



INNOVATION FOR CIRCULAR WATER AND WASTE SOLUTIONS

PRESS KIT

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Cover picture: CIRSEE - Laboratoire d'analyses des eaux - Le Pecq







BUILDING CIRCULAR SOLUTIONS IN WATER AND WASTE THROUGH INNOVATION

The environmental services sector is at a turning point in its development. Climate change, scarcity of resources, the energy crisis and the return of inflation call for new solutions.

- Faced with the risk of shortages, we need to fix leaks and explore new ways of producing drinking water.
- Faced with the scarcity of resources, we need to fully exploit waste and pave the way for new material loops.
- Faced with climate change, we need to develop new solutions and energy services, reducing our carbon footprint while allowing everyone to access renewable energy.
- Faced with new pollution, we need to explore new drinking water treatment processes.

SUEZ has leading teams and assets, both in France and internationally, to support its capacity for innovation. With 1100 experts around the world, nearly 1700 patents and 10 research centres and centres of excellence, not to mention an innovative approach across the company, SUEZ is committed to accelerating major transitions by leveraging its strengths:

Historical and recognised expertise in engineering and construction: with its own construction capacity, SUEZ innovates in order to design new infrastructures and plants, generating ever more resources for local areas and fewer greenhouse gases, as well as to modernise and renew existing facilities.

The ability to offer integrated digital services: SUEZ uses digital technology as a lever to optimise the performance of its clients infrastructures, to increase waste sorting and recycling, and to preserve water quality. Access to, and use of, operational databases on water and waste enable algorithms to be trained and new solutions based on artificial intelligence to be developed.

A positioning over the entire life cycle of an innovation, from the design of the idea to its industrialisation. SUEZ is able to capitalise on the diversity of its sites and research and excellence centres, both in France and internationally.

A complementary approach – open innovation – from the co-construction of solutions with our customers, to scientific partnerships with INRAE, BRGM, Bordeaux University, LSCE and Sorbonne University to encourage upstream research, right through to operational collaborations with startups (Lixo, Prodeval, etc.). The aim: Build an integrated ecosystem to rely on additional skills, maximise the detection of innovative startups and encourage their growth.

Expertise that goes beyond new technologies and relates to behavioural, social and contractual innovation, to support the move towards more energy-efficient uses.

A NEW AMBITION TO SERVE OUR CUSTOMERS AND PARTNERS

In order to meet the accelerating needs of its customers and partners, SUEZ is currently increasing its capacity for transformation, innovation and collaboration with:

Increased R&D resources: with a 50% increase in the budget allocated to our research and development by 2027.

More innovation in waste: with a two-fold increase in the budget allocated to innovative projects in this sector.

A strong focus on decarbonisation: with a four-fold increase in the budget allocated to decarbonisation and a EUR 40 million investment in carbon capture technologies by 2027. SUEZ is using innovation as a lever to achieve the goals set out in its sustainable development roadmap.

More investments in startups: with more than EUR 15 million that will be invested in promising startups from 2025.

THREE PRIORITY AREAS

Provide access to water and waste services through resilient and innovative solutions

Ensure drinking water for all. While water is becoming scarcer, SUEZ is developing technologies at all stages of the water cycle to combat leaks and increase the efficiency of drinking water networks through digital technology, while creating new resources; this includes groundwater recharge, wastewater reuse and seawater desalination.

Ensure high-quality water. SUEZ makes water quality one of the priorities of its research activities. A pioneer in the analysis and treatment of micro pollutants, the Group is developing new processes to identify and eliminate complex pollutants such as PFAS and metabolites.

Going digital to sort more effectively. SUEZ is developing an ambitious digital strategy to avoid, reduce and better sort different types of waste and recycle it as much as possible in order to rise to the challenge of a more circular economy.

Create value over the entire life cycle of infrastructure, water and waste

Add value to more material. From recycling wind turbine blades to recovering value-added molecules in water, SUEZ is pushing boundaries to create and exploit the value contained in all waste, including the most complex kinds.

Decarbonise our activities and produce more renewable energy. Faced with rising energy prices and the need to reduce the carbon footprint of our activities, SUEZ is innovating to transform non-recyclable waste and sewage sludge into local, renewable energy that supports the ecological transition in local areas. SUEZ is also exploring technologies for capturing, storing and using CO₂ that will play a major role in achieving carbon neutrality.

Enable our customers to drive the ecological transition by involving users

Behavioural innovation to help users adopt better sorting habits and consume water more sustainably. SUEZ relies on sociologists and behavioural economics specialists to offer strong expertise in this field.

Contractual innovation to change our business models. In this way, we can work with our customers to reduce the waste and water consumption associated with our services. Embracing social innovation, as environmental stakeholders have a role to play in inclusiveness and ensuring that everyone is involved in sustainable development. SUEZ also promotes innovative financial models that combine public and private stakeholders, such as public private partnerships or SEMOPs, by extending this logic from construction to project operation and maintenance activities.

This press kit presents the most innovative SUEZ solutions, representing its various business lines and varied expertise.





INNOVATION IN FIGURES

60



new projects
per year

+50%



in the R&D and innovation
budget by 2027

10 à 20M€



per year invested
in Open Innovation

NEW STRATEGIC PRIORITIES



Innovation strategy refocused
on the group's 2 businesses:

Water and Waste



Waste reduction and recovery:

Budget x2

CO₂

Support for decarbonisation:

Budget x4

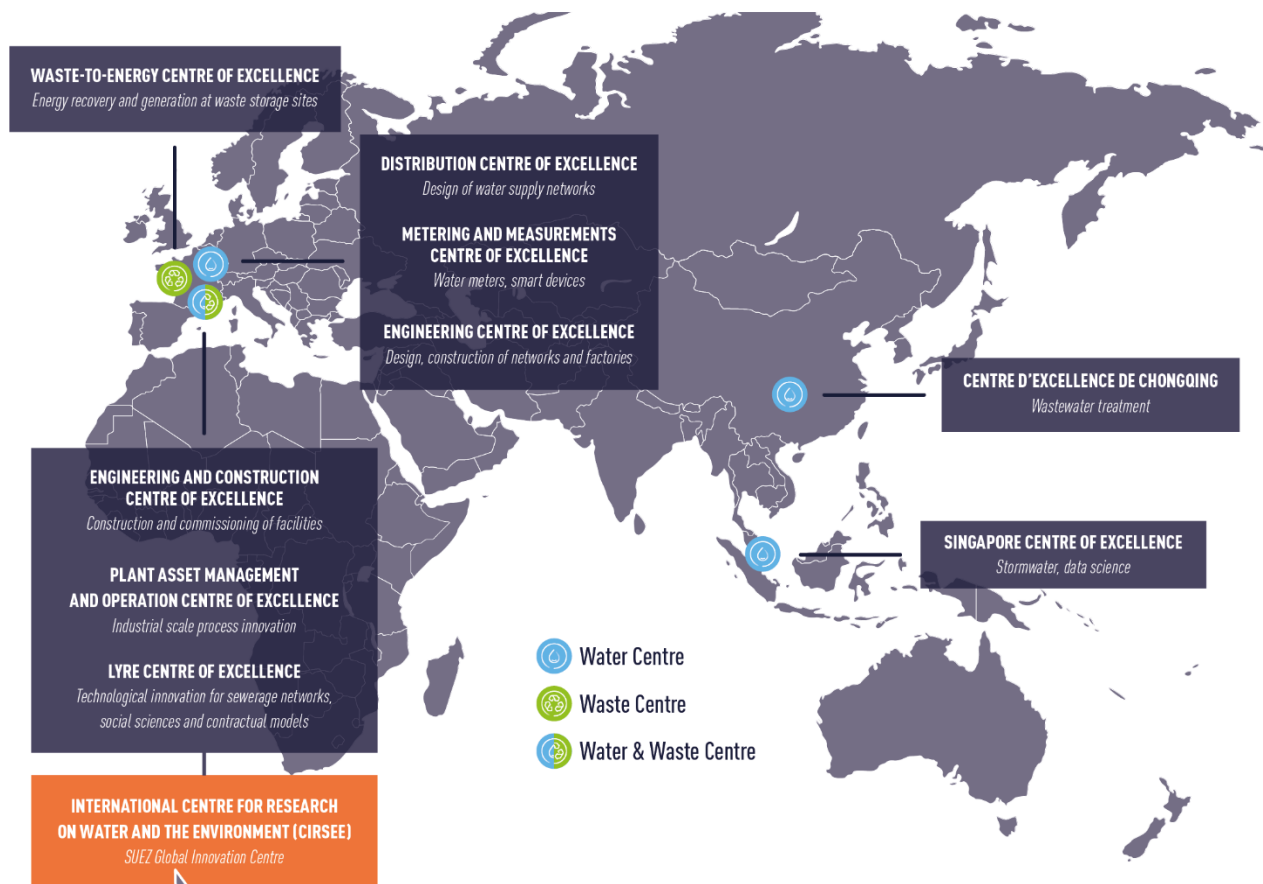


Target revenue for Digital:

x2



10 R&D AND EXCELLENCE CENTERS IN FRANCE AND IN ASIA



CIRSEE LE PECQ SITE
Research, technical support and analysis of water, materials and biology

CIRSEE CROISSY SITE
Experiments and pilot testing on semi-industrial scale units

MARBONNE BIORESOURCELAB
Organic waste recovery

CIRSEE: SUEZ GLOBAL INNOVATION CENTRE

- 120 employees
- 3 sites
- 7 research platforms: physico-chemical treatments for drinking water production (*TREATlab*), biological processes for wastewater treatment (*BIOPROCESSlab*), new plastics from recycled products (*PLASTlab*), ultrafiltration, nanofiltration and reverse osmosis membranes (*MEMlab*), sensors and monitoring solutions (*SENSORlab*), organic waste recovery (*BIORESOURCElab*), water-materials science for distribution networks (*PIPElab*).
- A cross-disciplinary team dedicated to health and environmental issues and 3 state-of-the-art laboratories for analysing water, materials and biology.

