 emissions was estimated at 7%. This collective action was welcomed by the Normandy Quality Management Association. *"What we liked about "Positive Energy Families" is that a project conducted outside the company had internal impacts on the company as well,"*, explains Christian Schaeffer, chairman of the jury. Once the commitment was made, the whole family was challenged to succeed. The employees therefore had to obtain the backing of their family members and to remind themselves of the environmental actions and instructions on a regular basis. After the task they naturally retained the posture of "environmental coach" with their colleagues, which also had a positive effect on behaviours far beyond the commitments made by the families.

Turning our employees into ambassadors for the environmental transition

In order to involve employees in the environmental transition, ACOME conducts awareness campaigns at all its sites. These particularly relate to environmentally-friendly actions (waste sorting, water and energy savings, reporting of malfunctions, etc.). In Morocco, environmental actions performed before leaving the workstation are rewarded. In Wuhan, China, special events were held for World Water Day.
Through these in-house actions, ACOME wishes to instil civic behaviours and to improve awareness of the individual impacts people can achieve in their daily lives. As with safety challenges, environmental and climate issues are taken into consideration both inside and outside the company.

And lastly, the offsetting of CO_2 emissions

The last part of the "Evaluate, reduce and offset" trilogy has formed part of ACOME's climate strategy since 2013. As a co-founder of the "Normandie Forêver" association, the Group is supporting a local carbon offsetting mechanism which reduces the environmental footprint of its industrial activities in Normandy.
Since it was founded, over 10 projects have been carried out in a number of regions in Normandy and 7 more are planned for 2021. Around 18 hectares of woodland, i.e. having no value for the sector other than wood for fuel, have already been reforested. Half of the land was replanted in 2020. The species of tree are selected according to forestry rules. A well-maintained forest has a far bigger carbon storage capacity than a neglected forest. Customers who wish to offset a portion of their greenhouse gas emissions can use the carbon sinks provided by Normandie Forêver.

How can we improve our customers' low-carbon strategies?

Evaluate, reduce, offset. It is around this trifecta that ACOME bases its approach to controlling the environmental impacts and carbon footprint associated with its products and solutions.

Adapting products and solutions

Designing a responsible offering to contribute to our customers' low-carbon strategies

MAJOR TOPICS

ACOME has made long-standing commitments to eco-design, raw materials recycling and waste reduction. This is a responsible and sustainable approach that achieves twin goals of rational economising and reducing the environmental footprint of our products. As a pioneer in these two different areas, the Group is continuing to create momentum.

For their part, our customers — network operators, building designers and operators, car manufacturers — are gradually making commitments in line with the goals of the Paris Agreement. As a benchmark supplier, ACOME helps its key clients to decarbonise through materials R&D and product innovation, as well as through advances in logistics.

HOW DO WE HANDLE THEM?

Eco-design and LCA: a well-established approach

In order to improve the environmental performance of its products, ACOME has been focusing on eco-design since 2006 and has been using life cycle analysis (LCA) for over 10 years to promote technological development with the lowest possible environmental footprint. This is one of the major capabilities the Group has mastered.

An LCA may give rise to the preparation of a PEP sheet (product environmental profile). Between 2009 and the end of 2020, 86 product environmental profiles were created for 413 products. These documents are registered with the PEP ECOPASSPORT® association, which then certifies their compliance with the international rules and standards for a period of five years.

