CARBON REPORT

2021-2022

wifirst

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INTRODUCTION

"By 2030, if nothing is done to reduce the environmental footprint of digital technology and if usage continues to grow at the current rate, the carbon footprint of digital technology in France will increase by around 45% compared with 2020", explains Arcep

Digital technology is a major source of greenhouse gas emissions, and the year 2022 has highlighted this fact to the world. Energy has become a strategic issue for our future, and the fear of an energy shortage has prompted digital players and equipment manufacturers to think about ways of reducing infrastructure consumption.

Wifirst is no exception to this trend and has been developing innovation around the energy economy.

How can we reduce the carbon footprint of our offices? How can we offer a more sustainable model and engage our customers with an economically viable environmental approach? These are just some of the topics we discuss in this document, which begins with a deep dive into our own carbon impact.

We have chosen to calculate the carbon footprint on Scopes 1, 2 and 3. These three scopes take into account the CO2 emissions linked to the company's internal energy consumption, as well as its indirect emissions (emitted by others) such as the upstream and downstream transport of products, employee travel, the manufacture of incoming materials and the waste generated.

This method is more ambitious than the so-called «Scope 1» and «Scope 2» methods, which are limited to measuring the emissions of the company's share of the value chain, without the possibility of requiring suppliers to comply with the same rules as the company in terms of social and environmental responsibility.

Our commitment to put the control of our emissions at the heart of our strategy is reflected in the publication of our carbon footprint data for all three scopes. With this data in hand, we can engage our entire ecosystem in the implementation of an ambitious development strategy that is consistent with a fundamental effort to optimise the energy consumption of the telecom infrastructures that we develop and operate.

[1] Perreau, C. (2023) "Next40/FT120 : Superprof, Wifirst, Safti... Ces surprises de l'édition 2023", Les Echos "https://business.lesechos.fr/entrepreneurs/success-stories/0703446397621-next40-ft120-superprof-wifirst-safti-ces-surprises-de-l-edition-2023-351086.php

Context

In 2019, we began to form commitments in line with the UN Sustainable Development Goals. By 2020, the publication of our 1st carbon footprint report confirmed our intuitions and provided quantifiable and measurable indicators (greater knowledge for greater reductions). Since then, we became a part of the circular economy, managing electronic and electrical waste and reconditioning equipment in an effort to fight against early obsolescence.

Training our employees on the impact of our activity (climate charts, breakdown of carbon footprint) also gives us a global strategic vision and enables us to incorporate environmental issues into our corporate strategy.

The integration in 2021 of a research team specialising in analysing the energy consumption of a WiFi infrastructure was a further step for our commitment.

Methodology

To facilitate the analysis of Wifirst's environmental impact, we have followed the ADEME method (coordinated and distributed by the Association for Carbon Reporting). It takes into account the company's various sources of emissions under three scopes:

- The calculation is based on a simple formula: quantity consumed x emission factor = CO2 emissions. The quantity consumed is expressed in the unit of the product (litres of petrol, Kwh consumed, number of equipment deployed, etc.).
- Emissions factors correspond to the quantity of CO2 emitted when a product or service is consumed.
- Various «scopes» identified by ADEME were used to determine the sources of emissions:
  - Scopes 1 and 2 concern direct emissions, emitted by fixed or mobile installations located within the organisational perimeter and sources owned or controlled by the organisation.
  - Scope 3 covers indirect emissions, those linked to the production of electricity, heat or steam used for the organisation's activities, as well as those linked to the organisation's value chain.

Main carbon footprint emissions

Moving people & purchasing

Company vehicles & establishments

Movement of visitors and customers & use of products sold

UPSTREAM ACTIVITY
SCOPE 3 UPSTREAM

COMPANY ACTIVITY
SCOPE 1 & 2

DOWNSTREAM ACTIVITY
SCOPE 3 DOWNSTREAM

Figures to understand

There are three main indicators that put our greenhouse gas emissions into perspective as a result of our activity, and more specifically our turnover, the number of employees and the Internet traffic that passes through our network.

We entered the Next40[2] , the 'hyper-growth' section of the French Tech ranking, at the beginning of 2023, in line with an annual growth of over 15% over the last three years, which has gone hand-in-hand with a 55% increase in the number of employees.

Our business has recently opened up to retail, which is changing the matrix of our traditional hospitality & residence model. Although this sector involves less equipment and less internet traffic than the residential sector, it means there is more travel involved in deployment and hardware containing significant technology advancements, which contributes to our carbon footprint.

Since the 2021 report, we have refined our method of assessment to collect more accurate data, refine the calculations and add new items to bring our carbon emissions closer to reality.

In this document we will therefore refer to "2020 Old" and "2020 New" for ease of understanding. In the event of a difference in calculation method and therefore in results, the data will be identified by a ✪ .

The 2020 report published in 2021 has therefore been recalculated using the 2023 methodology.

Evolution from 2020 to 2022

tCO2e	✪ 2020 (Old)	2020 (New)	2021	2022
tCO2e / M€ turnover	66	47	53.73	59.43
tCO2e / employee	25.46	17.74	16.95	18.04
tCO2e / Po (petabyte)	13.48	9.39	8.99	8.77

2021 - 2023: evolution of the methodology

- The 2020 carbon footprint recalculated in 2023 turns out to be lower than that initially recorded in 2021.
- The first version was based on conservative assumptions (based on the maximum consumption established in the manufacturers' data sheets for network equipment), whereas in 2023 we were able to calculate the actual consumption of the equipment.
- We have also refined the calculation of the onboarding footprint by analysing emissions from network equipment hosted in data centres and by actually calculating the energy consumption of equipment installed at our customers' sites.