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- IR-SCAN, SNAC, MeMo, secret energy in our wastewater and waste
- SUEZ Biofactory, sewage treatment plants rich in resources!

NOTHING GOES TO WASTE – EVERYTHING IS TRANSFORMED: BRINGING NEW MATERIALS TO LIFE

- Brine Valorization, the circular recovery of critical raw materials from desalinated seawater
- Phosphogreen, producing biosourced fertilisers from wastewater
- Fibers-To-Sugar, transforming paper and cardboard into biofuel

CHANGING OUR BEHAVIOUR FOR MORE SUSTAINABLE USES

- Dem'Eau and Starwaste, behavioural innovation for more efficient uses
- Performance contracts, "next generation" contracts focused on efficiency
- Greater Manchester's Renew Hub, the largest reuse warehouse in the UK



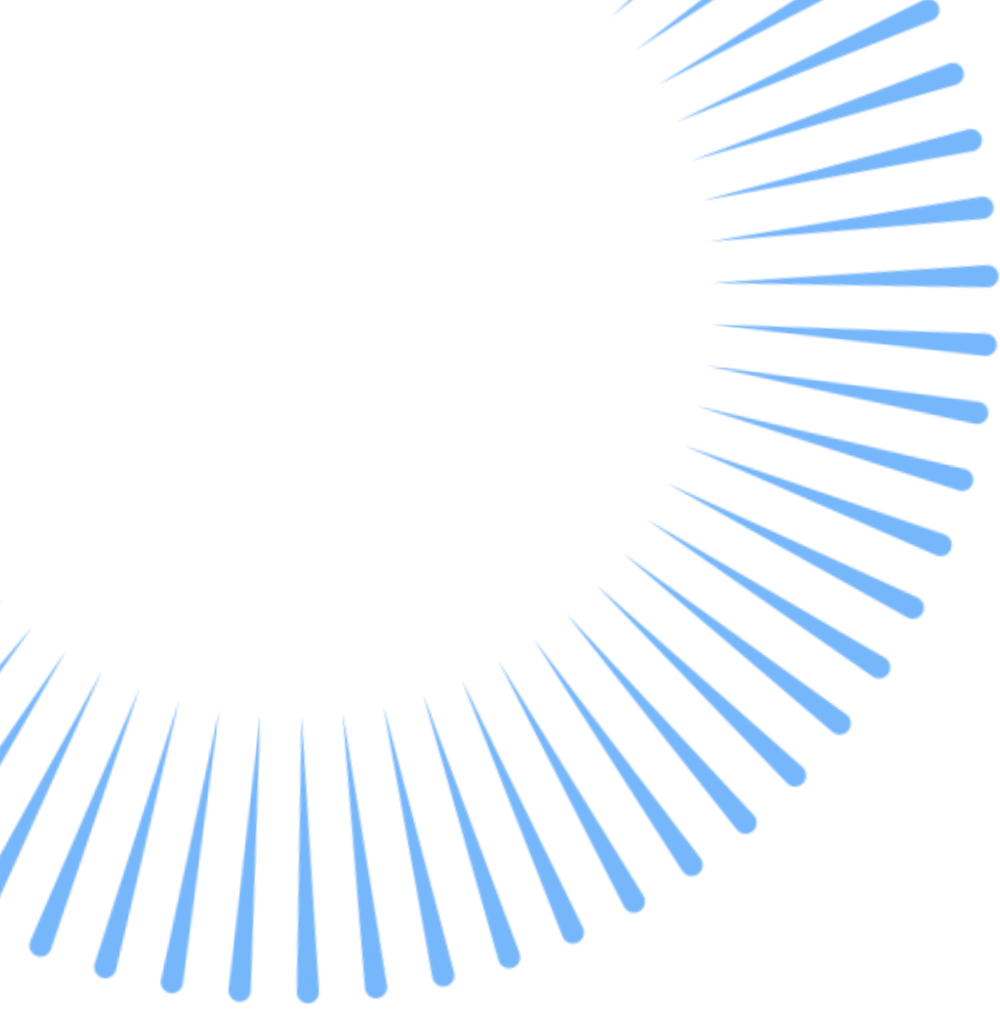




WATER

FIGHTING AGAINST LEAKS, SAVING WATER RESOURCES

PROTECTING WATER QUALITY FOR EVERYBODY'S HEALTH



ALGORITHMS: SMART SENSORS WITH EYES AND EARS IN DRINKING WATER NETWORKS



THE GOAL:

Vast quantities of drinking water are lost worldwide due to water leaks in networks. In France, according to the Professional Federation of Water Enterprises (FP2E), 20% of drinking water is lost every year. Faced with increasing droughts, every drop of water counts! Unfortunately, there is no universal magic formula to eliminate these leaks since each system has its own characteristics, whether rural or urban, cast iron or plastic etc.

Therefore, SUEZ offers and develops a wide range of "customised" solutions which draw on its varied expertise – digital, operational and technical – to ensure that the technology is adapted to the right place.

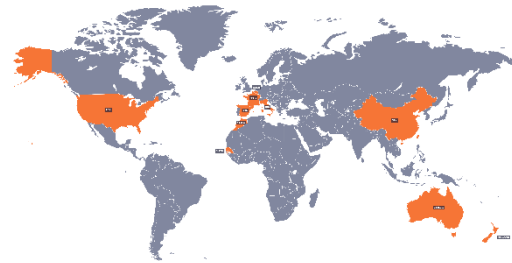
THE IDEA:

Detect and repair leaks as soon as possible: **AQUADVANCED® Water Networks** is a platform that relies on sophisticated algorithms and artificial intelligence to better detect abnormal situations in real time and locate leaks. Acting as a control tower in drinking water distribution networks, this solution cross-references, analyses and processes the data sent by sensors (flow rate, pressure, acoustics etc.) installed in the network to guide our operators on the ground to perform repairs as soon as possible.

In addition to connected fixed sensor solutions, SUEZ deploys mobile solutions, such as the **Pipers Ball**. This is sent into drinking water networks to inspect the pipes in situ and detect possible leaks via on-board sensors. Another solution used in plastic or low-pressure networks is **Idroloc**, which involves injecting helium into the network to detect surface traces using a robot.

WHERE IS AQUADVANCED® WATER NETWORKS IN USE?

This solution is currently being used in 10 countries.



In France, nearly 550 contracts have been signed. By way of example, L'Eau de Béziers Méditerranée halved its leaks in 8 years after installing **AQUADVANCED® Water Networks** and 900 fixed acoustic sensors. The efficiency of its distribution network* has improved significantly, increasing from 72% in 2013 to 82% in 2021.

**Network efficiency is the ratio between the volume consumed and that produced*

Invest in the right place at the right time:

AssetAdvanced® is a tool for optimising the management of water networks, enabling project owners, especially local authorities, to anticipate potential interruptions and target their investment choices where risks are concentrated. Combining artificial intelligence, materials expertise, and optimisation algorithms, it enables the condition of all networks to be mapped while calculating the risk level of each pipeline. However, it also predicts how their deterioration will evolve over time, based on field diagnostic data, weather forecasts and soil or water quality characteristics.

WHERE IS ASSETADVANCED® IN USE?

Over 30 studies have been carried out since 2018, in 7 countries and 3 continents.

In Singapore, SUEZ uses acoustic pipe condition assessment technology and data analysis to determine the condition of water pipes and prioritise the replacement of older or leaking pipes. It was set up across a network of 5,900 km of drinking water pipes. This technology has enabled significant savings in terms of investment and maintenance costs. More importantly, it helped reduce the total number of leaks per 100 km per year from 22 to 12 between 2015 and 2022.

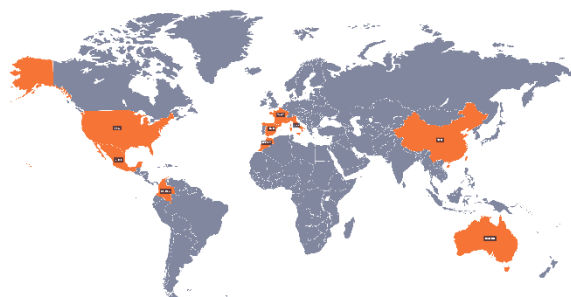
Increase the longevity of networks and avoid wear and tear: pressure in water networks poses the risk of accelerated ageing in pipes. The aim of the **Calm Network™** solution and its **AQUADVANCED® Water Networks** pressure management module is to provide better control of pressure and minimise its impact.

