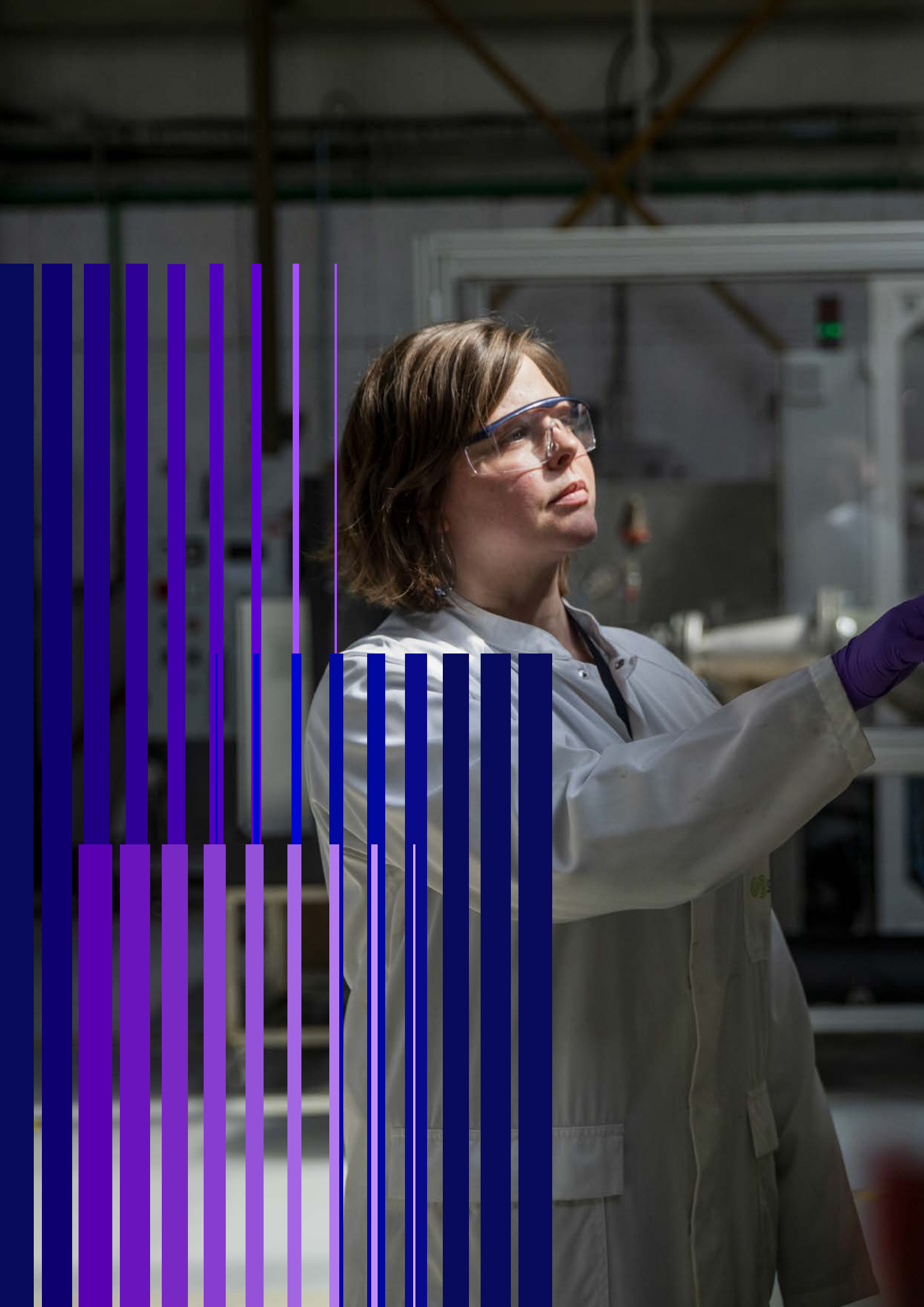
SUEZ innovation

that matters

PRESS PACK - 2025



Editorial

In a world where disruptions are accelerating, at SUEZ our firm belief is that **innovation is more necessary than ever, because it plays a crucial role in developing practical solutions to the major challenges of our time.**

With the last ten years being the hottest on record[1], we are continuing to innovate to offer communities solutions that help them reduce carbon emissions by turning waste into energy more efficiently.

As half of the world's population is already facing water shortages[2], we are continuing our efforts to combat leaks by making water networks ever smarter. We are also preserving groundwater by using solutions inspired by nature, and constantly improving technologies for desalinating seawater and reusing wastewater, creating alternative water resources for communities.

We are innovating to help cities deal with the increasing frequency of extreme weather events such as heavy rainfall and flooding, for example by using digital solutions to anticipate risks and by adapting infrastructure.

We are helping communities achieve greater independence by developing innovative solutions to recycle strategic raw materials contained in electric vehicle batteries, wind turbines and photovoltaic panels.

For many years, we have been working on PFAS, or "forever chemicals", and are now able to offer robust treatment solutions to our customers.
We are continuing to innovate in order to deal with the essentials: water, raw materials, energy and the climate.

We are continuing to innovate as we have been doing for more than 160 years, to support human progress. **Innovation is in SUEZ's DNA, and our approach to innovation is profoundly people-focused.** Above all, this is true because it helps improve the quality of life of the people who use our services, and more broadly that of the people living in the communities in which we operate. Our approach is also profoundly people-focused because it relies on the passion and energy of our 40,000 staff members and our 1,300 experts. Finally, we believe that while technological innovation is essential, it is not sufficient. That's why **we have led the way in social innovation**, creating a subsidiary focusing on social integration in 2003 and making partnerships with social economy entities an integral part of the services we offer.

Our efforts are focused on what's essential, and we share that focus with our partners. **For SUEZ, innovation also means developing new ecosystems that are virtuous and create value**, in order to increase local and industrial synergies. We do that by working with other companies, with academia, with our local authority customers, and with start-ups.

With our long-standing expertise and the talented people who join us, we are determined to accelerate innovation in order to maintain key water and waste services, today and tomorrow.

Yves Rannou and Pierre Pauliac
Interim Co-CEO & Chief Operating Officer Recycling & Recovery
Interim Co-CEO & Chief Operating Officer Water

[1] World Meteorological Organization (WMO)
[2] UNESCO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Editorial

Designing the energy recovery units of the future, which use artificial intelligence to improve performance, produce more and more energy locally from waste and avoid emitting CO2 into the atmosphere; getting a clearer view of wastewater networks using algorithms, so that we can maintain them more effectively; predicting the risk of coastal flooding in order to adjust urban amenities; improving the performance of biogas plants using digital solutions; converting increasing amounts of organic waste into renewable energy etc. **Our innovations have practical applications, and are already having a tangible impact**. In the last few months, they have played a big role in attracting new customers to SUEZ and in helping us retain existing ones.

Those innovations result from the scientific expertise of our 1,300 researchers and experts, chemists, engineers and data scientists, all combined with the local knowledge of our operational teams. **Relying on science to develop solutions for communities: this is what innovation means at SUEZ.**

Science is what enabled us to file 37 patents in 2024, making SUEZ one of the top 50 entities in terms of the number of patents filed with French patent office INPI. It's also the goal of the strategic partnership that we recently signed with France's National Centre for Scientific Research (CNRS). This new partnership strengthens our long-standing collaboration with the CNRS, with which we have collaborated on around 30 projects in the last ten years.

Scientific excellence, combined with our industrial capabilities and investment capacity, is now allowing us to explore new possibilities.

For example, we have worked with the CNRS to build a first **laboratory pilot for hydrothermal gasification**. And we are now building an industrial-scale pilot with CNRS that aims to mass-produce a single piece of equipment that can recover increasing amounts of resources from sewage sludge, producing renewable gas and elements xxx minéraux ? minerals such as phosphorus, while also removing pollutants.

A few weeks ago, we officially opened our **Waste to Materials Lab**, a new technological platform that characterises, breaks down and recycles waste consisting of complex products and composite materials. In particular, the platform helps the various entities involved in the production of renewable energy to manage the end-of-life phase of their equipment as part of a virtuous circular economy approach.

With our partners at joint venture Carbonity, we recently produced **our first biochar**, a material obtained from forestry and farming waste that acts as a carbon sink and helps revitalise soils.

These projects are spurring us on to **continue our innovation efforts and also continue our virtuous collaborations.**

From the day it was founded, SUEZ has relied on science to address the environmental issues of its time. We are following the same course today, with passion, commitment and determination. **Our innovation strategy forms part of our long-term vision. It has one clear objective: to develop practical solutions** that benefit people and the environment today, while anticipating the solutions of tomorrow.

Jérôme Bailly
Innovation, Research & Services Director

Innovation in figures

+50%

increase in the R&D budget between 2022 and 2027

budget

x2

Waste reduction and recovery

budget

x4

Support for carbon reduction

1800

patents

37th

In the INPI ranking of entities filing the most patents in France in 2024

1300

experts
200 more than in 2023

400

researchers

24

key areas of expertise to meet the challenges of the water and waste industry

CIRSEE: SUEZ's global innovation centre for 40 years

CIRSEE Le Pecq, Western Paris:
Research, technical support and analysis relating to water, materials and biology

CIRSEE Croissy, Western Paris:
Experiments and testing in semi-industrial pilot units

CIRSEE Nanterre, Western Paris:
Breaking down and recycling complex materials

BioResourceLab Narbonne, Southern France :
Recovery of resources from organic waste

4
research sites

130
researchers

10 centres of excellence and research in france and china

International Water and Environmental Research Centre (CIRSEE) France (Water and Waste)
SUEZ global innovation centre

Engineering and Construction Centre France (Water and Waste)
Construction and commissioning of facilities

Distribution Technical Centre (CTD) / France (Water)
Design of water distribution networks

Plant Operation and Maintenance Centre France (Water and Waste)
Industrial process innovation

LyRE / France (Water and Waste)
Behavioural and contractual innovation

Metering and Measurement Technical Centre (CTCM) France (Water)
Water meters, smart devices

Engineering Technical Centre (CTI) / France (Water)
Design and construction of networks and plants

Chongqing Centre of Excellence (Water)
Wastewater treatment

Singapore Innovation and Water Distribution Centre (Water)
Rainwater, data science

1. Innovation for sustainable water management

CLIMATE CHANGE IS HAVING A MAJOR IMPACT ON THE WATER CYCLE, WHICH IS CHANGING AND BECOMING UNPREDICTABLE: SOMETIMES THERE IS TOO MUCH WATER AND SOMETIMES NOT ENOUGH, WHICH IS MAKING COMMUNITIES MORE VULNERABLE TO SITUATIONS OF WATER STRESS AND FLOODING. IN ADDITION TO THIS CLIMATE-RELATED DISRUPTION, THERE IS THE ISSUE OF POLLUTION OF THE ENVIRONMENT BY HUMANS WHICH AFFECTS WATER QUALITY.

HAVING ENOUGH WATER OF SUFFICIENT QUALITY IS A KEY ISSUE FOR LOCAL COMMUNITIES, BUT ALSO FOR FARMERS AND MANUFACTURERS. AT SUEZ, WE HAVE PUT WATER AT THE HEART OF OUR INNOVATION STRATEGY. WE ARE DEVELOPING INNOVATIVE CIRCULAR SOLUTIONS TO ENSURE RESPONSIBLE MANAGEMENT OF WATER RESOURCES.

WE ARE FOCUSING ON OPTIMISING CONSUMPTION AND COMBATING LEAKS IN ORDER TO REDUCE THE PRESSURE ON RESOURCES. WE ARE DEPLOYING TREATMENT SOLUTIONS THAT ALLOW US TO ANALYSE, DETECT AND REMOVE MICROPOLLUTANTS, INCLUDING PFAS, IN ORDER TO ENSURE HIGH-QUALITY WATER. WE OFFER ALTERNATIVE SOLUTIONS SUCH AS THE REUSE OF TREATED WASTEWATER AND SEAWATER DESALINATION IN ORDER TO ADDRESS THE CONSEQUENCES OF DROUGHT.

Listening to our drinking water pipes: detecting leaks with our IAcoustique solution

WHY TAKE ACTION?

Globally, almost 30% of drinking water is lost in networks between the plants in which it is produced and its final destination. In France, the proportion is around 20%.
In addition, post-meter leakage on users' premises amounts to 8-10% of the drinking water produced. As well as the obvious economic cost, these water leaks have an environmental impact because resources are lost and leaks contribute to soil erosion, landslips and property damage.

To help operators detect leaks more effectively, and preserve water sources, SUEZ has developed solutions that use leading-edge technologies such as the internet of things (IoT), artificial intelligence (AI) and data analysis.

INNOVATION IN ACTION

SUEZ offers proven technologies that combine data science, water-related expertise and local knowledge to detect problems and leaks in drinking water distribution networks, and thereby achieve better control over consumption and the environmental impact.

USING AI TO COMBAT LEAKS IN WATER NETWORKS

The IAcoustique solution enables users to understand acoustic signals emitted by the network in order to detect possible leaks. It uses an AI algorithm that analyses thousands of pieces of data collected by sensors installed in water networks (flow meters, pressure sensors and consumption meters), along with data from the library of leak sounds recorded and confirmed by SUEZ's experts across the 100,000 km of networks it operates in France. IAcoustique is integrated into the **Aquadvanced®** Water Networks digital platform, which offers a comprehensive view of how water networks are operating, thereby reducing the time taken to detect leaks and improving network efficiency ratios, reducing water losses by 20%.

KEY FIGURE

IAcoustique, up to

5x

as many leaks can be detected with the same number of sensors!

With a population that increases sharply in the summer season and given the impact of climate change, the Cannes region faces major challenges in terms of conserving its water resources. SICASIL (Syndicat Mixte des Communes Alimentées par les Canaux de la Siagne et du Loup) has granted SUEZ a nine-year contract to produce and distribute very high-quality drinking water to eight towns in the Cannes region, home to over 180,000 people.

This service is provided by SUEZ group subsidiary SO'EAU and has already resulted in the installation of 700 sensors. By the end of September 2025, the plan is to install 21,206 smart meters to monitor most of the water consumption taking place in the region and detect leaks in the network and on consumers' premises more quickly. Ongoing network analysis covering 1,035 km of the network takes place in order to limit the duration of any leaks, reduce the volume of water lost and allow rapid response by SO'EAU's teams.