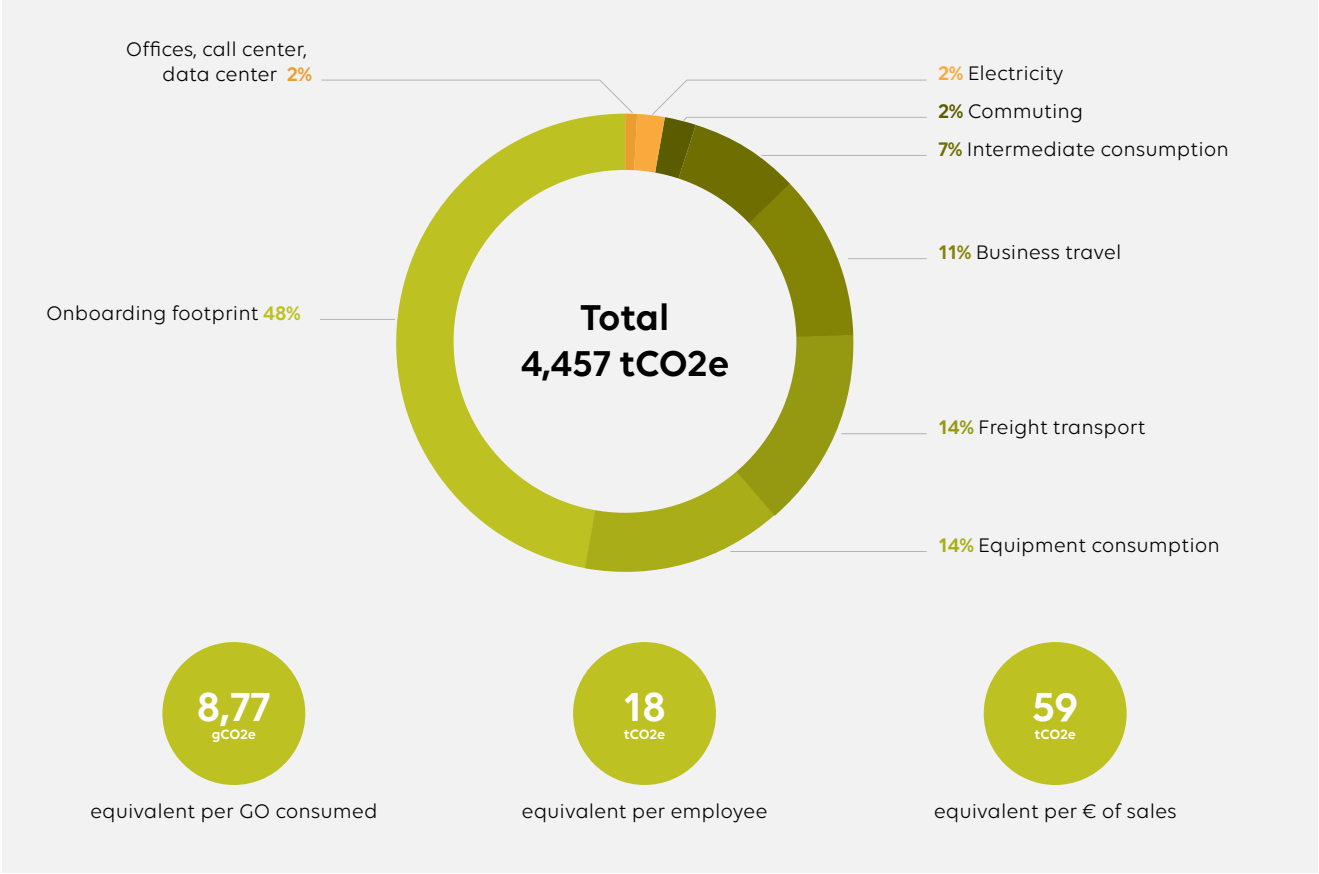
Changes in the balance sheet

tCO2e	✪ 2020 (Old)	2020 (New)	2021	2022
Scope 1&2	110	93	129	173
Scope 3	3,938	2,727	3,364	4,284
Total	**4,048**	**2,820**	**3,492**	**4,457**

[2] Perreau, C. (2023) "Next40/FT120 : Superprof, Wifirst, Safti... Ces surprises de l'édition 2023", Les Echos "https://business.lesechos.fr/entrepreneurs/success-stories/0703446397621-next40-ft120-superprof-wifirst-safti-ces-surprises-de-l-edition-2023-351086.php

SUMMARY OF OUR CARBON FOOTPRINT

Wifirst's carbon footprint in 2022 was 4,457 tCO2e, of which only 4% tCO2e will be related to scope 1 & 2.



This figure takes into account:
The equipment installed on our customer sites is by far the biggest contributor, through its onboarding footprint and the resulting electricity consumption.
The transport of people and equipment and the fuel associated with audits and deployment.
Energy consumption by networks, which is playing an increasingly important role in businesses overall energy consumption

All these items form part of Scope 3, which for Wifirst weighs 25 times more than scopes 1 and 2.
Putting this figure into perspective, Wifirst's carbon footprint is equivalent to the carbon footprint of 380.9 UK residents:

Average carbon footprint of a UK resident: 11.7 tCO2eq[3]

[3] (The average British carbon footprint is five times over Paris Agreement recommendations, 2023)

Wifirst's commitment to the environment

In 2021, Wifirst welcomed Hamidou DEMBELE, Ph.D-Eng, PhD student at IMT Atlantique4 . A member of our Technical Department and assisted by Robin Colin (ENSEEIHT) and Elio Tohme (Institut Polytechnique de Paris), he specialises in the research of energy consumption of networks. More precisely, he carries out studies on the equipment we deploy at our customers' sites, reproducing real-life conditions from his laboratory[5].