Using high-frequency pressure sensors, intelligent algorithms and remote valve or pump control systems, it reduces the mechanical stress experienced by networks and the flow of leaks. In fact, high pressures and sudden variations cause many breakages that could be avoided, saving

millions of cubic metres.

WHERE ARE NETWORK PRESSURE CONTROL APPLICATIONS IN USE?

More than 30 **Calm Network™** studies have been carried out since 2018 across the 5 continents.



In the Italian city of Arezzo, where almost 100% of the network is now pressure-controlled, the network pressure management solution has achieved the following reductions in 10 years:

- 70% in the pipeline failure rate;
- 77% in leak volumes.

THE IMPACT:

In 2022, of the 140,000 km of pipes managed by SUEZ worldwide:

Over **120,000**

leaks were detected and repaired by SUEZ teams (including 40,000 in France), i.e. 330 leaks per day!

65 million

m³ was saved between 2020 and 2022 on SUEZ contracts (i.e. the consumption of a city of 1.2 million inhabitants).

REVERSIBLE WELL, REUSE TREATED WASTEWATER, INCREASE THE AVAILABILITY OF WATER TO ENSURE A PERMANENT RESOURCE



THE GOAL:

SUEZ provides alternative water resources through innovative techniques such as **reversible well** to better manage groundwater storage and the **reuse of treated wastewater for new purposes**.

THE IDEA:

Reversible well for groundwater resources

Groundwater is a formidable natural reservoir of water. With droughts becoming increasingly frequent, climate change is undermining their natural recharge. Groundwater recharge, which has been widely practised for several decades in some countries, notably in France by SUEZ, aims to increase or maintain the right amount of stored water. This method helps to meet the challenge of water availability at any time of the year, without depending on the impacts of Climate Change. Water, which may come from rivers or from treated wastewater in some countries such as Australia, is infiltrated via a basin or by dedicated well. It is then recovered after being transferred into the water table via another facility.


Using this know-how, SUEZ promotes faster, more advanced technology known as **reversible well (ASR, Aquifer Storage and Recovery)**.

Depending on the season, this ingenious solution allows water to be injected into the groundwater and the water stock, built up during periods of water shortage, to be recovered from a single facility. The advantages of this technology are its restricted land take, since the technique doesn't require a basin and only a single well installation, and its low maintenance requirements since water flows in and out of the borehole limiting clogging.

WHERE IS REVERSIBLE WELL IN USE?

For eight years, the Adelaide water table in Australia, which is equipped with this **reversible well** solution, has been regularly replenished with treated wastewater from the Bolivar sewage treatment plant. This water is then used to irrigate agricultural land in the North of the city.

This solution will also see the light of day on the French island of Porquerolles, which is facing regular water shortages. In summer, the island is forced to import water by boat. In the coming years, the island will enjoy local water from a table with **reversible well**. In winter, the water table will be recharged with water via an underwater pipeline.



REVERSIBLE WELL, REUSE TREATED WASTEWATER, INCREASE THE AVAILABILITY OF WATER TO ENSURE A PERMANENT RESOURCE

THE IDEA:

Implement new applications suitable for treated wastewater

Innovation is about giving a second life to treated wastewater, which has long been regarded as waste. This treated wastewater from the wastewater treatment plant provides a sustainable, reliable, controlled, and available water resource.

With dwindling water resources leading countries to find new solutions, the use of this resource as an alternative to drinking water is becoming increasingly commonplace around the world. The treated wastewater can thus be used in applications as varied as agricultural irrigation, watering golf courses and gardens, and road cleaning.

THE IMPACT:

In Spain, 14% of the volume of this water is reused per year, 8% in Italy and 80% in Israel. In France, today only 0.8% of the total volume of treated wastewater is reused every year.

Did you know? The objective of the French water plan is to achieve 10% wastewater reuse by 2030.

WHERE ARE ITS NEW WASTEWATER APPLICATIONS IN USE?

In France, SUEZ has been reusing the Cap d'Agde wastewater to water the golf course for nearly four years, in addition to other resource conservation measures. This contract saves around 235,000 m³ of drinking water per year. Still in France, SUEZ operates 270 treatment plants with a population equivalent of over 10,000 and has around a hundred projects under study throughout the country.

Also, in Australia, SUEZ upgraded the Bonéo water recycling plant near Melbourne, increasing capacity by 50% to 31,200 m³/day and producing 16,000 m³/day of recycled water for agriculture and irrigation.

POLSOLUTIONS, THE ALGORITHM TO UNDERSTAND THE ORIGIN OF MICROPOLLUTANTS



THE GOAL:

Fighting micropollutants means first of all understanding where they come from.

The sources of lead, pesticides, and cosmetics micropollutants can be linked to specific activities including industrial and craft installations, farming and domestic consumption. And the likelihood of finding them in water depends on the natural characteristics specific to the area – soil composition, for example – and weather conditions such as rainfall.

Wastewater can help to better understand the origin of micropollutants. **PolSolutions** ambition is to draw on the dense network of SUEZ wastewater treatment plants in France and tap into their wealth of data to improve water quality.

THE IDEA:

Using artificial intelligence, this digital solution uses the analyses carried out by treatment plants to identify micropollutants present in wastewater, which include pesticides, metals, chlorobenzene, chlorophenols and more. **PolSolutions** uses an extremely rich database, covering more than 100 micropollutants studied at over 100 wastewater treatment plants!

PolSolutions makes this data "speak for itself". Thanks to an algorithm that processes and compares analyses, this tool can identify the emission source of each micropollutant for each site. **PolSolutions** is also a way of verifying whether the presence of a micropollutant is linked to natural conditions specific to the area.

THE IMPACT:

PolSolutions is designed to help communities better target and prioritise their prevention actions to better fight against micropollutants at the source.

It is a diagnostic tool that can also be used to measure the effectiveness of actions taken to reduce and eliminate a micropollutant in a given area.

WHERE IS POLSOLUTIONS IN USE?

The tool has been tested on the wastewater treatment plants of Montélimar, Amplepuis and Anse and can be deployed at the request of the local communities.





BETTER UNDERSTAND PFAS AND METABOLITES TO BETTER FIGHT THEM



THE GOAL:

In addition to its day-to-day monitoring, analysis and treatment activities, SUEZ carries out research and innovation to guarantee water quality and combat micropollutants – pharmaceuticals, industrials, pesticides etc. – whose chemical properties make them difficult to detect and eliminate. This commitment is essential at a time when regulatory requirements and social expectations regarding these issues are rightly high.

CIRSEE, SUEZ's global innovation centre, reflects this commitment with its state-of-the-art laboratory at the Pecq site and two technological platforms at the Croissy site, where it offers special water treatment resources. **TREATlab** is for physico-chemical treatments, such as adsorption, and **MEMlab** is for membrane processes. This complex spans 1,100 m², with equipment enabling SUEZ to identify the best solutions to eliminate pollutants.

As part of its action against micropollutants, SUEZ aims to advance the scientific knowledge of PFAS. As one of the primary stakeholders in the sector, SUEZ has embarked on a voluntary process to better understand the origin of these compounds and control the treatment of drinking water.

PFAS include thousands of chemical compounds found in various industrial and consumer products such as textiles, food packaging, fire-fighting foams, non-stick coatings, cosmetics, phytosanitary products etc.

THE IDEA:

As early as 2018, CIRSEE began structuring a **PFAS research and development programme** to develop SUEZ's capabilities in:

- Analytical expertise, with cutting-edge instruments and specific protocols to trace a wide range of molecules (more than 50 target molecules among the 4,000 compounds identified), both in drinking water, and in wastewater and leachates (residual liquid produced by rainwater and waste fermentation) on storage sites.
- Exploring various treatment solutions, with tests to evaluate the effectiveness of different treatments, such as adsorption on activated carbon or new materials, ion exchange and membrane separation by nanofiltration, and also reverse osmosis.
- Treatment control, from dosing reagents, to renewing activated carbons, to membrane operating conditions. Semi-industrial pilots are used to determine the optimum conditions for implementing the processes.



BETTER UNDERSTAND PFAS AND METABOLITES TO BETTER FIGHT THEM

In February 2022, a SUEZ **patent was published** for a digital solution that enables the optimal combination of processes to be defined according to the content and nature of the pollutants detected.

In addition, the partial degradation of pesticides in the environment leads to the presence of "metabolites" from these products, which can persist for decades. SUEZ has developed expertise in measuring these micropollutants (including for very low concentrations), their treatment and their elimination.

THE IMPACT:

Drinking water treatment solutions to eliminate pesticide metabolites and PFAS, accompanied by digital control tools for optimum, reliable process implementation. Since late 2022, SUEZ has been able to support communities in choosing the best technologies with expertise in integrating these solutions into their water treatment plants.

MULTIVIRUS CITY WATCH, WASTEWATER FOR PUBLIC HEALTH



THE GOAL:

Our wastewater reflects our lifestyles, so sanitation activities can be a valuable health monitoring tool for communities.

In order to better anticipate future large-scale epidemics, SUEZ has developed an innovative tool: **Multivirus City Watch**. One of the first solutions of this type on the market to outpace the European obligations to monitor viruses in wastewater, which could result from the future Urban Wastewater Directive.