PREVENTING LEAKS IN THE HOME USING REMOTE WATER METER-READING

SUEZ has designed and developed **ON'connect™**, a remote solution that monitors water consumption constantly by automatically reading water meters, and generates alerts in the event of leaks or unusually high consumption. The SUEZ group is now Europe's leading player in remote meter-reading, with almost 7 million meters installed around the world[3]. Remote meter-reading means that users can monitor their consumption closely, respond quickly to any leaks and adopt more efficient practices, for example by reducing consumption and installing more efficient equipment. **On average, SUEZ's consumer and business users equipped with remote meter-reading solutions reduce their water consumption by 16%.**

WSC, the company in charge of water and wastewater services in the Maltese islands, started to invest in rolling out smart water meters in 2009. Today, more than 310,000 smart meters have been deployed, resulting in coverage of more than 96% of the territory. With the data collected and processed by SUEZ's **ON'connect™** solution, all customers in the Maltese islands can monitor their water consumption and almost 3,500 notifications are sent every month to alert them in the event of unusually high consumption. The service allows consumers to reduce their bills and save water, and enables WSC to improve the efficiency of its network, respond to problems and reduce leaks.

KEY FIGURE

With

7 million

smart water meters, SUEZ is Europe's leading player in remote meter-reading.

Looking for leaks in water networks in Chalon-sur-Saône (France)

IMPROVING THE PERFORMANCE WATER NETWORKS BY MONITORING SMART METERS

Following on from the success of the **Smart Operations Centre** in Pecq in the Paris region – a monitoring centre that for 10 years has co-ordinated the monitoring of 3 million smart meters across France to improve the performance of water networks – SUEZ is continuing to develop its activities in this area. In March 2025, the Group opened its Smart Operations Centre in Maidenhead in the UK, which will collect and analyse data from millions of smart water meters across the country. The aim is to allow operators to monitor water networks continuously and identify potential failures or leaks as early as possible.

Traditional leak detection methods, such as acoustic detection, are effective but rely on human expertise and the analysis of basic data. By incorporating AI and advanced data processing into these technologies, we are making leak detection more effective and allowing operators to detect leaks in water networks earlier and more accurately.

Claire Mathieu,
Head of Data & AI, SUEZ

[3] In France, 2.8 million meters have been installed across more than 600 local authorities, including in Paris, Le Havre and Mulhouse; in Europe, SUEZ has installed meters in Spain, Malta (over 310,000 smart meters), the Czech Republic and Poland; in the rest of the world, it has installed meters in Morocco, Australia, French overseas territories (French Polynesia) and Uzbekistan (upcoming installation of over 400,000 smart meters).

Sewerball: detecting problems in sewer pipes

WHY TAKE ACTION?

In France, more than 3.2 billion m3 of wastewater are collected and treated every year, before being discharged into the natural environment. Wastewater and rainwater management is a public health and environmental protection issue, as well as being a logistical challenge for the local authorities that own sewage networks and plants.

Sewage networks are subject to wear and tear and corrosion, and must be upgraded regularly. In France, it is estimated that only 5% of the sewage network is inspected every year, while only 0.5% is upgraded. This means that infrastructure built to have a useful life of 60-100 years is actually being used for 200 years.

It is now necessary to invest heavily in upgrading sewage pipes to ensure effective wastewater services and adapt them to climate change, particularly instances of drought and flooding. This represents a considerable amount of work, and local authorities must prioritise which parts of the network to upgrade first.

INNOVATION IN ACTION

SUEZ, which operates around 75,000 km of networks in France, has developed its Sewer Family, a range of innovative solutions for monitoring the condition of wastewater networks in order to guide local authorities in their sewage pipe maintenance work and help them take decisions.

With **SewerBall**, a patented smart ball measuring 70 mm in diameter – SUEZ offers its customers an autonomous network inspection tool. There is no need for people to go down into the sewer: SewerBall has built-in sensors that analyse all physico-chemical parameters (pH, temperature, conductivity and redox potential) of the network, along with a geolocation system. The data collected is then interpreted by a proprietary SUEZ algorithm to identify problems in the network, without having to clean out or empty the sewer, which would result in service interruptions and entail significant costs..

SewerBall is already used in France and abroad, and in early 2025 was deployed in the sewage networks of water company Severn Trent in the UK. In less than five days, SewerBall inspected almost 12km of networks, located 17 intrusions and identified seven defective points in the network, along with an obstruction at a point where treated water is discharged into the environment at Blythe Bridge. For towns close to the coast, SewerBall can also detect saltwater intrusions linked to rising water levels in sewage networks.

SUEZ has also developed **SewerBall Camera**, a smart ball 115 mm in diameter that is carried along by the flow of sewage water and can provide a 360° view of pipes in order to carry out a precise analysis of the network's condition and help the local authority prioritise work.

The camera is larger than the SewerBall, can travel long distances (up to 5 km of pipes analysed per day) and can reach networks that are difficult for people to access, with no service interruptions.

With the **Sewer Quad**, a four-wheel-drive remote-controlled drone, SUEZ's teams can take 360° images of networks to create a digital twin of the infrastructure being inspected, and locate connections, damage and buried manholes. It gives access to networks that are too small for people to enter (less than 500mm in diameter), including those with a contaminated atmosphere. Finally, the **Sewer Drone** is a remote-controlled flying drone with a high-definition camera, allowing teams to carry out analysis work quickly (covering over 100 metres in a few minutes) and across large distances.

The combination of the SewerQuad, SewerDrone and SewerBall solutions allows sewage network operators to maximise the number of situations they can deal with and to access all of their infrastructure. With this Sewer Family, SUEZ allows local authorities to analyse their infrastructure quickly, economically and safely, helping them to manage repair work as well as the required investment.

KEY FIGURE

+ 1300 inspections

(covering more than 500km) of sewerage systems worldwide using SewerBall

SewerBall, developed by SUEZ, enables users to identify and locate leaks and intrusive elements in water networks.

The ease of use and the amount of data collected by the SewerBall are impressive. We were able to inspect almost 6km of water network – three times the 2km we initially planned to inspect – even though access was difficult, in the bed of a river with steep banks. The physico-chemical measures made possible by the SewerBall provided an essential complement to visual inspection. The data allowed us to locate and quantify water intrusions so that we could prioritise repairs.

Bruce Rozan
Water department of the City of Lausanne (Switzerland)

Controlled and sustainable groundwater recharge

WHY TAKE ACTION?

Climate change is disrupting the water cycle: sometimes there is too much water, sometimes not enough. Communities need to adapt to this new situation in order to manage their water resources more effectively and deal with prolonged droughts, erratic precipitation and devastating floods.

Groundwater represents a genuine natural reservoir and is our primary ally in managing water resources, which are becoming less reliable. SUEZ has developed global expertise in groundwater recharge, combating falling groundwater levels by forcing water to infiltrate into the soil.

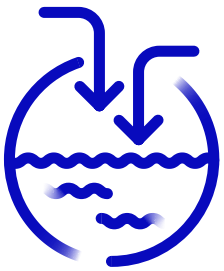
INNOVATION IN ACTION

In the Métropole Toulon Provence Méditerranée region, the town of Hyères-les-Palmiers has a remarkable diversity and natural wealth: it consists of three islands, a peninsula, 40 kilometres of coast and 23 kilometres of beaches, large areas of farmland and forests and a historic town centre. These natural riches are a big draw for tourists, which increase Hyères-les-Palmiers' population by a factor of four during the summer season. This means that the town must adapt to the influx of tourists while maintaining a pleasant living environment as well as a high level of service for local people.

The limited amount of groundwater on the islands and overexploitation of the river Gapeau's water table on the mainland have considerably reduced the availability of freshwater and led to the inland intrusion of saltwater. This is caused by the groundwater table being lower than sea level, which results in seawater entering the water table, causing a significant increase in the salinity of the water withdrawn from it, above the benchmark threshold.

When the local authority asked for assistance, SUEZ set up the **Aqua Renova** project to improve the way withdrawals from the island's groundwater are managed, and to restore the Bas-Gapeau water table by recharging it through the infiltration of freshwater, known as managed aquifer recharge (MAR). The technique is inspired by nature and allows the water table to be recharged with surface water in winter – when it is plentiful – in order to create a buffer between the aquifer and the sea. Combined with improved management of the Bas-Gapeau water table using the gradient method, the water table is protected from saltwater intrusion and the city can remain self-sufficient even during a drought.

KEY FIGURE



Thanks to the Aqua Renova project and the recharging of the water table, led by SUEZ, the town of Hyères has increased its self-sufficiency ratio back to:

88%

At SUEZ, we are innovating in order to help local authorities anticipate, manage and reduce the impact of high water levels and floods. Using our smart solutions combined with leading-edge technologies such as data analysis and artificial intelligence, we offer effective tools for protecting the environment, property and people, while also limiting operational costs.

Antonin Fradin,
Head of Smart Water Solutions, SUEZ

Flood risk: using AI to increase resilience

WHY TAKE ACTION?

In recent years, Europe has seen some severe episodes of flooding. In July 2021, Germany and Belgium were hit with historic rises in water levels. In the winter of 2023-2024, the Nord-Pas-de-Calais region of France saw major flooding and a thousand people had to be rehoused. In October 2024, the region of Valencia in Spain experienced deadly flooding.

These violent phenomena are becoming increasingly common because of climate change. This is prompting local authorities to take early action and adapt to the growing threat, and stormwater basins built around certain large cities can contain excessive rainwater. According to the European Court of Auditors, the cost of flood damage across the EU is likely to rise from €7 billion per year between 1981-2010 to €46 billion per year in the 2050s, and to €98 billion per year in the 2080s[4].

INNOVATION IN ACTION

SUEZ has developed AI-based digital tools to help local authorities anticipate the risk of high water levels and coastal flooding, and to adapt their infrastructure to deal with these unpredictable meteorological phenomena as effectively as possible.

ANTICIPATING AND LIMITING THE RISK OF HIGH WATER LEVELS FOR URBAN INFRASTRUCTURE

SUEZ is working with Singapore's National Water Agency – otherwise known as the Public Utilities Board or PUB – to extend and maintain the system for monitoring reservoirs and rainwater collection zones in the city-state. The project is part of PUB's roadmap for meeting Singapore's water needs and using resources in the most efficient way using digital technology. The **Aquadvanced**® platform has been in place since 2016 at the Marina Barrage, and has been extended to the whole of Singapore to check the condition of reservoirs and canals using data from the rainwater network and weather forecasts. The aim is to limit the risk of flooding and improve the way the city-state manages its water resources.

UNDERSTANDING COASTAL FLOODING RISKS IN ORDER TO PROTECT LOCAL POPULATIONS

SUEZ is also working with entities in charge of managing coastal areas to forecast coastal flooding risks, with the aim of protecting local people and infrastructure. The city of Biarritz in Southwest France is highly exposed to large swells in the Atlantic Ocean. The local authority asked SUEZ to monitor the impact of storm surges on the seafront and anticipate the associated risks. The Group put in place the **Aquadvanced**® solution, which is based on data collected in real time and predictive modelling using meteorological and oceanographic parameters (waves, tides, wind, atmospheric depressions) to watch over each area affected by coastal flooding risks, such as beaches and infrastructure locations.

The system allows users to monitor and predict changes in water levels along the coast, possible instances of the sea overflowing onto the land, and potential damage when waves break through protective structures. Using the system, operators can anticipate a storm three to five days before it occurs, and then track developments hour by hour as the storm progresses. The solution is the culmination of ten years of research by SUEZ in the Basque Country, in collaboration with the Group's clients and scientific partners. Innovation is continuing through the research done by KOSTARISK, a laboratory operated jointly by the Université de Pau et Pays de l'Adour, Fondation AZTI and SUEZ's Rivages Pro Tech centre.

[4] Special report on the EU Floods Directive: progress has been made in assessing risks, but planning and implementation need to be improved

Image of a beach in Biarritz (France), where SUEZ uses the Aquadvanced© solution to monitor the impact of storm surges on the seafront.

Analysing, detect and removing PFAS

WHY TAKE ACTION?

Per- and polyfluoroalkyl substances (PFAS) produced by the chemicals industry, otherwise known as "forever chemicals", have become a major public health and environmental pollution issue.

In France, defining and checking compliance with public health standards are the responsibility of the health authorities. Currently, European regulations – transposed into French law into 2023 – require them to look for 20 types of PFAS in drinking.

Recent regulations on assessing PFAS levels

Directive (EU) 2020/2184 of 16 December 2020 on the quality of water intended for human consumption (the Drinking Water Directive or DWD) was transposed into French law in January 2023 through decree no. 2022-1720 of 29 December 2022, which introduces a new aggregate limit of 100 ng per litre of drinking water for 20 types of PFAS. Since 1 January 2023, that limit has been the quality benchmark level. Analytical monitoring by regional health authorities will be rolled out across all drinking water sites in France by mid-2025.

INNOVATION IN ACTION

SUEZ is making water quality a key priority in its research activities. In 2018, CIRSEE – its centre of research and excellence – began an R&D programme to detect, analyse and assess the presence of PFAS in water, and then to devise innovative processes and methods to treat all water and thereby preserve water resources. **SUEZ can now detect 65 types of PFAS** in water (water courses, groundwater and drinking water) including TFA, the smallest molecule in the PFAS group. Its method of analysing PFAS can also be applied to wastewater, sewage sludge and leachates from waste storage centres.

In addition, SUEZ can design, build and operate various systems for treating PFAS that may be present in water sources and drinking water. There are several proven technologies – such as activated carbon adsorption, nanofiltration and low-pressure reverse osmosis – that can be used to treat PFAS and produce drinking water that complies with regulations. SUEZ has a long-standing expertise in these solutions. Deciding which one to use depends on the quality of the water to be treated and the client's wishes.

ACTIVATED CARBON ADSORPTION

Adsorption allows micropollutants to adhere to a solid surface consisting of activated carbon in granular form within a filter.

NANOFILTRATION

Nanofiltration captures micropollutants that are smaller than one nanometre (10^{-9} m).

LOW-PRESSURE REVERSE OSMOSIS

Reverse osmosis captures micropollutants with sizes of down to 1 Angstrom (10^{-10} m), i.e. virtually all micropollutants.

Ternay, located in “Chemical Valley” to the south of Lyon, is on the front line in terms of PFAS pollution in water. After these chemicals were detected in water in 2022, the Southern Rhône region’s drinking water management authority decided to act. The authority used SUEZ’s expertise to implement a long-term PFAS treatment solution so that it could provide high-quality water to its 170,000 users.