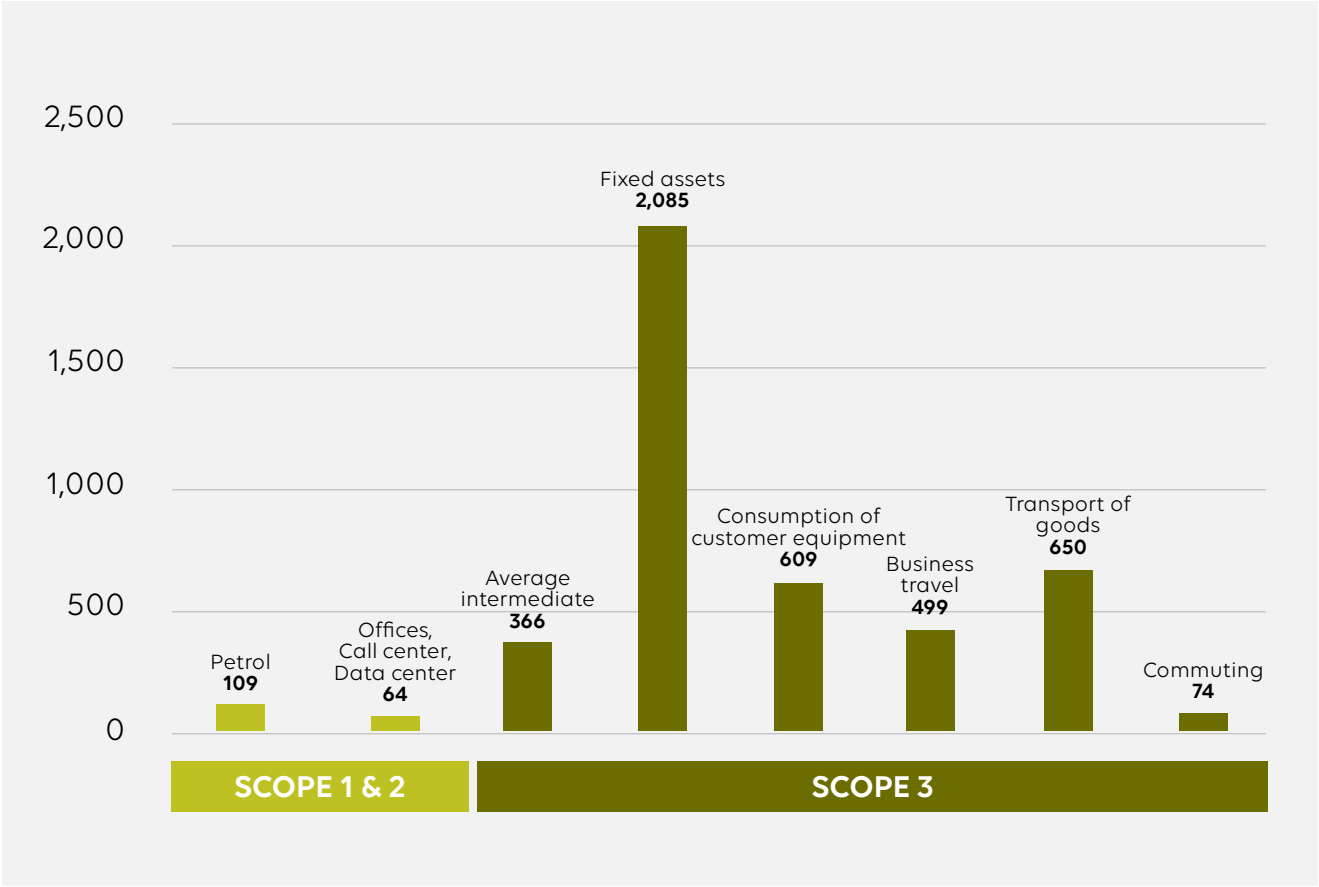
We believe that studying the energy consumption behaviour of access points before focusing on energy-saving methods is essential. This makes it possible to explore potential ways to optimise current and future WiFi infrastructures. This approach makes it possible to identify the parameters that can affect energy consumption. We document our research, which presents a measurement technique based on the "Power over Ethernet Principle", to accurately assess the power consumption of access points. Based on this research, we are able to identify a general model capable of predicting or estimating the impact of network traffic characteristics on access point power consumption.

[4] L'École nationale supérieure Mines-Télécom Atlantique Bretagne Pays de la Loire (nom d'usage : IMT Atlantique) est la grande école d'ingénieurs de la transition numérique, énergétique et environnementale.
[5] Dembele,H. (2023). "Assessing and Modeling the Energy Consumption of PoE-Powered WiFi Access Point", IEEAccess, 11, pp. 74796-74804 (https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=10183985)

WIFIRST ACTIVITIES
SUMMARY OF EMISSION

Wifirst's carbon footprint for 2022 shows a total emission of 4,457 tCO2e, or 18tCO2e per employee. The on-board footprint is the highest of the bunch, accounting for 48% of the emissions, broken down as follows.

Carbon footprint of Wifirst activities, Scopes 1, 2 and 3.



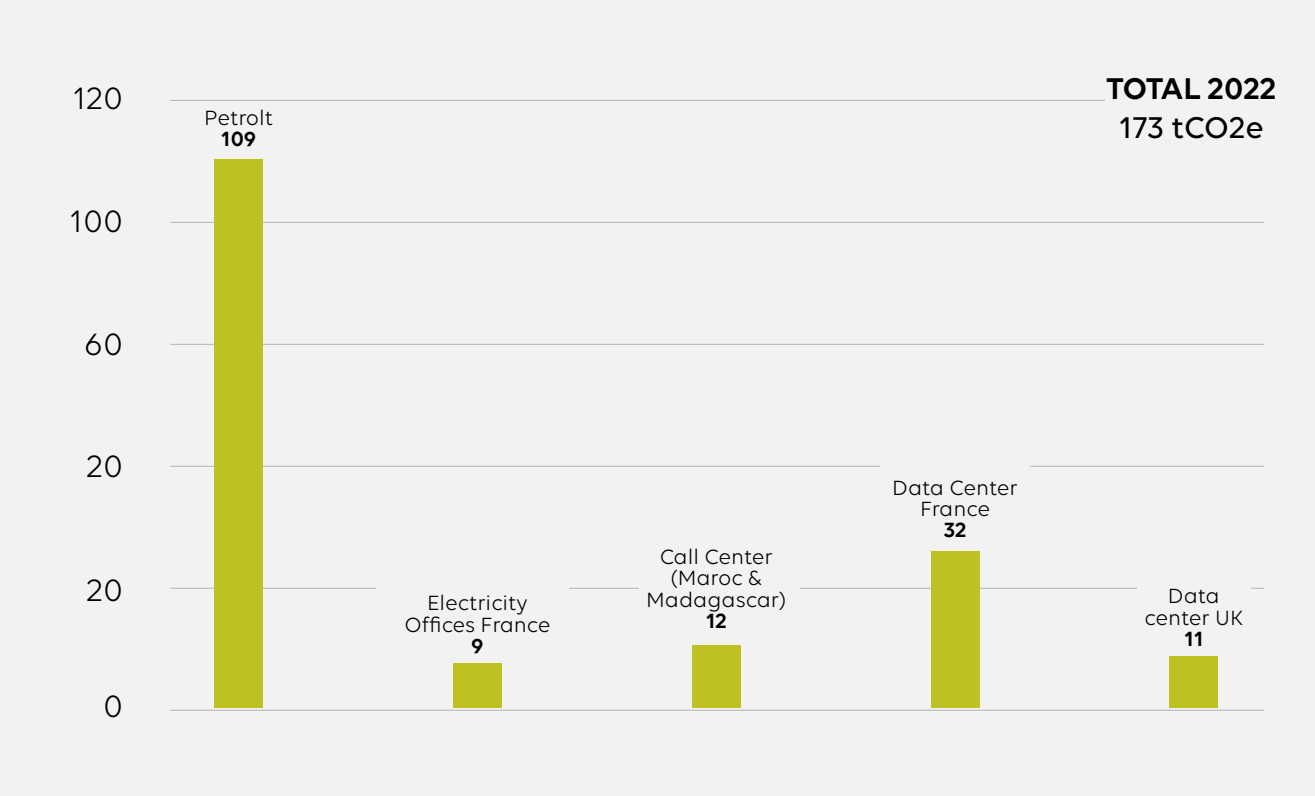
Unsurprisingly, scope 3 is our main emitter of greenhouse gases, in particular:

- The onboarding footprint which includes the mobilisation of equipment (switches, APs and routers deployed to customer sites, etc.). It takes into account the manufacturing footprint of products amortised over their lifetime.
- Business travel includes travel by sales staff, field representatives and employees who travel on a more exceptional basis.
- With a fleet of 24 cars, most of which are diesel-powered, petrol is the main source of our Scope 1 emissions. These cars are used by our auditors, who - although geographically dispersed - cover the whole of France.

Further breakdown by Scope

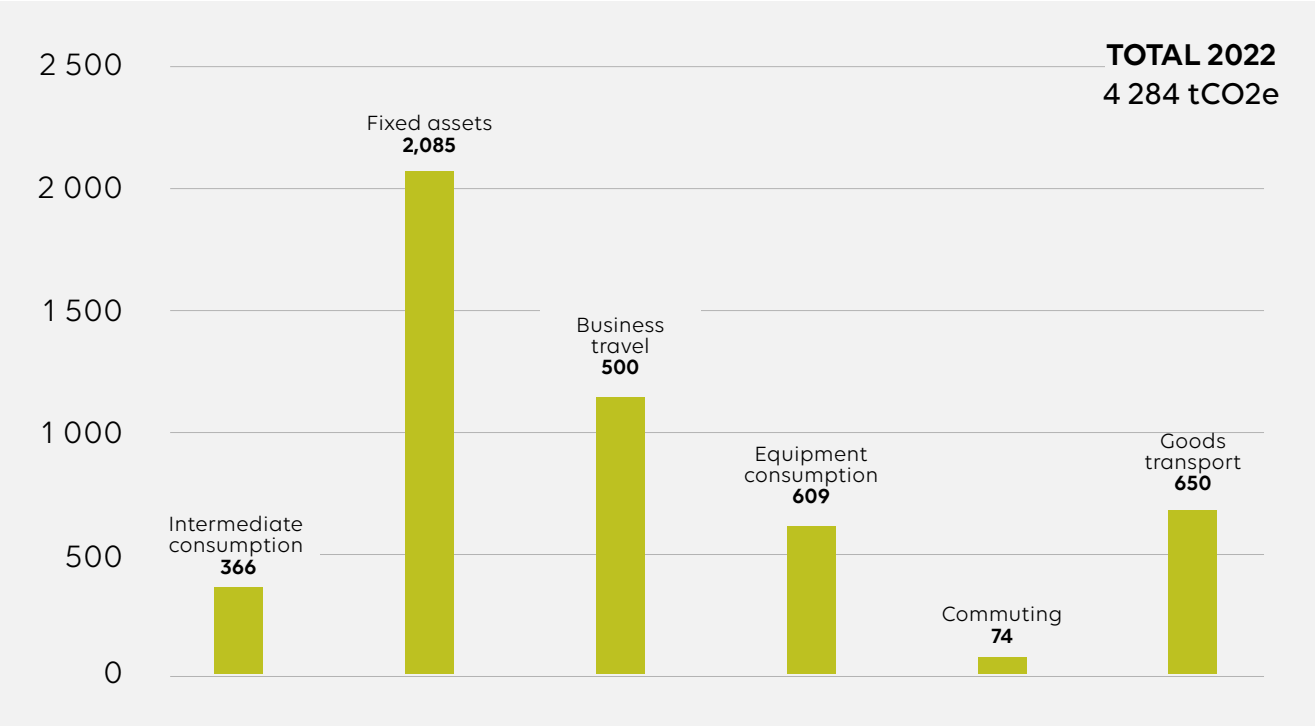
Scopes 1 & 2

Wifirst's Scope 1 & 2 emissions combined were 173 tCO2e in 2022. The company's vehicles are the main source (+63%), followed by the energy consumption in data centres (+24%).