THE IDEA:

During the health crisis, SUEZ developed the **Covid-19 City Watch** solution to detect the presence of viral genome in wastewater using molecular biology. A method for monitoring the circulation of the virus in a given population – including among asymptomatic individuals! A valuable tool for identifying and even anticipating infectious outbreaks.

SUEZ is now developing the innovation **Multivirus City Watch**, to help detect and monitor other epidemics including influenza, bronchiolitis, gastroenteritis and viral hepatitis. The solution is moving towards an automated on-site sampling and analysis system, developed in collaboration with startups.

Wastewater samples are taken at the inlet of treatment plants. More targeted monitoring can even be carried out for establishments hosting sensitive persons (retirement homes, nursing homes, schools, health-care establishments). During the health crisis, samples were taken from the wastewater reception pit of these establishments, before the connection to the collection network.

Analysed by SUEZ epidemiological experts, the results are then sent on a weekly basis to the communities, who may decide to refer the case to the health authorities.

THE IMPACT:

Covid-19 City Watch has been deployed in many communities in Europe, representing 14 million inhabitants. As an example, the solution helped to detect a sudden and significant increase in the genome of the Covid-19 virus in a municipality of Hauts-de-France in 2021. This led the city council and the health authorities to set up a free screening campaign and ban any public gatherings.

The **Multivirus City Watch** solution is now being tested across several wastewater treatment plants in France. The solution has helped to monitor trends in this winter's bronchiolitis, influenza and gastroenteritis epidemics.

WHERE IS MULTIVIRUS CITY WATCH IN USE?

The current experiments are taking place at the Denain, Toulouse and Dunkirk wastewater treatment purification plants.





WASTE

**TREASURE IN OUR RUBBISH: ARTIFICIAL INTELLIGENCE
AND WASTE RECOGNITION**

**SEPARATING THE INSEPARABLE: WHEN RECYCLING
ATTACKS COMPLEX MATERIALS**



AUTODIAG, THE SMART CAMERA THAT RECOGNIZES WASTE



THE GOAL:

From 15%
to 45%:

This is the percentage of sorting errors in the volume of waste collected and sent to sorting centres.

To ensure that our waste is correctly recycled, we need to sort it properly and group it together, including newspapers, packaging etc. Everyone is responsible for this at home, using the recycling bin. This sorting is then complemented by the work of the sorting centres, which narrow down the material by flow type: plastics*, paper and cardboard. The aim: to provide a material that is "ready to recycle", and as pure as possible.

In order to improve this process of classifying waste, SUEZ has developed the **Autodiag** solution.

THE IDEA:

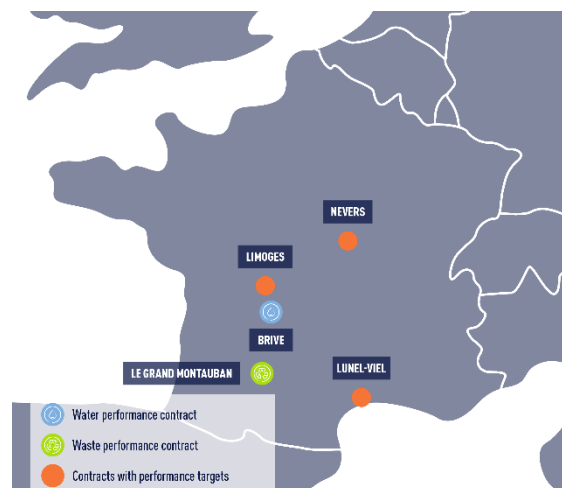
Using an arch equipped with a camera placed directly on the sorting table, **Autodiag** measures the quality of waste material in real time. How does it work? Algorithms, fed with labelled images of different types of waste, calculate the purity and uniformity of the different qualities of materials produced.

SUEZ, which operates 36 sorting centres in France, has drawn on a large database of waste images to feed the algorithms and increase the number of tests carried out directly in situ.

THE IMPACT:

Today, this sorting quality control is carried out manually and afterwards on a sample of waste. With this control carried out directly on the sorting line on a continuous automatic basis, there is a guarantee of greater efficiency and optimum reliability of results for all waste that passes along the line. **Autodiag** is now operational for plastic waste, with a success rate of around 98.5% in detecting incorrectly sorted waste, and will be operational by 2024 for paper, cardboard and plastic film.

WHERE IS AUTODIAG IN USE?



* PET (Polyethylene Terephthalate), HDPE (High Density Polyethylene), PP (Polypropylene)



QUALIWASTE UVE, THE COMPUTER VISION TO COLLECT AND RECOVER WASTE MORE EFFECTIVELY



THE GOAL:

18 %

This is the average percentage of waste that arrives at energy-from-waste (EfW) plants and whose material can be recovered, such as plastic or cardboard which can be recycled.

8,5 %

This the average percentage of unwanted waste that arrives at energy-from-waste (EfW) plants and has the potential to disrupt or hamper furnace operation, including mattresses, whole pieces of furniture, earth etc.

27 %

This is the percentage of waste that arrives at EfW plants but doesn't correspond to the type of waste reported by the contributor, including road waste, household waste, everything deriving from waste disposal etc.

The aim of QualiWaste UVE is to better identify and understand the nature of the waste arriving at EfW plants, so that all waste that can be recycled can be recycled. This solution is part of a programme launched by SUEZ in 2022 to exploit the potential of computer vision, algorithms and AI in various different waste management sectors (collection, waste collection centres, landfill sites, bio-waste treatment centres etc.).

THE IDEA:

With **QualiWaste UVE**, cameras are placed in the pit of the EfW plant to film the dumping of material by

waste-providing' trucks. The images are then sent to an algorithm that detects:

- The **type of waste brought**: Identifying waste in this way will ensure that it complies with what has been declared by the contributors and will increase its traceability.
- **Unwanted waste**. An alert system helps warn SUEZ teams and removes this waste using a grapple. This process enables unscheduled shut-downs of the furnace to be avoided and reinforces the safety of the site and the teams!
- **Recoverable waste**. This waste is reported on, with its presence being quantified to help contributors improve how the materials they deliver to waste-to-energy plants is sorted and direct them towards the right recycling channels in future.

THE IMPACT:

Today, the solution can identify almost 90% of unwanted waste and recoverable materials. And the algorithms, which are constantly being fed, are constantly improving!

WHERE IS QUALIWASTE UVE IN USE?

QualiWaste UVE is used the "OCTAV" EfW plant in Lunel-Viel (34). The solution was proposed as part of the response to the call for tenders to operate the site.



DID YOU SAY WIND TURBINE BLADES? NOW WE KNOW HOW TO RECYCLE THEM!



THE GOAL:

In Europe, first-generation wind turbines are reaching the end of their life. It is thought that by 2025, nearly 800 wind turbines on average will have to be dismantled every year, including 300 in France. This means that nearly 8,100 tonnes of blades will need to be recycled per year.

Composed of steel, concrete, aluminium, and copper, over 90% of wind turbines are now recycled. There are established recycling channels. Only blades made of composite material – mainly fibreglass and/or carbon fibre, resin, balsa (wood) and polyurethane foam – remain difficult to recycle.

SUEZ has been actively involved in structuring the wind turbine recycling and recovery sector for several years, and now offers a solution for recycling and recovering blades which was previously non-existent!

THE IDEA:

SUEZ is once again establishing itself as a key player in the circular economy by striving to offer a second life to composite, a complex material found in the blades. A new sector in which blades are recovered rather than incinerated or sent to landfill is emerging!

To this end, SUEZ has studied a unique process designed to separate the different blade composite materials efficiently and effectively.

- In the upstream phase, a sound wave system identifies each material contained in the blades and better targets it when cutting the blades.

- A grinding process is then defined according to the nature of the cut pieces.
- The ground elements are then sorted in a densimetric bath, i.e. any materials with a density lower than water float, while the others sink to the bottom of the tank. This process carried out at the SUEZ site in Norval (a recycling centre for mixed plastics and metal waste in Normandy, France) is used to separate the elements from electronic waste containing plastic.
- Once the materials have been isolated, the resin and fibreglass are separated.

Since 2020, SUEZ and other industrial partners and research centres have been collaborating on the ZEBRA (Zero Waste Blade ReseArch) project, led by the IRT Jules Verne R&D institute. The aim is to adopt an eco-design approach to the blades to make them easier to recycle.

THE IMPACT:

Thanks to this new solution, the Group can recover 99% of a wind turbine.

Did you know? Recycled blade materials of high purity quality can be used for other applications such as paint, concrete or new building materials. Furniture can also be made from recycled fibreglass. SUEZ works with startups in particular to manufacture slabs made of recycled material by incorporating fibreglass.

DID YOU SAY WIND TURBINE BLADES? NOW WE KNOW HOW TO RECYCLE THEM!

WHERE IS THE SOLUTION FOR RECYCLING WIND TURBINE BLADES IN USE?

Designed by SUEZ experts, the process is at the pre-industrial stage.



A slab for a level crossing made from a crushed wind turbine blade: Reprocover© resin + fibre glass.