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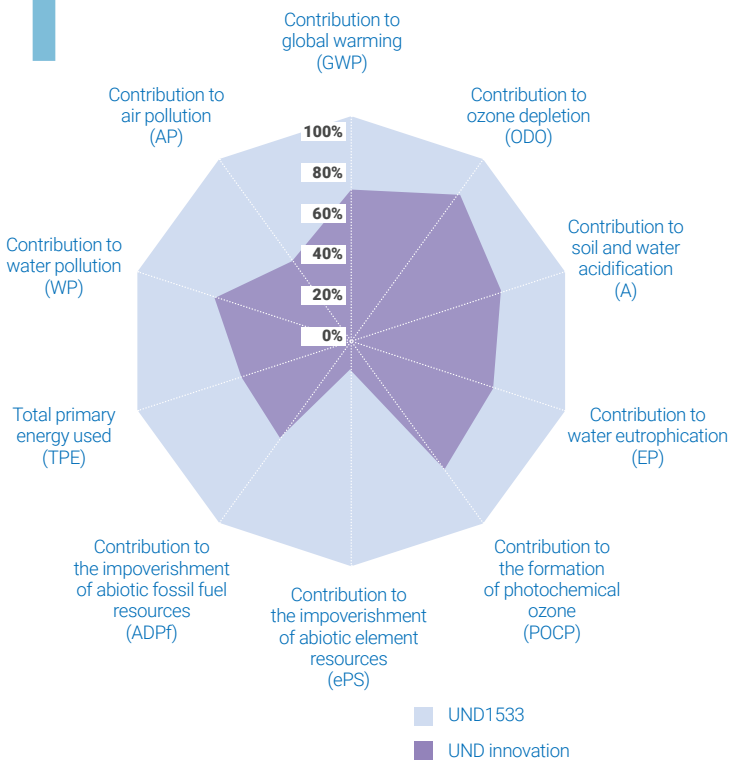
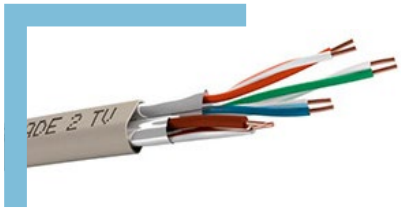


Life Cycle Inventory: assessing new technologies

The Life Cycle Inventory combines the life cycle analyses of two products. In this example, the aim is to compare a standard optical cable (UND1533) and a new technology optical cable (UND innovation), both comprising 72 optical fibres. The comparative analysis highlights the ecological value of the UND innovation cable for all 10 environmental indicators studied.
The evolution of this product has saved approximately 30% of greenhouse gas emissions, or 132 kg eq. CO_2 per kilometre of cable manufactured.

ACOME is also proactive in this approach and conducts communication and information campaigns aimed at raising awareness in this regard. The next step is to gain a better understanding of how the products are used and the environmental impacts of their use. ACOME is therefore working with local authorities in order to define the contribution of smart cities to the energy and environmental transitions. The company will concretely participate in their work from 2021 onwards.



Between two generations of Grade 2 TV / 3 TV cables: a 17% increase in CO_2 over the entire life cycle

The Acohome Grade 2 TV and 3 TV cable range, used for the simultaneous provision of multimedia applications in residential buildings (TV, telephony, ADSL, Ethernet), was launched in 2008. It was completely redesigned a few years later. The oblong shape of the sheath has led to a significant reduction in the use of raw materials, copper and plastics. A life cycle analysis was performed by the ACOME design office. Comparing the environmental profiles (PEP) of the old and new versions revealed a 17% improvement in terms of CO_2 impacts.

Materials research for the carbon transition

Research into materials (metals and polymers) is one of the Group's areas of excellence. The research and technologies centre focuses on the processability and performance of materials, as well as their recyclability and the formulation of new plastics and alloys. Our expertise in materials is made available to our customers to help them meet the highest technical and environmental requirements.

Recycling raw materials

In order to conserve natural resources and reduce its carbon footprint, ACOME recycles its production waste. Copper can be recycled any number of times without losing its properties, ACOME uses well-established recycling channels to recycle it. All the Group's cables also contain a portion of recycled copper. By installing equipment that separates copper wire from its insulation, the Tangier plant has taken this one step further. The exposed copper is sent to a supplier who recovers it and converts it to the required cross-section, before returning it to the factory where it is once again used to make automotive cables. This circular approach enables us to recover the equivalent of 3 to 4 weeks of production waste per year with the corresponding savings in raw materials.

"Acome uses from 30 to 50% recycled germanium in its optical cables."

The recycling of plastic is more complex due to the treatments used to improve its insulation properties. Polyethylene (PE) cannot therefore be directly reused in the production of new cables. Once separated from the copper, it is nevertheless recovered for other purposes.