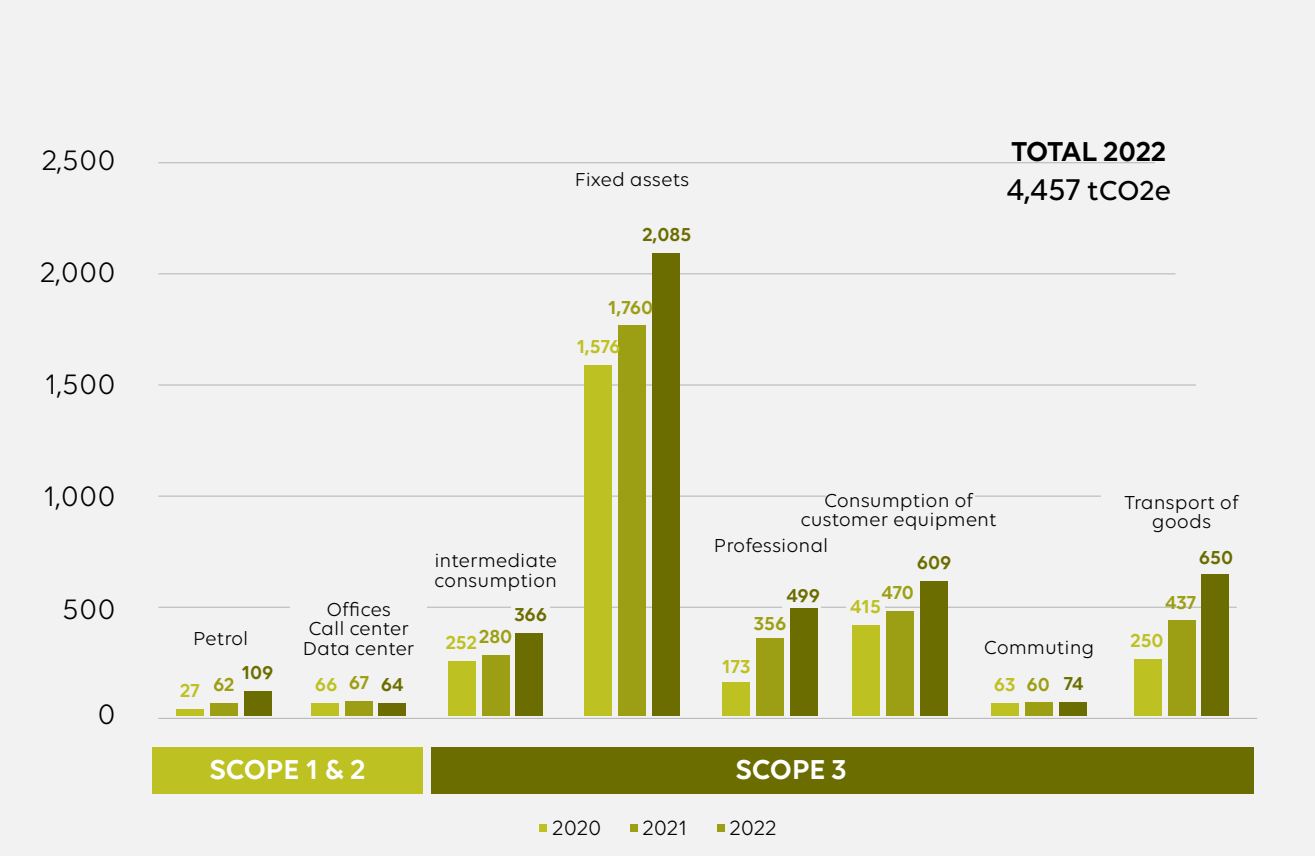


Scope 3

Wifirst's Scope 3 emissions were 4,284 tCO2e in 2022. Fixed assets were the main item, accounting for 2,085 tCO2e, or +49% of these emissions.



Trend: 2020 - 2022



Wifirst's total carbon emissions increased by 58% between 2020 and 2022, from 2,820 tonnes of CO2 to 4,457 tonnes. This increase was 86% for Scopes 1 and 2 and 57% for Scope 3. It should be noted that 2020 was not a completely standard year, since the lockdowns reduced travel and deployment ac- tivities for several months.

Scope 1

The main source of emissions is petrol consumption. This has increased by a factor of 4 compared to 2020, for a number of reasons:

- very strong growth in the number of sites deployed,
- a 71% increase in the size of the audit teams (staff with company cars to travel to the sites),
- a 2020 baseline year with reduced ativity as a result of the lockdowns.

Scope 2

There were no major changes in Scope 2 between 2020 and 2022. The increase in CO2 emissions linked to the growth in the number of data centre facilities has been offset by savings linked to the relocation of one of the call centres to a more energy-efficient office.

Note: the carbon assessment was carried out using a constant emission factor: the 2020 emission factor proposed by ADEME. It therefore does not take into account changes in the French energy policy of 2023 (increase in the contribution of carbon-based energies).

Scope 3

The growth in Scope 3 is linked to the growth of Wifirst between 2020 and 2022. In addition, 2022 saw an increase in deployments in the retail sector. This has led to an increase in carbon emissions insofar as:

- the sites are smaller overall (fewer WiFi access points) than the hosting sites, so the weight of transport is greater. As a result, the transport of goods increased by 160% between 2020 and 2022.
- the equipment used is heavier and has a greater onboarding carbon footprint. The increase in the carbon footprint of fixed assets was 32% between 2020 and 2022.
- the consumption of equipment in retail is higher, leading to a 47% increase in the overall consumption of equipment by our customers between 2020 and 2022.

Objective: low-carbon path

"The notion of carbon neutrality only makes sense as defined by the IPCC, i.e. on a global scale and insofar as greenhouse gas emissions are offset by carbon sequestration," explains Hervé Lefebvre, head of the low-carbon path unit at ADAME.
Wifirst is in line with the national low-carbon path. Since the Paris Agreement, governments have been working together to achieve carbon neutrality by 2050.
Wifirst is developing a strategy that is consistent with the Paris Agreement, aiming for a drastic reduction in its emissions and adopting low-carbon consumption. To achieve this, we are setting up an internal monitoring system.