Firstly, PFAS analysis was carried out to gauge the nature of the pollution. SUEZ then carried out a series of laboratory tests in its international research centre CIRSEE to identify which PFAS treatment technology would be most effective.

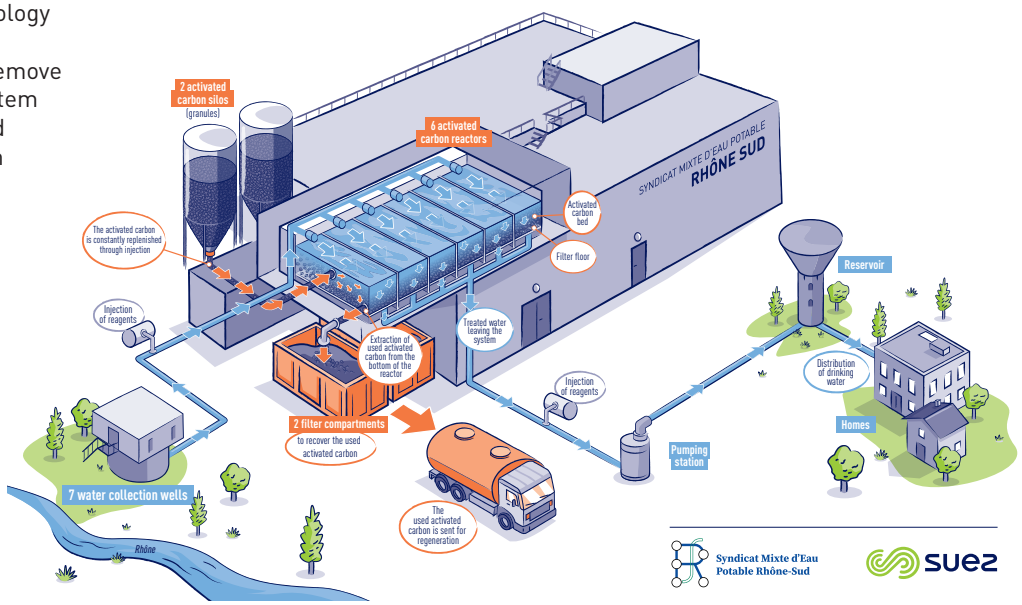
The solution it selected consists of activated carbon filters that are continuously renewed: this is a patented SUEZ technology, and results in a modular solution that can be integrated into existing treatment plants. An industrial pilot – involving tests carried out in the actual conditions encountered in a treatment plant – was performed to corroborate the laboratory results.

SUEZ has operated the Ternay drinking water treatment plant since 2016, and in March 2025 began modernisation work to incorporate the PFAS treatment system. The six activated carbon absorption filters already in use will be fitted with **Carbazur**® Simplex technology, allowing the activated carbon to be continuously renewed. Activated carbon is automatically injected and extracted for regeneration in a way that does not interrupt the operation of the plant. In addition, the frequency with which the carbon is renewed can be adjusted to changes in the quality of the raw water entering the plant, i.e. increases or decreases in the concentration of PFAS.

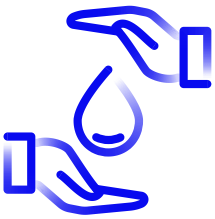
PFAS TREATMENT MODULE /

Ternay drinking water production plant

This is the first time that this technology has been introduced in an existing drinking water treatment plant to remove PFAS in France. From 2026, the system will allow guarantees to be provided regarding the removal of PFAS from water leaving the plant.



KEY FIGURE :



In Chemical Valley,

170 000 users

will receive water from which PFAS have been removed using SUEZ technology.

SUEZ can treat PFAS in water in order to produce drinking water that meets the new regulatory limits. We are very proud to be working alongside the Southern Rhône region’s drinking water management authority as part of this project, the first of its kind in France, which will protect the health of our fellow citizens. These solutions can also be adapted to treat PFAS in municipal and industrial wastewater.».

Gilles Boulanger,
Director of CIRSEE.

Giving wastewater a new lease of life to preserve our water resources

WHY TAKE ACTION?

The reuse of treated wastewater (RTW) is a practice that is used to varying extents around the world. In France, 0.6% of water in the network is reused, as opposed to 91% in Israel, 14% in Italy and 8% in Spain[5]. However, wastewater can be a precious resource for communities suffering water stress, particularly when they are far away from the coast.

Once treated, wastewater can be reused for purposes as varied as crop irrigation, watering of green spaces and industrial processes such as cooling, washing and manufacturing. It can also be reinjected into groundwater to help replenish underground water reserves and, in some regions, it can be used for non-drinking applications at home, such as washing the car or paths, or watering green spaces.

Using wastewater several times makes it possible to limit the amount of water removed from a community's resources and to conserve drinking water for other uses such as drinking, cooking and personal hygiene. RTW can even be used to produce drinking water depending on the local context.

INNOVATION IN ACTION

An RTW project involves various aspects: sociological (social acceptability of reusing treated wastewater), administrative environmental and technological SUEZ has developed comprehensive expertise in helping local authorities determine whether an RTW project is right for them and in implementing projects as the case may be. All projects require a prior study regarding the environmental impact, particularly in situations where wastewater helps maintains the minimum flow of a water course in summer.

Having carried out more than **50 RTW projects** and with its range of solutions covering the various uses of treated wastewater, the Group can produce reused water suitable for all purposes: the complexity of the treatment method differs according to how the treated water will be used.

The technologies most commonly used are:

> Filtration: using sand, discs or membranes (ultrafiltration)

> Disinfection: chlorination, ultra-violet radiation, ozonation etc.

For some purposes, particularly the production of drinking water, additional technologies are used to:

> Remove micropolluants from the reused water through activated carbon adsorption, ozonation and reverse osmosis filtration

> Reduce salinity and remove other minerals, using nanofiltration, reverse osmosis and electrodialysis

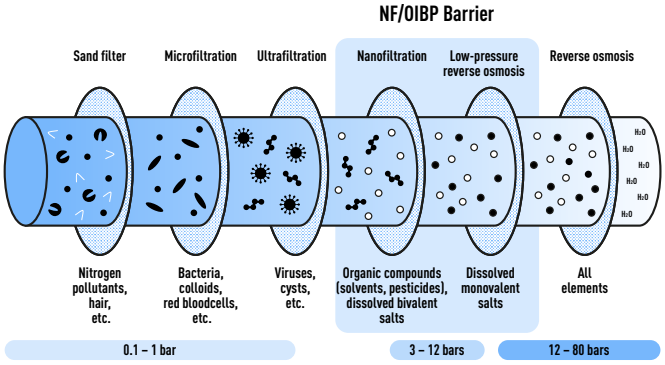
[5] OIEAU - https://www.oieau.org/actualites/le-chiffre-cle-de-la-semaine-la-reutilisation-des-eaux-usees-traitees-en-france-metropolitaine

Various wastewater treatment processes depending on the intended use

The most frequently used treatment processes are filtration (using sand, discs or membranes – ultrafiltration – and disinfection (chlorination, ultra-violet radiation, ozonation). For some purposes, particularly the production of drinking water, additional technologies are used to remove micropollutants (activated carbon adsorption or reverse osmosis filtration) and reduce salinity and certain minerals (nanofiltration, electrodialysis).

Various levels of Membrane filtrationcan be applied to the wastewater depending on the intended use

- **Aquazur®** sand filtration
- **Ultrablue®** ultrafiltration
- **Ultrafor®** ultrafiltration with membrane bioreactors
- Reverse osmosis

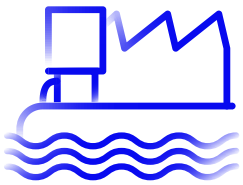


In China,

SUEZ and Shandong Public's new joint venture aims to finance, build and operate a wastewater treatment plant in the Jining industrial park, one of China's top 20 chemical industrial parks. With daily treatment capacity of 10,000 m3, the project will turn high-salinity wastewater into industrial water used by businesses in the park, with the aim of reusing 100% of wastewater.

The new wastewater treatment plant will be able to produce around 3.6 million m3 of water per year, the equivalent of around 1,500 Olympic-sized swimming pools. In addition, it will be possible to recycle 85% of the crystallised salt products extracted from the high-salinity wastewater to produce sodium sulphate via the treatment process.

KEY FIGURE



+ 50 RTW projects

carried out by SUEZ

Turning seawater into a new resource through desalination

WHY TAKE ACTION?

Between two and three billion people across the world are experiencing water shortages and the situation is likely to get worse in the coming years. Water demand is constantly rising, particularly as a result of growth in the world's population, freshwater resources are being seriously affected by climate change and the world's water courses are experiencing levels of drought not seen since 1921 Glaciers are melting at an ever-faster rate, endangering freshwater supplies in many regions of the world.

By 2030, global demand for freshwater is expected to exceed supply by around 40%[6].

At SUEZ, we are working with communities to manage water in a structured way, in order to reduce pressure on available resources and, where necessary, make use of alternative resources. The latter could arise from the reuse of treated wastewater and the desalination of seawater and brackish water in coastal areas experiencing water stress.

INNOVATION IN ACTION

Desalination is now a mature solution, with applications that can vary according to the local context.

> **The process can use seawater,** but also brackish water, which is a mixture of freshwater and seawater found in places such as river estuaries and lagoons.

> **It can ensure a constant supply of water,** as is the case in many Middle Eastern countries, or provide a back-up solution to be used in the event of a drought.

> **It can be used to produce drinking water** or industrial process water.

SUEZ is a world leader in desalination solutions. We have built more than **260 desalination plants around the world, providing our clients with robust, tried-and-tested solutions.**

Our long-standing expertise, combined with our investment and innovation capabilities, mean that we can develop ever more advanced technologies to improve desalination performance and offer solutions that are increasingly sustainable and accessible.

Our **SeaDAF®** range, for example, maintains the integrity of reverse osmosis membranes – used to filter seawater – in cases of poor water quality, for example when there is a large amount of seaweed. **SeaDAF®** Filter is a commercially available piece of equipment that combines two stages of treatment in a single unit, reducing the environmental footprint by 25%

We have also been working on the brine discharged by desalination plants for many years now. We have developed digital modelling systems and diffusers that dilute the brine more effectively in seawater. We can also connect desalination plants with wastewater treatment plants to dilute the brine with treated wastewater before discharging it into the natural environment. We are developing circular solutions to recover materials from brine and thereby help to create new resources. In particular, we can:

> **Extract and recover CO_2** in order to use it to reduce the alkalinity of the water produced;

> **Produce higher-quality freshwater by remineralising** it using a mixture including calcium and magnesium extracted from brine;

> **Produce acid that can be reused to pretreat seawater** and to clean reverse osmosis membranes

Finally, to reduce the carbon footprint of the desalination process, we can now supply renewable energy to production plants.

[6] 2023 Report of the World Commission on Water Economics

In Sri Lanka,

The plant currently produces 24,000 m^3 of drinking water per day – which can be increased to 48,000 m^3 per day – and it was designed and built to supply drinking water to 300,000 people in the city of Jaffna and the surrounding urban and rural areas via an 8km pipeline. The plant was completed in 2024 and will be operated and maintained by SUEZ for a seven-year period.

Jordan,

As part of a consortium led by Meridiam, and working alongside local and regional partners, we were selected by the Jordanian government to **finance, build and operate the world's second-largest desalination plant**. With capacity of 851,000 m3 per day, the plant will supply drinking water to three million people in the capital Amman and the city of Aqaba. It will help increase Jordan's water security by producing up to 40% of the drinking water consumed in the country.

© SUEZ / Franck Dunouau

KEY FIGURE:

+ 260

desalination plants built worldwide by SUEZ

Each of the desalination plants we design and build is a response to the local issues of each community. But one thing they all share is their use of high-precision technologies to achieve the best possible economic and environmental performance.

Yvan Tréal,
Commercial Director
Engineering & Construction at SUEZ

In our CIRSEE research centre, the MEMlab platform is designed to assess and compare ultrafiltration, nanofiltration and reverse osmosis membranes to identify operational problems and come up with solutions.

2. Pushing back the limits of waste recovery

2.3 billion tonnes of household waste were produced worldwide in 2023

- ACCORDING TO THE UN, THE VOLUME OF WASTE IS LIKELY TO GROW BY TWO THIRDS BY 2050, REACHING 3.8 BILLION TONNES. HOWEVER, THE OVERALL CIRCULARITY RATE WAS ESTIMATED TO BE ONLY 7.3% IN 2023[7].

- IN FRANCE, THE AMOUNT OF WASTE PRODUCED ACROSS ALL SECTORS (AGRICULTURAL, INDUSTRIAL, TERTIARY, HOUSEHOLD AND CONSTRUCTION) WAS 345 MILLION TONNES IN 2022. THIS WASTE IS A CHALLENGE FOR LOCAL AUTHORITIES AND MANUFACTURERS, WHICH HAVE THE RESPONSIBILITY OF PROCESSING IT TO LIMIT ITS IMPACT ON THE ENVIRONMENT. HOWEVER, THE WASTE ALSO CONSTITUTES A SOURCE OF MATERIALS THAT CAN BE RECYCLED INTO SECONDARY MATERIALS OR CONVERTED INTO ENERGY.

- WE WORK EVERY DAY TO CHANGE HOW PEOPLE PERCEIVE WASTE, FROM MERE REFUSE TO RESOURCES THAT CAN BE TRANSFORMED AND REUSED. THE GROUP APPLIES A HIERARCHY OF PROCESSING METHODS IN ITS WASTE MANAGEMENT STRATEGY, WORKING WITH CLIENTS TO REDUCE, REUSE AND RECYCLE WASTE AND RECOVER MATERIALS AND ENERGY, IN ORDER TO EXTRACT AS MUCH VALUE AS POSSIBLE FROM IT.

- WITH 7 MILLION TONNES OF WASTE PROCESSED IN ENERGY RECOVERY UNITS (ERUS) IN FRANCE AND THE UK, SUEZ IS A MAJOR PLAYER IN MANAGING WASTE AND CONVERTING IT INTO LOW-CARBON RESOURCES, IN EUROPE AND WORLDWIDE. IN FRANCE AND THE UK, THE GROUP OPERATES 43 ERUS THAT TOGETHER PRODUCE 2,500 GWH OF ELECTRICITY AND 3,000 GWH OF HEAT EACH YEAR.