Germanium is a rare material obtained by mining and refining copper and zinc, it is one of the elements used in the manufacture of optical fibres. ACOME uses 30 to 50% recycled germanium for its optical cable production. Made from the recycling of electronic products, its carbon impact is 5 times lower than that of new materials.

Inventing the materials of tomorrow

Why not exploit the resource represented by plastic water bottles? ACOME R&D is exploring the use of polyethylene terephthalate (PET). A trial is under way in conjunction with ACOME Morocco. This could lead to the creation of a new range of automotive cables using a completely new material. The use of recycled plastics would give these cables great environmental advantages.
The use of bio-sourced materials remains a source of inspiration for ACOME's research team. Trials in the use of natural materials to mechanically strengthen optical cables did not produce the expected results. Linen – a locally-produced plant fibre – has good resistance characteristics on paper. But the challenge is to achieve consistent quality levels. Incorporating bio-sourced and regenerated materials into a product with the technical requirements of optical cables is a simple matter.

"New recycled materials for automotive cables in the future?"

Research & Development
ACOME's R&D staff are mainly based at the Normandy manufacturing complex, the Group's centre of expertise and R&D.

Towards more sustainable logistics

Logistics account for a significant fraction of the carbon footprint of products. It should be a blind spot in an environmental approach. ACOME is also addressing this area on several levels. This starts with the vertical integration of the production of compounds. No transport operations are required between the various production stages. In 2021 the Normandy industrial site also committed to the FRET 21 approach in order to limit its GHG emissions relating to transport.

Engaging with customers and suppliers

In order to improve knowledge of its scope 3, ACOME – which has signed a transport and logistics commitment charter – monitors the CO_2 emissions of its carriers at the Mortain-Romagny manufacturing complex. In Morocco, the transport service specifications include criteria relating to environmental requirements. They particularly cover CO_2 emissions/km travelled and the requirement to have truck repair workshops that comply with environmental standards, as well as training in eco-driving.

continued

We also always aim to supply full cable drums. This is a firm challenge for cables exported to the UK, where cell storage requires the volume of product to be maximised. Optimizing product reels reduces costs and minimizes environmental impacts.
The rotation and reuse of packaging materials are also required. In France, drum recovery arrangements are well established with our older customers. Our efforts are now focusing on the recovery of reels, enabling them to be used up to 10 times and providing real benefits in terms of carbon impacts. ACOME Wuhan has been organising the collection of pallets and NPS (the cones on which automotive cables are wound) throughout China since 2020. Our customers have now also taken up the challenge. In a few short months, major work to optimise logistics operations produced gains of 16% for pallets and 12% for NPS.

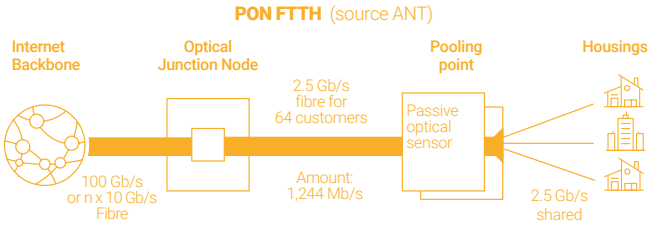
Streamlining the use of packaging

The reduction in the diameter of the UNB 1627 connection cable (drop) (also see next page) led us to review our packaging and transport processes. The reel has been redesigned to use a cardboard drum, with a reduction in materials that limits their weight. From six 500 m reels of drop per pallet previously, we can now load eighteen 500 m reels per pallet. This therefore requires one third of the transport resources.
ACOME has also undertaken to reduce the weight of its large optical cable drums. The company now only purchases drums whose suppliers can guarantee that the wood comes from sustainably managed forests. Depending on the size of the drums, the impact is around 40 to 50%.