PARKES CIRCULAR SOLUTION, WHEN CHEMISTRY PUSHES THE LIMITS OF PLASTIC RECYCLING



THE GOAL:

4 %

Is the amount of crude oil used to produce plastics.

In order to limit the carbon footprint of our consumption patterns, public authorities are raising their expectations regarding plastic recycling: the Packaging Directive in the European Union's Green Pact sets a recycling target of 55% for plastic packaging by 2030.

The **mechanical recycling** of plastic enables materials to be reused for the first time – waste is sorted, cleaned, and melted. Once transformed into flakes or granules, this plastic can be reused in the form of recycled raw material, saving virgin material and therefore oil.

By treating the nature of the material itself, **chemical recycling** will help to recycle waste that can't currently be recycled and which is incinerated or landfilled (trays, films, fibres etc.), and to produce recycled plastic equivalent in quality to that obtained from petrochemicals.

THE IDEA:

Parkes Circular Solution has been combining SUEZ, LOOP and SK GEO CENTRIC since 2020 in an industrial chemical recycling project for PET

(polyethylene terephthalate), one of the most commonly used plastics in food and non-food packaging, found in water bottles, shampoo bottles and also in textiles in the form of polyester.

The aim: To meet the growing needs of the European market for recycled PET plastic, thanks to innovative recycling technology, "depolymerisation"; this involves the extremely fine separation of the plastic resins ("polymers") to isolate molecules ("monomers"). These molecules are then purified before being polymerised in the same resin.

The first plant in Europe using this technology will be set up in eastern France, in the heart of Europe. SUEZ will contribute its expertise in the collection and preparation of plastic waste.

THE IMPACT:

Operating at low temperatures, the technology used by **Parkes Circular Solution** makes it possible to obtain 100% recycled PET equivalent to virgin material, even from low-quality plastic, which can be used for food packaging and is infinitely recyclable.

Representing an investment of EUR 440 million, the Saint-Avoid plant will produce 70,000 tonnes per year of recycled PET. It should save 360,000 tonnes of CO2 emissions a year compared with virgin PET plastic produced by the petrochemical industry.

PARKES CIRCULAR SOLUTION, WHEN CHEMISTRY PUSHES THE LIMITS OF PLASTIC RECYCLING

WHERE IS PARKES CIRCULAR SOLUTION IN USE?

The plant will be established in Saint-Avold. Construction work will begin in 2025, for commissioning in 2027.



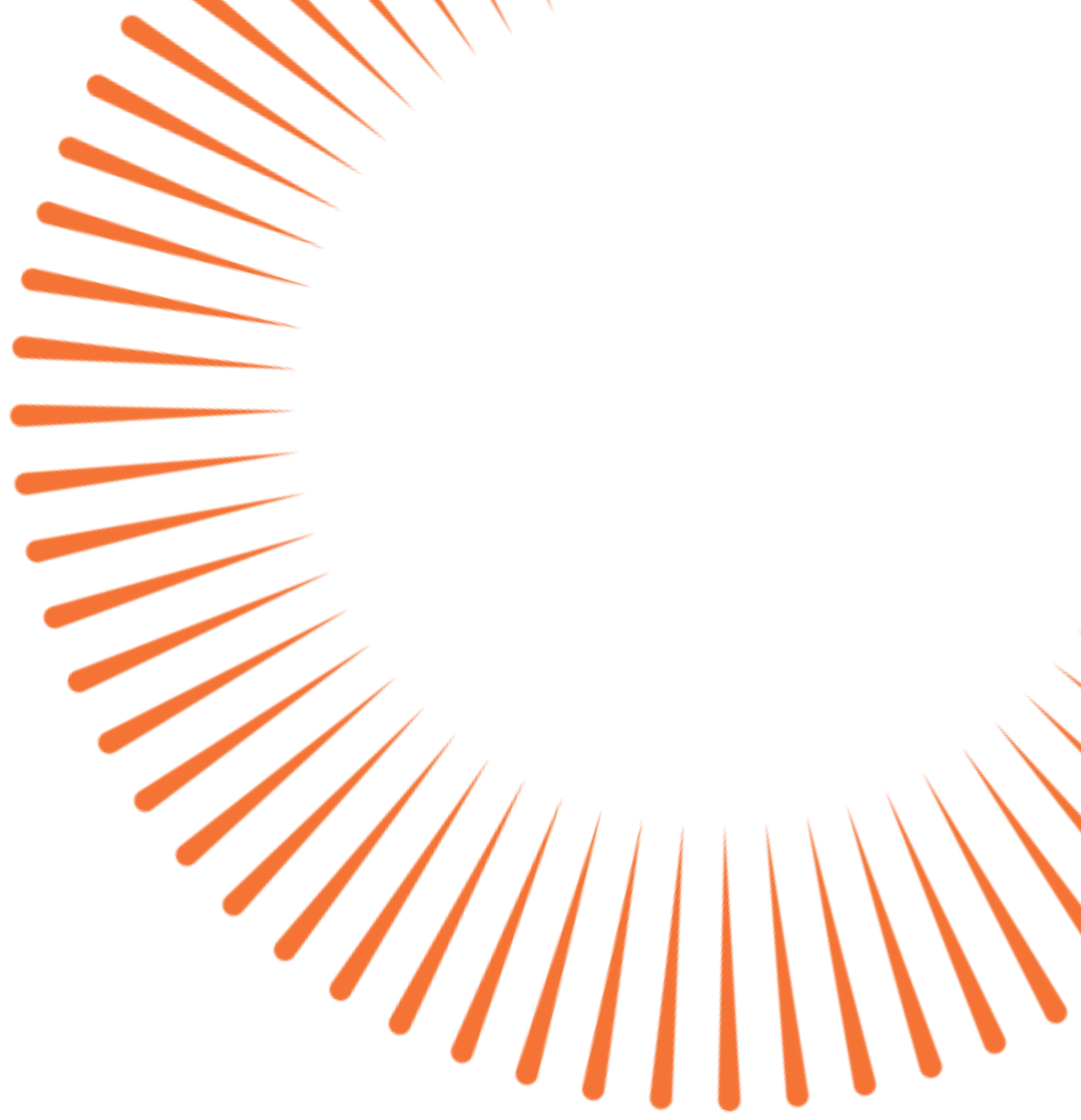


CROSS-CUTTING INNOVATIONS

DECARBONISING THE WATER AND WASTE SECTOR AND PROMOTING
RENEWABLE ENERGY

NOTHING GOES TO WASTE – EVERYTHING IS TRANSFORMED:
BRINGING NEW MATERIALS TO LIFE

CHANGING OUR BEHAVIOUR FOR MORE SUSTAINABLE USES



SUEZ TEES VALLEY, THE UK'S FIRST CARBON CAPTURE PROJECT



THE GOAL:

As well as setting targets to cut CO₂ emissions, the IPCC stated that achieving the Paris Agreement targets will require 2 billion tonnes of CO₂ to be captured and stored every year from 2030, and 10 billion tonnes every year from 2050.

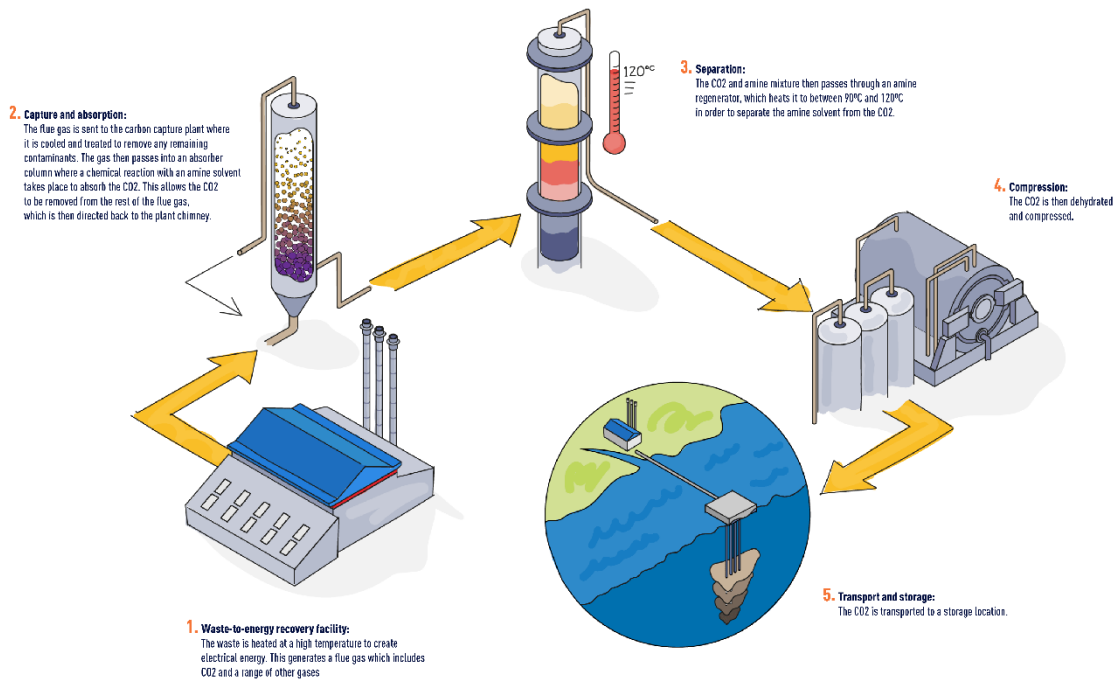
Our capacity for carbon capture is currently in the millions. So work must be done to design technology that can be industrialised and rolled out at scale.