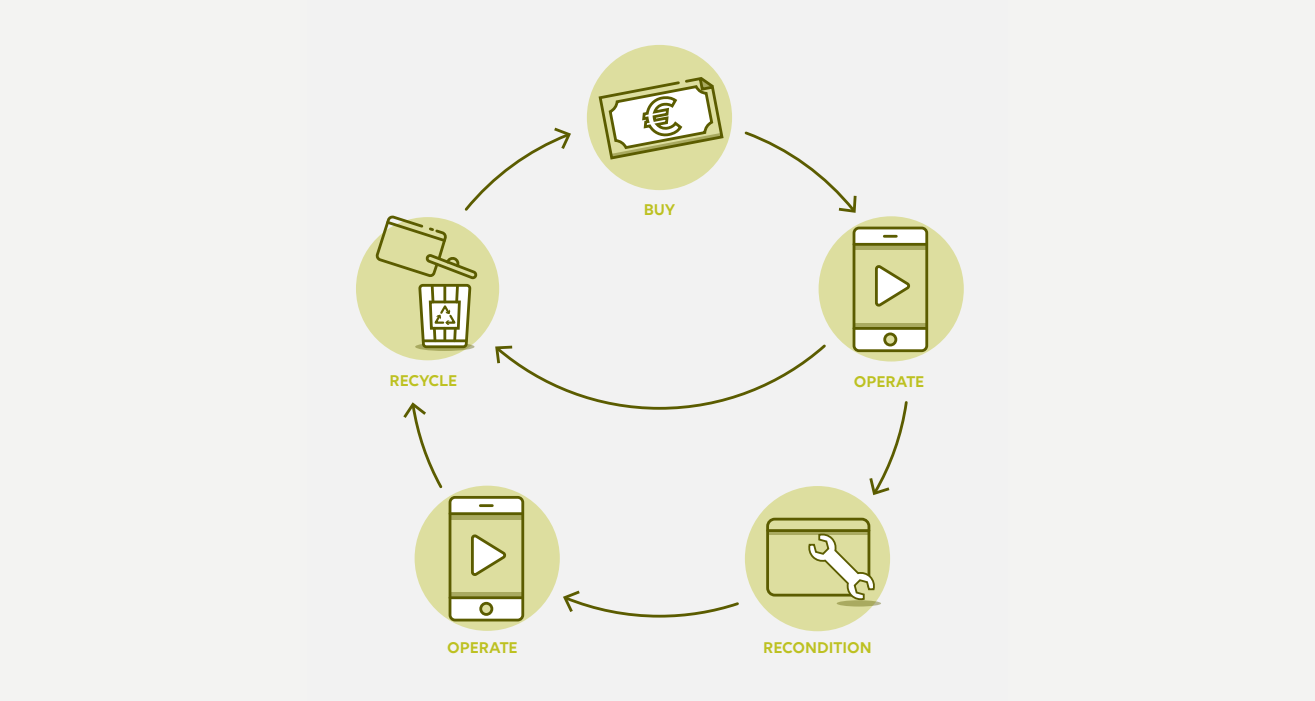
STRENGTHENING OUR ACTION
PLAN TO REDUCE EMISSIONS

Scope 1 & 2

CO2 emissions from Wifirst's vehicle fleet (petrol) alone accounts for 63% of emissions from the first two scopes of 2022. At the beginning of 2024, 12.5% of vehicles are expected to be replaced by electric vehicles. We will continue to switch as much of the fleet as possible to electric as we upgrade our vehicles.

Scope 3

1/ Repackaging
Wifirst implements a variety of actions to reduce the environmental impact of its business. Our first carbon footprint assessment confirmed that reconditioning equipment helped reduce our environmental footprint while extending the lifespan of equipment and combating early obsolescence. As a reminder, Wifirst manages its equipment in a circular fashion, reconditioning it whenever it can be re-used.



Sorting equipment
The equipment to be reconditioned is identified and validated by the technical teams.

Reconditioning equipment
A return process has been developed to ensure quality through appropriate packaging and to facilitate tracking and tracing of the equipment.

Recycling obsolete equipment
Local waste collection centres have been identified to enable materials to be recycled and to reduce the carbon impact of travel.

Why have we chosen to highlight this method in our carbon footprint report?

- This is the method that will enable us to significantly reduce our carbon footprint.
- Reconditioning our equipment also helps us meet our low-carbon path, since extending its lifespan is a way of reducing our Scope 3 emissions.
- It's also a way of combating hardware obsolescence, in line with our 'as a service' approach: as long as the equipment has no functional limitations, we do everything we can to make it last.
- It is a resilience indicator that prepares us to deal with shocks: climatic shocks, geopolitical shocks, health shocks, while taking immediate action on our environmental and social impact.

+11,000

network devices
reused in **3 years**

To get all the stakeholders on board, we had to bring them together and determine the stages of the procedure, modify the tools and train the teams.
The conviction of our stakeholders and their enthusiasm for implementing reconditioning methods to reduce our impact is remarkable:

Testimony of Nicolas Rapenne, Managing Director of Elogs (formerly Edox)

Can you introduce yourself and Elogs' business?

ELOGS has been working with Wifirst since 2008, assisting with the logistics and workshop configuration of the equipment needed to deploy WiFi infrastructures at its customers' sites.

How do you work with Wifirst?

Quite naturally, and without waiting for the obligation to set up a CSR policy, ELOGS and Wifirst got together to set up a product recovery chain for products returned at the end of a contract, enabling them to be reused as part of after-sales services and subsequently in green offerings.

What are the steps involved in reconditioning?

Reconditioning consists of 5 stages:
- Recovery of products from customer sites by Wifirst staff
- Return to ELOGS stock for sorting and traceability labelling
- Testing according to strict specifications to ensure that the product functions identically to a new one
- Cleaning and packaging the product
- Storage pending re-use

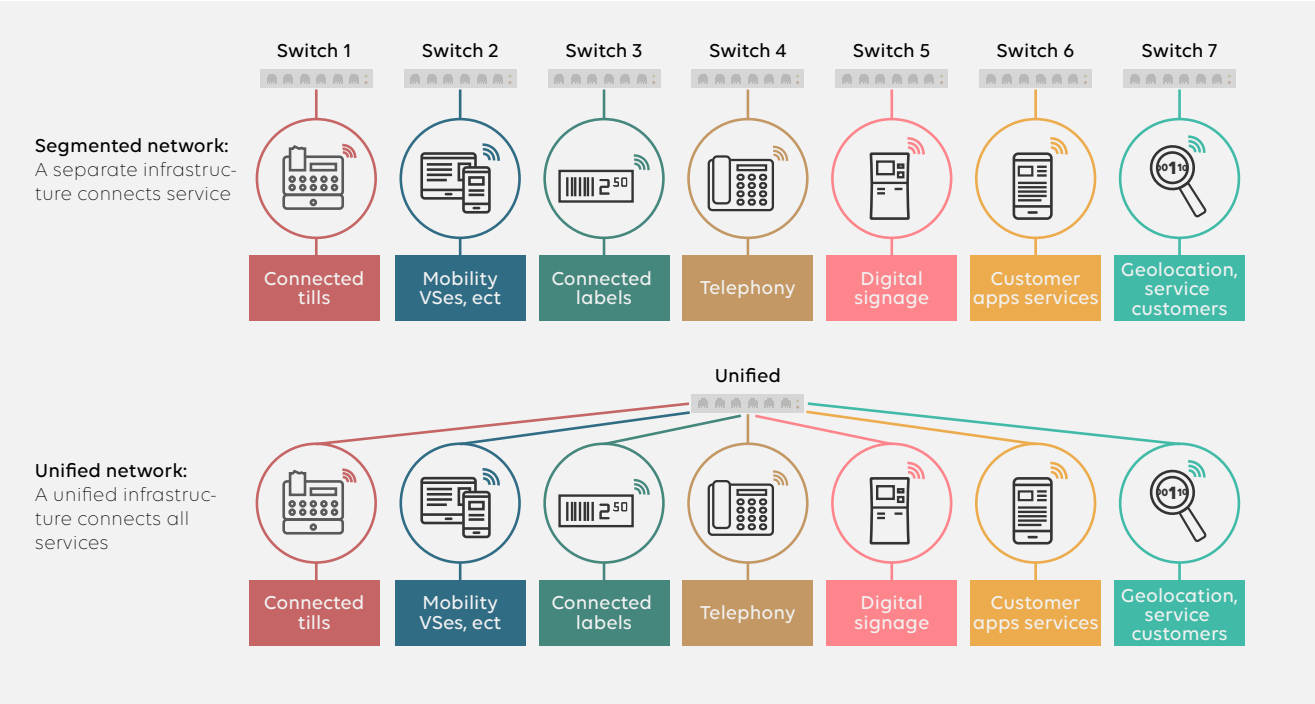
When a product fails the tests, it is recycled and returned to an eco-organisation, which organises the end-of-life of products by recycling their various components.