- THE GROUP IS CONTINUING TO INVEST IN R&D – INCREASING ITS SPENDING BY 50% SINCE 2022 – TO DEVELOP NEW RECOVERY SOLUTIONS THAT MAXIMISE THE AMOUNT OF MATERIAL AND ENERGY RECOVERED FROM WASTE.

[7] Circularity gap report, 2024, Circle Economy Foundation.

AI and waste characterisation: the winning combination

WHY TAKE ACTION?

Prevent, sort and recycle: three key steps to reduce the environmental footprint of our waste and preserve natural resources. Although France recycled 52% of its waste in 2022 (inorganic materials and organic matter combined)[8], there is still a way to go to achieve the targets set by regulations. To accelerate the transition, SUEZ is developing solutions based on digital tools and other technologies that make sorting more accurate and faster and recycling more effective.

INNOVATION IN ACTION

Three years ago, SUEZ launched its **Qualiwaste** solution: its aim is to characterise waste, in particular using artificial intelligence technology. SUEZ installs these waste recognition technologies in equipment where it can have the greatest impact: collection centres, sorting centres and energy recovery units. The aim is to help local authorities, individuals and companies with their waste sorting efforts.

> Sorting consumer waste more effectively

The **Qualiwaste Collecte** solution has been fitted to more than 40 refuse trucks in partnership with Lixo and Ficha, making it possible to identify the collection areas where the most sorting errors occur. As a result, local authorities can focus their prevention efforts on those areas and help people to sort their waste more effectively.

> Improving the performance of sorting centres

The **Qualiwaste Tri** solution, developed in partnership with Altaroad, improves the quality of waste entering business waste sorting centres. Cameras are installed at the entrance of centres to carry out an initial check of the waste carried by dump trucks. A second analysis is carried out in the sorting zone to quantify and identify waste suitable for recovery, along with prohibited waste. **Qualiwaste Tri** has increased sorting performance by 20% at the business waste centre in Cheviré (Loire-Atlantique), the first site to test the technology. SUEZ is also investing to improve the quality of waste leaving the sorting process in selective household waste collection centres. The Group has developed **Autodiag**, a camera equipped with an artificial intelligence algorithm to analyse waste streams. Arches equipped with cameras are placed above the sorting conveyors, at the end of the chain, before the waste is baled. The images taken are then analysed by computer vision. **The solution was selected in the "AI for Efficiency" call for projects in the Paris AI Action Summit 2025.** It automates the waste characterisation process, reduces the guesswork associated with the sampling of incoming waste, and increases the quality of plastics sorted for recycling, complementing the expertise of on-site operators. With **Autodiag**, sorting errors for plastic waste are reduced to less than 1.5%. This opens up the possibility of developing automated characterisation for waste such as paper, cardboard and plastic film.

> Improving quality control for waste entering ERUs

An experiment is also underway in energy recovery units (ERUs) to identify, using image recognition technology, non-conforming waste and waste suitable for recovery in household waste. The technology detects two types of non-conformity: differences between the type of waste declared beforehand by the company responsible for collection and the type actually received on site, along with the presence of waste that could block the incinerator, such as bulky items.

> Limiting the risk of explosion related to nitrous oxide

Finally, SUEZ uses **Qualiwaste Nitrous Oxide,** a solution developed with the Greater Avignon region in the sorting centre of the SIDOMRA environmental hub. The aim is to address the problem of nitrous oxide bottles at the regional level. The initiative looks beyond the sorting centre, seeking to prevent and find uses for waste, as well as protecting the health and safety of operators and equipment.

KEY FIGURE

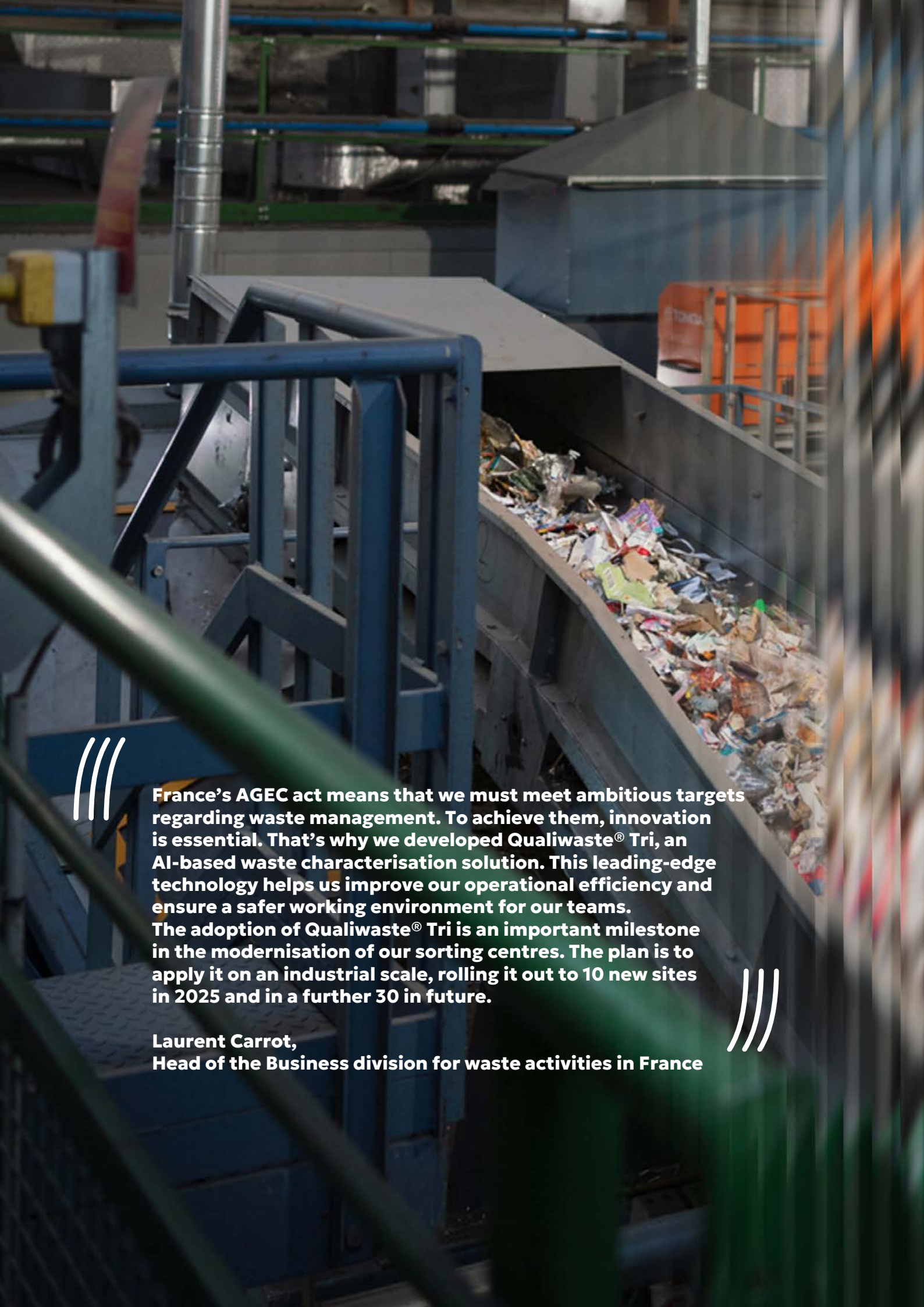
QUALIWASTE Tri

Tri has increased sorting performance by

20%

at the business waste centre in Cheviré (Loire-Atlantique), the first site to test the technology.

[8] Waste production and recycling in France – Excerpt from the 2024 environmental report – Statistical data and studies



France's AGEC act means that we must meet ambitious targets regarding waste management. To achieve them, innovation is essential. That's why we developed Qualiwaste® Tri, an AI-based waste characterisation solution. This leading-edge technology helps us improve our operational efficiency and ensure a safer working environment for our teams.
The adoption of Qualiwaste® Tri is an important milestone in the modernisation of our sorting centres. The plan is to apply it on an industrial scale, rolling it out to 10 new sites in 2025 and in a further 30 in future.

Laurent Carrot,
Head of the Business division for waste activities in France

Organic waste and energy: anaerobic digesters in the front line

WHY TAKE ACTION?

Anaerobic digesters are an effective way of managing and processing organic waste, which comes from farms, food producers, parks, gardens and wastewater treatment plants. They stabilise the waste while producing local renewable energy in the form of biogas, as well as digestate that is used in farming as a soil amendment and a substitute for chemical fertilisers.

With 40 years of experience in designing, building and operating anaerobic digesters and biogas recovery units, SUEZ is making significant investments in this industry, which helps to create local loops and supports communities with the energy transition. Worldwide, **the Group has built 200 anaerobic digesters and in 2024 operated 50 of them, producing around 500 GWh of non-fossil energy in the form of electricity**, heat and biomethane injected into natural gas networks or compressed into biofuel.

INNOVATION IN ACTION

SUEZ offers a comprehensive range of methane recovery solutions to meet the specific issues faced by its local authority and business clients: reducing the amount of organic waste, stabilising it, hygienising it, converting it into high-quality products of agricultural value an increasing production of renewable energy in order to decarbonise their activities while also making them more independent in terms of energy use.
For example, the future Haliotis 2 wastewater treatment plant in Nice, which SUEZ will start to build in May 2025, will optimise energy recovery from sewage sludge. Haliotis 2 will produce 43 GWh of biogas per year, covering the consumption of 11,000 homes or 290 buses

LIMITING THE PHYSICAL FOOTPRINT OF ANAEROBIC DIGESTERS

Making waste processing facilities more compact is an area in which SUEZ is constantly seeking to make improvements, particularly to address the limited availability of land in urban areas. For 10 years, SUEZ's research teams have been working to better understand and control how micro-organisms work within anaerobic digesters. Armed with the resulting knowledge, SUEZ has designed the **Digelis®+** solution, which allows it to treat the same amount of sewage sludge in a facility almost twice as compact, i.e. with a volume around 40% smaller than a comparable facility. The technology is therefore particularly well suited to wastewater treatment plants in urban areas.

MAKING IT EASIER TO DEPACKAGE FOOD WASTE

SUEZ has acquired Vox, which has developed **BioSV**, a depackaging technology used to prepare food waste that is still in its packaging or that contains a large amount of impurities such as plastics and metal. The solution also improves the separation of non-digestible materials, cutting operating costs by reducing the amount of materials to be removed by 20-50%.

SUEZ's research teams have made further innovations by developing a new waste digestion solution called **Digelis® BH$_{FW}$**. This technology allows food waste to be digested alone or in combination with agricultural residues, without the addition of water, using a pre-treatment process that naturally fluidifies waste, freeing up the water it contains. A pilot plant capable of processing 2,000 tonnes of waste per year will open in 2025 to showcase the expected benefits: preparing and digesting waste without added water, reducing the volume of digestate to be removed by 40% and cutting power consumption by 20% while increasing biogas production by 5%. It will be possible to apply this innovative method in new plants and integrate it into an existing anaerobic digestion chain.

INCREASING THE PERFORMANCE OF ANAEROBIC DIGESTERS USING AI AND DIGITAL TECHNOLOGY

Anaerobic digestion is a sensitive biological process that can be disrupted by both internal and external factors such as the quality of incoming waste, the temperature and the presence of inhibitors. To help teams operating anaerobic digesters to monitor site conditions, SUEZ offers analytical and digital solutions that use predictive models and AI algorithms to help them take decisions, anticipate and limit risks that might reduce production, and ensure safe, optimised biogas production:

- **MeMo®,** a digital twin of the anaerobic digester that allows users to oversee the facility and provides recommendations to improve its performance based on predictive simulations.
- **SNAC®,** a mini-laboratory connected to a web platform that analyses the digestate and alerts the operator if it detects issues with biological processes.
- **Ir-SCAN®,** a spectroscopic analysis method combined with an algorithm that produces a fingerprint for the material to be digested in only a few days, as opposed to 20-40 days for traditional analysis methods.

KEY FIGURE:

500 GWh

of renewable energy produced by SUEZ in 2024 by operating anaerobic digester facilities that process waste and effluents from local authorities and businesses.

Anaerobic digestion is not just a solution for processing organic material, it's a way of turning environmental challenges into genuine sustainability opportunities. It's the symbol of a circular economy that extracts value from each resource, resulting in a cleaner planet and greener energy.

Gérard Téboul,
Head of SUEZ's organic division

Sausheim, France: Digelis® Simplex facility to generate biogas from sewage sludge

Energy Recovery Unit ‘s helping communities with their energy transition

WHY TAKE ACTION?

Some waste cannot be recycled, so thermal energy is recovered from it in energy recovery units (ERUs). That energy is then fed into urban and industrial heating networks or used to heat greenhouses. It can also be converted into electricity that is fed into the grid. This local, low-carbon energy source can partly replace fossil fuels, reducing greenhouse gas emissions and helping users to be more independent in energy terms.

INNOVATION IN ACTION

SUEZ is a market-leader in France in terms of building ERUs, using the latest industrial and digital technologies such as computer vision to improve energy performance, reduce the carbon footprint and help integrate sites into their urban landscape and environment. **In 2025, the Group now manages 31 ERUs in France, which produce low-carbon energy from 3.5 million tonnes of waste per year.**

Since 1 January 2025, SUEZ and the Banque des Territoires have been helping waste processing authority Decoset to modernise the ERU in Bessières and rebuild a new plant in Toulouse to make energy from the residual waste of more than 1 million people in the Toulouse area. SUEZ’s project for Decoset sets a new standard in Europe. It includes the latest innovations to improve site performance and increase energy production, allowing the client to process waste while also increasing the community’s energy sovereignty.

Waste streams will be managed dynamically between the two sites: the waste will be directed more efficiently, depending on the needs of the heating networks supplied by the sites. Operational teams will use artificial intelligence and digital tools, providing them with a comprehensive view of waste processing in the community:

- **QualiWaste®,** an artificial intelligence system that analyses images captured by cameras installed at the site to detect any non-conformity in the incoming waste and qualifies the waste by type (bulky waste that could cause blockages, recyclable waste and waste that must be rejected) in order to improve sorting quality.
- **ValoVisio®,** a control solution that centralises operational data from facilities – incineration, energy production, fume treatment – and analyses it in real time. The aim is to anticipate the risk of failure by analysing problems and using predictive management, and to improve performance.
- The **digital twin** provides detailed plans of the plant, comprising a 3D spatial view and a set of technical data. In partnership with SAMP, the project uses an artificial intelligence system, recognising each item of equipment and infrastructure in the site. The digital twin ensures that entities working on the same site can easily share data with other participants.