As part of its 2023–2027 sustainable development road map, SUEZ is rising to the challenge. The Group will invest €40 million in R&D with a view to developing carbon capture and storage technologies that can be rolled out to energy-from-waste (EfW) facilities.

THE IDEA:

Carbon sequestration involves removing CO₂ from the atmosphere and storing it sustainably in ecosystems such as in oceans, biomass, soil and subsoil, to limit rising global temperatures.

In the UK, SUEZ is working on its first national project to capture and store the carbon emitted by waste incineration at its **SUEZ Tees Valley** energy recovery plant in Haverton Hill, which is scheduled to be in operation 2027–2030.



© SUEZ Recycling and recovery UK

SUEZ plans to develop a commercial-scale carbon capture plant at its Tees Valley site in Haverton Hill, Teesside, by 2027 - 2030. For the project, the Group is drawing on its expertise in energy recovery systems, combined with its technology partners' expertise in CO2 separation, transport and storage.

The captured carbon will be directed to a pipeline shared by various other sources of CO2 emissions to be collected and stored by the East Coast Cluster, which should be operational by 2027. The CO2 will then be transported over 145 km to an aquifer under the North Sea.

THE IMPACT:

- **240,000 tonnes of carbon captured** each year;
- A **90% reduction in fossil** CO2 emissions and sequestration of biogenic CO2 emissions;
- **100%** of the electricity and steam used by this plant will be produced by the existing waste-to-energy recovery plant.

WHERE IS SUEZ TEES VALLEY ?



BIOCHAR, 'BLACK GOLD' TO TRAP CO2 IN THE SOIL USING TREES



THE GOAL:

Faced with the climate emergency, capturing, storing and recovering excess CO₂ in the atmosphere is an essential mechanism for achieving carbon neutrality.

Made from forestry, landscape and agricultural residues, biochar is a highly promising material for capturing and sequestering carbon on a massive scale over at least a centurial permanency, in applications such as soil and construction materials. It has been identified by the IPCC as one of the most effective negative-emission solutions for curbing climate change at scale.

Today, development of the carbon credit market suggests that the proportion reserved for biochar will increase. It can be monetised on the international carbon offset markets (also called Voluntary market) by biochar-producing companies by selling these certified credits to companies and industrial players committed to carbon neutrality.

As a precursor, SUEZ aims to industrialise the production of a high environmental quality biochar, in order to develop and operate an industrial capacity that will contribute to decarbonize its corporate, industrial and municipal customers.

THE IDEA:

Biochar is a black powder obtained from the vegetal biomass pyrolyzed at high temperature between 500–600°C, without oxygen for a few minutes.

It is a powerful carbon sink, as it extracts and traps part of the carbon from unused biomass. In addition, biochar makes it possible to produce renewable energy, by generating excess energy in the form of steam or pyrolysis oil, which can be directly recovered on site.

Used as a soil amendment, biochar can also regenerate soils, limit the use of synthetic fertilizers which have significant greenhouse gas footprint, and preserve the use and quality of water resources.

THE IMPACT:

80%

Is the average carbon content of biochars set in stable form (sequestration beyond 100 years).

1 tonne of pure biochar can sequester the equivalence of 2.5 and 3 tons of CO₂ depending on the biomass origin, processing parameters and carbon content of the finish biochar.

WHERE IS THE BIOCHAR SOLUTION IN USE?

SUEZ experts began working on the potential of biochar from 2020. In 2021, the Group signed a commercial and strategic partnership with the Canadian pyrolysis equipment company AIREX ENERGIE. Joint projects to industrialise biochar production are expected to come to fruition soon in Canada and Europe.

IR-SCAN, SNAC, MEMO, SECRET ENERGY IN OUR WASTEWATER AND WASTE



THE GOAL:

Did you know that biodegradable waste from agriculture, the agri-food industry, food distribution, catering and our own kitchens, as well as sludge from wastewater treatment plants, are a tremendous source of abundant local energy which can replace fossil fuels? •

Using a natural biological phenomenon, methanisation involves fermenting sewage sludge waste in an oxygen-free reactor, known as an anaerobic digester. The process generates biogas, which can then be converted into heat, electricity or vehicle fuel.

Development of the methanisation of waste and sewage sludge is expanding rapidly thanks to its renewable energy potential. The European Commission has launched the "REPowerEU" initiative to develop the production capacity of biomethane, mainly from purified biogas, thereby increasing by 11 the quantity produced by 2030.

The material remaining after the methanisation process, called "digestate", can also be recovered as an agronomic product, either through direct application to the soil or after composting.

THE IDEA:

As a producer and operator of anaerobic digesters, SUEZ firmly believes that the production of energy from sewage sludge and organic waste can be further improved thanks to digital technology and artificial intelligence.

In 2022, the Group acquired the BioEnTech startup, which developed digital and analytical solutions for monitoring and optimising the operation of methanisation plants. Three solutions are currently on the market:

IR-SCAN®: Making the management of fermentable waste more reliable. This rapid characterisation method for organic materials to be digested enables their composition to be analysed and their methane production potential to be evaluated in a fifth of the time required for conventional biological analysis.

SNAC®: Making the digester operation safer. This smart micro-laboratory indicates the biological health of the digester accurately and enables potential malfunctions to be anticipated. In less than 1 hour (with no more than 10 minutes of manual handling), the operator is informed of the results via the associated web platform, which stores and restores the feed and analysis results over time.

MeMo®: Optimising the biogas production. This digital twin of the methanisation plant is a valuable decision support tool. It supports the operator by displaying the operating conditions in real time while monitoring and securing operations (sending alerts to anticipate risks), and provides recommendations for optimisation.

THE IMPACT:

This set of software and analytical solutions therefore aims to improve the performance of methanisation plants and reassures operators in their choices, based on operating data.



The BioResourceLab in Narbonne (France), is the SUEZ innovation platform specialised in organic waste recovery and leading research on methanisation.

WHERE ARE THE IR-SCAN®, SNAC® AND MEMO® TECHNOLOGIES IN USE?

These solutions have already benefited over 40 plants in France and abroad.

SUEZ innovations, expertise and know-how on methanisation are aimed at communities, companies and farmers who own (or plan to own) anaerobic digesters: urban or industrial water treatment plants, agricultural, territorial or urban digesters.

Methanisation by SUEZ in a few key figures:

- Over 110 million m³ of biogas produced each year by SUEZ's digesters, equivalent to 500 GWh/year.
- With biomethane being injected into the network, SUEZ has 24 plants under construction and 15 in operation.
- SUEZ operates the two largest biomethane production facilities in France at a wastewater treatment plant:
 - Toulouse Ginestous, 950,000 population equivalents, producing 35 GWh/year;
 - Marseille Sormiou, 1,820,000 population equivalents, producing 26 GWh/year.

By way of example: Since 2020, the Sausheim digester has been treating the sewage sludge of 490,000 population equivalents and, in 2022, produced 20 GWh of biomethane injected into the grid, i.e. the population equivalent of supplying a fleet of 78 buses with biofuel for a year.

SUEZ BIOFACTORY, SEWAGE TREATMENT PLANTS RICH IN RESOURCES!



THE GOAL:

SUEZ has defined a demanding and ambitious sustainable development roadmap for 2023–2027. Decarbonising the energy of the sites operated by the Group on behalf of its customers is one of its major climate commitments, as it aims to increase the proportion of renewable energy and production of energy and resources generated from wastewater activities.

THE IDEA:

SUEZ treatment plants are now able to do far more than just treat wastewater.

SUEZ Biofactories are transitioning from a traditional wastewater treatment plant model to wastewater treatment and recovery complexes based on state-of-the-art technologies.

These new plants can produce more energy than they need to operate, in the form of biogas that can be used in electricity, heat, fuel and natural gas. They are also able to recover some secondary raw materials from wastewater, such as phosphorus and nitrogen, which are then converted into fertilisers. **Treated wastewater can also be given a second life thanks to water reuse.**

This represents a perfect opportunity to give wastewater a second life and help reduce greenhouse gas emissions in the areas where these plants are located.

THE IMPACT:

Wastewater treatment plants are thus shifting from consuming energy and generating waste to supplying usable energy and resources.

WHERE ARE SUEZ BIOFACTORIES IN USE?

In Nice, Haliotis 2, the Nice Côte d'Azur metropolitan area's wastewater treatment and recovery complex, will be gradually developed from 2025.

It will treat sewage sludge and air quality, while also generating new renewable energy sources (biomethane, solar, heat and cold supply for buildings):

- **15,000 tonnes eq CO2** avoided each year from 2030 through the recovery of biomethane, dried sludge and treated water;
- Calorie recovery from treated wastewater, before it is discharged into the sea, to supply a heating and cooling network for the Grand Arenas district and the airport;
- **5 million cubic meters of water** reused per year.

BRINE VALORIZATION, THE CIRCULAR RECOVERY OF CRITICAL RAW MATERIALS FROM DESALINATED SEAWATER



THE GOAL:

95 %

of Earth's water is in seas and oceans.