Why and how will the circular economy become essential in the future?

The circular economy has become essential in our sector in order to drastically reduce the waste of our resources, guarantee access to technology for a larger part of the population, and secure supplies in the face of geopolitical, economic and health problems. The general public is now demanding reconditioned products, and companies are also moving in this direction, more or less constrained by their CSR commitments and cost-cutting policies. The most difficult thing now is to meet the strong demand and find sources of products that can be reconditioned.

2/ Unifying network infrastructures

The most effective way of reducing a network's environmental footprint is to upgrade the infrastructure. This makes it possible to reduce the number of devices and therefore indirectly, the network's energy consumption.
The unified network consists of connecting different digital services on a single infrastructure. This reduces by a factor of 2, 3, 10 or more the amount of equipment that needs to be produced, routed, installed and supplied with energy.



The challenge is therefore: to reduce the environmental footprint of infrastructures while enabling the growth of digital uses (limiting costs, risks and environmental impact). Controlling end-to-end networks is therefore one of the best ways of reducing the environmental impact and cutting greenhouse gas emissions.

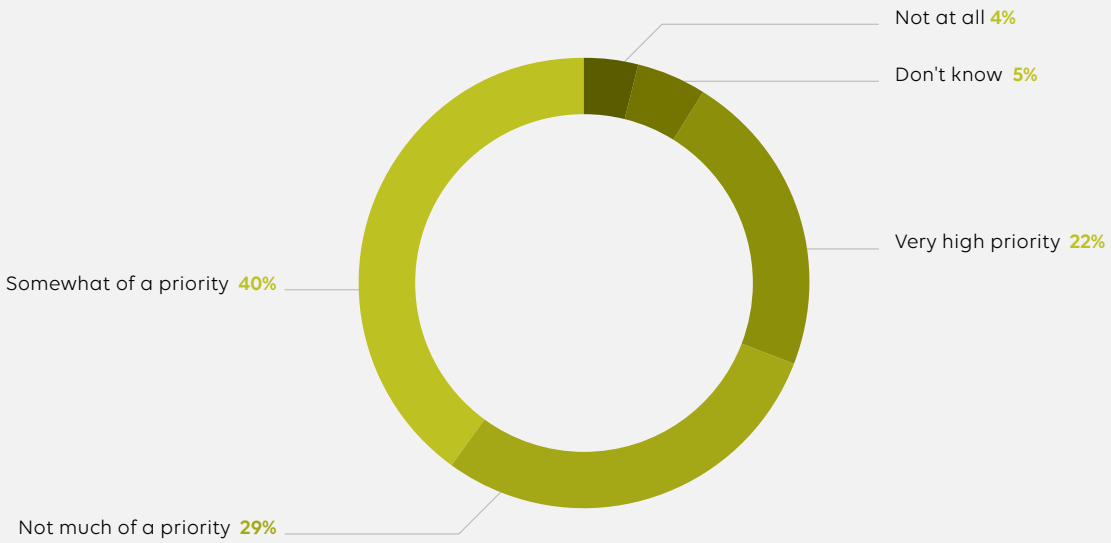
Digital innovation and CSR, two mutually compatible challenges: the concrete example of retail

Between the 27th of February and 7th of March 2023, Infopro Digital Études conducted a survey of retail managers on behalf of Wifirst[6] . The first finding was that 69% of respondents said that digital devices had increased in their shops, 46% of them said the increase was very significant. Priority was given to synchronisation between stores and the website (70%), handheld scanners (67%), tablets for sales assistants (64%) and PDA terminals (61%).
At the same time, 62% say that the environmental impact of digital technology is a priority for their company. And that's just as well, because the commercial sector regulation requires companies with commercial premises of more than 1,000 m² to declare their energy consumption and take steps to reduce it, with targets of a an almost 40% reduction by 2030.

[6] https://www.lsa-conso.fr/innovation-numerique-et-rse-deux-enjeux-conciliables,436754