Telecoms infrastructures

Network architecture modelling: advantages for PON

The modelling done by ACOME's R&D team has revealed that the carbon footprint of a point-to-point (PTP) network is 50% higher than an equivalent PON (Passive Optical Network). The calculations show that the last 100 metres to the customer's home account for over 80% of the carbon impact of the FttH network. Indeed, the closer you get to the customer's home, the smaller the number of fibres in the cable, however, the amount of plastic required to protect an optical fibre is only slightly less than that required to protect a 76-wire cable. R&D is also developing a CO_2 TCO calculation tool (the Total Cost of Ownership approach applied to carbon). ACOME uses this model to raise operator awareness and help them align their design choices with their carbon targets. In France, PON architectures have mainly been deployed for several years. This is not the case in Germany, for example, where the majority of networks are still point-to-point.



FttH

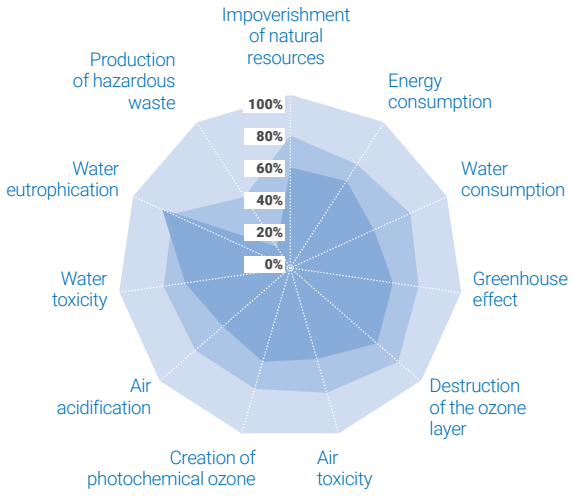
The new Drop cable reduces its carbon footprint by 30%

In July 2002, ACOME launched its new Drop cable, UNB1627, which optically links the external connection point to the subscriber's connection box.
The cable diameter has been reduced – so reducing the amount of carbon used – while the same robustness and transmission performance of the previous version has been maintained. The carbon footprint of this innovative product is 30% lower.
ACOME has also improved ease of installation by producing an overhead/underground and exterior/interior cable does not require cutting and reduces waste. The drum was also optimised to further reduce the environmental impact (see previous page).

Private networks

What is the best packaging for LAN cables?

Optimising logistics operations begins at the source, by choosing the right packaging.
As an adherent to the Sycabel reusable packaging charter, ACOME usually uses 305 m boxes. This small, stackable packaging product is the best in terms of optimising road transport volumes (blue radar) for 10 of the 11 points analysed during the life cycle. 1,000 m drums are also preferable to 500 m ones, which create between 5 and 10% additional greenhouse gas emissions (truck loading not optimised).



Automotive

Innovation, a key factor in the race to reduce environmental footprints

As vehicle electrification accelerates, the power-ratings of the cables used to recharge batteries is becoming an issue. However, the higher the current intensity, the higher the mass of copper required. ACOME materials research has led to the creation of a range of cables that offer better heat dissipation: with the same cross-section they transport more energy, or, transport the same energy with a smaller cross-section. This solution provides the same charge with a 50 mm^2 charging cable, compared to 70 mm^2 previously. We have therefore managed to reduce the materials required for the same energy balance. ACOME is also developing new designs to simplify power harnesses. Electrical harnesses are protected by tape and various elements, meaning that the cable is not even visible. ACOME's proposal is to produce more robust cables that do not require so much external protection. Their environmental footprint is therefore smaller as the additional components, which must be manufactured, transported, etc., are no longer required.

"Reduce the materials used to achieve the same energy balance and performance."

Renovate your networks using a simple drawer

Networks constructed 10 years ago are no longer able to meet the bandwidth needs of high-power workstations. In partnership with the Rennes-based start-up, Cailabs, ACOME has designed a box that interconnects the core network with optical fibres to address traffic limitations. Simply insert the HEMERA multimode pull-out upgrader into the existing bay to update networks that would otherwise be obsolete. A simple solution to implement that preserves existing infrastructure.