The future Toulouse

plant has been designed as a community resource, producing 50% more electricity and 20% more heat than the current plant and covering 80% of the needs of the city's heating networks. When the second ERU comes into operation in 2031, the two sites will produce more than 220 GWh per year of electricity and 360 GWh per year of heat, enough to cover the electricity consumed by 90,000 people and the heating needs of 64,000 people. Energy recovery from waste, combined with the greater efficiency of facilities, will help decarbonise the community by avoiding 123,500 tonnes of CO_2 emissions per year on average during the concession's 20-year term.

The ERU will include a centre of expertise with a team of engineers. In collaboration with academic institutions, start-ups and local businesses, it will work on studies that facilitate access to the ERU's decarbonisation solutions.

KEY FIGURE

Toulouse's new ERU will cover more than

80%

of the energy needed by the city's urban heating networks.

The future energy recovery unit in Toulouse, built by SUEZ and Banque des Territoires for Decoset.

With this project, we are pursuing our vision of a resolutely future-facing community. By pooling and transforming our infrastructure, we are addressing the environmental issues of today while also anticipating the challenges of tomorrow. For local stakeholders, the project will reduce waste and generate more energy, as part of an approach that interacts with and is open to local ecosystems.

Vincent Terrail-Novès,
Chair of Decoset

Helping industrial operators to reduce their carbon footprint with Solid Recovered Fuels (SRF)

WHY TAKE ACTION?

France's Energy Transition for Green Growth Act (Loi relative à la Transition Écologique pour une Croissance Verte or LTECV) set ambitious targets in terms of waste management and renewable energy generation: reducing waste storage by 50% by 2025 and increasing the percentage of renewables to 32% of gross final energy consumption in 2030.

In accordance with the waste hierarchy (reduce, recycle, recover, store), SUEZ helps businesses and local authorities to optimise their waste management and ensure they comply with current regulations. The Group has developed new local channels for recovering waste, such as solid recovered fuels (SRF), in which SUEZ is a pioneer in France, in order to generate sustainable and local energy.

INNOVATION IN ACTION

Solid recovered fuels or SRFs are alternative fuels derived from non-recyclable commercial and household waste (wood conglomerate, paper and cardboard, soiled textiles) from waste disposal sites or directly from businesses. Using state-of-the-art sorting and crushing technologies, SUEZ transforms a wide variety of non-recyclable waste into high quality SRF. This waste is then converted into heat to supply industries or urban heating networks, as an alternative to fossil fuels.

SUEZ is helping a number of industrial operators in France to reduce their carbon footprint by turning waste into SRF. This includes sugar producer Tereos in the Hauts-de-France region. Its future SRF heat generation unit managed by SUEZ will replace 40% of the fossil gas consumption needed to run the Origny-Sainte-Benoite sugar refinery-distillery as of 2027. SUEZ is building a SRF unit for chemicals producer Novacarb (Humens) in the Grand Est region that will reduce the plant's CO_2 emissions by 60% as of the end of 2025.

In November 2024, the Group launched the first SRF unit in partnership with Vauban Infrastructure Partners in the industrial area of the Port of Le Havre. The plant produces 300 GWh of thermal energy a year from 90,000 tonnes of biomass and SRF to supply the Le Havre urban heating network and local manufacturing sites (such as the Yara plant and the Chevron plant). The SRF used for the BIOSYNERGY heat generation unit is prepared locally at the TriNergy site managed by SUEZ in Rogerville, a few kilometres from the plant, creating a short-loop waste recovery process.

SUEZ's Biosynergy biomass plant in Le Havre

KEY FIGURE:

CO_2

50 000 tonnes of CO_2

are avoided each year as a result of the recovery of solid recovered fuel and waste wood at the BIOSYNERGY facility.

The BIOSYNERGY facility perfectly illustrates our desire to support the energy transition among industrial operators and local authorities by providing circular solutions. We are very proud of this innovative project, which responds to climate concerns (reducing GHGs) and economic concerns (controlling energy costs) on a local level, as well as allowing for energy sovereignty.

Jean-Michel Kaleta,
Infrastructure Director,
SUEZ Recycling & Recovery France.

Speeding up the circular economy in the automotive sector: “from car to car”

WHY TAKE ACTION?

The European automotive industry is undergoing a major change in its business model due to the combined effect of climate change – requiring the transition to low-carbon energy – and increasing pressure on resources, with geopolitical tensions driving up production costs, as well as fiercer international competition. All these factors are redefining the sector’s rules of play. With 1.34 million vehicles produced in 2024, French automotive production has fallen to its lowest level since the 1960s.

To achieve this transformation, the automotive sector needs to evolve and adapt its model to the new challenges of the contemporary landscape. Speeding up the development of the circular economy in the automotive sector, or the “from car to car” economy, is not only an essential component of the environmental transition in this industry but also a means of achieving lasting growth and ensuring its industrial sovereignty.

INNOVATION IN ACTION

Renault Group and SUEZ have decided to work together to address this challenge and make the circular economy a reality and a way of ensuring the resilience of the automotive industry. The two partners – which have worked together for many years in recycling metal waste and recovering end-of-life vehicles – took their collaboration up a notch in October 2024, with SUEZ acquiring a 20% stake in The Future Is NEUTRAL.

The Future is NEUTRAL is the first circular economy automotive company in Europe, serving all players in the automotive industry (manufacturers, equipment suppliers, retailers, insurers and consumers). Through its four subsidiaries (BCM, The Remakers, Gaia and Indra), the company provides circular economy solutions covering the entire automotive value chain, including design for recycling, reverse logistics, automotive waste management and closed loop recycling of materials for the production of new vehicles, or “from car to car”.

GALAXY

BCM (Boone Comenor Metalimpex) collects, sorts and recovers automotive production offcuts and ensures that metal waste is recycled. In 2024, more than 1.8 million tonnes of metals were recycled (steel, aluminium) in Europe and Asia.

The Remakers specialises in the remanufacturing of automotive parts before they are reincorporated into vehicles. The company has 11,000 products in its catalogue and offers the first remanufacturing service for electric vehicles. The refurbished parts are an alternative to new parts, of equivalent quality and 30% cheaper, saving up to 80% in virgin materials and significantly reducing the environmental impact (carbon emissions, water and energy savings). It delivers 350,000 parts per year.

Gaia specialises in closed loop recycling of automotive materials (3,500 tonnes of materials recycled in 2024), as well as repairing electric vehicle batteries (3,200 batteries processed in 2024) and recovery of surplus or end-of-series parts.

Indra is France’s leading end-of-life vehicle (ELV) recovery network with 350 dismantling centres processing around 400,000 ELVs from all manufacturers each year, and recycling parts and materials obtained from these ELVs

SUEZ offers years of know-how in waste management and is renowned for its expertise in industrial waste management, which it has used to help develop The Future is NEUTRAL:

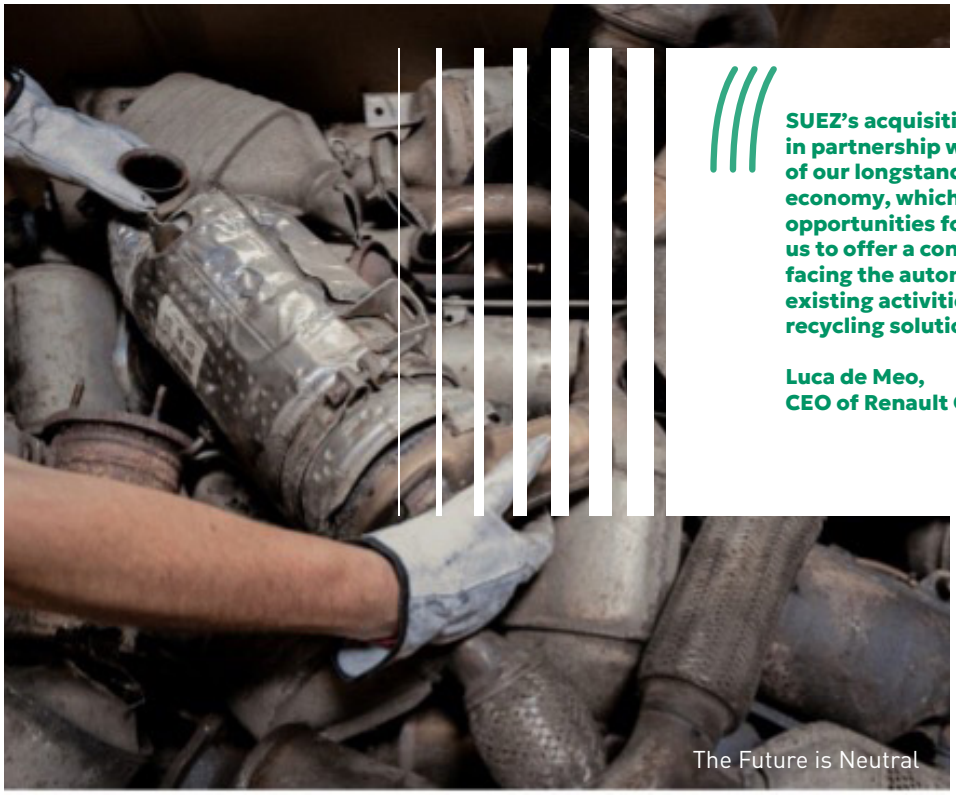
> **End-of-life vehicle management:** collection, mass sorting, sorting and recovery
> **Recycling of ferrous and non-ferrous metals**
> **Production of high quality secondary raw materials,** reused to make new vehicles
> **Development of a structured** system for recycling electric vehicle batteries, including recovery of metals of strategic importance for the energy transition (copper, lithium, cobalt, nickel)

The Future is NEUTRAL offers an approach that is completely new to the automotive industry thanks to this unprecedented partnership between one of the world's leading automotive groups and a key player in circular waste solutions. With the steadfast support of its employees, the company is investing heavily in providing concrete responses to climate change, resource scarcity and international pressure by offering a resilient and sustainable alternative model for the sector.

KEY FIGURE

1,3 million

end-of-life vehicles (ELVs) are processed in France each year.



The Future is Neutral

SUEZ's acquisition of a stake in The Future is NEUTRAL in partnership with us attests to the relevance of our longstanding presence in the automotive circular economy, which is now a key area of the market offering opportunities for growth. Our joint investment will enable us to offer a concrete response to the new challenges facing the automotive sector by ramping up our existing activities and creating new closed loop recycling solutions, from car to car.

Luca de Meo,
CEO of Renault Group

Separating the inseparable: when recycling takes on complex materials

WHY TAKE ACTION?

The development of new technologies related to mobility and renewable energies is leading to complex equipment (electric vehicle batteries) and composite materials (wind power, solar power) being brought to market, for which dismantling and recycling processes are currently being developed. The need for equipment recycling is expected to gain pace **between now and 2030 with the first generation of technologies reaching their end-of-life** (on average 15 to 20 years). It is estimated that by 2025, an average of around 800 wind turbines will have to be dismantled each year in Europe, including 300 in France. This represents around 8,100 tonnes of blades to be recycled each year.

SUEZ is investing in battery recycling in partnership with members of the automotive industry, as well as recycling of wind turbines and solar panels. Teams are working on developing innovative solutions for dismantling and recycling the strategic materials found in this equipment.

INNOVATION IN ACTION

In January 2025, SUEZ opened the new "WasteToMaterials'Lab" platform within CIRSEE, the Group's main R&D centre, to further its expertise in the classification, dismantling and recycling of complex products and composite materials.

The 500 m² platform in Nanterre consists of five research centres, two test centres and one laboratory, with the aim of:

> **Assessing processes for separating and preparing** composite materials from solar panels and wind turbines
> **Experimenting with optimised electric battery dismantling processes**
> **Testing waste classification and sorting technologies**
> **Developing and protecting "made in France" innovations**

To this end, the teams at CIRSEE have been working since 2020 with other industrial partners and research centres on the ZEBRA (ZEro waste Blade ReseArch) project, headed up by the French technological research institute, IRT Jules Verne, to devise an eco-design approach for blades, which are the most complicated part of a wind turbine to recycle.

The ZEBRA project involves leading industrial operators at the cutting edge of innovation in complex materials recycling:

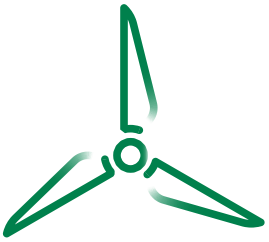
> **Arkema,** for high performance polymer resins
> **Owens Corning,** for fibreglass
> **LM Wind Power,** for blades
> **SUEZ,** an expert in dismantling and waste treatment
> **The CANOE R&D** centre, a pioneer in composite materials recycling technologies
> **ENGIE,** for life cycle analysis of wind turbines

The SUEZ group has contributed to the ZEBRA project by providing its expertise in dismantling and crushing end-of-life wind turbine blades, a real step forward in blade recycling:

> **It all starts with the strategy of dismantling blades** according to the materials that make up the different areas (fibreglass or carbon, plastic resin, wood and polyester foam).
> **The materials are then crushed** and sorted using flotation, in which materials are separated according to their density relative to that of the medium used. For example, materials with a lower density than water float while others sink.
> **Resins and fibreglass are then separated from other materials to be reused following a pyrolysis stage.**

This procedure means that the recycled materials are of high enough quality to be used in a wide range of applications, such as concrete or new construction materials. The resin component can be recycled into pyrolysis oil to produce new polymer resins. **In 2024, the project resulted in the creation of a 100% recyclable wind turbine blade, reducing CO2 emissions by 30% compared with a conventional model and proving the feasibility of the concept of recycling for this type of application.** The ZEBRA project's partners were winners at the 2025 JEC awards in the "energies" category at the ceremony on 13 January 2025, which recognised 11 innovative collaborative projects.

KEY FIGURE:



Around

8 100

tonnes of blades will be recycled each year in Europe between now and 2025.

3. Create High value-added infrastructure: the future of industry

Taking care of the environment is what drives SUEZ.