ENVIRONMENTAL IMPACT, A PRIORITY ISSUE

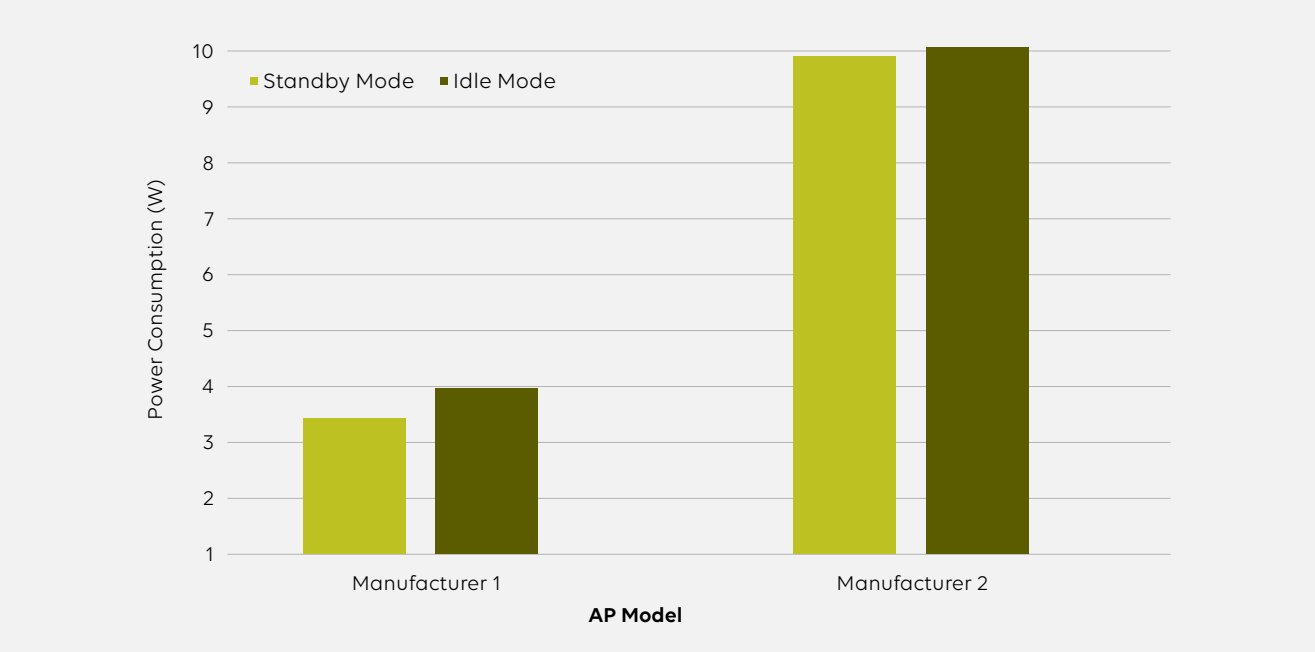
In your opinion, is the environmental impact of digital technology a priority for your brand?



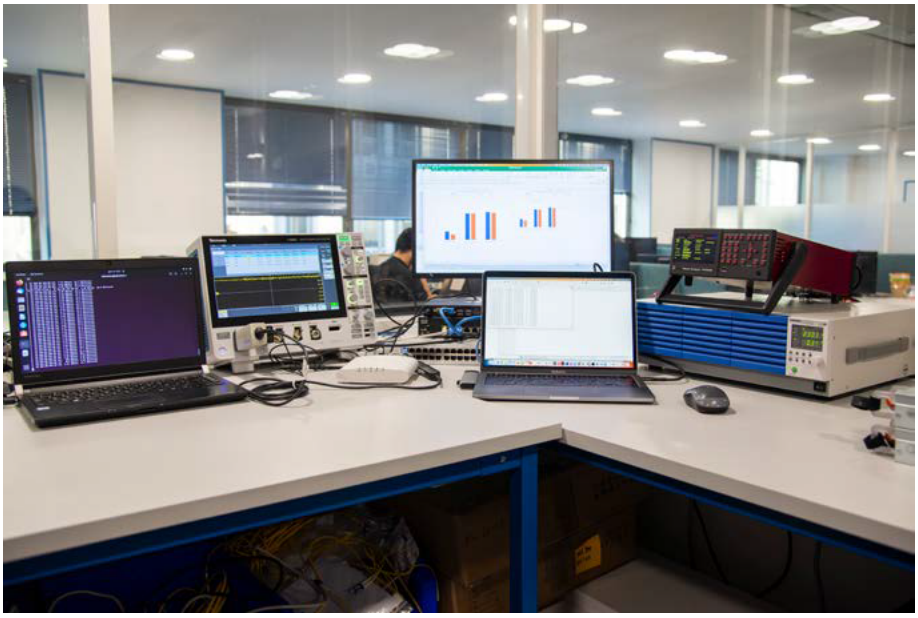
This makes infrastructure unification an obvious choice. With a single deployment, we can halve deployment costs and save 30% on maintenance. And over an area of 1,000m², for example, this can mean cutting network energy consumption by a factor of five.
As well as the economic stakes, the ecological stakes are increasingly important to these companies, and are becoming a real selling point.

3/ The energy impact: preparing for tomorrow

Not all network equipment is equally functional, and the same is true when it comes to energy performance. The challenge is to be aware of the energy consumption and functionality requirements of networks to be able to opt for less energy-intensive equipment.



This is the focus of research for Hamidou Dembélé, a doctoral student at ITM Atlantique and a researcher within Wifirst's technical management team.
His work was published in July 2023 in the scientific journal IEEE (Institute of Electrical and Electronics Engineers).



Experimental test bench in Wifirst's R&D department

Based on this research, we want to propose a general model capable of predicting or estimating the impact of network traffic on the energy consumption of an access point. This will undoubtedly enable us to provide better support for our customers in the not-too-distant future.

CONCLUSION

We know that it is possible to strike a balance between developing our business and reducing our greenhouse gas emissions, and we are doing everything we can to achieve it. The fact that we manage and control our infrastructure from end-to-end also means that we have a better understanding of our environmental impact and can therefore reduce it more effectively.
Our core business is to provide a comprehensive offer to our customers' telecoms challenges: simplified management, a single point of contact, optimised costs, improved quality of service and productivity, and a richer customer and employee experience.
This offer takes into account all of the above as well as an energy-related dimension.

We don't push our customers to buy new equipment, but we do let them benefit from software innovations developed over time. We also encourage them to consider reconditioning, which benefits from the same approach.

Unifying network infrastructures also means building a backbone that avoids the «layering» pile-up and the energy that goes with it.

Using WiFi solutions that directly integrate IoT / ESL modules eliminates the need for a separate, dedicated infrastructure for ESL control. This saves energy, simplifies installations and reduces the risk of radio interference between systems.

Our technical department is working on systems to optimise the energy consumption of the networks, in particular the introduction of mechanisms to reduce power or even switch off certain equipment at night to reduce energy consumption.

We have an R&D department dedicated to analysing the actual consumption of different manufacturers' terminals as a function of radio parameters (signal/rate). This is a strong signal and a real investment in energy optimisation.

In conclusion, we are convinced that mutualised infrastructures have to play a central role in our low-carbon path.
Through our actions and projects, we continue to respond to the societal challenges facing the digital industry and anticipate the demands of our customers, suppliers and employees, coordinating with our regulatory authorities and third-party agencies to contribute to carbon neutrality in line with the Paris agreements.