PHOTOS

The carbon transition in images

While ACOME is particularly committed both to reducing waste and resource consumption and to raising awareness among its stakeholders in France, this policy is now being rolled out at all the Group's plants. **An overview of actions carried out around the world.**

REGIONAL ANCHORING

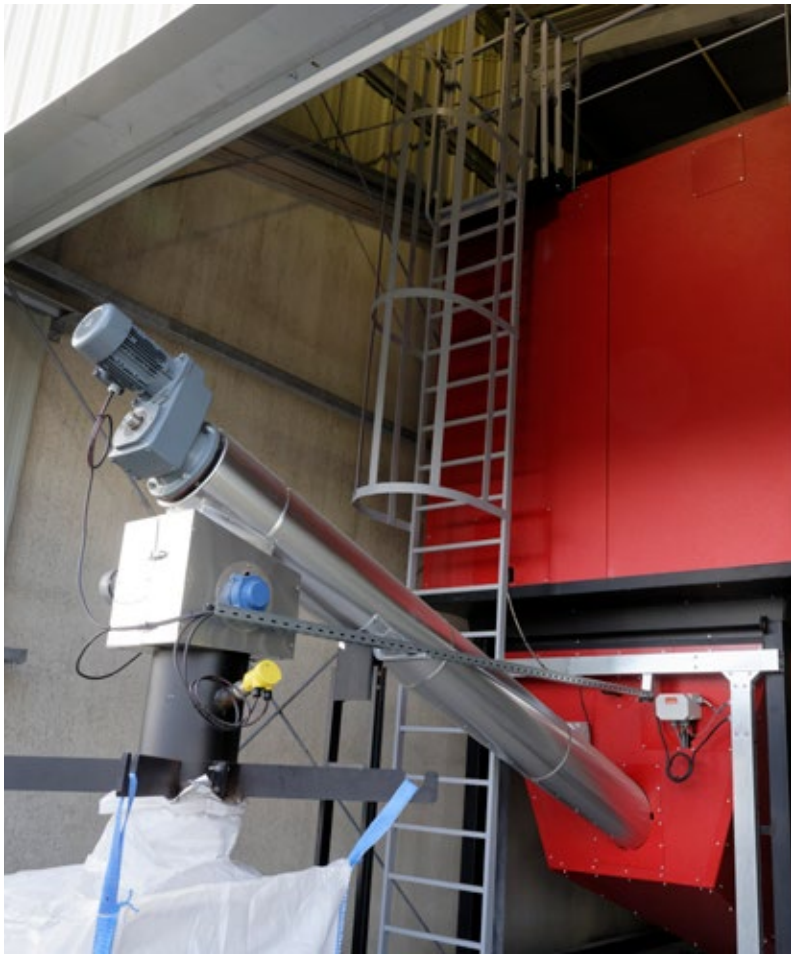
Mortain has been ACOME's main manufacturing base since 1941. Six plants and an R&D centre are located on a 43 hectare site set in the heart of the Normandy countryside.

Deeply rooted in the region and recognised as one of the Department's principal employers, with over 1,000 employees, the company also indirectly contributes to the employment of over 3,000 people.

While the cable industry as a whole has halved its workforce, ACOME has maintained its employment levels in the region thanks to its cooperative model, its financial independence and its long-term vision.

ENVIRONMENTAL LABEL FOR ACOME DO BRASIL

In November 2019, ACOME's Brazilian subsidiary received the "Climate Parana" label, which is intended to promote a competitive transition to a more robust, wealth-generating and sustainable economy. ACOME do Brasil has demonstrated its commitment to the future of Brazil and its population.



BIOMASS HEATING

Waste wood products, including pallets and drums that can no longer be used, have been used to feed the biomass boiler at the Mortain-Romagny site for many years. Renovated in 2020, it delivers most of the heating power for the site's industrial premises.
The project to construct a wood-fired boiler at the IDEA OPTICAL site in Lannion will be launched in the winter of 2022/2023.

SOLAR ENERGY IN MOROCCO

ACOME's plant in Morocco is equipped with solar panels that supply domestic hot water for the employees. It is one of the "zero carbon" / "zero discharge" actions which have been implemented at the site, which has been recognised for its sustainable environmental design.

ENERGY SAVINGS IN CHINA

Energy is the 2nd biggest expense item at the Wuhan plant. The continuous frequency hydraulic pumps were replaced by variable frequency pumps and LED lighting was installed in the workshops in order to reduce electricity consumption. These two actions provided energy savings of 20%.