Desalination is an effective solution which is already used to address the risk of drinking water scarcity in many countries. It guarantees water supply to regions, either permanently (e.g. in Middle East) or as a back-up solution in the event of droughts (e.g., in Australia).

The Group has several plants such as the Victoria plant in Melbourne, Australia, one of the largest reverse osmosis desalination plants in the world. In China, SUEZ is also supporting Wanhua Chemical Group in the design and construction of a seawater desalination plant using reverse osmosis for the manufacturers at the city's chemical park. Nowadays, desalination plants' rejects can also be reused. An increasing number of studies has been showing that critical raw materials (e.g. magnesium and lithium) can be extracted in large quantities from desalination concentrated brines.

Within this context, one of SUEZ's goals as a major player in desalination is to recover raw materials from brines to reuse them within circular economy schemes.

THE IDEA:

The **Brine Valorization** solution developed by SUEZ makes it possible to efficiently produce chemicals such as hydrochloric acid, sodium hydroxide or magnesium from desalination waste.

In the future, other materials such as lithium may be extracted.

THE IMPACT:

Preliminary results have already shown that this solution will have a strong societal and economical impact. Recycling these critical raw materials from brine limits discharges of this resource into the natural environment, and transforms waste into new resources which are directly useful inside desalination plants, but also externally:

- CO₂ can be extracted, recovered and used to meet the alkalinity requirements of the water produced.
- A better-quality fresh water can be produced by reusing a mineral mixture of calcium and magnesium.
- Extracted magnesium can be used to create integration with wastewater treatment plants or can be sold in external market such as flame retardants.

WHERE IS THE BRINE VALORIZATION SOLUTION IN USE?

Patented by SUEZ, the solution is entering in the latest development stage and it is expected to be commercially available in 2024.

PHOSPHOGREEN™, PRODUCING FERTILISERS FROM OUR WASTEWATER



THE GOAL:

Phosphorus plays an essential role in agriculture. Used as a fertiliser, however, this precious resource is running out on a global scale, at a time when population food needs are growing across the world

THE IDEA:

In order to preserve this resource, one approach developed by SUEZ experts is to repurpose it, by recovering it from wastewater and recycling it. This is the ambition of **Phosphogreen™**, an innovative circular solution.

Applied in the downstream phase of methanisation, the process involves injecting magnesium chloride onto the sludge from treatment plants to obtain the crystallisation of struvite, a mineral composed of phosphate, ammonium and magnesium. It is then extracted at the bottom of the reactor and washed, before being drained and subsequently marketed.

THE IMPACT:

Phosphogreen™ enables:

- Biosourced fertiliser rich in phosphorus fertiliser for agriculture to be produced.
- Greenhouse gas emissions associated with phosphate extraction and production to be reduced, by providing a second life to the resource.
- The risk of pollution in watercourses and aquatic ecosystems to be reduced

WHERE IS THE PHOSPHOGREEN™ SOLUTION IN USE?

The **Phosphogreen™** solution is implemented at the Marselisborg wastewater treatment plant in Aarhus, Denmark. The total struvite production ranges from 650 to 800 kg per day, and can be marketed as an agricultural fertiliser containing 12.5% phosphorus, 10% magnesium and 5.5% nitrogen. Today, this configuration means that 40–50% of the phosphorus present in water entering a wastewater treatment plant can be recovered.

In France, SUEZ is a pioneer, having built the first two industrial-scale phosphorus recovery units at a wastewater treatment plant: Mulhouse Sausheim and Villiers-Saint-Frédéric.





BRINGING NEW MATERIALS TO LIFE: NOTHING GOES TO WASTE – EVERYTHING IS TRANSFORMED

FIBERS-TO-SUGAR, TRANSFORMING PAPER AND CARDBOARD INTO BIOFUEL



THE GOAL:

Many manufacturers need to cut back on their use of fossil materials and energies by replacing them with renewable resources. By 2050, Europe should have achieved carbon neutrality, with an intermediate target of a 55% reduction in greenhouse gases emissions in 2030*.

Did you know? While they limit the use of fossil resources, most biorefineries today use food biomass, such as sugar cane, beet, maize or wheat, and therefore compete with human food.

In order to meet the challenges of sustainable development and food security, SUEZ experts are developing innovative solutions to produce biofuels from not well recycled waste, offering an alternative to the use of food crops.

THE IDEA:

In response to the need for second-generation sugar (*i.e.* from non-food biomass) for the production of ethanol or other biomolecules, SUEZ has developed the **Fibers-To-Sugar** solution in its BioResourceLab research centre which is part of the International Water and Environmental Research Centre (Centre International de Recherche sur l'Eau et l'Environnement — CIRSEE).

This innovation involves setting up an alternative to food sugar by developing a new recovery pathway for low-quality paper and cardboard waste, which is currently inadequately recycled. This solution does not, therefore, compete with the paper and cardboard recycling industry. Relying on biotechnology, the decomposition of cellulose contained in these types of waste produces sugar syrup which can then be transformed into various molecules of interest to the biofuel and green chemistry sector.

* 2030 Climate Target Plan

FIBERS-TO-SUGAR, TRANSFORMING PAPER AND CARDBOARD INTO BIOFUEL

THE IMPACT:

- Development of the **Fibers-To-Sugar** solution would:
- Direct Europe's 10 million tonnes of low-quality paper or cardboard waste towards an alternative waste recovery process.
- Limit the environmental impact of waste transport, operating locally, within a radius of 300 km – the equivalent of a French region. (In 2020, 1 million tonnes of low-quality paper and cardboard waste were collected in France, with over 60% exported to Europe and beyond¹);
- Use an environmentally friendly technological process: the **Fibers-To-Sugar** solution would have a lesser impact than traditional fuel and biofuel production chains based on food sugar.
- Offer maritime and aviation stakeholders a solution to reduce their carbon footprint in line with the European ReFuelEU Aviation and ReFuelEU Maritime regulations which encourage companies in the fossil fuel sector to incorporate biofuels into their uses.

WHERE IS THE FIBER-TOSUGAR SOLUTION IN USE?

This technology is now in the development phase on a semi-industrial pilot scale.



Low-quality paper waste stream



Sugar syrup that can be converted into a wide range of value-added molecules



Numerous applications

* COPACEL (Union Française des Industries des Cartons, Papiers et Celluloses)

¹ Source: COPACEL (Union Française des Industries des Carton, Papier et Celluloses - French union of card, paper and cellulose industries) 

DEM'EAU AND STARWASTE, BEHAVIOURAL INNOVATION FOR MORE EFFICIENT USES



THE GOAL:

Behind every litre of water consumed and every piece of waste produced, there is a user. SUEZ has developed strong expertise in human, social and behavioural sciences within the Lyre research centre (sociology, behavioural economics, social psychology etc.) to understand users and their expectations, analyse their knowledge of the water cycle and recycling issues, and identify practices that need to be changed.

Key figure: According to an OpinionWay survey carried out for "Les Echos" and Citeo in 2021, "52% of French people feel that they are not fully aware of the importance of recycling".

THE IDEA:

The Dem'Eau programme to construct a comprehensive range of "water saving" products, tailored to the practices of each user category and the realities of each region. Since December 2022, SUEZ has been evaluating the water savings enabled by different solutions for several user categories in various French towns and cities. These include residential customers, schools and tourist establishments, tertiary buildings etc.

In the agglomeration of Brive, where Dem'Eau follows individual practices, the solutions tested include "nudge" actions, using behavioural levers such as loss aversion or social norms.



Drawings from user workshop held in Brive on 26 April 2023. Picture on the left: "Your neighbour uses 30% less water than you". Picture on the right: "Postcards to raise awareness". Credit: NF ÉTUDES/KIDS

An incentive communication kit was created from workshops with citizens. The programme also provides for the widespread deployment of On Connect Coach, which offers users personalised advice and comparisons with similar household profiles to help them control their water and energy consumption, via an online space and a mobile app. This has meant that 7 water-saving devices will be implemented in more than 16,000 households, an unprecedented initiative on this scale in France.

After a usage study phase until April, the solutions will be tested from June to December 2023. Water savings assessments will be based on remote sensing data, in collaboration with LyRE data scientists and a researcher from the Bordeaux Mathematics Institute.

DEM'EAU AND STARWASTE, BEHAVIOURAL INNOVATION FOR MORE EFFICIENT USES

THE IMPACT:

In Brive, the first work carried out as part of Dem'Eau identified that:

- 50% of the population surveyed don't know where the water comes from and 50% think there is an abundance of water in the region.
- 6 in 10 inhabitants take showers lasting more than 5 minutes, and 23% of inhabitants in the metropolitan area never reuse water from other activities (rinsing vegetables, cold water when starting a shower etc.).
- Having a garden increases a household's annual consumption by 5 m³, all other things being equal, and having a swimming pool increases it by 23 m³.

WHERE IS DEM'EAU IN USE?

The actions are tested on the Agglomération de Brive (private users), Bordeaux Métropole (tertiary administrative buildings), Agde (tourism professionals) or the Communauté d'agglomération du Pays de Grasse intercommunal structure (private users, with a focus on the use of gardens and swimming pools).