IN ADDITION TO PROVIDING ESSENTIAL SERVICES FOR LOCAL COMMUNITIES, THE GROUP'S WASTE TREATMENT AND WATER RESOURCE MANAGEMENT ACTIVITIES ARE KEY WAYS OF PROTECTING AND ADAPTING ECOSYSTEMS TO DRASTIC CHANGES IN THE CLIMATE AND THE ENVIRONMENT. IN THIS REGARD, THE FACILITIES OPERATED BY SUEZ PROVIDE A REAL BENEFIT FOR THE ENVIRONMENT.

THE GROUP WANTS TO GO EVEN FURTHER BY TURNING ITS WATER AND WASTE TREATMENT PLANTS INTO HIGH VALUE-ADDED INFRASTRUCTURES IN ORDER TO MAXIMISE PERFORMANCE AND LIMIT THE IMPACT ON THE ENVIRONMENT. ITS TEAMS ARE DEVELOPING SOLUTIONS TO MAKE SITES MORE COMPACT, OPTIMISE ENERGY CONSUMPTION, AND ANTICIPATE AND PREVENT THE RISK OF WEAR AND TEAR AND BREAKDOWNS, IN ORDER TO MAKE FACILITIES MORE RESILIENT AND PROTECT THE ENVIRONMENT.

AT THE SAME TIME, SUEZ IS INVESTING IN TRANSFORMING ITS PURIFICATION PLANTS INTO BIOFACTORIES THAT PRODUCE MORE ENERGY THAN THEY CONSUME, WHICH IS USED TO SUPPLY THE LOCAL REGION.

Carbazur Up: limiting artificial ground

WHY TAKE ACTION?

60% of the Earth's biodiversity is found in the soil, which is essential to life, providing habitat for plant and animal species, water infiltration and carbon capture. However, soil can be irreversibly altered when it becomes artificial.

In France, between 20,000 and 30,000 hectares of natural, agricultural or forest land are taken over each year[9]. This phenomenon is growing at four times the rate of population growth.

To protect ecosystems and biodiversity, the French Climate and Resilience Law (2021) is designed to halve the rate of land artificialisation by 2030 compared with 2011-2020, and to achieve a balance between artificial land and regenerated/renaturalised soil by 2050, with a target of "net zero artificialisation". The Group's 2023-2027 Sustainable Development Roadmap is aligned with these various regulations, making commitments to reduce pressure on biodiversity by helping to lower the rate of land artificialisation.

INNOVATION IN ACTION

The Group's teams are developing solutions to help make facilities more compact. For example, **Carbazur Up, the technology used to treat micropollutants and organic materials, benefits from a 50% smaller footprint compared with similar solutions.** This compact and efficient technology allows for micropollutant treatment in excess of current requirements, as well as neutralisation of tastes and smells.

The technology is in use at Valédeau, the Montpellier water authority's new drinking water production plant opened in June 2024. **The compact nature of Carbazur Up means that the plant's floor area can be optimised, thereby helping it to blend into the local environment.**

KEY FIGURE

Carbazur Up offers a

-50%

smaller footprint compared with similar technologies

[9] French Office for Biodiversity

Compactness is not just a necessity; it's a responsibility. We firmly believe that every square metre counts when it comes to protecting our environment. By developing technologies such as Carbazur Up, we are showing that it is possible to reduce our footprint while maintaining optimum performance. This is our commitment towards achieving a more sustainability future.

Eric Judenne,
Marketing & Sustainability Director,
SUEZ Engineering & Construction

Our “Shared Reality” solution means that plants can make the shift towards more sustainable production in more reliably and more quickly. This collaboration with SUEZ confirms are shared vision regarding the fundamental need for disruptive technologies to respond to the huge challenges facing industry in terms of safety, resilience and the environment.

Laurent Bourgouin,
CEO of SAMP

Optimising site management and adaptation using digital twin solutions

WHY TAKE ACTION?

Water treatment and purification plants comprise hundreds or even thousands of pieces of equipment that require daily maintenance, such as pumps, valves, instrumentation and pipework. In order to work well, these plants therefore depend on this equipment being kept in good condition to ensure a reliable and lasting water supply and wastewater treatment.

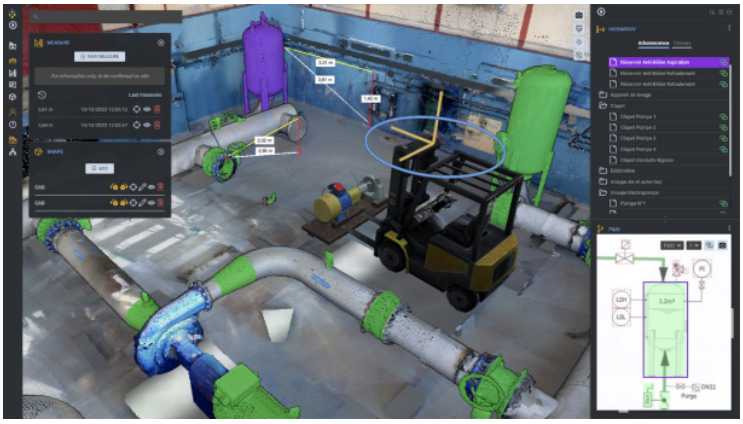
SUEZ is investing in digital twin technology, combined with artificial intelligence (AI), to optimise management of water treatment and purification plants. These virtual models of real equipment provide operators with an exact replica of their facility to better understand their assets and optimise how they are used. They also enable operators to monitor the condition of infrastructure and plan for any adaptations, both functional and structural, in anticipation of maintenance and necessary works and make them more resilient.

This "twin" solution means that new equipment and structures can be reliably integrated into our sites so that they blend in fully with existing equipment.

INNOVATION IN ACTION

In 2020, SUEZ launched a "Shared Reality" solution in partnership with SAMP at a number of drinking water and purification plants operated by the Group, such as the Rosny-sur-Seine wastewater treatment plant owned by the Communauté Urbaine Grand Paris Seine & Oise (CU GPS&O). This solution, developed by French deeptech company SAMP, is used to create digital twins of facilities on the basis of sites' technical data (inventories, plans, schematics, etc.) and using 3D scanning. By using this digital solution in combination with AI, operations teams have access to reliable and contextualised data and are able to work virtually on plants prior to any intervention the ground.

This digitalised environment allows for improved working conditions and site safety, and provides the opportunity to devise optimised maintenance and replacement plans. It also helps to reduce the risk of errors and breakdowns in the day-to-day management of water and sanitation services, thereby helping to preserve our natural heritage and natural environments.



Biofactories: new generation factories for water supplies and local regions

WHY TAKE ACTION?

Built to treat domestic and industrial wastewater, the primary purpose of conventional purification plants was to decontaminate the water supply in order to limit the impact of discharges into the natural environment.

Efforts to make management of purification systems more efficient and sustainable have changed how wastewater is perceived. Sewage sludge has gone from waste to be disposed to sources of materials to be reused in the form of energy and minerals. To this end, the role of treatment plants has expanded, from decontaminating wastewater to cogeneration of renewable materials to be reincorporated into production cycles by means of recovery of wastewater treated using the REUT (reuse of treated wastewater) process.

SOLUTIONS: INNOVATION IN ACTION

SUEZ designs and develops new generation wastewater treatment plants or "biofactories", which constitute real resources for the local regions in which they are located.

> A source of local and renewable energy:
By recovering wastewater and unavoidable energy from processes, these energy-positive plants generate more energy than they use to operate. The biogas produced can be turned into electricity, heat or fuel for urban heating networks and surrounding industries.

> Source of minerals (phosphorous, nitrogen) that can be turned into agricultural fertilisers.

> Source of residual water,
from treated wastewater, which can be reused for irrigation, in manufacturing processes, maintenance of roads and green spaces or even groundwater replenishment.

> Source of cost cuts
thanks to reduced use of chemicals.

Laying the first stone of the new Haliotis 2 treatment plant in Nice. This new generation plant is the culmination of the ambitions of the Nice Côte d'Azur city authority and the Régie Eau Azur water board, coupled with SUEZ's technological expertise to make treatment and recovery of the city's wastewater (26 communes, equivalent of 680,000 residents) a driving force in the region's ecological transformation.

Due to become operational in 2030, this future "all-in-one" plant, which incorporates all of SUEZ's latest technologies in water purification, energy recovery and environmental protection, will be a benchmark in Europe for water treatment plants.

DECONTAMINATION AND REUSE OF WASTEWATER, AN ACUTE ISSUE IN THIS MEDITERRANEAN REGION:

> A biological reactor allows for two procedures to be carried out simultaneously: filtration and intensive biological treatment. Biolite is a natural mineral support for the microorganisms used for purification that does not release any artificial residues into the natural environment at the end of the chain. This means that 90% of microplastics found in sewage sludge can be eliminated.

> A REUT industrial unit is to be installed at the site, which will allow for 5 million m3 of water to be recycled each year, providing 100% of the water needed by the city of Nice for watering green spaces and road cleaning.

FOUR TIMES MORE ENERGY THAN IS USED BY THE CURRENT PLANT, WITH 15,000 TONNES OF CO_2 AVOIDED EACH YEAR:

> Recovery of sewage sludge will allow for the production of 43 GWh of biomethane per year, equivalent to the energy used by 11,000 homes or 290 buses.

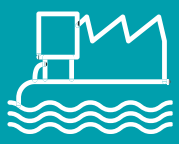
> Incineration of this waste in energy recovery units will contribute 26 GWh a year of energy to be fed back into the Ariane heating network.

> Residual heat from wastewater will also be recovered to supply Nice-Côte d'Azur airport's heating network and the Grand Arenas business district, providing 27 GWh per year.

> Installing solar panels will produce 475 MWh of electricity per year and contribute to making the building energy autonomous.

Finally, Haliotis 2 will blend into its urban environment and landscape, providing a showcase for the preservation of the Bay of Nice by creating a 4.5 hectare biodiversity reservoir with 600 trees, hedgerows and scrubland, and 68% more permeable soil, which will constitute a real breeding ground for local flora and fauna. This will make Haliotis 2 a green lung ideally located at the end of the Promenade des Anglais.

KEY FIGURE



SUEZ operates

7 biofactory

treatment plants worldwide

The future plant will produce

4 times +

renewable energy than is used by the current plant

while also reducing the plant's carbon footprint with

15000 t

of CO_2 avoided each year

Protecting waste resources is one of the major challenges of this century, particularly in this region. It is our duty to do all we can to save water. This future complex – a first in France – will enable us to address the challenges of the next few decades and put our city one step ahead. It will make a significant contribution to achieving the target set out in our Climate Plan of reducing our greenhouse gas emissions by 55% by 2030 and becoming carbon neutral in 2050.

Christian Estrosi,
President of the Nice Côte d'Azur Metropolitan Authority

4. Innovating to reduce the carbon footprint of our activities and those of our customers

CREATING A LOW-CARBON ECONOMY IS OUR SHARED PRIORITY IN ORDER TO ACHIEVE THE TARGET OF CARBON NEUTRALITY IN 2050, AS SET OUT IN THE PARIS AGREEMENT, AND LIMIT GLOBAL WARMING. SUEZ IS HELPING TO ACHIEVE THESE TARGETS BY REDUCING GREENHOUSE GAS EMISSIONS FROM ITS ACTIVITIES AND INCREASING THE PROPORTION OF SUSTAINABLE ELECTRICITY IT USES TO 70% BY 2030 WORLDWIDE AND 100% IN EUROPE, IN KEEPING WITH THE COMMITMENTS OF ITS 2023-2027 SUSTAINABLE DEVELOPMENT ROADMAP.

IN ADDITION, SUEZ PROVIDES LOCAL AUTHORITIES AND INDUSTRIAL OPERATORS WITH INNOVATIVE SOLUTIONS TO REDUCE THE CARBON FOOTPRINT OF THEIR FACILITIES. THE GROUP IS PLANNING FOR REGULATORY CHANGES BY LOOKING INTO CARBON CAPTURE, USAGE AND STORAGE (CCUS) SOLUTIONS. TENS OF MILLIONS OF EUROS WILL BE INVESTED BETWEEN NOW AND 2027 IN RESEARCH AND DEVELOPMENT INTO CCUS SOLUTIONS THAT CAN BE USED AT WASTE AND WASTEWATER TREATMENT PLANTS.

Turning methane from stored waste into renewable energy

WHY TAKE ACTION?

Non-hazardous waste storage facilities accept waste that cannot be recycled or reused. As it decomposes, some of this stored waste emits biogas, which comprises 50% methane, responsible for 18% of the world's GHG emissions and 3% of GHG emissions in France[10]. Methane has the same calorific value as fossil natural gas, which makes it a renewable energy of biogenic origin offering attractive opportunities for recovery.

SUEZ, which manages a number of sites around the world, uses its technologies to optimise waste storage in order to protect the environment and combat climate change.

KEY FIGURE:

Reduction of **20,000 tonnes** of

CO_2

per year by means of biogas capture.
In 2024, SUEZ recovered

1,25 TWh

of biogas from storage facilities

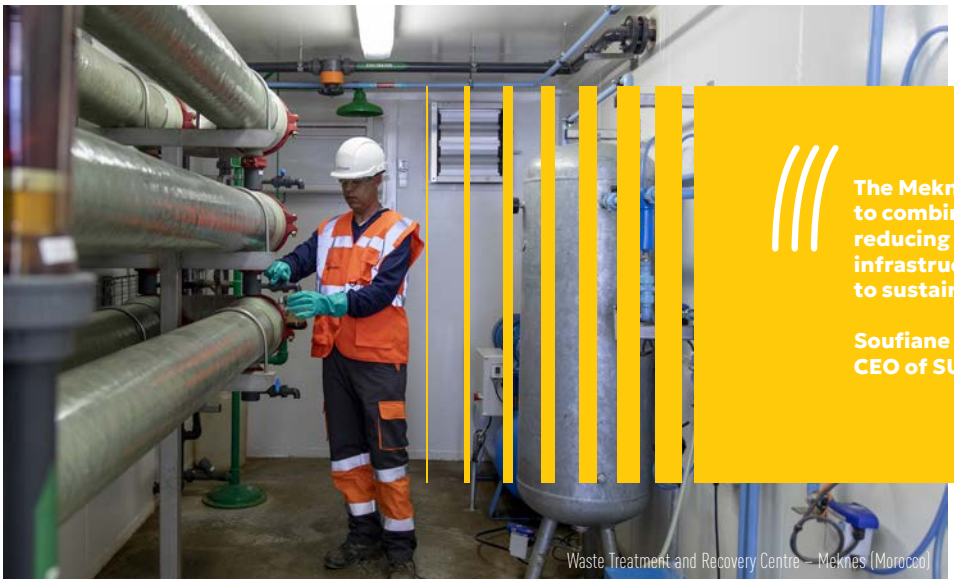
INNOVATION IN ACTION

In Morocco, SUEZ is supporting the country's environmental transition by means of circular waste management solutions. The city of Meknes in the northwest of the country was home to a 25-hectare illegal rubbish dump, which received around 200,000 tonnes of waste produced by the region's 650,000 inhabitants each year. This uncontrolled site represented a public health and environmental hazard for local residents. In 2014, in response to the call for tenders from the Moroccan authorities to rehabilitate the site and create a waste recovery and storage centre, SUEZ built an exemplary green landfill site, using sustainable management while also contributing to energy recovery and the circular economy.