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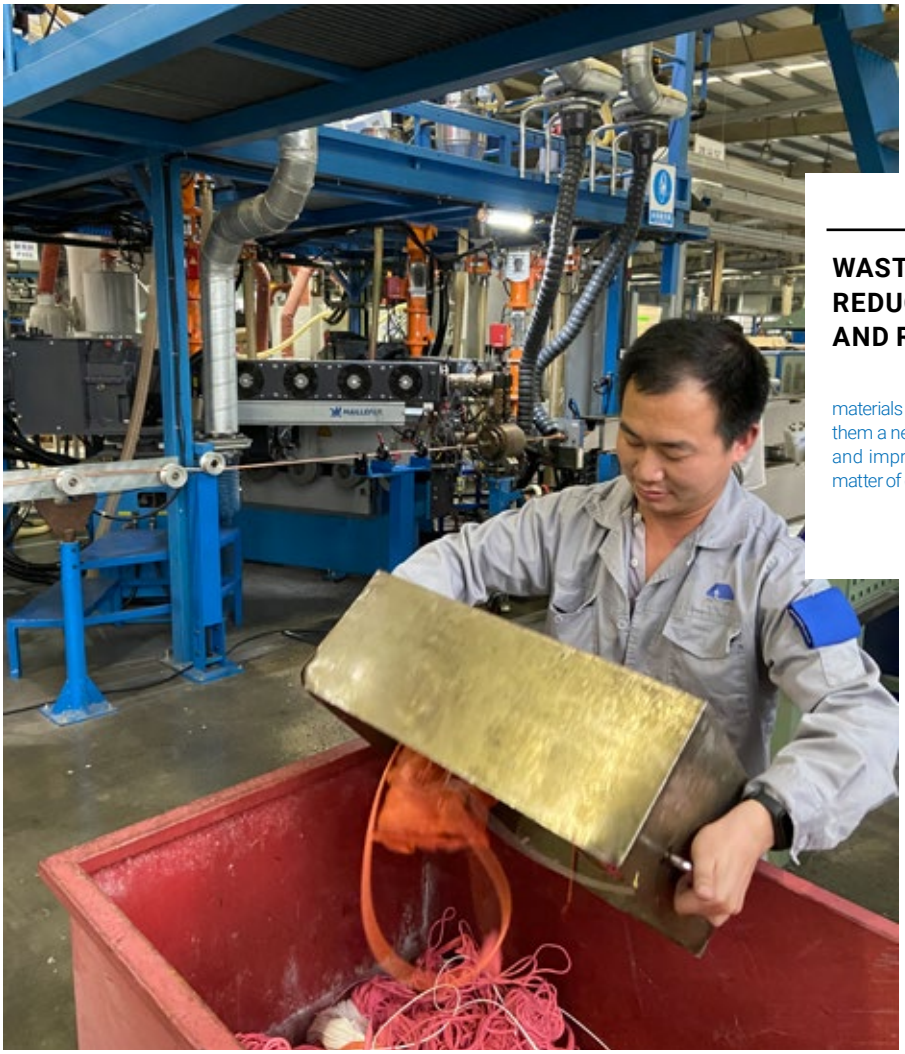

WASTE REDUCTION AND RECOVERY

In addition to eco-design, ACOME has a long-standing commitment to recycling and reducing waste products. Conserving materials and re-using them where possible, or giving them a new purpose: these practices create savings and improve sustainable management. This is a matter of common sense for ACOME.

ECO-DESIGN

Committed to reducing the environmental impact of its cables throughout their life cycle, ACOME adopted eco-design processes in 2006. Over the years, 86 environmental product profiles (PEPs) covering 413 products have been declared.

DIGITAL SIMULATION

Digital simulation has become an increasingly important factor in our R&D projects. It helps us to reduce the environmental footprint of a product by allowing its characteristics and performance to be assessed prior to its manufacture.

DIGITIZATION

While a zero paper policy has applied to the manufacturing process for over 20 years, ACOME is going a step further by digitizing all of its activities in France. The aim of the industrial IS modernisation programme is to integrate the production system into Industry 4.0.

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