The Starwaste programme to support the "*jeter moins, trier mieux*" ('throw less, sort better') initiative. In January 2023, SUEZ launched this programme to use several pilot territories to measure the impact of prevention actions favouring waste reduction and improved sorting measures.

This programme will make it possible to measure the impact of "smart waste meters" deployed from September for the benefit of 16,000 inhabitants of the Grand Montauban.

With an electronic chip installed on waste bins, these smart bins use the "My Waste Service" app to inform user of the volume of their waste and their distribution (organic, household, recyclable), but also to compare this data with national and local benchmarks.

WHERE IS STARWASTE IN USE?

Several prevention actions will be tested on: Le Grand Montauban (buildings), Dijon métropole (buildings), Bordeaux Métropole (merchants) and several communities in Occitanie (tourists).



PERFORMANCE CONTRACTS, "NEXT GENERATION" CONTRACTS FOCUSED ON EFFICIENCY



THE GOAL:

15 %

this is the target for reducing household waste per capita by 2030, established in France by the AGECE (no waste for a circular economy) law of 10 February 2020.

-10 %

abstraction from water resources by 2030: this is the target set by the government's water plan in March 2023.

Less water consumed and less waste produced: this transformation of uses involves rethinking the economic models of our two markets.

For several years now, SUEZ has been a pioneer in devising and implementing new types of contract based on efficiency targets: **performance contracts**.

THE IDEA:

The contract signed at the end of 2021 with the **communauté d'agglomération du Grand Montauban** is the first household and similar waste performance contract in France. It includes a waste reduction target of at least 10% by 2028, including mainly bulky waste (-35%), green waste (-15%), residual household waste (-12%) and selective packaging collection (-2%).

In order to achieve these objectives, SUEZ and Grand Montauban have implemented several innovative solutions since 2022: pulping/shredding green waste at home (300 operations and 26 tonnes crushed), collecting bulky waste at home to keep it in good condition and allow its reuse and the distribution and installation of more than 200 composters.

The **contract signed with the Bassin de Brive in 2021** was the first in France relating to water efficiency, which links SUEZ's remuneration to the annual decrease in volumes. It lays forth an ambitious goal: a 21% reduction in the amount of water drawn from the natural environment within 7 years.

How does it work? By combining SUEZ's expertise in the area in terms of detecting and repairing leaks on networks, but also in communication and user awareness. Reducing volumes of water and waste involves helping users adopt more sustainable practices. SUEZ's strong expertise.*

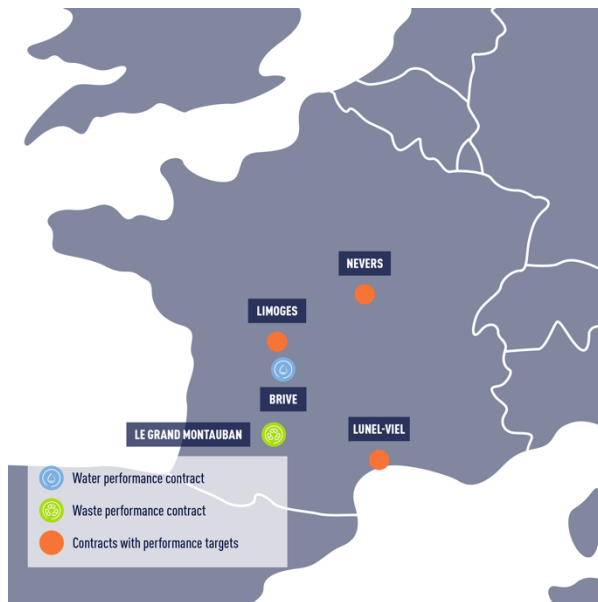
THE IMPACT:

Operational since 1 January 2022, the Grand Montauban contract has made it possible to reduce the volume of bulky substances collected in one year by 31%, green waste by 17%, household waste by 7% and packaging by 5%.

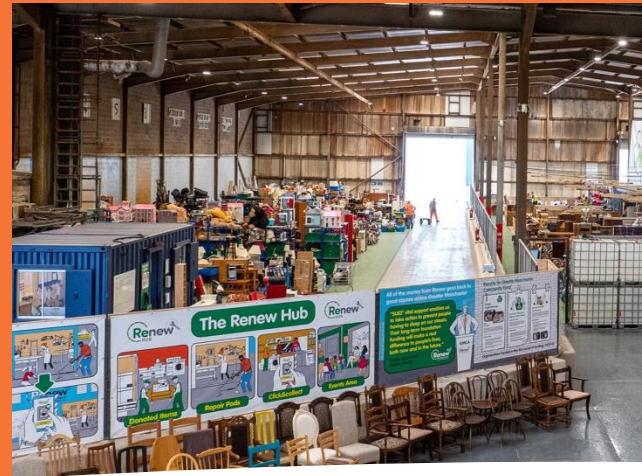
*See "Dem'Eau and Starwaste, behavioural innovation for more energy-efficient uses" sheet

WHERE ARE THESE PERFORMANCE CONTRACTS IN USE?

- Grand Montauban (waste),
- Bassin de Brive (water)
- Contracts with performance targets also exist in Limoges Métropole (waste), Nevers Agglomération (autumn 2023), Lunel-Viel (waste)



GREATER MANCHESTER'S RENEW HUB, THE LARGEST REUSE WAREHOUSE IN THE UK



THE GOAL:

By being present all over the country, intimately involved in people's day-to-day lives, environmental services can play an important role in inclusion. This is why SUEZ has made social innovation a key distinguishing factor in its range of services.

In France, SUEZ relies notably on Rebond Insertion, a social enterprise and subsidiary of SUEZ which offers environmental services by employing disadvantaged people. These include long-term jobseekers, welfare recipients, refugees, disabled workers, young people with no qualifications etc. Created in 2002, Rebond Insertion has employed more than 11,000 people, nearly 7,500 of whom have been able to find lasting employment or training leading to qualifications. In 2022, Rebond Insertion generated more than EUR 15 million in turnover and employed nearly 800 employees on social integration schemes sorting waste, collecting cardboard in town centres, and cleaning up urban areas.

SUEZ is also pursuing this social innovation approach internationally.

THE IDEA:

The **Renew Hub** is the largest United Kingdom area dedicated to re-use (5000 square metres), launched in 2021 in partnership with the Greater Manchester Combined Authority (GMCA) and 9 local authorities in Greater Manchester.

The **Renew Hub** offers a new lease of life to items collected from the inhabitants of Greater Manchester in donation containers found in recycling centres – toys, bicycles, furniture, bric-a-brac etc. – before being resold in three different shops. Since the summer of 2022, the **Renew Hub** has also offered a "click & collect" system via an eBay store page.

Some Hub items are given away free of charge to charities that support disadvantaged people.

Favouring the repair, restoration and resale of recovered items means avoiding unnecessary waste.

GREATER MANCHESTER'S RENEW HUB, THE LARGEST REUSE WAREHOUSE IN THE UK

THE IMPACT:

130 000

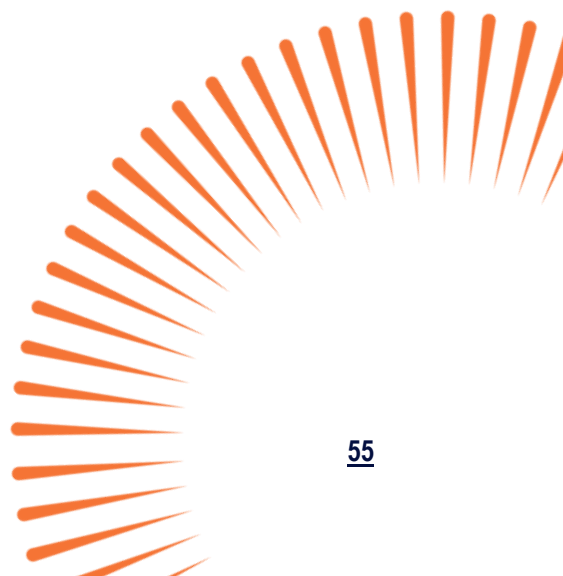
items sold in stores or via the eBay page, and more than 20 jobs have been created since the launch of the [Renew Hub](#)!

Hub repair activities are carried out in partnership with SSE actors, such as Recycling Lives, which organises an eight-week programme for former detainees to provide experience and skills and help them to reintegrate into society.

The [Renew Hub](#) pays GBP 100,000 each year to the Greater Manchester Mayor's Charity, which fights against homelessness, and GBP 220,000 to the Recycle for Greater Manchester (R4GM) Community Fund, which focuses on reducing waste, increasing recycling and re-use. Through these donations, the [Renew Hub](#) helps to finance 46 organisations pursuing social and environmental goals.

WHERE IS RENEW HUB IN USE?





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 2022, SUEZ provided drinking water for 68 million people worldwide and sanitation services for more than 37 million people. The Group generated 3.7 TWh of energy from waste and wastewater, and avoided 4 million tons of CO2 emissions. In 2022, SUEZ has generated revenues of 8.8 billion euros*. For more information: www.suez.com/ Twitter @suez

*restated on a 12-month basis

Find all the news of the SUEZ Group
on the [website](http://www.suez.com/) and on social networks



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