The biogas produced at the site is captured by means of wells drilled into the compacted waste and covered with a layer of waterproof clay, thereby reducing biogas emissions into the atmosphere by more than 6 million Nm3 a year, equivalent to 20,000 tonnes of CO2 a year from the decomposition of waste. The biogas captured is then carried via an on-site collection network to be converted into heat and electricity, and to supply the evaporation unit with liquid residues from waste treatment.

5,500 MWh is produced each year at the Meknes plant, which has been energy self-sufficient since 2023. In recognition of these efforts, the plant has been awarded **Gold Standard international carbon certification**, allowing it to monetise certified carbon credits on the voluntary carbon market to enable industrial operators wanting to make a financial contribution to decarbonisation outside their value chain to benefit.

[10] https://www.statistiques.developpement-durable.gouv.fr/edition-numerique/chiffres-cles-du-climat/fr/donnees-cles



Waste Treatment and Recovery Centre – Meknes (Morocco)

The Meknes plant illustrates our ability to combine energy recovery from waste, reducing greenhouse gas emissions and infrastructure performance with a view to sustainable waste management.

Soufiane Jakani,
CEO of SUEZ Morocco

Using waste to decarbonise transport

WHY TAKE ACTION?

A symbol of our globalised economies, the transportation sector (air, sea, road) accounts for 21% of the world's[11] greenhouse gas emissions and plays a critical role in speeding up climate[12] change. Decarbonising transport is therefore crucial in combating climate change in the years to come.

SUEZ, which produces local and renewable energy by means of waste recovery, helps transportation companies with their decarbonisation efforts in order to speed up the sector's energy transition.

INNOVATION IN ACTION

A RENEWABLE HYDROGEN PLANT TO DECARBONISE URBAN TRANSPORT

SUEZ is supporting transportation in the Créteil region through its involvement in the construction of France's largest renewable hydrogen production plant, attached to the Créteil waste-to-energy recovery unit. As of the end of 2025, the future hydrogen production and distribution plant will produce **one tonne of renewable hydrogen per day** from waste-to-energy recovery. One tonne of hydrogen is enough to power 1,000 vehicles travelling 100 km a day. It will eventually be able to double its production and distribute up to two tonnes a day.

The tonne of renewable hydrogen produced and distributed each day will be used to power public sector and local authorities' heavy vehicles fleets (buses, household waste collection vehicles, HGVs, utility vehicles, etc.), as well as personal light vehicles. Once it comes into service, the plant will provide hydrogen for an entire Île-de-France Mobilité bus service operated by the RATP, and will soon be able to charge household waste collection vehicles in the Grand-Paris Sud-Est Avenir area and neighbouring areas.

This project, headed up by SMITDUVM and H2 Créteil – comprising SUEZ, SIPPEREC subsidiary SIPEnR and Banque des Territoires – the company that is building and will operate the plant, is one of the first to produce renewable hydrogen locally at a price as competitive as diesel. It will avoid emissions of around 1,500 tonnes of CO_2 equivalent a year.

This hydrogen plant is the latest addition to Créteil's energy recovery system, which produces heat for the Créteil urban heating network to supply the equivalent of 16,000 households, and energy sold to the public grid, which represents the equivalent of the annual consumption of 35,000 households.

Energy generation and distribution are major issues for the region and its population. [...] This strategy has gained new momentum with the construction of France's largest renewable hydrogen production plant in Créteil. Hydrogen is central to the energy transition: by replacing fossil fuels, this energy source can be used to power vehicles without emitting greenhouse gases or polluting the air we breathe. [...]

Laurent Cathala,
President of Grand Paris Sud Est Avenir and Mayor of Créteil

[11] AIA 2024

[12] In 2022, electricity generation was still the main emitter of GHGs worldwide, with 39% of total emissions due to fuel combustion. This is followed by transport (21%) and industry (16%, including construction) (source AIA 2024)

AN UNPRECEDENTED AGREEMENT TO DECARBONISE MARITIME TRANSPORT[9]

In October 2024, SUEZ signed a memorandum of understanding with CMA CGM, one of the world's leading shipping companies, to establish a long-term industrial partnership for producing biomethane from waste. In October 2024, SUEZ signed a memorandum of understanding with CMA CGM, one of the world's leading shipping companies, to establish a long-term industrial partnership for producing biomethane from waste. This unprecedented agreement concerns the production of up to 100,000 tonnes of biomethane a year between now and 2030, to power CMA CGM's 650 ships and help to decarbonise maritime transport in Europe.

Joint R&D initiatives and a shared investment structure spearheaded by SUEZ and CMA CGM representing €100 million between now and 2030 have been set up to develop biomethane production plants. SUEZ is capitalising on its expertise in producing biomethane from methanation plants and biogas from non-hazardous waste storage facilities to develop biomethane production projects to supply CMA CGM ships. In 2024, the SUEZ Group recovered more than 1.7 TWh of biogas.

[9] Maritime transport is responsible for 2-3% of the world's GHG emissions

KEY FIGURE:

SUEZ and CMA CGM will invest

100 M€

between now and 2030
in developing biomethane plants
to supply the shipping company's
650 ships

The strategic partnership between CMA CGM and SUEZ, one of the key players in the French energy sector, marks an important step forward. It will enable us to support the production of biomethane for maritime transport, while also speeding up the CMA CGM Group's decarbonisation and safeguarding our aim of being carbon neutral by 2050. This project also makes us more energy self-sufficient, which is a major advantage in gaining energy sovereignty for France and Europe.

Rodolphe Saadé,
Chairman and Chief Executive Officer
of the CMA CGM Group

Hydrothermal gasification: turning organic waste into renewable energy

WHY TAKE ACTION?

Around 340 million tonnes of liquid biomass waste and effluents from industrial and agricultural activities (livestock), residues from methanation plants and sludge from wastewater treatment plants are produced in France each year[11]. The management and recovery of these effluents represent a growing challenge for local authorities, with regulations tending to limit the practice of spreading on agricultural land.

A number of solutions are available to local authorities to treat and recover this sludge, including, in addition to spreading, methanation of organic matter to produce biogas and digestate for the soil, or even incineration.

INNOVATION IN ACTION

SUEZ wanted to go even further in recovering this organic waste to extract all components and get the most out of this wet matter. A team of experts has been working since 2021 on developing hydrothermal gasification (HG), an innovative process for producing renewable gas and recovering the minerals present in sludge while also destroying micropollutants. This process allows for the weight of residual waste to be divided by 15 compared with the weight of collected waste[12].

Hydrothermal gasification is a high pressure (210 to 350 bar) and high temperature (360-700°C) thermochemical conversion process that allows for the conversion of carbon molecules to:

> **Produce methane- and hydrogen-rich renewable gas**

> **Provide fertilising products** (potassium, nitrogen and phosphorus) as an alternative to conventional fertilisers

> **Recover industrial-quality residual water for irrigation needs.** It also plays a role in decontaminating residues by destroying micropollutants and pathogens.

[11] GRT gaz
[12] Hydrothermal gasification white paper, 2022

KEY FIGURE

Potential renewable gas production of at least

3,3TWh

in 2050 from sewage sludge as a result of hydrothermal gasification[2]

With hydrothermal gasification, the weight of residual waste is

÷ 15

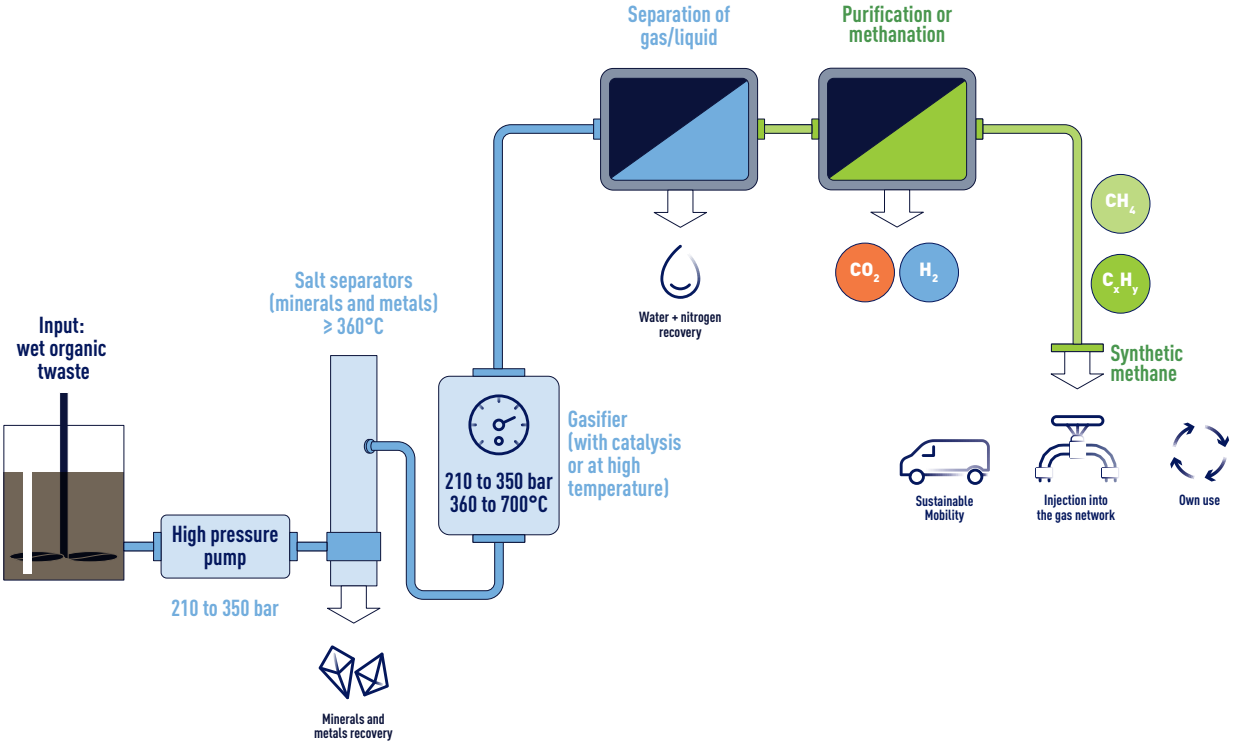
compared with the weight of collected waste

EXAMPLE OF USE

SUEZ is the first company in the waste sector to invest in hydrothermal gasification.
In 2021, the Group joined forces with researchers at the Institute for Solid State Chemistry of Bordeaux (ICMCB) a CNRS laboratory that is a world specialist in supercritical fluids, to develop a unique piece of hydrothermal gasification equipment that is now in operation. This pilot project, which took off in January 2023, treats 5 litres of effluents a year, allowing for the first trials using continuous processing (insertion/extraction).

Following this first successful trial, the SUEZ teams began creating an industrial pilot with treatment capacity of 150 litres of sludge per hour at its Terre d'Aquitaine plant in Saint-Selve (Gironde) to test the technological and financial feasibility of the process. The facility, due to become operational in 2026, will treat organic waste from municipal and industrial sources (sewage sludge). The knowledge obtained during the experimentation stage will be used to define and scale up a standard solution that can be reproduced.

SUEZ firmly believes that this innovative solution has a major role to play in the energy and environmental transition of local regions, as it allows for the production of renewable, low-carbon energy and protection of resources (minerals, water) found in sludge, while also reducing treatment waste.



With hydrothermal gasification, we are reproducing the conditions in the Earth's crust for transforming matter (pressure and temperature) to turn organic waste into new materials: renewable gas, minerals and water. We can do in 300 seconds something that it takes nature 300 million years to achieve. This revolutionary process allows for 100% of the materials found in sewage sludge to be recovered and the creation of circular economy loops, in keeping with SUEZ's aims. »

Grégory Tesse,
Director Operations & Innovation,
SUEZ Engineering & Construction

Carbon reduction, capture and storage: vital ways of decarbonising our economies

WHY TAKE ACTION?

We emit around 40 billion tonnes of CO_2 a year. To comply with the Paris Agreement and limit temperature rise, taking action is essential, firstly by dividing fossil CO_2 emissions from human activity by four between now and 2050.

However, it seems that these efforts to reduce emissions will not be enough to achieve carbon neutrality in 2050. Furthermore, we have to remove and store CO_2 that is already naturally present in the atmosphere to achieve a quantity of around 10 billion tonnes of CO_2 a year by 2050.

There are a number of possible ways of reducing emissions from industry, such as energy efficiency and electrification. Once these means have been activated, some activities still have residual emissions inherent in their processes. To reduce these emissions, the Intergovernmental panel on climate change has identified CCUS – Carbon Capture, Utilisation and Storage – as a key solution.

INNOVATION IN ACTION

- Carbon capture is the first stage of CCUS. SUEZ analyses the various existing carbon capture processes in order to offer the most suitable technologies for each type of project. The Group then looks to turn the captured CO_2 into high value-added products, thereby creating a circular economy. Various innovative CO_2 recovery solutions have been assessed, such as contributing to the decarbonisation of transport by producing sustainable, low-carbon alternative fuels (eFuels) or developing other innovative uses (new molecules of interest, mineralisation, etc.).

- Once captured, the CO_2 can also be stored safely and for long time scales. SUEZ is looking into storage solutions in which the CO_2 is injected into geological reservoirs for very long-term sequestration (reuse of old gas and oil fields that are no longer in operation, dissolving in deep saline aquifers).

- SUEZ has a number of projects in progress, such as in Tees Valley in the United Kingdom, which plans to capture around 900 ktCO_2 a year. The CO_2 will be transported by pipelines and stored in deep geological cavities in the North Sea. The site is ideally located within a cluster of industrial operators, and a shared CO_2 transportation network will be created.

- SUEZ also captures CO_2 at other types of facilities, such as methanation plants, which produce 100% biogenic CO_2. At the Terres d'Aquitaine methanation plant, SUEZ has built a carbon capture and purification unit with Prodeval. The facility, which is in the process of being commissioned, will allow for the recovery of up to 3,500 tonnes of biogenic CO_2 a year locally in greenhouses, in order to increase crop yields, as an alternative to CO_2 produced from fossil fuels.

KEY FIGURE:

The CCUS project at the Haverton Hill and Wilton in the UK energy recovery units aims to capture and store

900 000 t

of CO_2 per year

CO_2 recovery at the Terres d'Aquitaine site allows for

3 500 t

of CO_2 to be avoided a year

CCUS is essential in addressing the challenge of decarbonisation, particularly for hard to abate industries. We firmly believe that this technology can offer a solution to residual emissions from waste-to-energy recovery units. This is what we are pursuing at the Haverton Hill and Wilton units in the United Kingdom. We aim to roll out this technology on a large scale to speed up the decarbonisation of our activities.

Ludovic Mougeot,
Head of the CCUS programme
and carbon solutions at SUEZ

The future carbon capture site attached to the Wilton ERU in the United Kingdom

Biochar: Sequestering carbon, feeding the Earth

WHY TAKE ACTION?

Biochar has been identified by the Intergovernmental Panel on Climate Change (IPCC) as one of the five most effective negative-emissions solutions, complementing the CCUS - Carbon Capture, Utilisation and Storage - technologies.

INNOVATION IN ACTION

SUEZ helps industrial operators with their environmental transition, offering its customers innovative solutions to reduce and sequester their greenhouse gas emissions.

In July 2023, the Group joined forces with Airex Énergie, a specialist in innovative decarbonisation solutions, and Groupe Rémabec, the largest private forestry company in Quebec, to create the joint venture Carbonity and build Canada's first biochar production plant in Port-Cartier, Quebec.

Obtained by means of pyrolysis of forestry residue from Groupe Rémabec's sawmilling activities, biochar allows for carbon found in biomass to be sequestered in a stable and usable form. This process consists of heating biomass residues without oxygen at temperatures of 500 to 600°C in order to stabilise and concentrate the carbon contained in these residues in biochar.

Depending on its properties and the biomass converted, the material produced can then be used in urban or agricultural soils or in construction materials. When it is applied to the soil – one of the most common end-uses – the carbon contained in biochar is kept permanently, which makes it an effective carbon well, while also improving the properties of the soil and crop yields. Biochar is also used in construction.

When used in concrete or asphalt formulations, it improves the materials' characteristics while also reducing their carbon footprint, a key issue for the sector.

Furthermore, producing biochar at high temperatures creates an energy surplus in the form of steam or pyrolysis oil, which can be used locally, either directly on site or by surrounding industries.

KEY FIGURE:

SUEZ and Airex Energie aim to produce

350 000 t

of biochar globally by 2035

The first Carbonity biochar

BENEFIT TANGIBLE RESULTS

The first tranche of the SUEZ, Airex Énergie and Groupe Rémabec plant came into service in early 2025, producing 10,000 tonnes a year of biochar and recovering some of the forestry residues produced by Groupe Rémabec, representing around 58,000 tonnes a year. The first biochar was produced by Carbonity in early April 2025. The energy surplus is used to supply local industries, which are still highly reliant on fossil fuels. The plant's annual production capacity will triple by 2026, making it the largest biochar plant in North America and one of the biggest in the world. Once fully up to speed, it will be able to sequester 75,000 tonnes of carbon a year.

Given its size and the three partners' expertise, this project should eventually increase the availability of biochar on the market and promote the development of the global carbon sequestration market over the long term.

Selling biochar carbon credits helps to offset the residual emissions of companies committed to achieving carbon neutrality, such as Microsoft.

By transforming forestry and agricultural residues, which are currently not widely used, into carbon wells and organic matter for the soil, SUEZ is creating value across the entire life cycle of the material. We firmly believe that biochar will play a decisive role in combating climate change.

Dominique Hélaine,
Carbon Solutions Director at SUEZ

5. A response to environmental challenges thanks to a human-led innovation

TO RESPOND TO THE ENVIRONMENTAL CHALLENGES OF OUR TIME, TECHNOLOGICAL INNOVATION IS ESSENTIAL BUT NOT ENOUGH ON ITS OWN. AT SUEZ, INNOVATION TAKES MANY FORMS: TECHNOLOGICAL, CONTRACTUAL AND SOCIAL. AND ABOVE ALL, COLLECTIVE.

WITH INCLUSIVE RECRUITMENT, PARTNERSHIPS WITH MEMBERS OF THE SOCIAL AND SOLIDARITY ECONOMY IN THE BUSINESS SERVICES WE OFFER, AND ENCOURAGING OUR EMPLOYEES TO HELP OTHERS, WE HAVE DEVELOPED PIONEERING EXPERTISE IN SOCIAL INNOVATION TO AMPLIFY OUR IMPACT AND OFFER CIRCULAR AND INCLUSIVE SOLUTIONS. OUR SOLUTIONS ENABLE EVERYONE TO TAKE ACTION IN THEIR OWN WAY TO SUPPORT THE ENVIRONMENTAL TRANSITION, BY RESTRICTING HOW MUCH WATER THEY USE AND HOW MUCH WASTE THEY PRODUCE. WE WORK WITH OUR CUSTOMERS TO DEVELOP INNOVATIVE NEW PERFORMANCE-BASED WASTE MANAGEMENT MODELS TO HELP THEM ACHIEVE THEIR WASTE REDUCTION TARGETS.

Employment and engagement: innovation beyond technology

WHY TAKE ACTION?

How do we develop employment and inclusion in local regions?

How do we increase the social impact of our activities?

How do we develop local circular economy loops, reuse, urban agriculture, and "niche" waste collection and recovery?

How do we change behaviours and encourage people to behave in an environmentally friendly way?

These important and wide-ranging questions stem from SUEZ's water and waste activities to provide essential services for local communities, while also protecting resources and biodiversity. As a key player in environmental services, the Group has addressed these questions to form the basis of its social innovation policy and provide a response to its stakeholders – local authorities and industrial operator customers, partners, suppliers and employees.

SOCIAL INNOVATION IN ACTION

> Helping people excluded from employment to find work

In France, SUEZ uses its subsidiary Rebond Insertion to help people excluded from employment – long-term job seekers, recipients of RSA (Revenu de Solidarité Active) social welfare benefits, refugees, workers with disabilities and young people without qualifications – to find work in the fields of water and waste management. Since it was created in 2002, Rebond Insertion has helped more than 12,000 people, enabling 7,500 of them to find long-term work or access training leading to qualifications. In 2024 alone, SUEZ supported 822 employees in their integration process.

> Supporting reuse in connection with the social and solidarity economy

In the United Kingdom, SUEZ is responsible for waste collection and treatment for the Greater Manchester Combined Authority, the country's largest waste management authority. The Group is helping the authority to reduce waste with the launch of Renew Hub, a site dedicated entirely to the reuse and repurposing of items destined for disposal.

These items, left by residents at Greater Manchester recycling centres, are renovated at the Hub before being sold at an affordable price at Renew stores or online. Some articles are also donated to charity. Recovered items are repaired in collaboration with members of the social and solidarity economy, such as Recycling Lives, which organises an eight-week programme for ex-prisoners to help them re-enter the world of work. To date, more than 260,000 items have been reused thanks to Renew Hub.

Renew Hub also supports local causes. Each year, £100,000 is donated to the Greater Manchester Mayor's Authority to help homeless people, and £220,000 is given to the Recycle for Greater Manchester (R4GM) community fund to help reduce waste and promote recycling and reuse. This financial support is passed on to 46 charities in Greater Manchester, with more than £1 million donated in total.

> Encouraging employees to help others

To take its social innovation even further, the Group created the Employees' Solidarity Commitment Charter in 2023, which offers two additional days of paid leave a year for SUEZ employees in France wanting to volunteer for a charity or social and solidarity economy enterprise. The Charter also provides the opportunity for employees to leave the company up to 12 months before retirement, while still receiving their salary, to work for a charity. In 2024, 773.5 days of volunteering were provided by SUEZ employees.

We are proud to be involved in innovative projects in relation to social inclusion and responsible consumption, making SUEZ a more inclusive employer in all regions.

Laurent-Guillaume Guerra,
Group Chief Human Resources Officer and Head, Health & Safety at SUEZ.

12 000 people

have been helped back into work by Rebond Insertion since 2002

Dijon Métropole was the first local authority in France to offer SUEZ's Mon Service Déchets app to its residents. From the first year of use, the app demonstrated its effectiveness by helping a number of residents to improve their waste sorting. Reducing sorting errors is crucial for us: each year, around 20% of waste received at sorting centres cannot be recycled.

Jean Patrick Masson ,
Vice-President of Dijon Métropole

Sustainable water and waste management: the power of the people

WHY TAKE ACTION?

Users play an increasingly central role in water and waste management. All their actions – whether restricting how much water they use, sorting their waste or adopting environmentally friendly gestures – help to protect the Earth's natural resources and reduce their impact on the environment. Mobilising and engaging people is essential in working together to build a more sustainable future.

Alongside its customers, SUEZ provides innovative and educational solutions to encourage people to think about what they consume and act in an environmentally friendly way on a daily basis. This civic involvement adds to the range of technical and operational solutions developed by SUEZ to encourage sustainable management of public water and waste services.

SOCIAL INNOVATION IN ACTION

> Helping users to restrict their water consumption

To help consumers who want to understand and manage their water use 24/7, SUEZ has developed the **Tout sur mon eau** ("All about my water") app. This free app enables users to monitor and optimise their water consumption in an intuitive way, thanks to a precise estimate of their monthly consumption in litres and the equivalent cost in euros, which makes it easier for people to manage their water budgets. It also allows for a comparison of each household's water consumption with that of similar households.

Users can view a breakdown of their consumption by area (shower, toilet, garden, etc.) in order to target where savings can be made. Personalised advice is offered according to users' consumption habits, showing the saving made in euros, such as installing water-saving showerheads or tips for more effective watering. The app also includes a "Water in my area" service, which enables users to access all information about water in their area (water price, dry spells, hard water, nearby works, etc.).

> Helping people to reduce and sort waste

Since 2020, SUEZ has monitored the development of French people's sorting habits and behaviour to limit their waste by means of the Odoxa-SUEZ "French people and waste reduction" annual opinion survey. The 2025 survey showed that 9 out of 10 French people sort their waste, an increase that demonstrates that this habit is now firmly anchored into their day-to-day lives. Some environmentally friendly gestures have declined in the last few years, such as bulk buying, short-circuit distribution and not using disposable products (nappies, napkins, tableware).

SUEZ has developed **Mon Service Déchets** ("My Waste Service"), a key solution for helping users to act in an environmentally friendly way. It provides tips on how to reuse and reduce waste in simple ways. Other features are available such as geolocation of voluntary drop-off points, recycling centres and nearby waste centres, as well as reporting problems and sending requests for one-off collections. By scanning barcodes on packaging, the app tells users how each item should be recycled. This engaging and fun app with a strong local anchoring is a comprehensive and effective tool for local authorities wanting to develop their user relations. The app is currently used by French city authorities such as Dijon Métropole, Bourges Plus Communauté d'Agglomération, Limoges Métropole, Le Grand Montauban and Nîmes Métropole.

SUEZ also offers a **smart waste meter** that allows users to track, from their home, the quantity of waste generated each day, as well as the types of waste produced (household, recyclable), and compare this data with local and national averages. Access to this information enables users to measure the waste they produce and take concrete measures to reduce waste. Since 2024, this waste meter has been rolled out among some residents of the Grand Montauban area as part of the first Household and Similar Waste Performance Contract.

KEY FIGURE:

In Dijon, the **Mon Service Déchets** app has allowed for

43 000 items of packaging

to be diverted from household waste to cardboard and paper

Waste management: when performance contracts go hand in hand with careful use and cooperation

WHY TAKE ACTION?

France's anti-waste law of 10 February 2020 has set the target of reducing household waste per inhabitant by 15% by 2030. To achieve this, SUEZ is helping users to reduce their waste by means of prevention and awareness-raising actions in relation to sorting and recycling. The Group also offers local authorities new waste management models, which encourage prevention and optimisation of resources collected rather than simply paying for quantities of waste collected and processed.

INNOVATION IN ACTION

A pioneer in thinking about alternative waste management models, SUEZ has developed a new type of contract for local authorities, based on conservative use targets: the **performance contract**. This is a new model based on prevention and economical use rather consumption, in order to reduce waste production at the source and improve sorting and thereby recovery of materials, particularly plastics.

SUEZ signed a performance contract in 2023 with the Communauté Urbaine de Limoges, setting out innovative measures to encourage the reduction, sorting and recycling of waste. This contract is based on reversing collection frequencies: household waste is collected once a fortnight, while paper and packaging is collected weekly, encouraging residents to sort their waste more. Since June 2023, collection of biowaste has been added in order to further reduce household waste at the source. SUEZ has also launched a campaign to raise users' awareness and encourage them to adopt new practices, in collaboration with local partners.

To support the local region's environmental transition, all household waste collections are made by a fleet of low-carbon lorries, comprising electric vehicles and vehicles powered by biofuel, reducing carbon emissions by 93% compared with the previous fleets, equal to 1,400 tonnes less carbon emitted over the term of the contract.

With this performance contract, Limoges Métropole has opted for a new model of waste management able to drive forward the environmental transition by involving local users. By developing technical innovations and guaranteeing access to and sharing of steering and reporting tools, SUEZ ensures that the service is effective and transparent. Teams are already working with members of the local region to ensure a service that is synonymous with economic, social and solidarity development in the local area.

David Lamy,
Managing Director of Recycling and Recovery at SUEZ France

About SUEZ

Faced with growing environmental challenges, SUEZ has been delivering essential services that protect and improve our quality of life for more than 160 years. SUEZ provides its customers with innovative and resilient solutions for water and waste services.
With 40,000 employees across 40 countries, the Group works with customers to create value over the full lifecycle of their assets and services, and to drive their low carbon transition.

In 2023, SUEZ provided drinking water for 57 million people worldwide and sanitation services for more than 36 million people. The Group generated 7.7 TWh of energy from waste and wastewater. In 2023, SUEZ generated revenues of 8.9 billion euros.

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